

Full Electric Mini Excavator Eurocomach 15 X



15 X



THE ZERO EMISSION 15 X



15X

Foldable canopy (optional
FOPS ABS cover)

Electro-proportional controls
and on board display

Boomm / dipperstick
same as 14SR

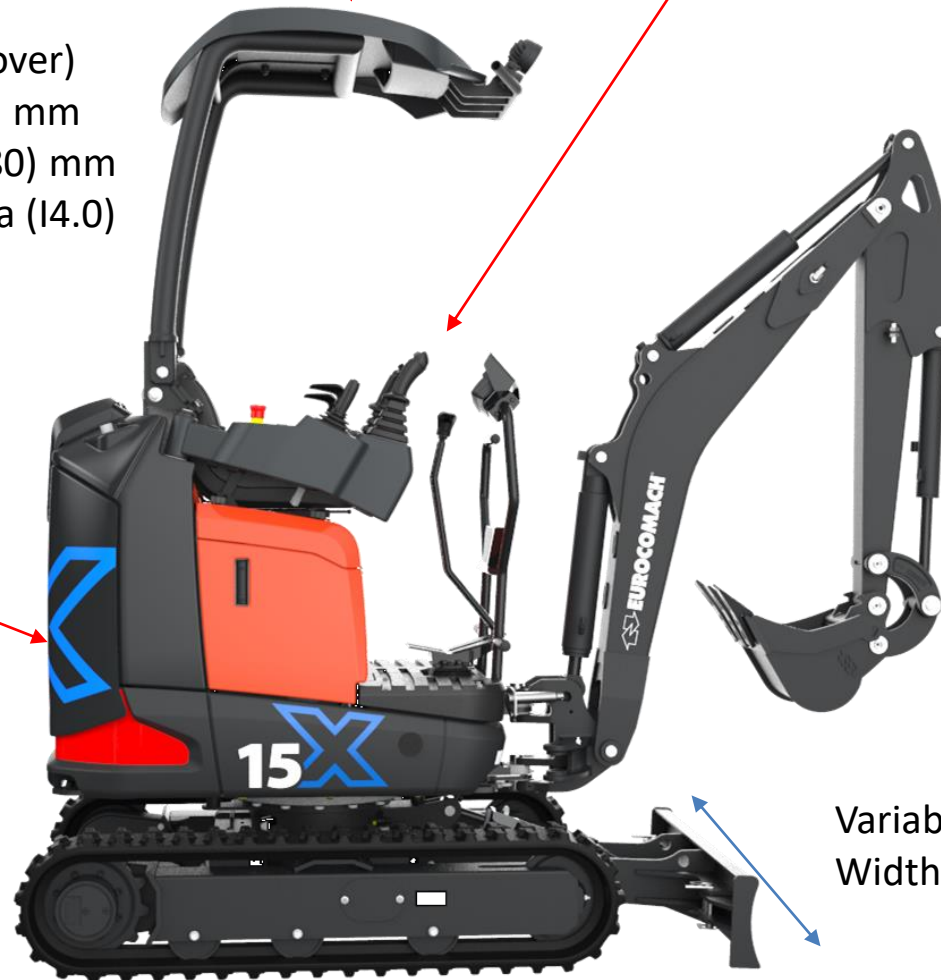
Boom = 1550 mm
(std), 1460 mm (opt)

Dipperstick = 1020 mm
(std), 900 mm and 1150
mm (opt).

Variable track gauge:
Width min 790 mm – max 1050 mm

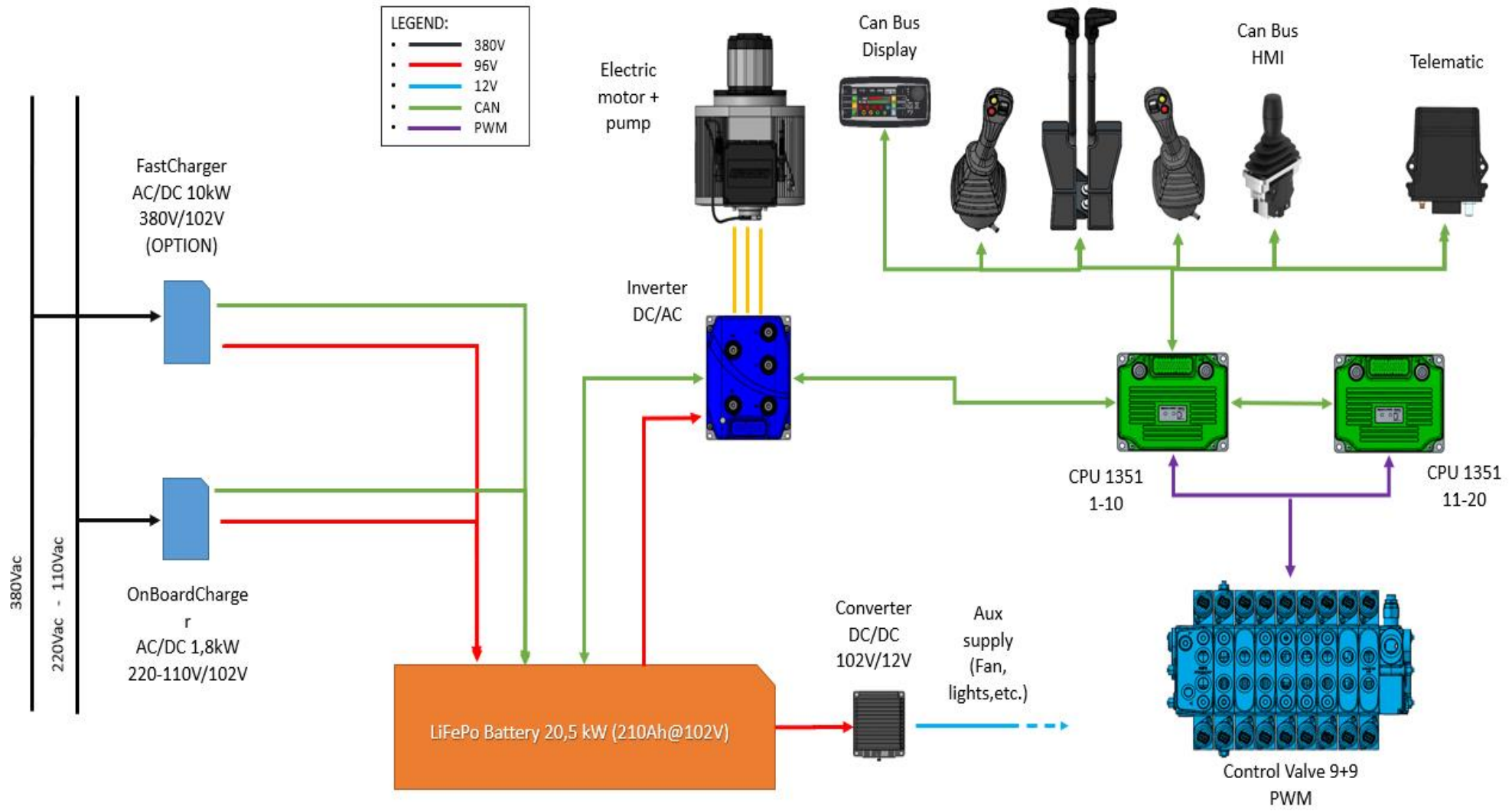
Lithium battery 21,5 kWh

Undercarriage :
same as 14SR



15X

LOGIC SCHEME:

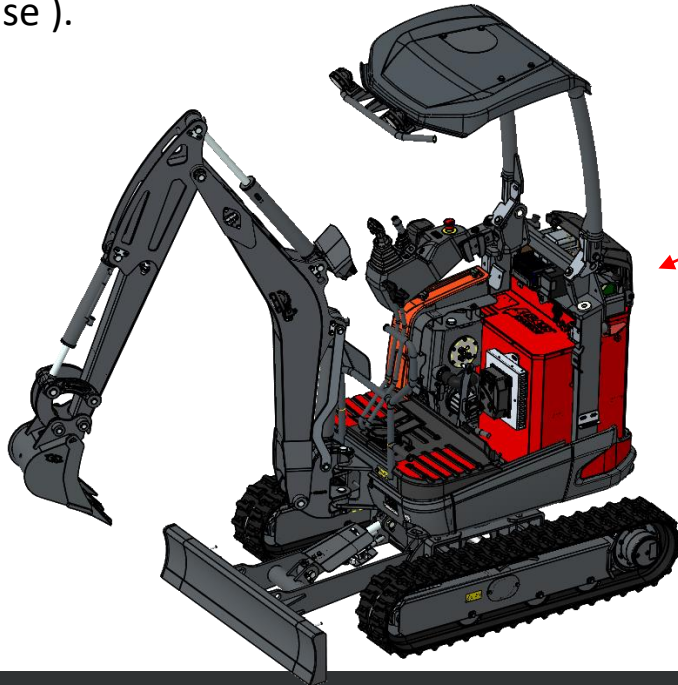


15X



BATTERY CHARACTERISTICS :

- 21.5 kW battery of which 80% available to the operator (17.2 kW net). The nominal 102 V voltage allows to deliver power by limiting the current in circulation and therefore energy losses.
- LiFePO4 battery chemistry - stable in performance throughout the life of the machine.
- Autonomy related to use: 4,0 h (intensive continuous use). 8,0 h (standard use).



Lithium battery
21,5kW

15X



BATTERY CHARACTERISTICS :

- Weight of the battery : 208 Kg.
- Installed on vibration dampeners, protected from possible impacts. No component is vibrating while working.

WORKING TEMPERATURES :

- With external temperature between 0 ° C and 50 ° C, optimal battery function, no limitation of charge and discharge.
- With external temperature below 0 ° C, the battery has an internal (automatic) resistor system to bring its temperature above 0° C in a few minutes.

Discharge: immediately allowed, but with reduced performance till when the battery gets the right temperature ($> 0^{\circ} \text{C}$).

Recharge: when connecting the charger, initially the energy drawn from it is used to bring the battery pack to the right temperature ($> 0^{\circ} \text{C}$), then it starts to charge.

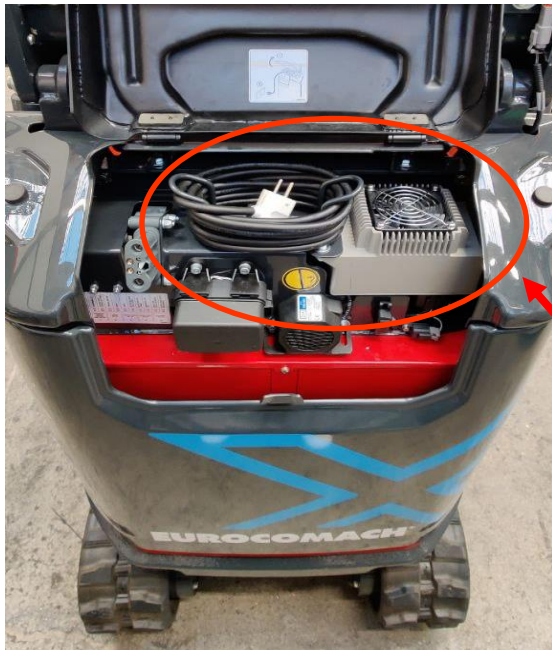
- With external temperature higher than 50 ° C the battery goes into protection, the functions are enabled but limited.

15X



CHARGING CHARACTERISTICS :

- 220V ON-BOARD recharge with absorption of 1.8 kW (domestic) from the grid. Standard on the machine, it recharges 100% in 10h.
- 380V FAST recharge. Optional through our external battery charger it recharges 80% in 1.0h (100% in 1.5h).
- **It is NOT possible to work with the chargers connected .**



FAST charger 380V
(optional)

ON-BOARD charger
220V standard
(domestic plug)



CHARGING CHARACTERISTICS:

N	STD/OPT	ON/OFF BOARD	SUPPLY VOLTAGE [V]	SUPPLY POWER [Kw]	TIME TO FULL CHARGE [h]	GRID CHARACTERISTIC
1	STD	On-Board	220 – 110	1,5 – 1,2	11 – 14	Home
3	OPT	Off-Board	380	10,5	1,5	Industrial
4	OPT	Off-Board	380	15,0	1,25	Industrial

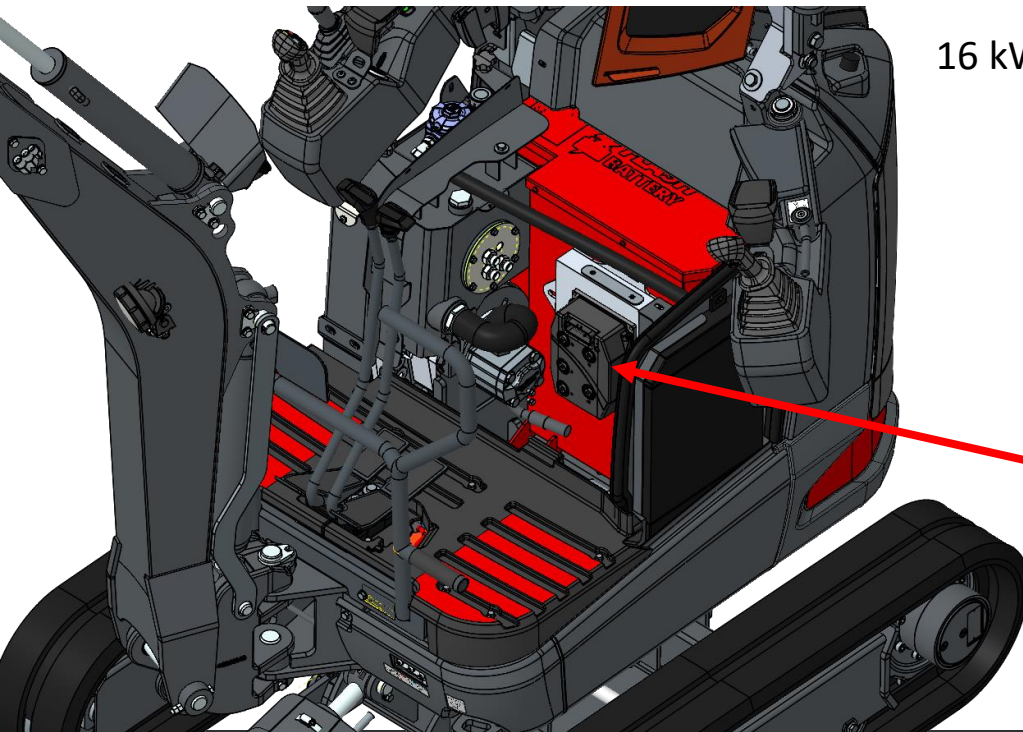
- The chargers can be used in all the electric range

15X

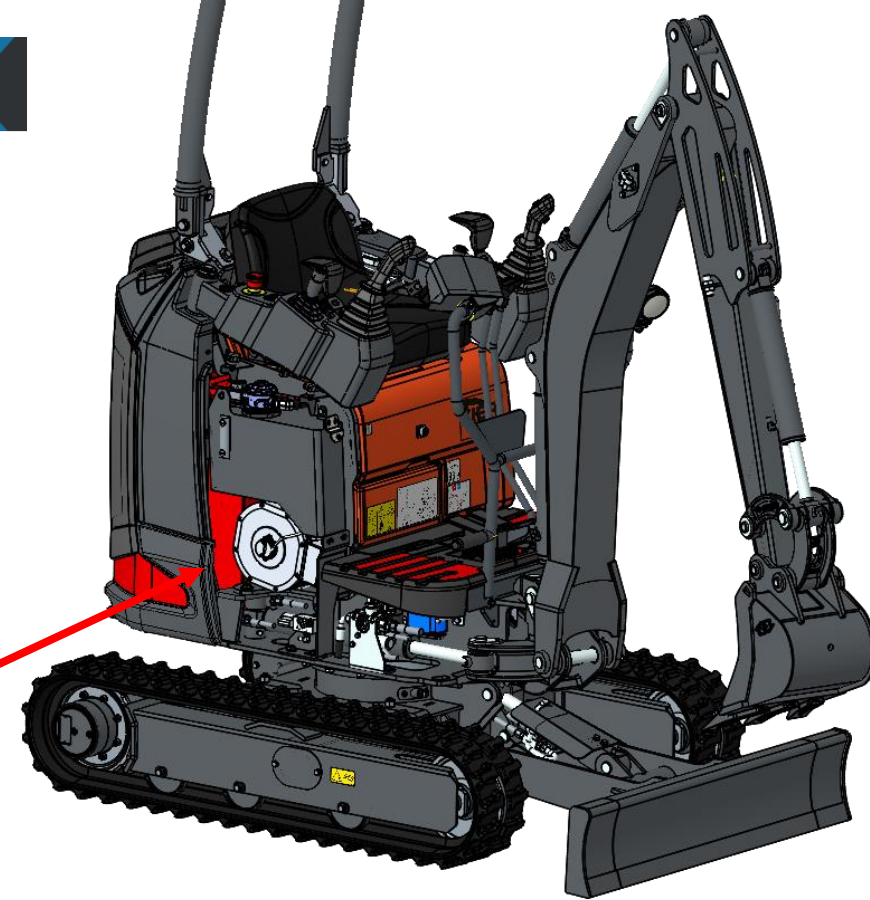


ENGINE PERFORMANCES:

- Compact electric engine with IPM technology (Internal Permanent Magnets). Peak power of 16 kW - peak torque of 86Nm. Thanks to the electronic control, the engine only moves when the operator requires power by acting the controls. If the operator does not move the controls, the energy consumption is zero. Cooling is by air flow.



16 kW engine



Inverter: it receives 102V direct current from the battery and transforms it into alternating current, powering and controlling the electric engine.

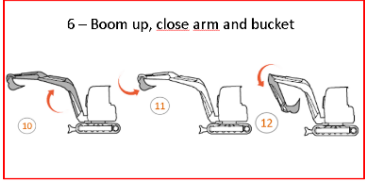
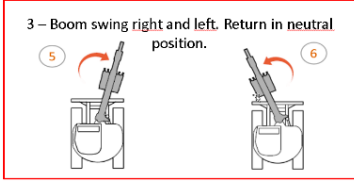
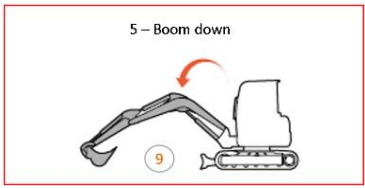
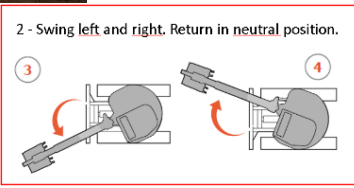
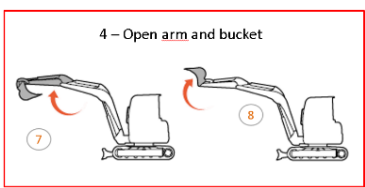
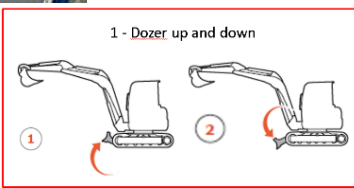
15X

VALIDATION PROCESS:

- Automatic bench-test: endurance test (more than 300h in 6 weeks)



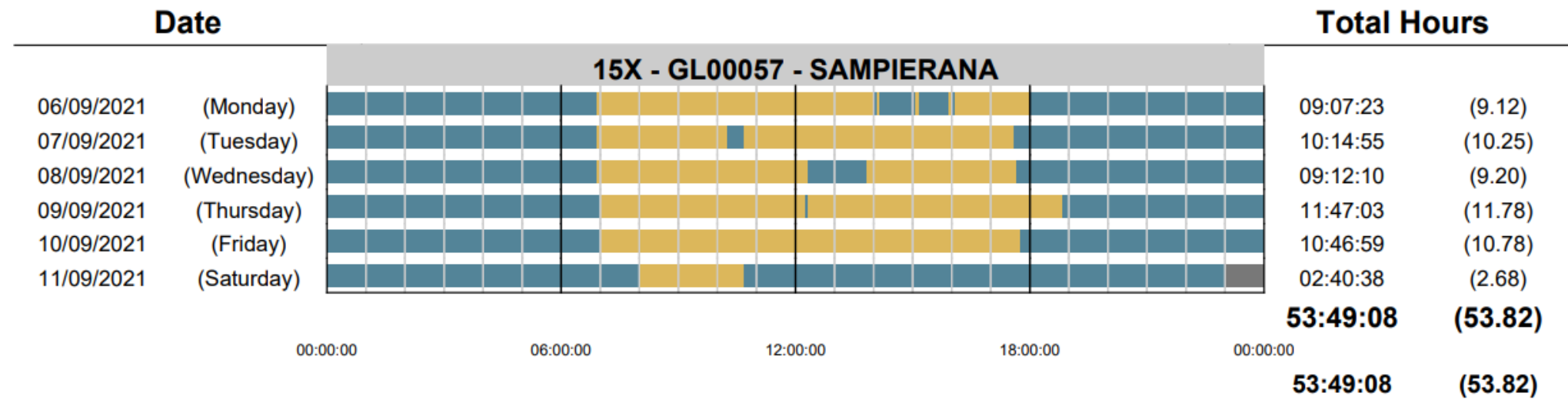
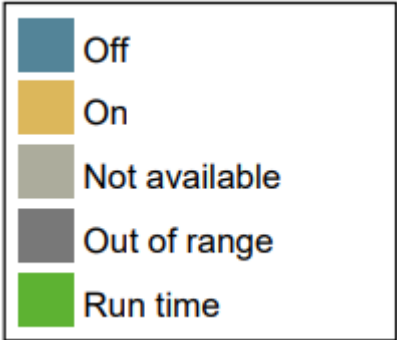
- Automatic test with defined cycled as the sequence below. Continuative use.



15X

VALIDATION PROCESS:

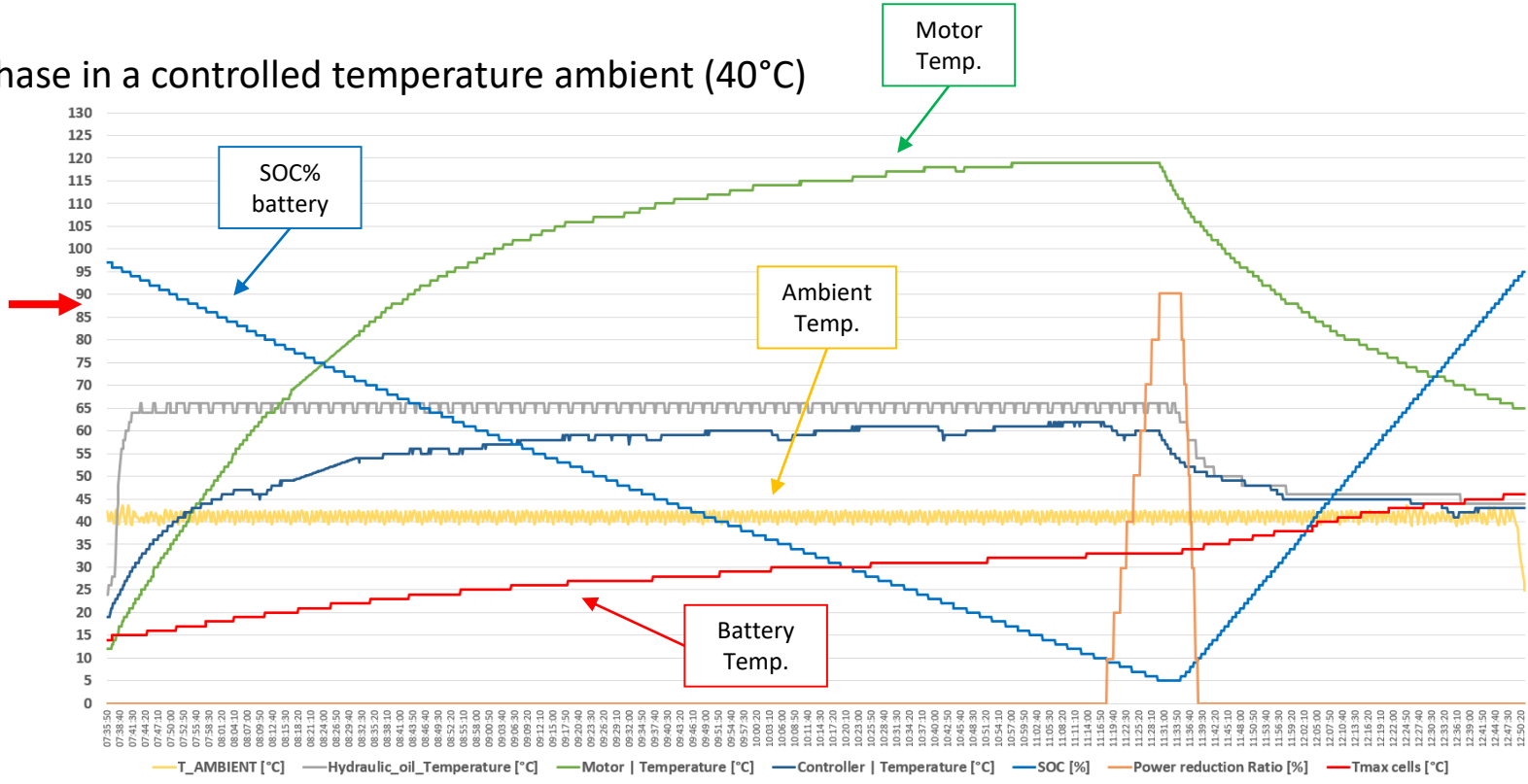
- Automatic bench-test: typical weekly workload (50 h)



15X

VALIDATION PROCESS:

- Discharge and charge phase in a controlled temperature ambient (40°C)

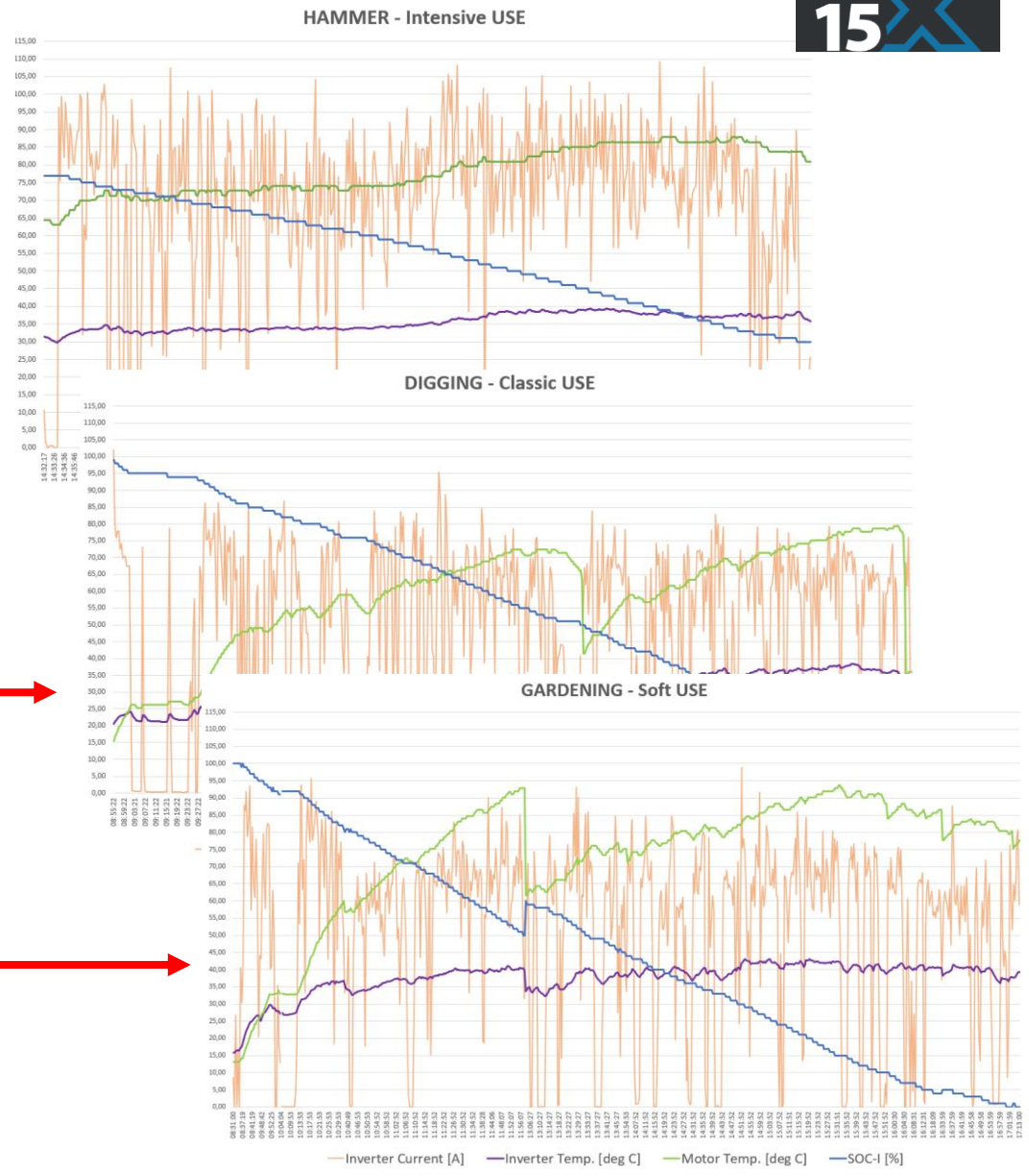


- Test in a high temperature controlled chamber:
 - Discharge phase. Automatic cycle from 95% to 5% of state of charge. Totally 4 hours.
 - Charge phase. Fast charge used from 5% to 95% of state of charge. Totally 1:15 h.
 During the entire test (5:15 h), there were not alarm or de-rating (Inverter, Motor, battery...).

15X

VALIDATION PROCESS:

- Field tests: definition of the different user profiles



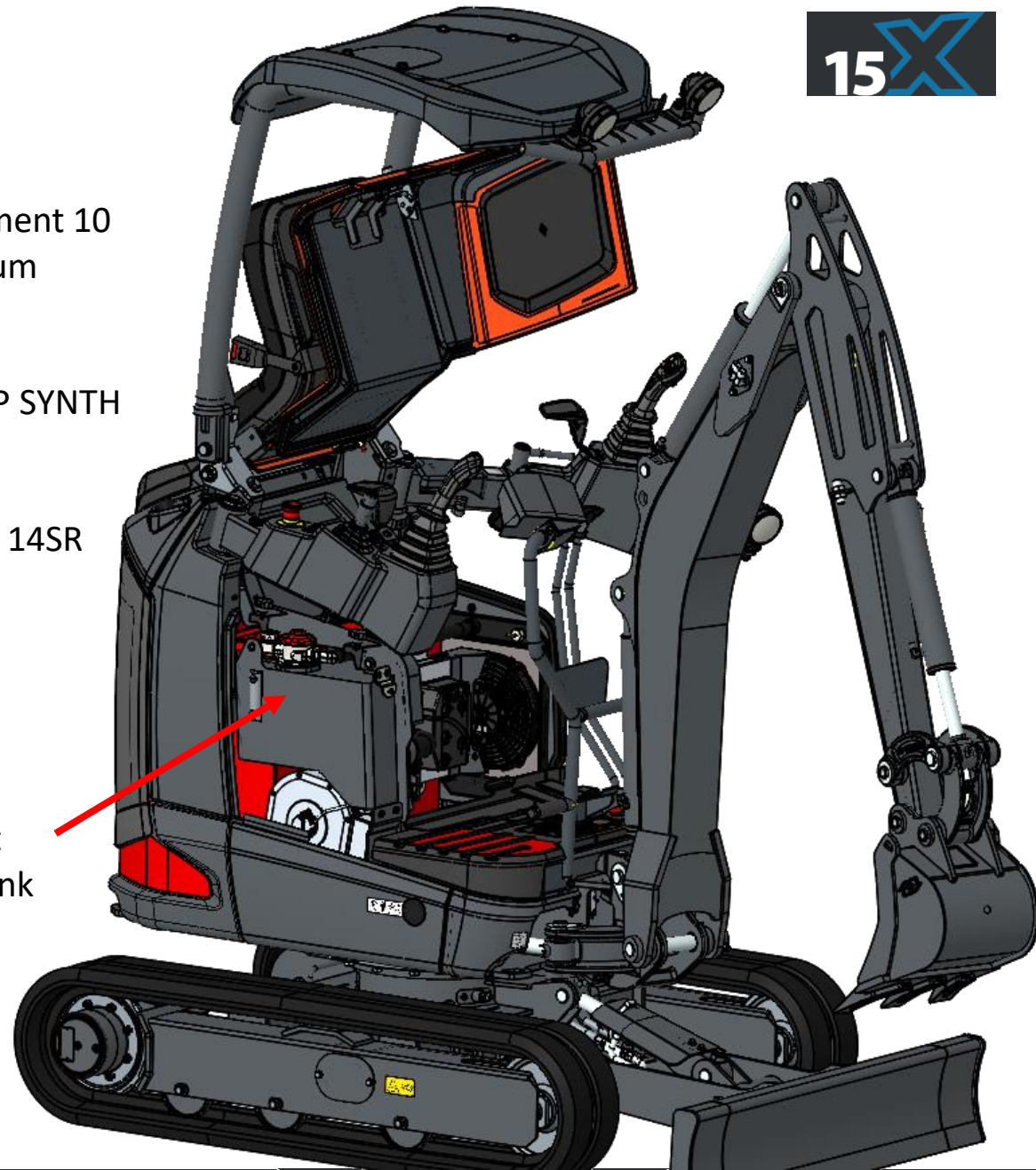
15X



HYDRAULIC PERFORMANCES

- 28 lt low noise helicoidal gear pump. Displacement 10 cc, maximum system pressure 180 bar, maximum deliverable flow rate: 28 lt.
- 9 liter metal sheet hydraulic tank. PANOLIN HLP SYNTH 46 OIL is standard
- Hydraulic motors and cylinders equal to model 14SR

Metal sheet
hydraulic tank



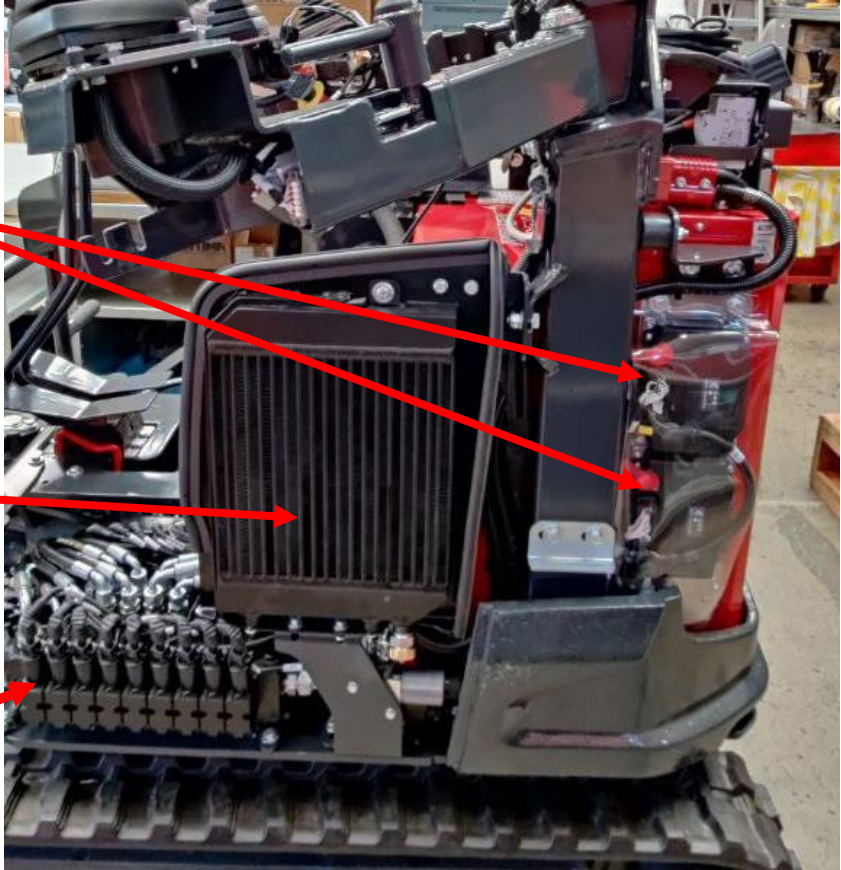
15X

HYDRAULIC PERFORMANCES :

- LS-Flow Sharing control valve with electroproportional controls ensures the simultaneous movement without interruption.



Control valve's control units



Cooler (oil only)

Fully electro-driven control valve

15X



CONTROLS:

- Full-electric controls (manipulators, pedipolator, blade).
- Control panel.
- Smart Translation Buzzer (increases volume as external noise increases).



15X



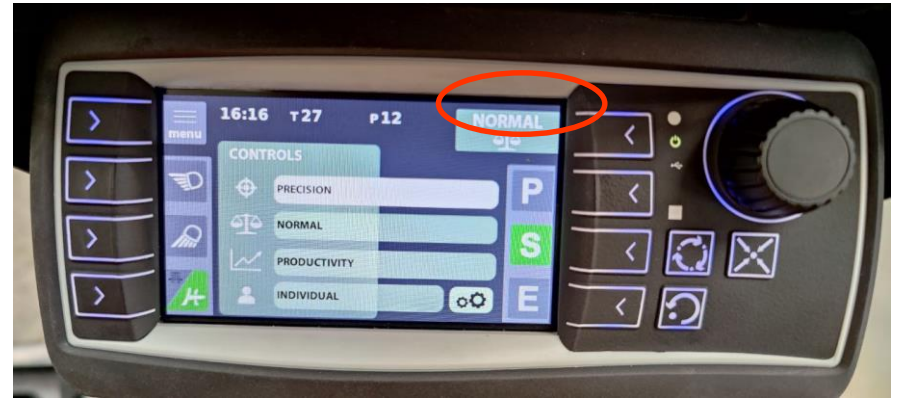
OPERATIVE PERFORMANCES:

- **ECO:** engine revolutions limited to 2400 rpm - engine supply current limited to 110 A.
- **STANDARD:** engine revolutions limited to 2600 rpm – engine supply current limited to 120 A.
- **POWER:** engine revolutions limited to 2800 rpm – no limit to the engine supply current.
- **LOW-BATTERY :** automatic mode that activates when the battery percentage drops below 10%. The engine revolutions are limited to 2200rpm while the current is limited as in ECO. Only possibility to go back to the other modes is by charging the battery first. The machine is however in a situation that allows to work but "invites" to recharge.



15X

15X



CONTROLS:

- Thanks to the controls and flow-sharing control valve, both fully electroproportionals, it is possible to adjust and customize the speed of each movement.
- The CONTROL menu, always accessible in the upper right corner, has 3 factory preset speed modes and one customizable :
- PRECISION: smoother movements.
- NORMAL.
- PRODUCTIVITY: more responsive movements.
- INDIVIDUAL: the operator, through the setting of each movement, can customize the machine to his liking.
- CONTROL functions are independent of the operating mode selected in the engine. For example: for works requiring precision but high power, the operator can select PRECISION and POWER, thus having a smooth machine with high breaking force.



15X



EQUIPMENTS :

- On the EQUIPMENTS screen is it possible to adjust the flow rates of AUX1 and AUX2 (if installed as optional available). It is possible to set and save up to 5 flow configurations.
- The max flow rate of the Aux1 in the Power mode is 28 lt.



15X



SERVICE:

- Remote diagnostics. The satellite control unit receives the alarms from the machine and it sends them to the portal. The cause and possible solution are present for each alarm.

MAINTENANCE:

- Electric engine : NO maintenance.
- Battery: NO maintenance.
- Hydraulic circuit: Panolin oil change every 6000/12000 hours (depending on operating conditions).
- The excavator requires maintenance only of the hydraulic part (in addition to the periodic greasing-cleaning). Having as standard the PANOLIN oil it therefore only needs the change of the filter suction pump after 500h.



Transport weight with canopy (without bucket and operator)	kg	1.315
Transport weight with canopy and FOPS roof (without bucket and operator)	Kg	1.340
Operating weight ISO 6016 with canopy (with bucket 30 kg and operator 75 kg)	Kg	1.420
Operating weight ISO 6016 with canopy and FOPS roof (with bucket 30 kg and operator 75 kg)	Kg	1.445
Travelling speed	km/h	1a : 0 ÷ 1,8 / 2a : 0 ÷ 3,8
Slew speed	rpm	9,5

ELECTRICAL SPECIFICATIONS

Engine

Type	Internal Permanent Magnets (IPM)	
Nominal power (S2-30')	kW	11,0
Supply	three-phase alternating current	
Operating modes:	max. rpm	2.400 (ECO) 2.600 (STD) 2.800 (PWR)

Supply

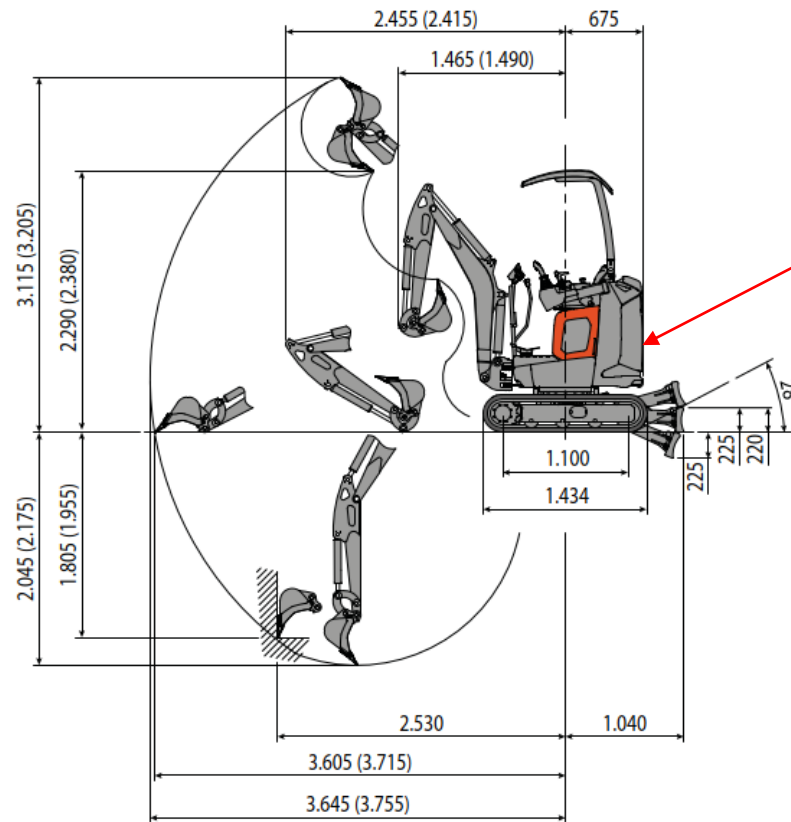
Battery chemistry	lithium-ion	
Gross capacity	kWh	21,5
Nominal voltage of the system	V	102
Autonomy according to the operating mode	h	4 ÷ 8

Charging times

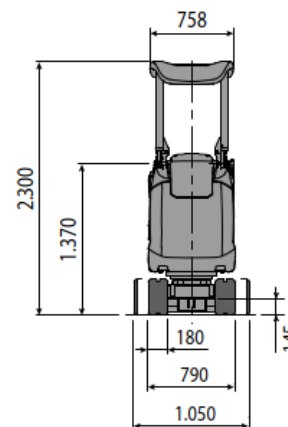
On-board charger (220V)	h	10
External three-phase rapid charge 380V (Optional)	h	1,0 (80%) 1,5 (100%)

HYDRAULIC SYSTEM

Control valve	Load Sensing Flow Sharing	
Hydraulic system capacity	lt	15
Pump type	1 low-noise helical gear pump	
Pump displacement	cc	10,1
Pump flow rate	lt/min	28
Max. circuit calibration pressure	bar	180
Auxiliary system (max. pressure): AUX 1 single or double effect	lt/min (bar)	28 (180)



+90 mm more rear overhang than 14SR



Standard dipper stick L=1.020
(Optional dipper stick L=1.150)

