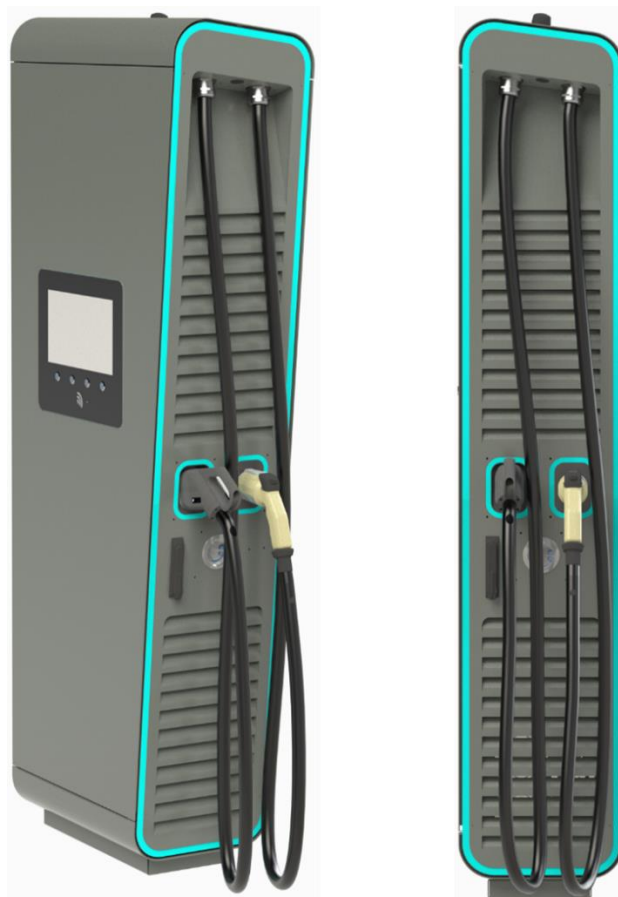




Operation Instructions and Installation Guide - Hardware

hypercharger HYC200 / HYC400 (100 kW – 400 kW) ultra-fast charging system for electric vehicles

for HW-Version 4



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23.08.2023 12:22:38

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Operation Instructions and Installation Guide

Version

Version 2-5 of operation instructions and installation guide, June 2023

English translation of original German version

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Attention



Please note that all warranty claims become void if these operating and installation instructions are not observed.

If changes are made to the device that are not included in the evidence of the original manufacturer alpitronic Srl or have not been authorized and released by alpitronic Srl, the person concerned is considered the manufacturer of the switchgear combination and not alpitronic Srl.



Please note that for chargers, which were optionally and on customer request built in conformity with the MessEG/EV, the appendix A1 ("Technical documentation for the MessEG/EV") must be observed as further documentation.

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Version History

Version	Date	Author	Description
2-3	December 2022	Ch. Leimegger Dr.-Ing. M. Hörter M. Kofler M. Hofer	First version based on the hardware manual V2-3 (HYC150/300)
2-4	March 2023	M. Hofer, K. Mayr	<ul style="list-style-type: none"> - Update of: <ul style="list-style-type: none"> • Table 3 • Table 5 • Table 6 • Figure 19 - Addition of: <ul style="list-style-type: none"> • Table 11 • Table 12 • Table 20 • Table 21 • Figure 42 - Addition behavior in case of fire - Update nameplates - Update schematics - Extension RCD - Extension chapter 6.1.1 - Linguistic and formal revision
2-5	June 2023	Dr.-Ing. M. Hörter, K. Mayr	<ul style="list-style-type: none"> - Update of: <ul style="list-style-type: none"> • Table 2 - Addition of Declaration of Conformity

Content

Content	5
1. Safety instructions	11
1.1. Designated use	11
1.2. Users	11
1.3. Safety instructions for installation and maintenance	12
2. Product description	15
2.1. Charging interfaces	17
2.2. Exterior view	21
2.2.1. Nameplate	23
2.3. Opening of the hypercharger	23
2.4. Internal view	26
2.4.1. HYC200	26
2.4.2. HYC400	28
2.5. Main components	30
2.5.1. Power-Stack	30
2.5.2. Input Switchgear	33
2.5.3. Output Switchgear	36
2.5.4. CTRL_COM	39
2.5.5. Display incl. RFID reader	41
2.5.6. CTRL_EXT	42
2.6. Additional options	43
2.6.1. Cooling unit	43
2.6.2. Emergency stop button (optional)	44
2.6.2.1. External emergency stop relay (optional)	44
2.6.3. Crash sensors (optional)	45
2.6.4. Door contact switches (optional)	45
2.6.5. Credit card terminal (optional)	46
2.6.6. Barrier-free hypercharger (optional)	47
3. Packaging, transport and storage	48
3.1. Packaging	48
3.2. Transport and storage	49
3.3. Unpacking	51
4. hypercharger installation and commissioning	53
4.1. Mechanical installation of the hypercharger	53
4.1.1. Site configuration	54
4.1.2. Placement of a concrete foundation	56
4.1.3. Mounting the hypercharger base on the foundation	59
4.1.4. Mounting the hypercharger on the base plate	63
4.2. Electrical installation	64
4.2.1. hypercharger schematic HYC200	65
4.2.2. hypercharger schematic HYC400	67
4.2.3. Preparation mains power-supply cables	69
4.2.4. Grid Connection	71
4.2.5. Overvoltage protection	74

4.3.	Checks before initial startup	75
4.4.	Commissioning.....	76
5.	Diagnosis and parameterization	78
6.	Operating the hypercharger.....	79
6.1.	Start charging session.....	79
6.1.1.	Authentication	79
6.1.2.	Select the charging plug.....	83
6.1.3.	Connect the plug.....	85
6.2.	During the charging process.....	86
6.2.1.	Charging overview	86
6.3.	Terminate charging session	88
6.3.1.	Leaving screen saving mode.....	88
6.3.2.	Charging stop.....	88
6.4.	Procedure for error messages.....	89
6.4.1.	Authorization failed.....	89
6.4.2.	No connector available.....	89
6.4.3.	Connector damaged.....	90
6.4.4.	Communication error with vehicle.....	90
6.4.5.	Failed to lock connector	91
6.4.6.	The car signalized an error.....	91
6.4.7.	Emergency Stop.....	92
6.4.8.	Charging station temporarily unavailable.....	92
7.	Error description and solution.....	93
8.	Annual preventive maintenance	94
9.	Repair and service	96
10.	Disposal	97
11.	Technical specifications	98
12.	Declaration of Conformity	101

List of figures

Figure 1: Configuration HYC200	15
Figure 2: Configuration HYC400	16
Figure 3: Order of charge points HYC200 and HYC400.....	16
Figure 4: DC-Power characteristic in different configurations	19
Figure 5: Cable reach for the two DC outlets of the hypercharger	20
Figure 6: Elements of the charging station HYC200 and HYC400.....	21
Figure 7: External dimensions HYC200 (in mm)	22
Figure 8: External dimensions HYC400 (in mm)	22
Figure 9: Example of a nameplate for hypercharger HYC200	23
Figure 10: Example of a nameplate for hypercharger HYC400	23
Figure 11: Half cylinder (data in mm)	24
Figure 12: Order for opening the hypercharger doors	24
Figure 13: Locking mechanism for the display door	25
Figure 14: Internal view hypercharger HYC200 (service-, display-, charging cable side) ..	26
Figure 15: Internal view hypercharger HYC400 (service-, display- and charging cable-side)	28
Figure 16: Dimensions of Power-Stack	30
Figure 17: AC connection block	31
Figure 18: DC connection block	31
Figure 19: AC input switchgear of the HYC200	33
Figure 20: AC input switchgear of the HYC400	34
Figure 21: DC output switchgear of the HYC200 (bottom view)	36
Figure 22: DC output switchgear of the HYC200 (top view)	36
Figure 23: DC output switchgear of the HYC400 (bottom view)	37
Figure 24: DC output switchgear of the HYC400 (top view)	38
Figure 25: Location of the CTRL_COM in the hypercharger.....	39
Figure 26: CTRL_COM	40
Figure 27: Display module	41
Figure 28: Location of the CTRL_EXT in the hypercharger	42
Figure 29: Cooling unit for cooled charging cable (optional).....	43
Figure 30: Location of the contactors in the hypercharger.....	44
Figure 31: Connection options external emergency stop.....	45
Figure 32: Contactless credit card terminal (model COR A20)	46
Figure 33: Barrier-free hypercharger.....	47
Figure 34: Packaging of the hypercharger (HYC200).....	48
Figure 35: Vertical transport with pallet truck or forklift.....	49
Figure 36: Crane eyelets on top of the packaging	50
Figure 37: Unpacking the hypercharger	52
Figure 38: Relevant components for the mechanical installation of the hypercharger	53
Figure 39: Recommended distances for site configuration.....	55
Figure 40: hypercharger concrete foundation.....	56
Figure 41: Backfill of the foundation	57
Figure 42: Bending radius mains cables	58
Figure 43: hypercharger base	59
Figure 44: hypercharger base for the HYC200 (dimensions in mm)	59
Figure 45: hypercharger base for the HYC400 (dimensions in mm)	60
Figure 46: Position of the HYC200 (blue) and HYC400 (red) base on the foundation	61
Figure 47: Alignment of the base and cable entry plates on the foundation.....	61
Figure 48: Distances between the base and the outer dimensions of the HYC200 (top view)	62
Figure 49: Distances between the base and the outer dimensions of the HYC400 (top view)	62

.....	62
Figure 50: hypercharger schematic for the HYC200	65
Figure 51: hypercharger schematic for the HYC400	67
Figure 52: Cable jig, used to prepare mains power supply cables (HYC200 left and HYC400 right)	70
Figure 53: Connecting of the input busbars (dimensions in mm)	72
Figure 54: Sideview of the input busbars (dimensions in mm).....	72
Figure 55: Available installation space in the hypercharger for HYC400 (1)	73
Figure 56: Available installation space in the hypercharger for HYC400 (2)	73
Figure 57: Authentication	79
Figure 58: Position of RFID reader.....	79
Figure 59: Overview of the authentication options.....	81
Figure 60: Overview user guidance per authentication option	81
Figure 61: Kiosk Mode	82
Figure 62: Checking ID	82
Figure 63: Select plug	83
Figure 64: Buttons for navigation	83
Figure 65: Language selection.....	84
Figure 66: Plug connection	85
Figure 67: Charging overview	86
Figure 68: Charge overview with two active charging processes	87
Figure 69: Charging stop	88
Figure 70: Disconnect Plug.....	88
Figure 71: Authorization failed	89
Figure 72: No connector available.....	89
Figure 73: Connector damaged	90
Figure 74: Communication error	90
Figure 75: Failed to lock connector	91
Figure 76: Vehicle Error	91
Figure 77: Emergency Stop	92
Figure 78: Maintenance ongoing.....	92

List of tables

Table 1: Overview DC power and options of the hypercharger product family	15
Table 2: Charging interfaces	17
Table 3: Additional charging interfaces for automotive multichargers	17
Table 4: Possible combinations of charging interfaces	18
Table 5: hypercharger HYC200 cabinet components	27
Table 6: hypercharger HYC400 cabinet components	29
Table 7: Technical data	32
Table 8: Mechanical data	32
Table 9: Electrical data AC connection	32
Table 10: Electrical data DC connection	32
Table 11: AC input switchgear components of the HYC200	34
Table 12: AC input switchgear components of the HYC400	35
Table 13: DC output switchgear components for hypercharger HYC200	37
Table 14: DC output switchgear components for hypercharger HYC400	38
Table 15: Display properties	41
Table 16: Dimensions of the packaging	48
Table 17: Maximum weight and threat size for eyebolts for different hypercharger product types	49
Table 18: Distances	54
Table 19: Distances between base plate and outer dimensions of charging station	63
Table 20: Legend of the hypercharger schematic for the HYC200	66
Table 21: Legend of the hypercharger schematic for the HYC400	69
Table 22: Available cable entry plates for hypercharger base	69
Table 23: Recommended conductor cross sections	74
Table 24: Checks to be carried out before commissioning	75
Table 25: Commissioning checks	77
Table 26: Default Charging Station IP address	78
Table 27: Error description and troubleshooting	93
Table 28: Maintenance checks	95
Table 29: Technical data	98
Table 30: Mechanical data	98
Table 31: Electrical connection for HYC200	98
Table 32: Electrical connection for HYC400	99
Table 33: Frequency bands and transmission levels of HYC200 / HYC400	99

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1. Safety instructions

This chapter contains the safety instruction which must be considered at installation, operation and maintenance of the hypercharger ultra-fast charging system for electric vehicles. Incorrect operation as a result of non-compliance with the operation instructions may lead to severe injuries or damages. This safety operation must be read carefully before the installation, operation and maintenance of the hypercharger ultra-fast charging system.

1.1. Designated use

The hypercharger ultra-fast charging system for electric vehicles is intended to be used both in indoor and outdoor environments for performing ultra-fast charging for electric vehicles.

Attention



The charging station is designed for a stationary installation in an ambient with pollution degree class 3.

For the connection between the electric vehicle supply equipment (EVSE) and electric vehicle (EV), no additional cables are required besides the AC cable, which needs to be in possess of the user. A charging cord shall not be altered to extend or divide the cable length.

No adapters may be used which are not explicitly approved by the vehicle manufacturer.

The use of Y-cables or similar devices is not permitted.

No cable extensions may be used.

National application guidelines and specifications for charging stations must be taken into account.

1.2. Users

These operation instructions and installation guides are intended for the operators responsible for installation, operation, service and maintenance of the hypercharger ultra-fast charging system for electric vehicles. These operators should have an in-depth knowledge of electrical high-power systems and electric vehicles. Prior to carrying out any work the operator and the responsible technical personnel must carefully read these instructions.

1.3. Safety instructions for installation and maintenance

These warnings and instructions apply to all activities of installation, service and maintenance on the hypercharger.

Attention



Any disregard from these instructions can lead to serious or fatal personal injury, as well as serious damage to property.

Attention



Installation and maintenance of the hypercharger ultra-fast charging system for electric vehicles must only be carried out by qualified personnel.

Before putting the system into operation, check the correct state of the installation and all connections.



Electrostatic discharge

The control cabinet contains components and circuit boards that are sensitive to electrostatic discharge. During assembly and maintenance, sufficient ESD measures should be taken to protect the electronic components (for example, wearing a grounding wristband).

Warnings

Warning of hazardous electrical voltage



Installation and maintenance of the hypercharger may be carried out only while power is off/disconnected. Before performing any installation, disassembly, repair or replacement of components, switch off the external group switch and the main switch in the hypercharger cabinet and do a voltage check to make sure that the electrical power is disconnected from the system.

Inside the hypercharger cabinet, hazardous electrical voltages are present (up to 1000 Vdc) even if all circuit breakers are switched off, do not allow unqualified persons to go near it.

Only hypercharger certified technicians are permitted to install, disassembly, repair or replace components on the hypercharger. The hypercharger cabinet doors must be properly closed and locked after installation, service or repair operations.

Warning of hot surface



Some internal components of the hypercharger like Power-Stack housings, cooling system, and conductors can remain hot long after the power supply has been disconnected.

Prior to performing any task such as disassembly, repair or replacement of components make sure that all components have cooled down.



Heavy weight

Please note that the individual components of the device can be very heavy, for example the Power-Stacks.



Crushing

Please take care good when assembling and disassembling components in order to avoid crushing people or body part.

Behavior in case of fire

In the event of a fire, the emergency stop switch of the external power supply – if present - must be actuated immediately (e.g. at filling stations). The instructions must be clearly displayed by the charge point operator. Furthermore, the fire must be immediately reported to the fire brigade. In the event of injured persons, the emergency services must be alarmed immediately.

The emergency numbers must be clearly displayed by the charge point operator. If there is no emergency stop switch available, the charge point operator must immediately disconnect the charging station from the external power supply directly at the mains connection point. It is pointed out that the disconnection at the mains connection point may only be carried out by authorized and appropriately trained personnel.

Persons present at the site of the fire must be immediately removed or asked to move away from the danger zone. Fire protection and firefighting regulations as well as occupational health and safety regulations in force at the place of installation of the charging station may provide that fire-extinguishing activities can only be carried out by trained persons in accordance with the relevant regulations (e.g. in Germany DIN VDE 0132 "Fire fighting in the area of electrical installations").

Corresponding instructions must be clearly displayed by the charge point operator. However, it is recommended even in the absence of a corresponding regulation, that firefighting activities are left exclusively to trained persons. When carrying out firefighting activities, a sufficient safety distance of at least 2 m from the charging station must be maintained in order to minimize the electrical risk.

Only suitable extinguishing agents for electrical equipment may be used (e.g. CO₂ fire-extinguishers, if necessary also water, whereby the distance of the spray jet to the charging station must be at least 2m in order not to be exposed to a dangerous voltage flashover).



Remarks



Pushing the (optionally installed) Emergency stop button (see chapter 2.6.2) on the front door stops charging/disables charging. The hypercharger Power-Stacks will be turned off.



To turn off the hypercharger, one can find the main switch QB1 (see Figure 14 and Figure 15) in the cabinet, rotate the handle to position '0'. This will turn off all internal components of the hypercharger.

2. Product description

The hypercharger product line offers the choice between two different housings, which can be configured with various options as shown in the following table:

Model	Options	
	DC-Power	Charging Interfaces (see chapter 2.1)
HYC200	- 1 Power-Stack → 100 kW - 2 Power-Stacks → 200 kW	- 1 DC charging cable - 2 DC charging cables - AC socket with shutter or AC cable
HYC400	- 1 Power-Stack → 100 kW - 2 Power-Stacks → 200 kW - 3 Power-Stacks → 300 kW - 4 Power-Stacks → 400 kW	- 1 DC charging cable - 2 DC charging cables - 3 DC charging cables - AC socket or AC cable

Table 1: Overview DC power and options of the hypercharger product family

Remark



As standard, the hypercharger housing is delivered with the housing colour "RAL Noir 2100". The reflector strips on the door have the standard colour "Pantone 3115 C".

The customer can choose any RAL housing color as well as any RAL reflector strip color as an option. It is also possible to order individual foiling.

100 kW hypercharger Power-Stacks are used to supply the DC charging cables installed on the hypercharger with power (detailed information in chapter 2.5.1).

One Power-Stack can supply only one DC charging cable at the same time. The hypercharger Power-Stacks can be switched in parallel mode to increase the power conducted via one DC charging cable.

The HYC200 can be equipped with at least one or a maximum of two Power-Stacks and with up to a maximum of 2 DC charging cables and a 22 kW AC charging socket or AC cable:



Figure 1: Configuration HYC200

The HYC400 can be equipped with one, two, three or four Power-Stacks and with up to 3 DC charging cables and a 22 kW AC charging socket or AC cable:



Figure 2: Configuration HYC400

Remark



The order of the charge points (with view of the charging cable door) is always from left to right, AC - if available - is in last place.

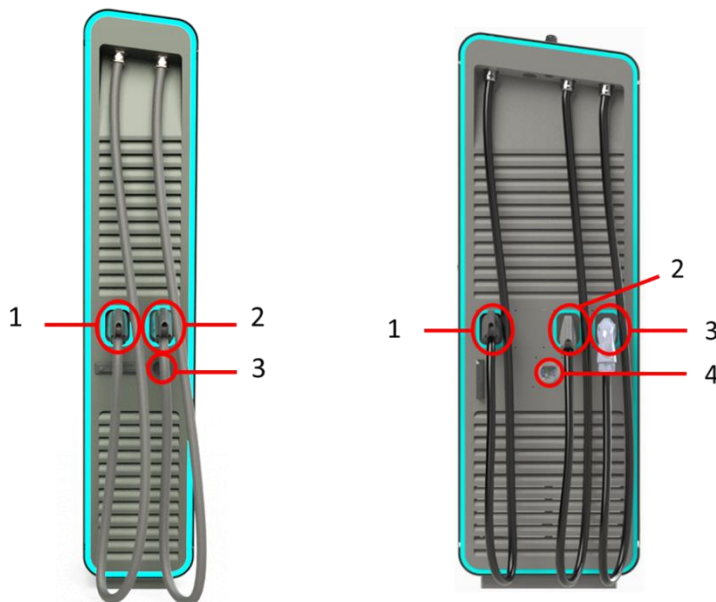


Figure 3: Order of charge points HYC200 and HYC400

Remark



Customs tariff number of the hypercharger: 85044055

2.1. Charging interfaces

The following charging interfaces can be selected for the hypercharger:

Charging interfaces				
Charging interface	Voltage capability [V]		Current capability [A]	
	Min.	Max.	Min.	Max.
CCS Combo 2 (not liquid cooled cable)	150 V DC	1.000 V DC	6,5 A	200 A DC 250 A DC 400 A DC 600 A DC ¹
CCS Combo 2 HPC (liquid cooled cable)	150 V DC	1.000 V DC	6,5 A	500 A DC
CHAdeMO (not liquid cooled cable)	150 V DC	500 V DC	6,5 A	125 A DC 200 A DC
22 kW AC Socket Type 2 (with shutter) or AC cable		400 V AC 3~	0,25 A	32 A AC

Table 2: Charging interfaces

Attention



The total performance of the HYC200 is limited to a 320 A grid connection.
The total performance of the HYC400 is limited to a 630 A grid connection.

Remark



The usable DC-Power on a DC-outlet is limited by the maximum current of the used DC-charging cable. The effective current carrying capacity of the charging interfaces is specified on the nameplate (see chapter 2.2.1).

For the automotive industry also CCS1 and GB/T interfaces are possible:

Charging interfaces				
Charging interface	Voltage capability [V]		current capability [A]	
	Min.	Max.	Min.	Max.
CCS1 US	150 V DC	1000 V DC	6,5 A	200 A DC
GB/T China	150 V DC	1000 V DC	6,5 A	250 A DC

Table 3: Additional charging interfaces for automotive multichargers

¹ Can only be supplied for a certain period of time depending on cable and ambient temperature

The following charging interfaces can be selected for the hypercharger in various combinations:

HYC200			
Connector 1	Connector 2	Connector 3	Connector 4
CCS Combo 2*		N/A	N/A
CHAdeMO		N/A	N/A
CCS Combo 2*	CCS Combo 2*	N/A	N/A
CCS Combo 2*	CHAdeMO	N/A	N/A
HYC400			
Connector 1	Connector 2	Connector 3	Connector 4
CCS Combo 2*	N/A		
CHAdeMO	N/A		
CCS Combo 2*	N/A		CCS Combo 2*
CCS Combo 2*	N/A		CHAdeMO
CCS Combo 2*	N/A	CHAdeMO	CCS Combo 2*
*possibility of cooled cable			

Table 4: Possible combinations of charging interfaces

Depending on the configuration of the hypercharger, both DC charging and AC charging are offered for the vehicle, whereby both charging processes can also take place in parallel. If the hypercharger is configured with at least two Power-Stacks and two charging cables, two vehicles can be charged with DC at the same time, whereby each vehicle and charging cable is assigned to a stack. If at least two Power-Stacks are available, more than one Power-Stack can be assigned to a vehicle.

The following figure shows the DC-Power characteristic with one, two, three and four hypercharger Power-Stacks and different cable types:

- 500 A CCS2 HPC liquid cooled cable
- 400 A CCS2 non liquid cooled cable (600 A with boost)
- 250 A not liquid cooled GB/T and CCS2 cable
- 200 A not liquid cooled CCS1, CCS2 and CHAdeMO cable
- 125 A not liquid cooled CHAdeMO cable

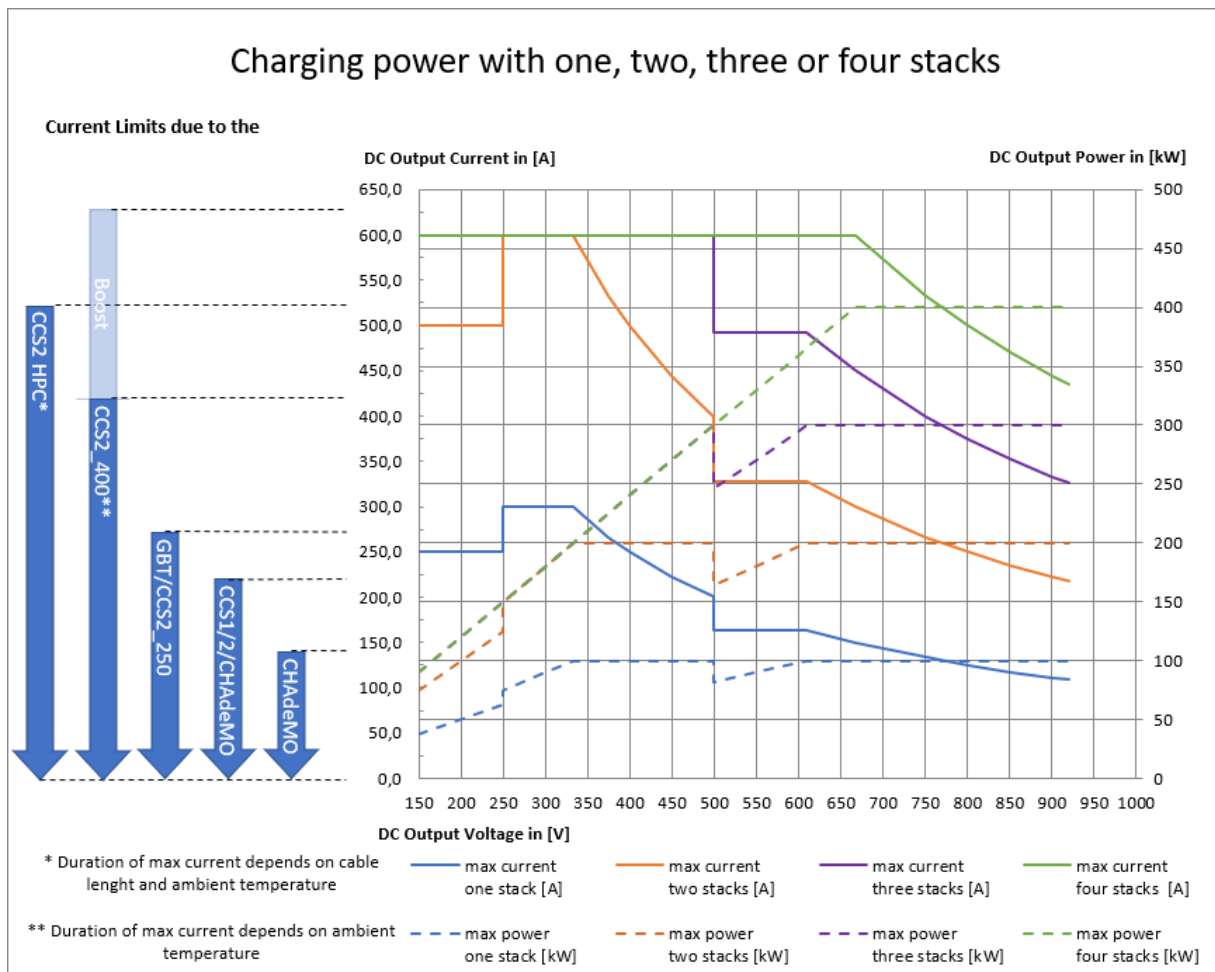


Figure 4: DC-Power characteristic in different configurations

In its default configuration, the hypercharger comes with a cable length of 3,5 m. The following figure shows the operating radius (3 m) of the cables for the two DC outlets of the hypercharger.

Remark



Optionally, longer cable lengths can be ordered (max. 5 m for cooled and max. 7 m for uncooled cables). Please contact sales@hypercharger.it.

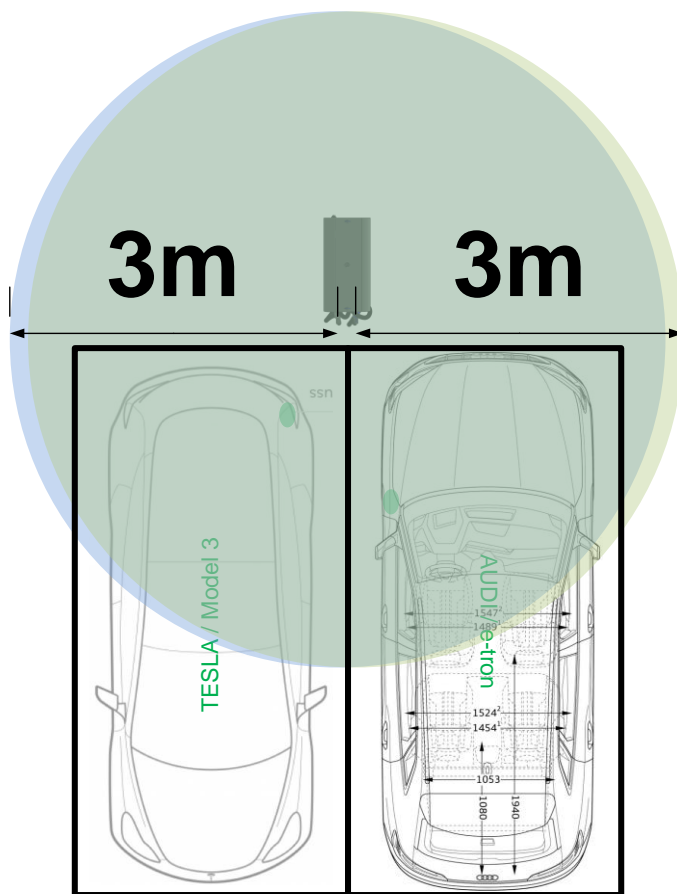


Figure 5: Cable reach for the two DC outlets of the hypercharger

2.2. Exterior view

The following figure shows the different elements of the device from the outside.

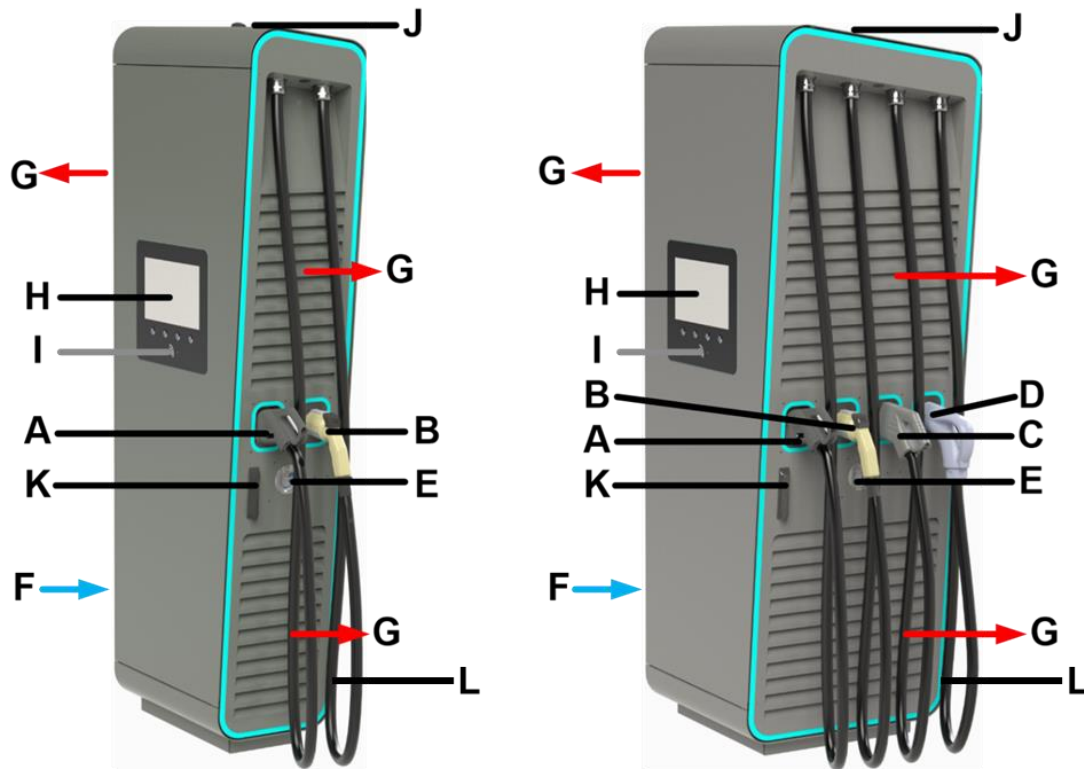


Figure 6: Elements of the charging station HYC200 and HYC400

- A DC charge outlet 1
- B DC charge outlet 2 (optional)
- C DC charge outlet 3 (optional)
- D DC charge outlet 4 (optional)
- E AC charge socket (optional)
- F Air inlet
- G Air outlet
- H Display / HMI
- I RFID card reader
- J GSM / LTE antenna
- K Door handle
- L Nameplate

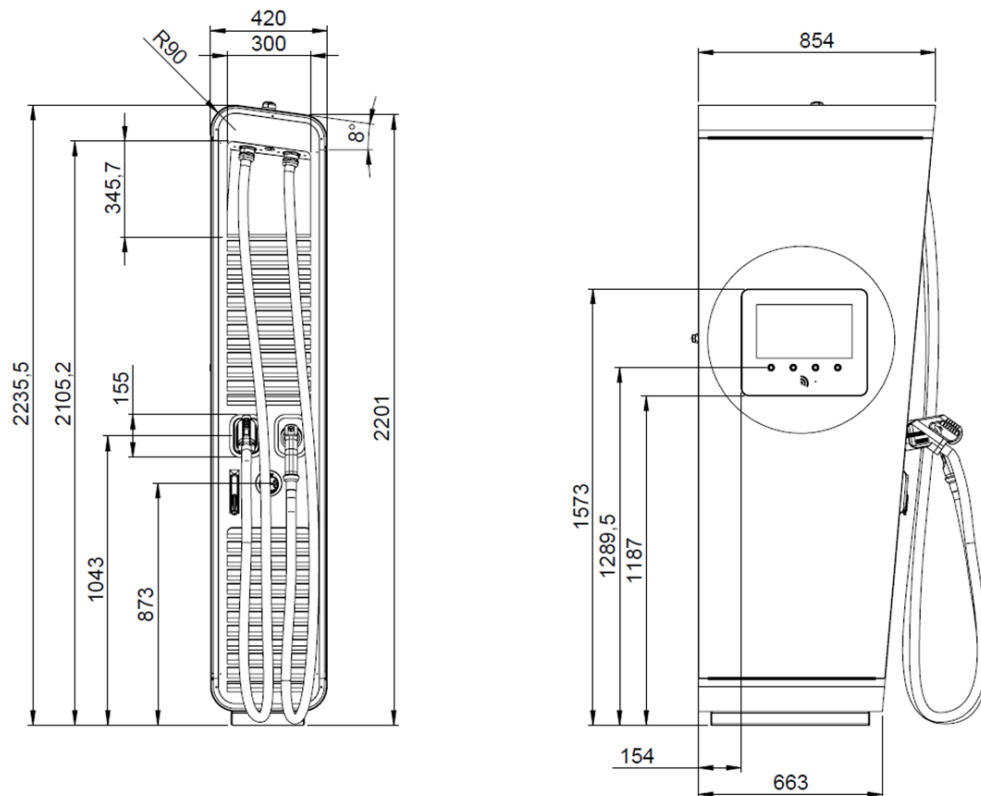


Figure 7: External dimensions HYC200 (in mm)

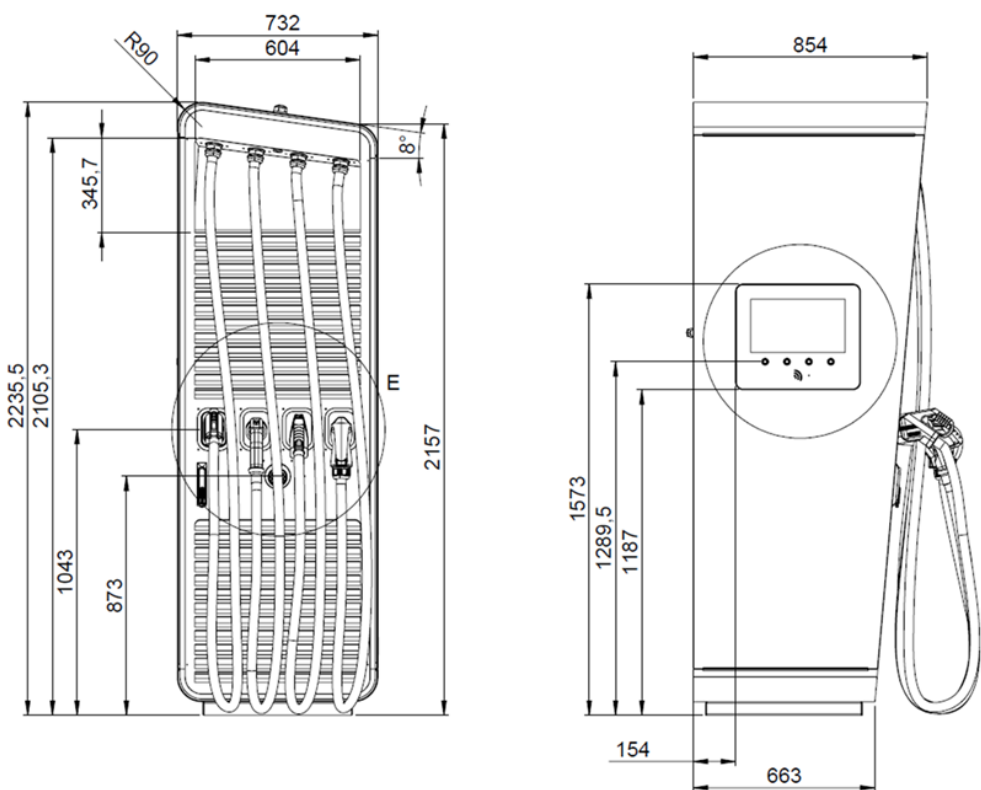


Figure 8: External dimensions HYC400 (in mm)

2.2.1. Nameplate

The nameplate is located opposite the display door in the lower right corner. It contains the CE marking, serial number and electrical characteristics of the charger.

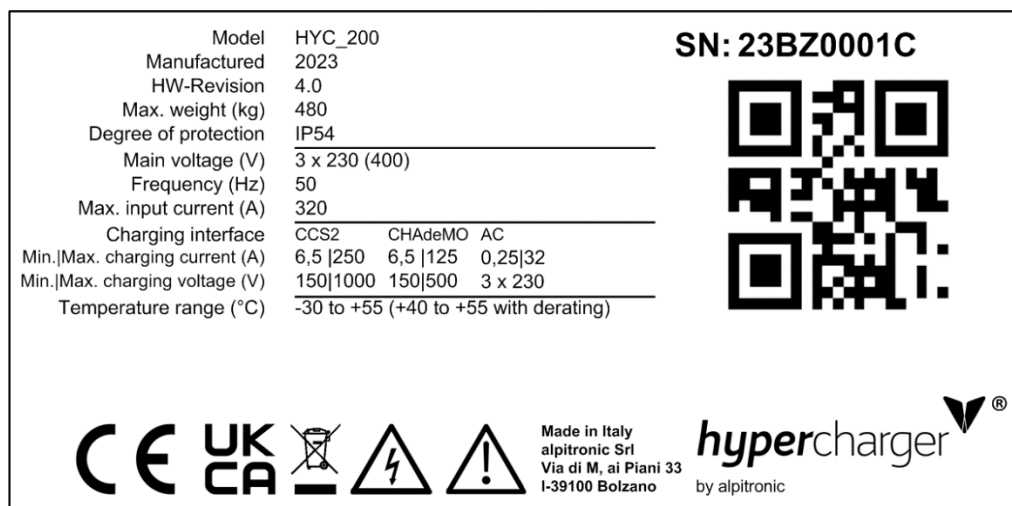


Figure 9: Example of a nameplate for hypercharger HYC200

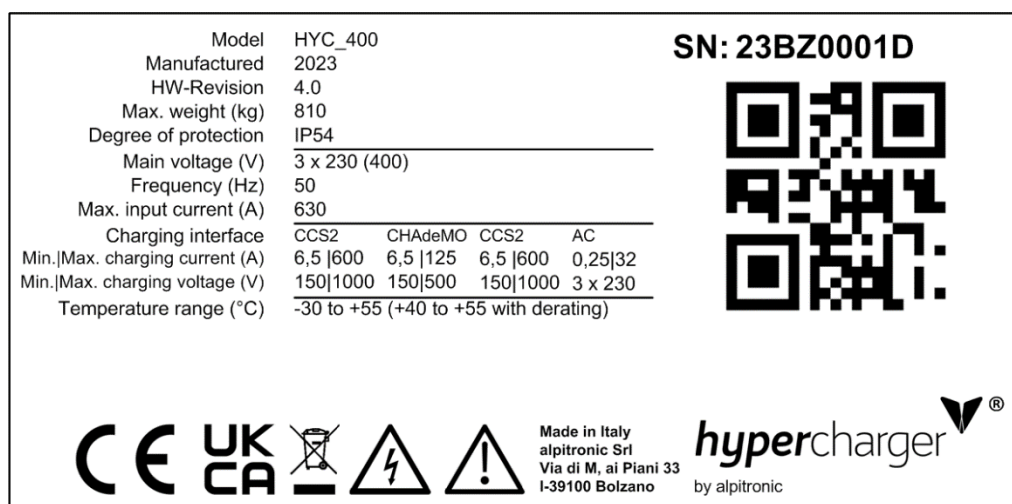


Figure 10: Example of a nameplate for hypercharger HYC400

2.3. Opening of the hypercharger

The hypercharger has three doors that grant access to the inside of the device (Figure 12). The service door and charging cable door are equipped with a locking cylinder to lock the device. The cylinder (made of brass and nickel plated) is a profile half cylinder with pin tumbler cylinder and adjustable 8 x 45° clip-in cam.

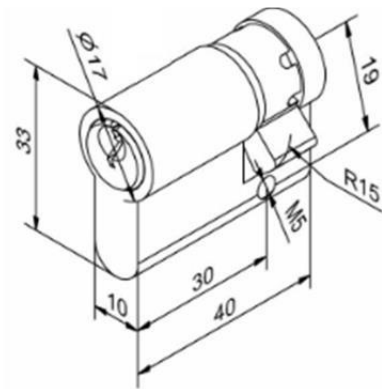


Figure 11: Half cylinder (data in mm)

Attention



If you wish to replace the locking cylinder, please ensure that you only use half cylinders with a maximum construction length of 30/10. Otherwise, the existing cover can no longer be closed properly.

Attention



When opening the display door, make sure that the service door is already open! Otherwise there is a risk to damage the reflector stripe of the service door.

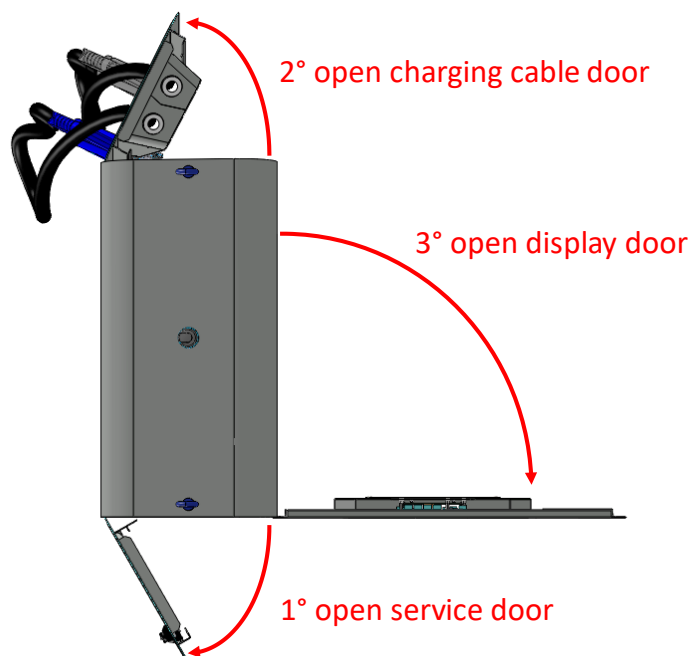


Figure 12: Order for opening the hypercharger doors

The display door can be opened by releasing the locking mechanism behind the charging cable door as shown in the following figure.



Figure 13: Locking mechanism for the display door

2.4. Internal view

2.4.1. HYC200

The following figure shows the hypercharger internal view of HYC200.



Figure 14: Internal view hypercharger HYC200 (service-, display-, charging cable side)

The following table describes the single components indicated in the figure above:

Identifier	Description
-BC1	DC fault current monitoring for AC charging (optional, only when AC-socket or AC cable is present)
-BE5	AC meter (MID compliant)
-EP1	Cooling unit for cooled charging cable (optional, only with cooled charging cable)
-FA1	SPD, surge arrester
-FB1	10 A circuit breaker with fault current monitoring for internal supply and service-socket
-FB2	32 A circuit breaker with fault current monitoring (optional, only with AC socket)
-KF1	CTRL_COM_HD control board
-KF2	CTRL_COM Display

-KF3	CTRL_IO control board
-KF5	CTRL_EXT control board
-QA1, -QA2	160 A circuit breaker / 3P
-QB1	400 A main switch / 4P
-QB9	Contactors for AC charging (optional, only when AC socket is present)
-SF2, -SF3	Door contact switch (optional)
-TB1	Auxiliary 24 V power supply
-TB2, -TB3	hypercharger Power-Stacks
-TF1	Antenna (3G, 4G/LTE)
-XD1	Mains input busbars
-XD2	Power socket 230 Vac for service
-XD3	DC-busbar for vehicle cable connection XD7 (DC-outlet 1)
-XD4	DC-busbar for vehicle cable connection XD8 (optional, only when DC-outlet 2 is present)
-XD7	DC charge outlet 1
-XD8	DC charge outlet 2 (optional)
-XD11	AC socket (optional, only when AC socket is present)
-XF1	Ethernet-network-socket (service)
-XF2	Ethernet-network-socket (client-LAN)

Table 5: hypercharger HYC200 cabinet components

Remark



The Ethernet port XF1 can be used for load management.

2.4.2. HYC400

The following figure shows the hypercharger internal view of HYC400:



Figure 15: Internal view hypercharger HYC400 (service-, display- and charging cable-side)

The following table describes the single components indicated in the figure above:

Identifier	Description
-BC1	DC fault current monitoring for AC charging (optional, only when AC-socket or AC cable is present)
-BE5	AC meter (MID compliant)
-EP1, -EP2	Cooling unit for cooled charging cable (optional, for cooled charging cable only)
-FA1	SPD, surge arrester
-FB1	10 A circuit breaker with fault current monitoring for internal power supply and service socket
-FB2	32 A circuit breaker with fault current monitoring (optional, only when AC charging socket is present)
-FC1	Input fuse (fast-acting)
-KF1	CTRL_COM_HD control board
-KF2	CTRL_COM Display
-KF3	CTRL_IO control board
-KF4	Additional CTRL_IO board (for 3 or 4 DC Outputs)
-KF5	CTRL_EXT control board
-QA1, -QA2, -QA3, -QA4	160 A circuit breaker / 3P
-QB1	630 A main switch / 4P

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23.08.2023 12:22:38

-QB9	Contactors for AC charging (optional, only when AC-socket is present)
-SF2, -SF3	Door contact switch (optional)
-TB1	Auxiliary 24 V power supply
-TB2, -TB3, -TB4, -TB5	hypercharger Power-Stacks
-TF1	Antenna (3G, 4G/LTE)
-XD1	Mains input busbars
-XD2	Power socket 230 Vac for service
-XD3	DC-busbar for vehicle cable connection XD7 (DC-outlet 1)
-XD4	DC-busbar for vehicle cable connection XD8 (optional, only when DC-outlet 2 is present)
-XD5	DC-busbar for vehicle cable connection XD9 (optional, only when DC-outlet 3 is present)
-XD6	DC-busbar for vehicle cable connection XD10 (optional, only when DC-outlet 4 is present)
-XD7	DC charge outlet 1
-XD8, -XD9, -XD10	DC charge outlet 2/3/4 (optional)
-XD11	AC socket (optional, only when AC-socket is present)
-XF1	Ethernet-network-socket (service)
-XF2	Ethernet-network-socket (client-LAN)

Table 6: hypercharger HYC400 cabinet components

Remark



The Ethernet port XF1 can be used for load management.

2.5. Main components

2.5.1. Power-Stack

The Power-Stack is the power module that converts the AC voltage to an electrically isolated DC voltage.

The following figure shows the dimensions of a Power-Stack.

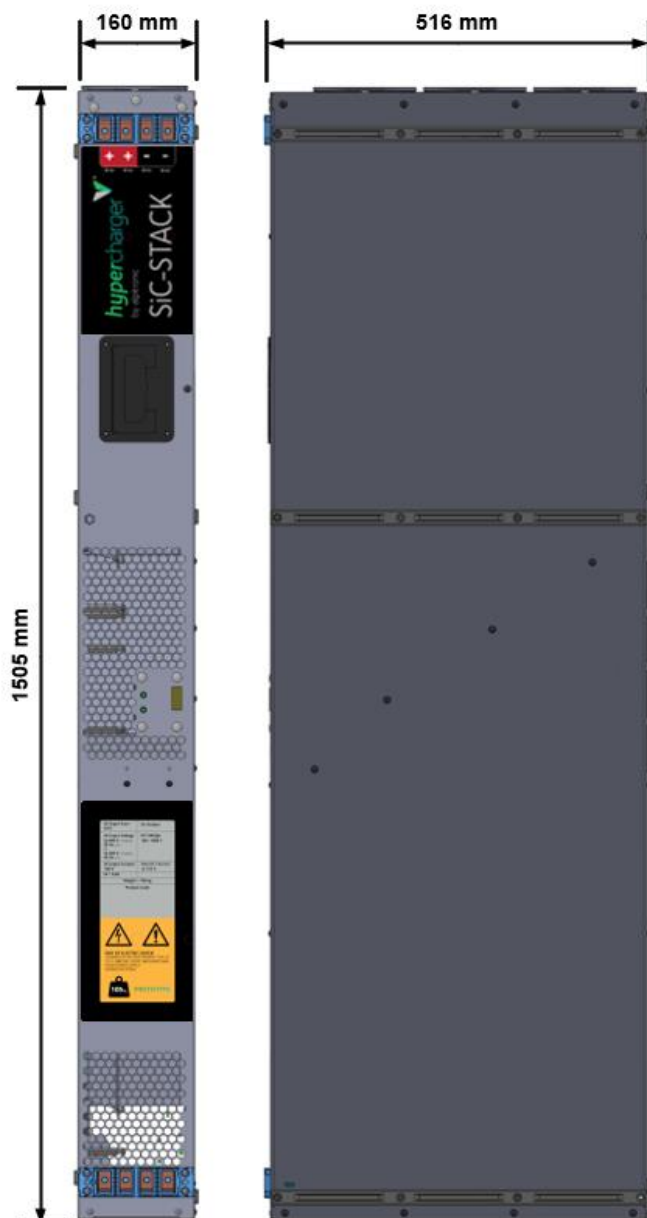


Figure 16: Dimensions of Power-Stack

The supply lines at the AC connection block must have a minimum cross section of 50 mm². The tightening torque is 15 Nm. Figure 17 shows the AC connection block at the bottom of the Power-Stack.

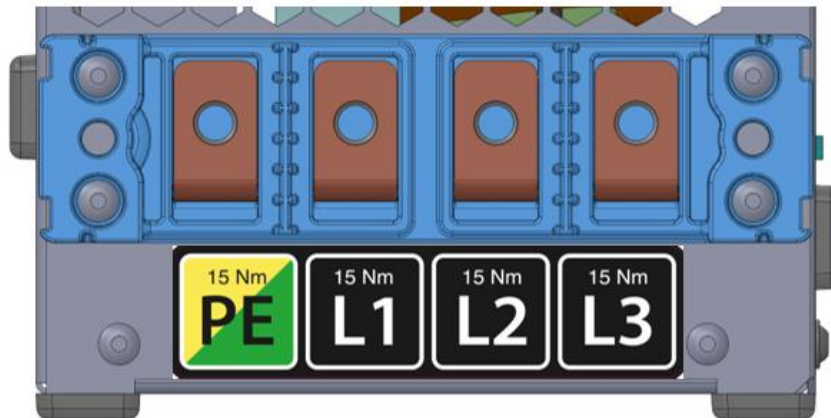


Figure 17: AC connection block

The output lines at the DC connection block must have a minimum cross section of 35 mm². The tightening torque is 15 Nm. Figure 18 shows the DC connection block at the upper end of the Power-Stack.

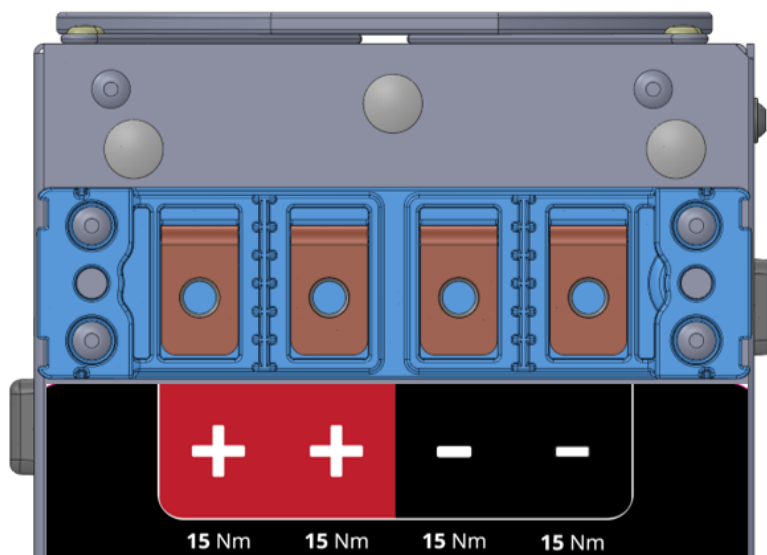


Figure 18: DC connection block

Parameters	Nominal value
Protection class	IP20
Installation site	For switch cabinet installation
Type of installation	Plug-in module
Installation altitude	Up to a maximum of 4.000 m.a.s.l.
Humidity-range for transport or storage	0 - 95 % rel. (non-fogging)
Humidity-range for operation	0 - 95 % rel.
Degree of pollution	Pollution degree class 2
Overvoltage category	OVC II
Protection class	Class I (protective earthing)
Storage temperature range	-40 °C ... +55 °C
Operating temperature range	-30 °C ... +55 °C (+40 to +55 °C with derating)

Table 7: Technical data

Type	Width [mm]	Length [mm]	Height [mm]	Weight [kg]
SIC-STACK	160	516	1505	105

Table 8: Mechanical data

Electrical data AC connection (input):

Parameters	Nominal value
AC operating voltage	3x 220/230/277 (380/400/480) Vac +PE (+10 % / -15 %)
Frequency	50/60 Hz (± 5 %)
Nominal current input	160 A
Nominal power	100 kW
Power factor	PF > 0,99
Cross section of the AC terminals	Bolt with M8 thread for connection cross section 50...70 mm ²
Pre-fuse to be inserted	160 A Type B or Type C
Network type	TN-S / TN-C / TN-CS / TT / IT

Table 9: Electrical data AC connection

Electrical data DC connection (output):

Parameters	Nominal value
Operating voltage range	150...1000 VDC
Output current	2x 0...150 A
Cross section of the DC terminals	Bolt with M8 thread for connection cross section 35...50 mm ²

Table 10: Electrical data DC connection

Attention



Take note of all hazard warnings in chapter 1.3



Due to the increased leakage current, a minimum protective conductor cross section of $\geq 10 \text{ mm}^2$ CU or $\geq 16 \text{ mm}^2$ AL is required



Dangerous residual voltages

After the Power-Stack has been disconnected from the power supply, the discharge time for dangerous voltages of 5 minutes must be observed before the device is opened.



In certain cases, e.g. installations in TT supply networks, the installation of a residual current device (RCD) is mandatory. If such a device is required by local regulations, a residual current device (RCD) type B or an equivalent protective device against DC residual currents must be used. An $I_{\Delta N} = 300 \text{ mA}$ is recommended.



During operation, increased temperatures must be expected at the air outlets

2.5.2. Input Switchgear

The following figure shows the AC input switchgear of the HYC200:

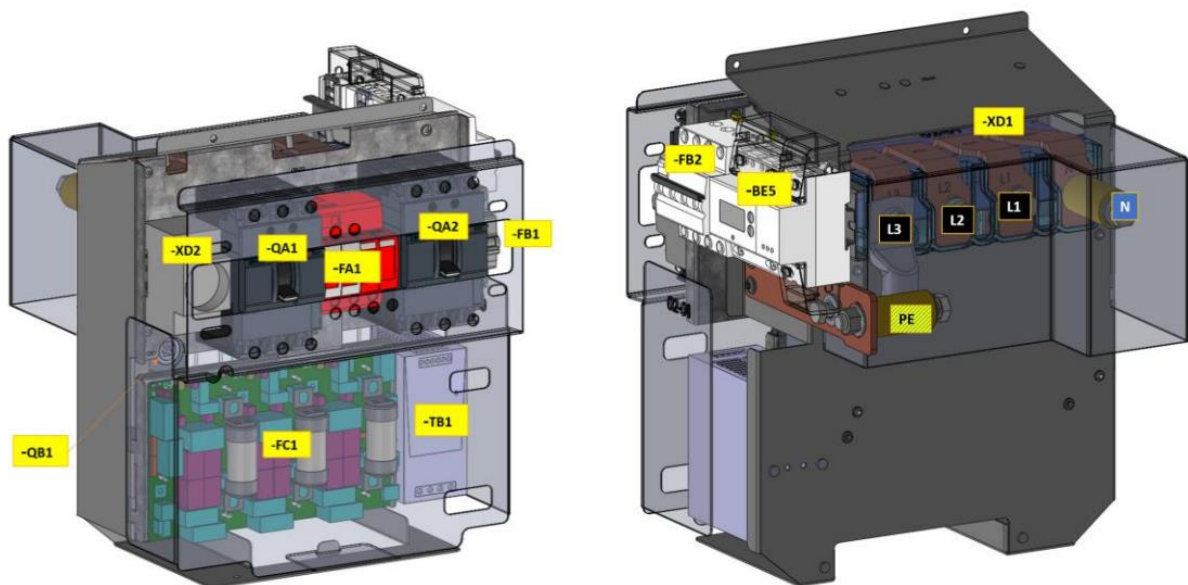


Figure 19: AC input switchgear of the HYC200

Identifier	Description
-BE5	AC meter (MID compliant)
-FA1	SPD, surge arrester
-FB1	10 A circuit breaker with fault current monitoring for internal supply and service-socket
-FB2	32 A circuit breaker with fault current monitoring (optional, only with AC socket)
-FC1	Input fuse (fast-acting)
-QA1, -QA2	160 A circuit breaker / 3P
-QB1	400 A main switch / 4P
-TB1	Auxiliary 24 V power supply
-XD1	Mains input busbars
-XD2	Power socket 230 Vac for service

Table 11: AC input switchgear components of the HYC200

The following figure shows the AC input switchgear of the HYC400:

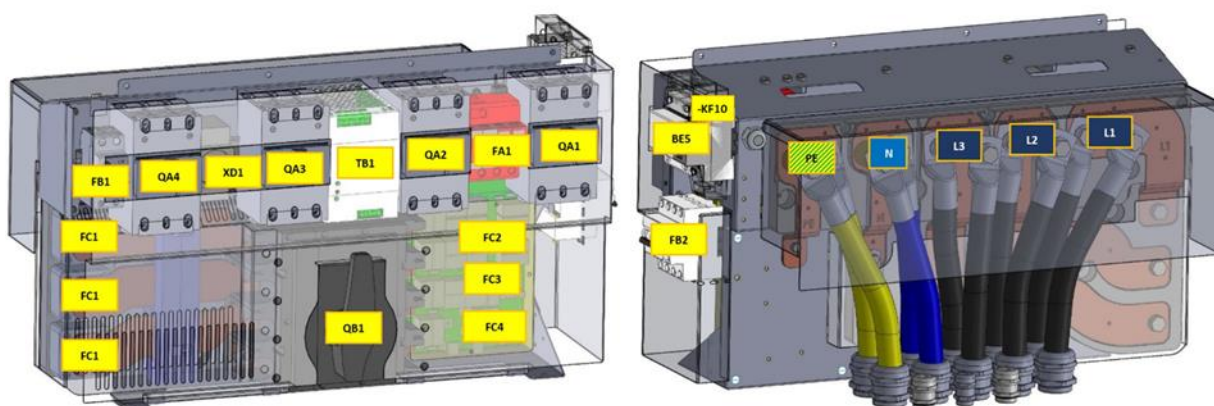


Figure 20: AC input switchgear of the HYC400

Identifier	Description
-BE5	AC meter (MID compliant)
-FA1	SPD, surge arrester
-FB1	10 A circuit breaker with fault current monitoring for internal supply and service-socket
-FB2	32 A circuit breaker with fault current monitoring (optional, only with AC socket)
-FC1	Input fuse (fast-acting)
-FC2	Backup protection SPD with trip monitoring
-FC3	Fuse 24Vdc power supply unit, service socket
-FC4	Backup protection AC charge point (optional)
-KF10	Calibration law adapter for AC charge point (optional)
-QA1, -QA2, -QA3, -QA4	160 A circuit breaker / 3P
-QB1	630 A main switch / 4P

-TB1	Auxiliary 24 V power supply
-XD1	Mains input busbars

Table 12: AC input switchgear components of the HYC400

Remark



In certain cases, e.g. installations in TT supply networks, the installation of a residual current device (RCD) is mandatory. If such a device is required by local regulations, a residual current device (RCD) type B or an equivalent protective device against DC residual currents must be used. An $I_{\Delta N} = 300 \text{ mA}$ is recommended.

2.5.3. Output Switchgear

The following two figures show the DC output switchgear of the HYC200.

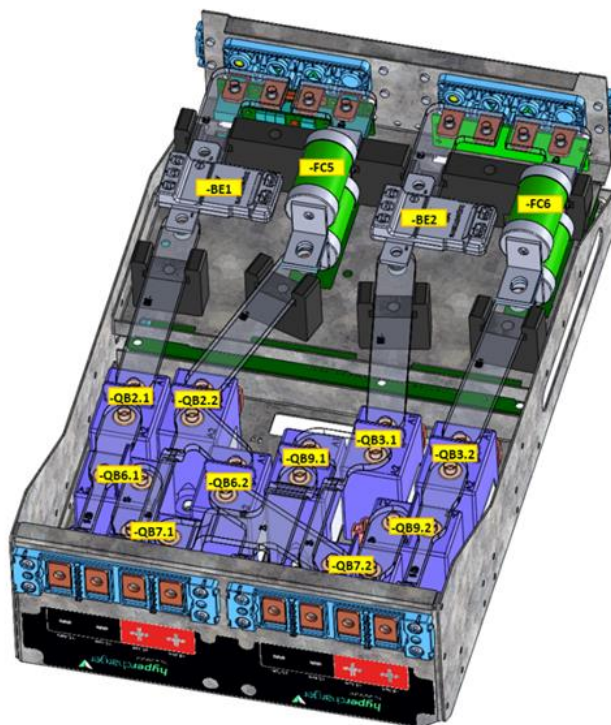


Figure 21: DC output switchgear of the HYC200 (bottom view)



Figure 22: DC output switchgear of the HYC200 (top view)

The following table describes the single components highlighted in the figures above:

Identifier	Description
-BE1	DC-meter for DC-outlet 1
-BE2	DC-meter for DC-outlet 2 (optional)
-FC5	Fuse DC charging cable charge point 1
-FC6	Fuse DC charging cable charge point 2 (optional)
-KF3	CTRL_IO control board
-QB2.1, -QB2.2	DC-outlet 1 contactors
-QB3.1, -QB3.2	DC-outlet 2 contactors
-QB6.1, -QB6.2 -QB7.1, -QB7.2 -QB8.1, -QB8.2	Contactors, to run Power-Stacks in parallel
-XD3.1	DC-busbar - pole for vehicle cable connection XD7 (DC-outlet 1)
-XD3.2	DC-busbar + pole for vehicle cable connection XD7 (DC-outlet 1)
-XD4.1	DC-busbar - pole for vehicle cable connection XD8 (DC-outlet 2)
-XD4.2	DC-busbar + pole for vehicle cable connection XD8 (DC-outlet 2)

Table 13: DC output switchgear components for hypercharger HYC200

The following figure shows the DC-output switchgear of the HYC400:

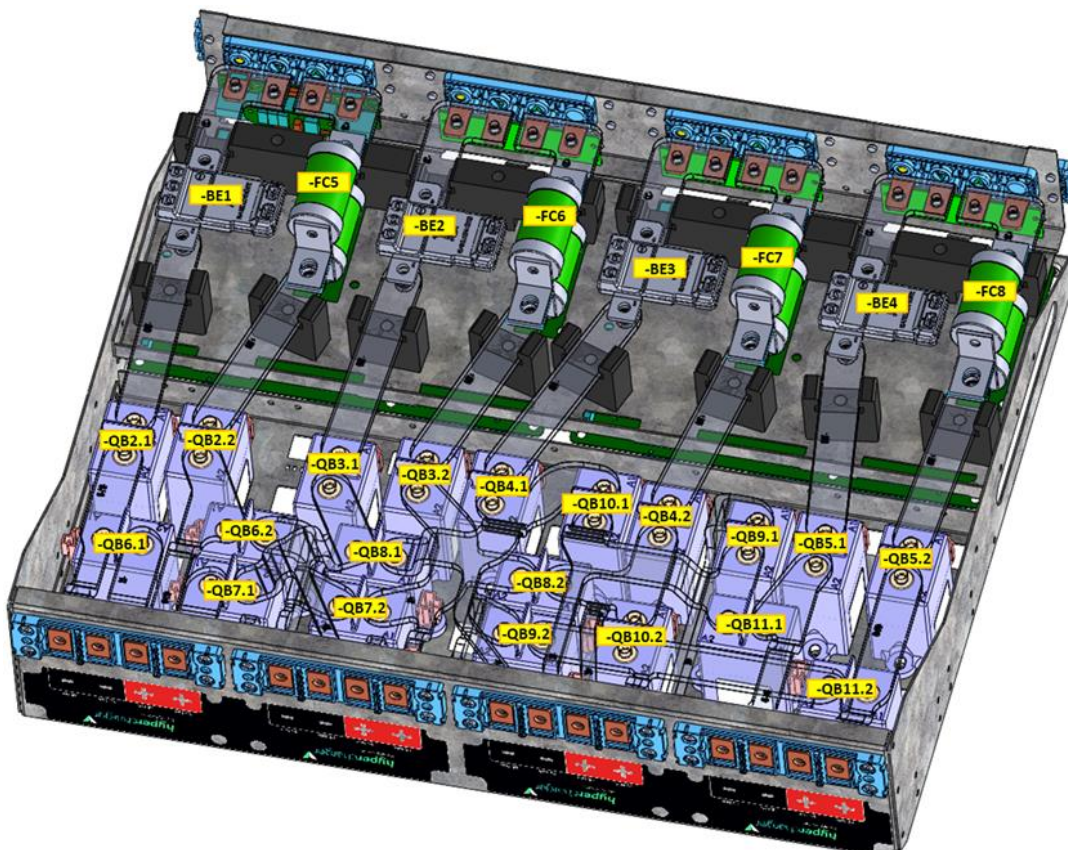


Figure 23: DC output switchgear of the HYC400 (bottom vie

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23.08.2023 12:22:38

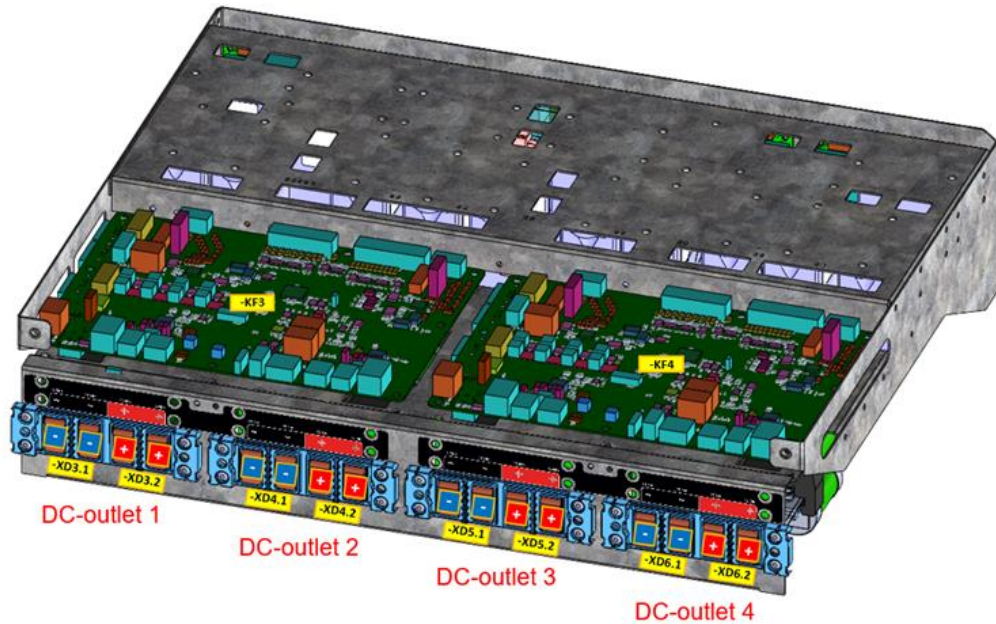


Figure 24: DC output switchgear of the HYC400 (top view)

The following table describes the single components highlighted in the figures above:

Identifier	Description
-BE1, -BE2, -BE3, -BE4	DC-meter for DC-outlet 1/2/3/4 (optional with installation of the calibration law DC meter)
-FC5	Fuse DC charging cable charge point 1
-FC6, -FC7, -FC8	Fuse DC charging cable charge point 2/3/4 (optional)
-KF3	CTRL_IO control board
-KF4	Additional CTRL_IO control board (for 3 or 4 DC outputs)
-QB2.1, -QB2.2	DC-outlet 1 contactors
-QB3.1, -QB3.2	DC-outlet 2 contactors (optional, only if DC output 2 is present)
-QB4.1, -QB4.2	DC-outlet 3 contactors (optional, only if DC output 3 is present)
-QB5.1, -QB5.2	DC-outlet 4 contactors
-QB6.1, -QB6.2 -QB7.1, -QB7.2 -QB8.1, -QB8.2 -QB9.1, -QB9.2 -QB10.1, -QB10.2 -QB11.1, -QB11.2	DC-contactors to switch Power-Stacks in parallel mode
-XD3.1	DC-busbar - pole for vehicle cable connection XD7 (DC-outlet 1)
-XD3.2	DC-busbar + pole for vehicle cable connection XD7 (DC-outlet 1)
-XD4.1	DC-busbar - pole for vehicle cable connection XD8 (DC-outlet 2)
-XD4.2	DC-busbar + pole for vehicle cable connection XD8 (DC-outlet 2)
-XD5.1	DC-busbar - pole for vehicle cable connection XD9 (DC-outlet 3)
-XD5.2	DC-busbar + pole for vehicle cable connection XD9 (DC-outlet 3)
-XD6.1	DC-busbar - pole for vehicle cable connection XD10 (DC-outlet 4)
-XD6.2	DC-busbar + pole for vehicle cable connection XD10 (DC-outlet 4)

Table 14: DC output switchgear components for hypercharger HYC400

2.5.4. CTRL_COM

The CTRL_COM is the main board of the hypercharger. It is located inside the display door opening. It contains the modems, the eight-port switch, the SOM and other interfaces to the individual sub-boards of the charger unit.

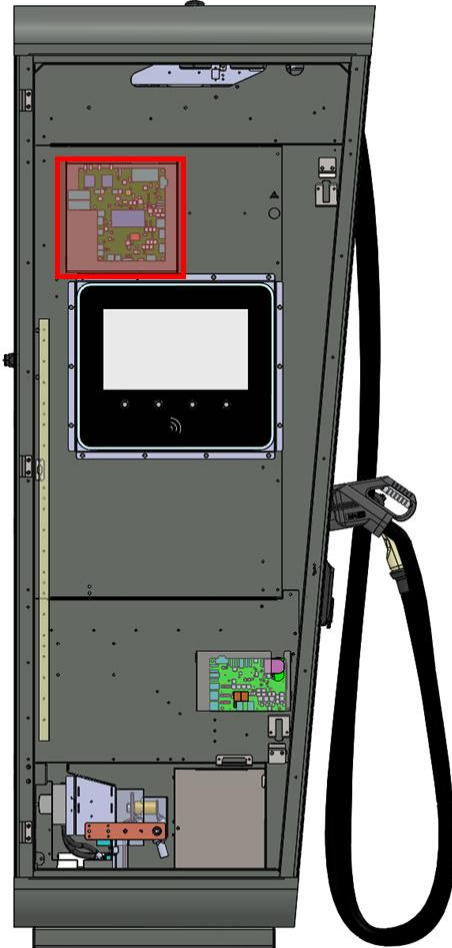


Figure 25: Location of the CTRL_COM in the hypercharger

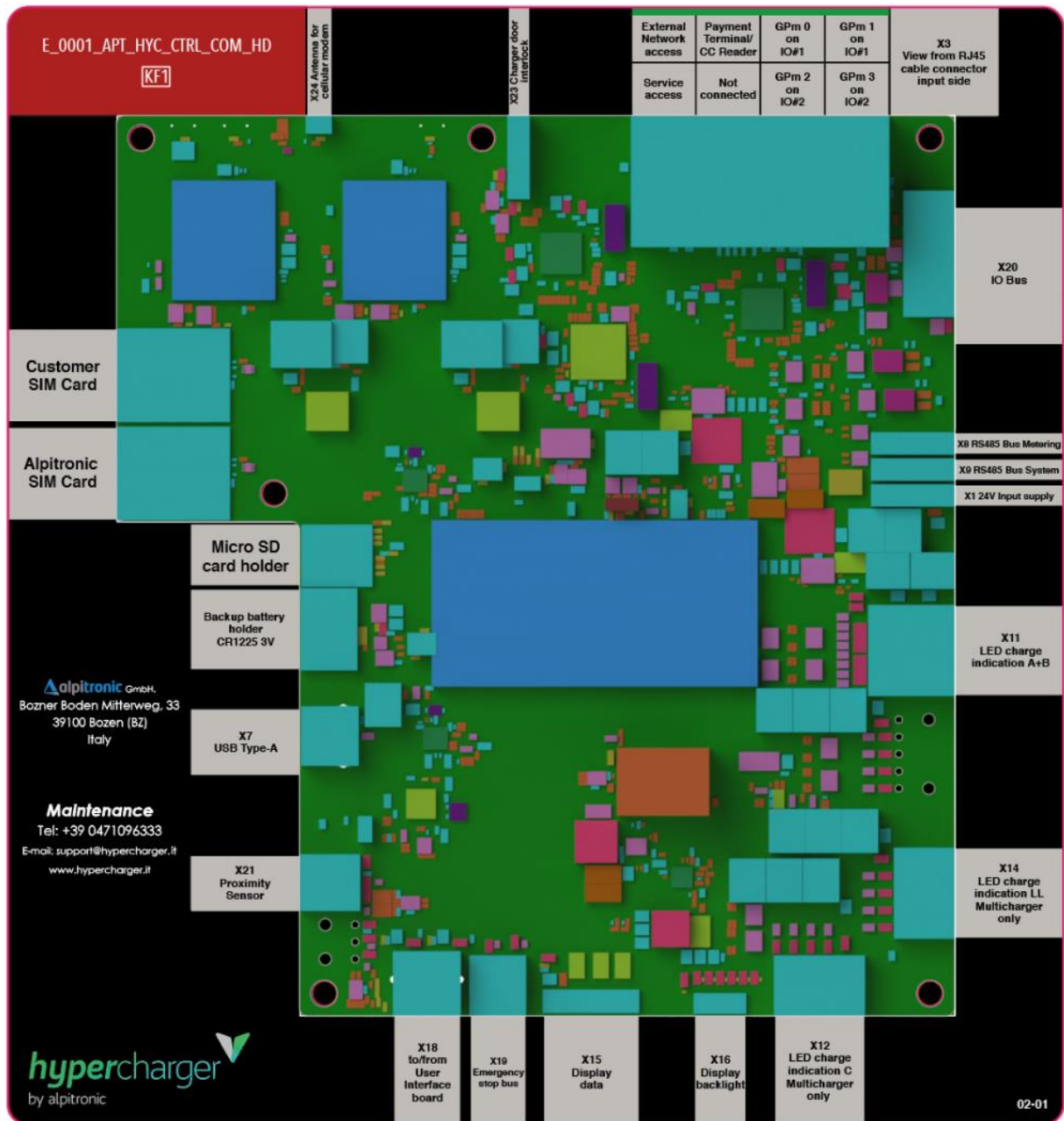


Figure 26: CTRL_COM

Remark



The SIM card slots are designed for mini SIM cards ("standard" size). The charging station is delivered with an alpitronic SIM card already installed. A customer SIM card can be inserted.

2.5.5. Display incl. RFID reader

The display module is equipped with an RFID reader.

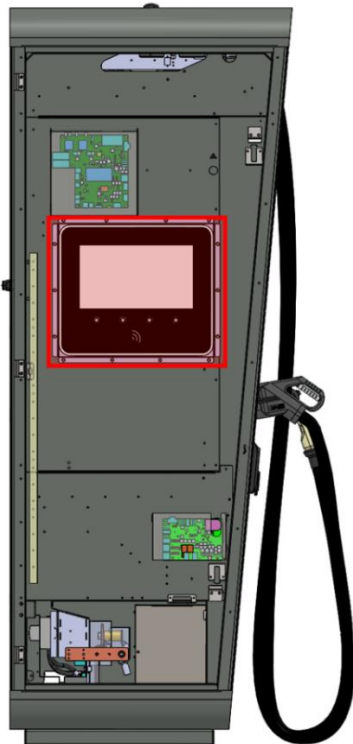


Figure 27: Display module

The display has the following characteristics:

Parameters	Nominal value
Display diagonal	15,6"
Resolution	1,366 (H) x 768 (V) pixels
Brightness	1000 cd/m ²

Table 15: Display properties

The supported RFID standards are the following:

- NFCIP-1, NFCIP-2 protocol
- ISO/IEC 14443A, ISO/IEC 14443B PICC, NFC Forum T4T modes via host interface
- NFC Forum T3T via host interface
- ISO/IEC 14443A, ISO/IEC 14443B PCD designed according to NFC Forum digitalprotocol T4T platform and ISO-DEP
- FeliCa PCD mode
- MIFARE Classic PCD encryption mechanism (MIFARE Classic 1K/4K)
- NFC Forum tag 1 to 5 (MIFARE Ultralight, Jewel, Open FeliCa tag, MIFARE DESFire)
- ISO/IEC 15693/ICODE VCD mode

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23.08.2023 12:22:38

2.5.6. CTRL_EXT

The CTRL_EXT board was introduced with hardware version 4 and replaces the functions of the DS24 board. Its tasks are to control the supply of the various control boards, the cooling unit and other subcomponents. If the charging station has an AC output, it also handles the 6 mA DC fault current detection.

The CTRL_EXT is located in the display opening, the exact position is marked in the following figure.



Figure 28: Location of the CTRL_EXT in the hypercharger

2.6. Additional options

2.6.1. Cooling unit

If an active cooled cable is used (see chapter 2.1) a cooling unit for each cooled cable is needed.

Remark



Only one cooling unit can be installed in the HYC200, a maximum of two cooling units are possible in the HYC400.

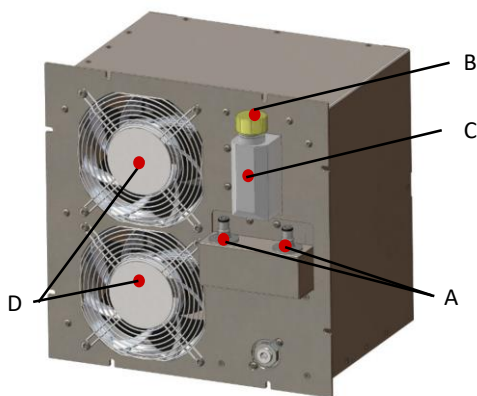


Figure 29: Cooling unit for cooled charging cable (optional)

- A Connection cooling liquid
- B Filler neck
- C Fill level indicator
- D Cooling fans

To facilitate the electrical installation of the hypercharger, the cooling unit should be removed during grid connection (see chapter 4.2.4)

Cooling liquid

The only coolant that can be used is 'innovatek Protect PRO Konzentrat' by innovatek OS GmbH. The coolant is delivered in a default concentration of 52 % with an antifreeze protection reaching -40°C. The filling volume is approx. 1.5 l for cooling unit and charging cable.

Attention



For proper operation, use only the original intended coolant! Orders can be sent to sales@hypercharger.it, the coolant is delivered in 1 l bottles.

When filling the system, make sure that no air bubbles form in the cooling system, which could reduce the cooling capacity. During refilling, the cooling unit should be disconnected from the supply to prevent overflow.

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23.08.2023 12:22:38

2.6.2. Emergency stop button (optional)

The emergency stop button was a mandatory requirement of the CHAdeMO 1.0 standard. With the CHAdeMO 1.1 standard (from June 2016) it is not mandatory anymore and the standard hypercharger is not equipped with an emergency stop button. The emergency stop button can be ordered optionally.

When the emergency stop button is activated:

- Every ongoing charging procedure is immediately interrupted, all Power-Stacks are shut down and the contactors are opened towards the vehicle
- The hypercharger is still internally energized and can be reached via backend or the diagnostic web interface
- Its activation can be detected by the backend or the diagnostic web interface.

The deactivation of the emergency stop button is carried out manually, by pulling the button outward. After a few minutes the charger is operational and ready for new charging procedures.

2.6.2.1. External emergency stop relay (optional)

There is also the option for an external emergency stop, which can be triggered via an external 230 V AC supply (provided by the customer). In this case, a relay is installed inside the display door below the CTRL_EXT board (see chapter 2.5.6), its cabling can be routed to the outside by the customer.



Figure 30: Location of the contactors in the hypercharger

The external 230 V cable is connected to terminals N, L and PE.

Depending on the requirements, a working current or under-voltage current release can be activated.

To activate under-voltage release, please connect the contacts C1 and NO. This mode enables the charging station to operate when the relay is activated and voltage is applied.

The working current release allows the charging station to operate when the relay is not activated. When voltage is applied to the N, L and PE contacts, this contact opens and the charging station is in emergency stop mode. To activate this mode, please connect contacts C2 and N2.

The relay should be set to "auto". To check the functionality, you can set the relay manually to "0" or "1", but make sure to set it back to "auto" afterwards.

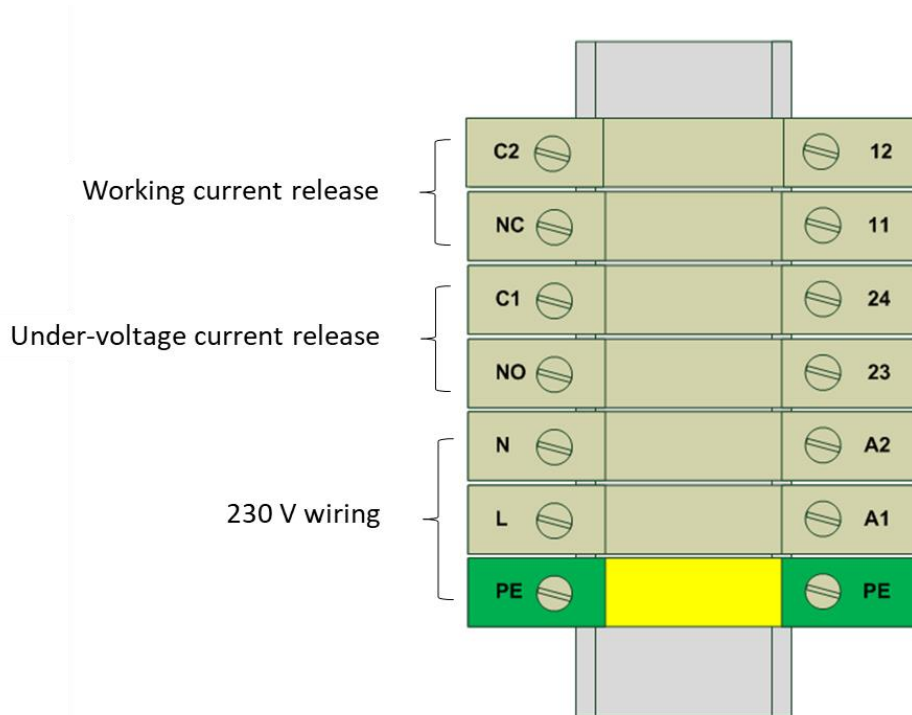


Figure 31: Connection options external emergency stop

Remark



Detailed installation instructions can be requested from hypercharger support (support@hypercharger.it).

2.6.3. Crash sensors (optional)

Optional crash sensors can be installed in the hypercharger. These can be installed by the customer or by alpitronic on request, in which case they must be provided by the customer.

2.6.4. Door contact switches (optional)

To detect the opening of the hypercharger doors via the customer backend, door contact switches can be ordered as an option.

2.6.5. Credit card terminal (optional)

alpitronic uses the COR A20 contactless reader with OPM-C60 controller from CCV Germany. Before mounting the credit card terminal, the customer must conclude an agreement with a payment provider such as BS-Payone, Concardis or CCV. alpitronic then gets the correctly configured CCV terminal, which is then installed in the charging station. The terminal ID of the provider is transmitted by the customer to alpitronic and installed on the terminal (alternatively also configurable by the customer after delivery of the hypercharger).

A credit card terminal provided by the customer can also be installed if it is one of the models mentioned above.

The credit card terminal supports all common credit and bank cards, and the payments made can be viewed in the back end with a certain time delay.



Figure 32: Contactless credit card terminal (model COR A20)

2.6.6. Barrier-free hypercharger (optional)

The hypercharger product line offers barrier-free versions which are designed to be disabled-friendly. In this case, the screen is offset downward by 20 cm.

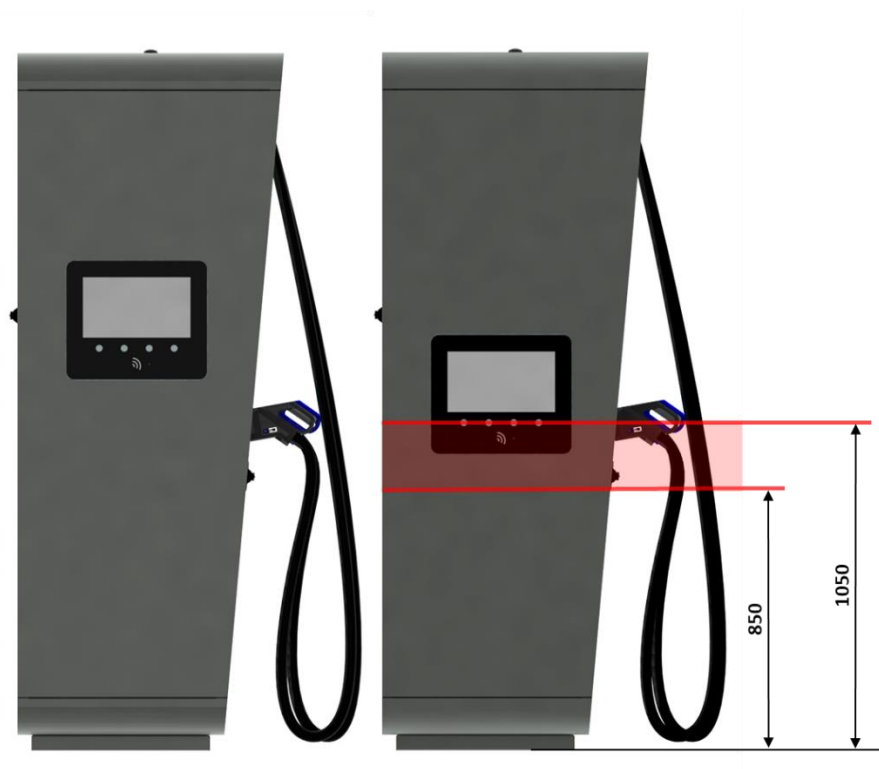


Figure 33: Barrier-free hypercharger

3. Packaging, transport and storage

3.1. Packaging

The hypercharger is delivered in a specialized wood packaging (100% recyclable wood). A laminated polyethylene packaging foam (Stratocell-R 01-01) is used for padding, which must be disposed of separately.

The following figure and table show the packaging and size information for the two charger types.

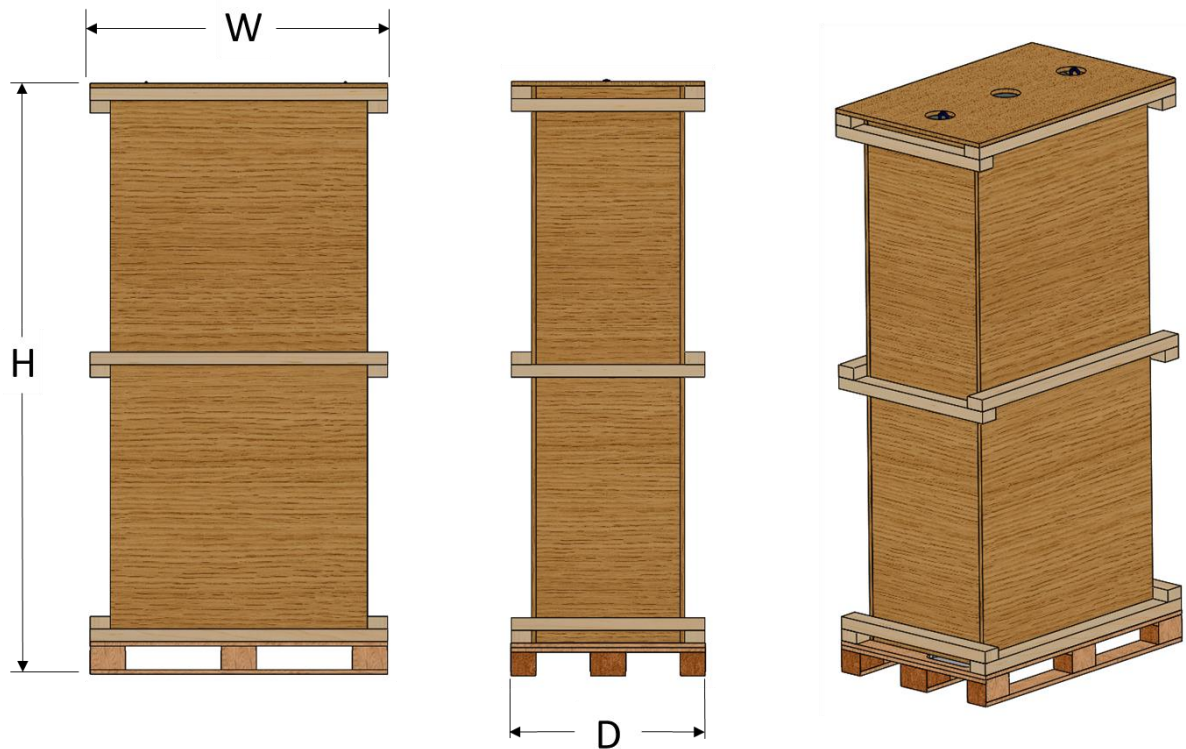


Figure 34: Packaging of the hypercharger (HYC200)

Type	W [mm]	D [mm]	H [mm]
HYC200	1200	800	2340
HYC400	1200	1120	2340

Table 16: Dimensions of the packaging

The following table allows for an easy weight calculation of the various hypercharger configurations depending on the type of housing, number of stacks, number of DC-charging interfaces and cooling units (max. 1 for HYC200 and 2 for HYC400).

Type	Weight of hypercharger [kg]	Weight of packaging [kg]	Threat size for eyebolts
HYC200 s... number of Power-Stacks c... number of charging interfaces cu...number of cooling units	$\sim 200+s*95+c*30+cu*12$ <462	100 wood 3 Stratocell	2 x M12
HYC400 s... number of Power-Stacks c... number of charging interfaces cu...number of cooling units	$\sim 250+s*95+c*30+cu*12$ <774	115 wood 4 Stratocell	4 x M12

Table 17: Maximum weight and threat size for eyebolts for different hypercharger product types

3.2. Transport and storage

Attention



In its wood packaging, the hypercharger must be transported vertically!

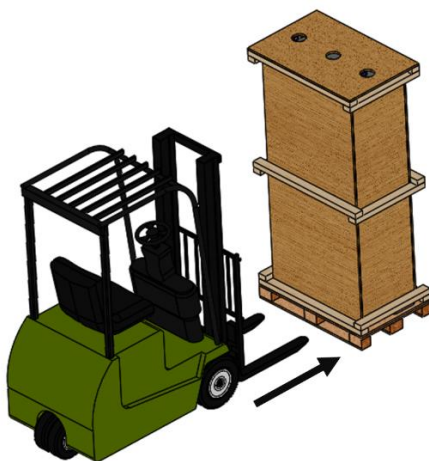


Figure 35: Vertical transport with pallet truck or forklift

In addition to the transport with a pallet truck or a forklift, the hypercharger can be moved by crane, using the two (HYC200 housing) or four (HYC400 housing) crane eyelets. These crane eyelets are mounted directly to the housing and are peeking through the packaging, allowing the transfer of the charger while in its protective packaging.

Attention



The maximum angle of the sling should be 55°. The minimum distance from the crane hook to the hypercharger roof should be 775 mm. If you do not maintain this distance, there is a risk that the roof will bend.

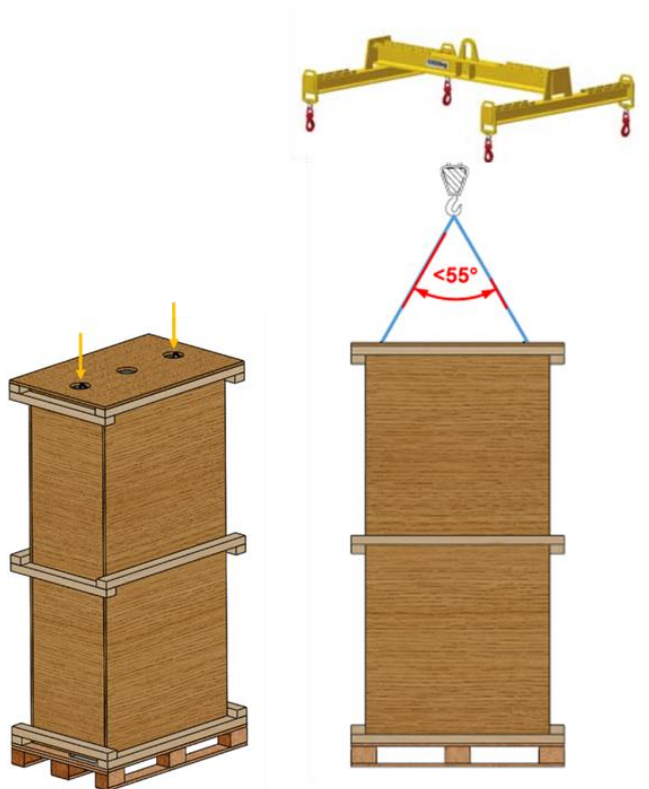


Figure 36: Crane eyelets on top of the packaging

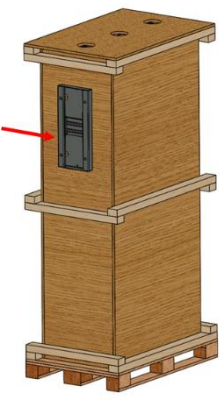

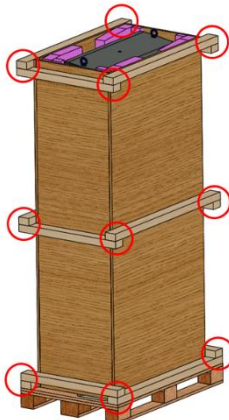

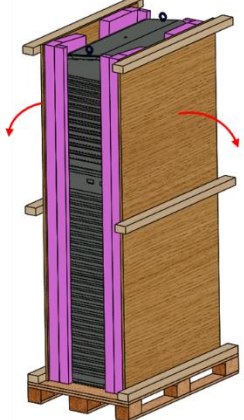

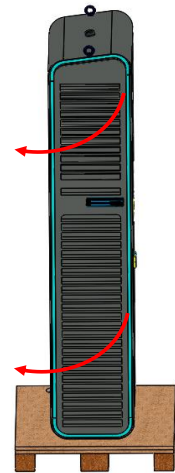
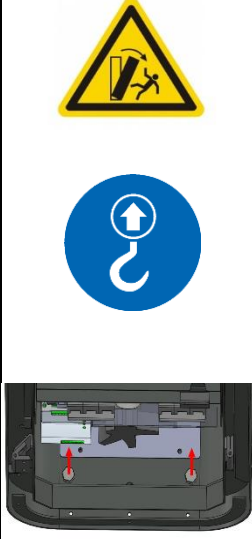
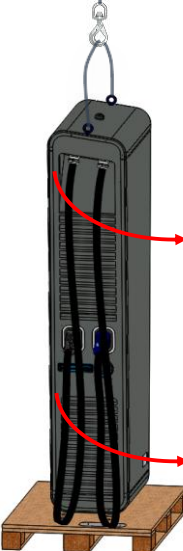

Attention



The hypercharger must be stored in its original packaging at a relative ambient humidity of 0...95% (non-fogging) and temperatures of -40 °C to + 55 °C.

3.3. Unpacking

It is recommended to transport the hypercharger to its definite destination in its original packaging and unpack it there. The following illustrations show the sequence how to unpack the hypercharger:

How to unpack the hypercharger				
1	2	3	4	5
				
Remove the hypercharger base	Remove the screws and lift top cover	Remove screws on all edges and remove side panels	Remove screws on front and rear panel	Remove front and rear panel
6	7	8	9	10
				
Remove the packaging material	Open service door	*Remove screws on the base plate of the hypercharger	Open charging cable door	Open display door

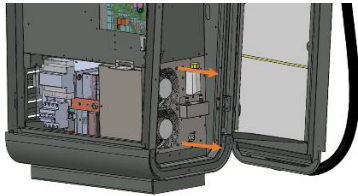


11	12	13
		
If present, remove the cooling unit	* Remove screws on the base plate of the hypercharger	Close all doors, lift the hypercharger with a crane and remove the pallet

Figure 37: Unpacking the hypercharger

***Attention**



Before loosening the mounting screws between the hypercharger and the pallet, the hypercharger must be protected against overturning. This protection must be maintained until final mounting to the foundation.

***Remark**



These screws can be reused during the installation. They are used to mount the hypercharger on the base plate (see chapter 4.1.4).

4. hypercharger installation and commissioning

This chapter describes the mechanical and electrical installation of the hypercharger. It is recommended to install the hypercharger according to the steps below:

- Site configuration (chapter 4.1.1)
- Placement of a concrete foundation (chapter 4.1.2)
- Mounting the hypercharger base on the foundation (chapter 4.1.3)
- Preparation of the mains power-supply cables (chapter 4.2.3).
- Mounting the hypercharger on the base plate (chapter 4.1.4)
- Grid connection (chapter 4.2.4)

4.1. Mechanical installation of the hypercharger

The following figure shows the relevant components for the mechanical installation:

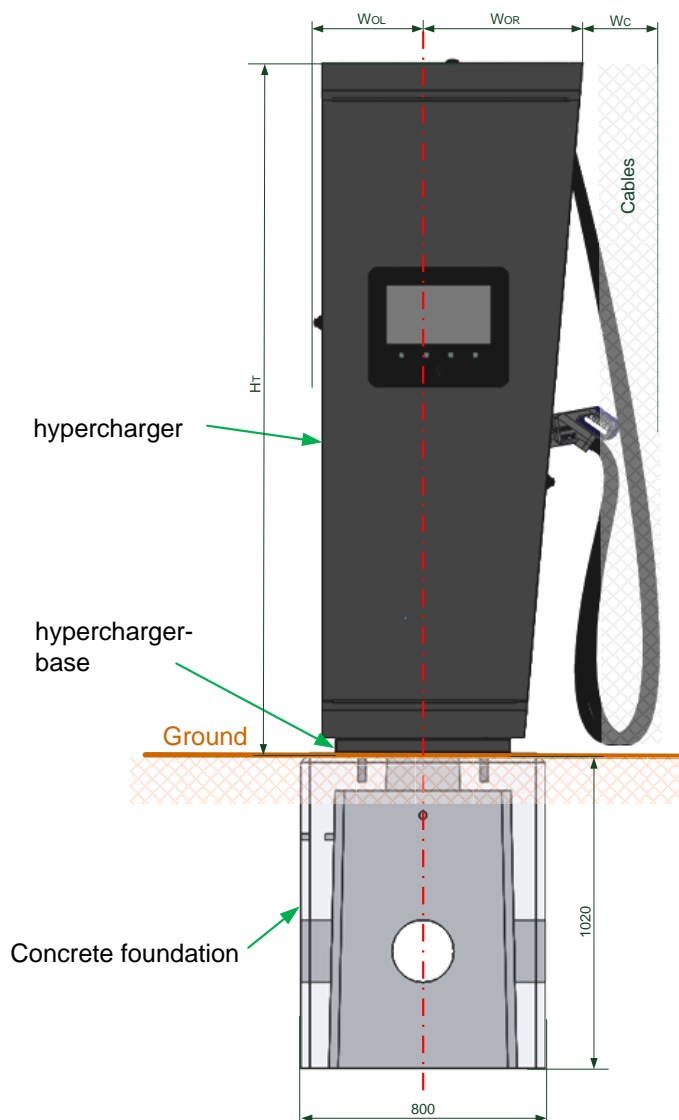


Figure 38: Relevant components for the mechanical installation of the hypercharger

Distance	HYC200	HYC400
H _T	2250 mm (± 3 mm)	2250 mm (± 3 mm)
W _C	300 mm	300 mm
W _{OL}	357 mm (± 3 mm)	357 mm (± 3 mm)
W _{OR}	519 mm (± 3 mm)	516 mm (± 3 mm)

Table 18: Distances

4.1.1. Site configuration

When installing the hypercharger, it must be ensured to maintain a minimum distance from possible objects around the hypercharger, in order to allow adequate airflow and to have enough space for possible service or maintenance operations.

Attention



The position of the hypercharger is to be chosen in a way to avoid any potential damage caused by any foreseeable circumstance.
A mechanical ramming protection with enough stability should be provided to protect the charging station.

Figure 39 shows the recommended and minimum distances which should be kept free during installation on site. The recommended distances are designed for convenient maintenance of the hypercharger, while the mandatory distances represent the absolute minimum for maintenance work, e.g., to be able to carry out a Power-Stack exchange.

Attention



The legal minimum widths for escape routes must be respected in any case.



Before installation, compliance with all legal requirements for the installation site (e.g., stability against tipping, impact protection, effects of frost, etc.) must be checked.



Taking the ergonomics and mechanical impact protection into account, each charging outlet must be positioned as close as possible to the parking-space to be supplied. Pay attention to the cable radius (Figure 5).

Remark



The surrounding ground should ideally be completely flat.

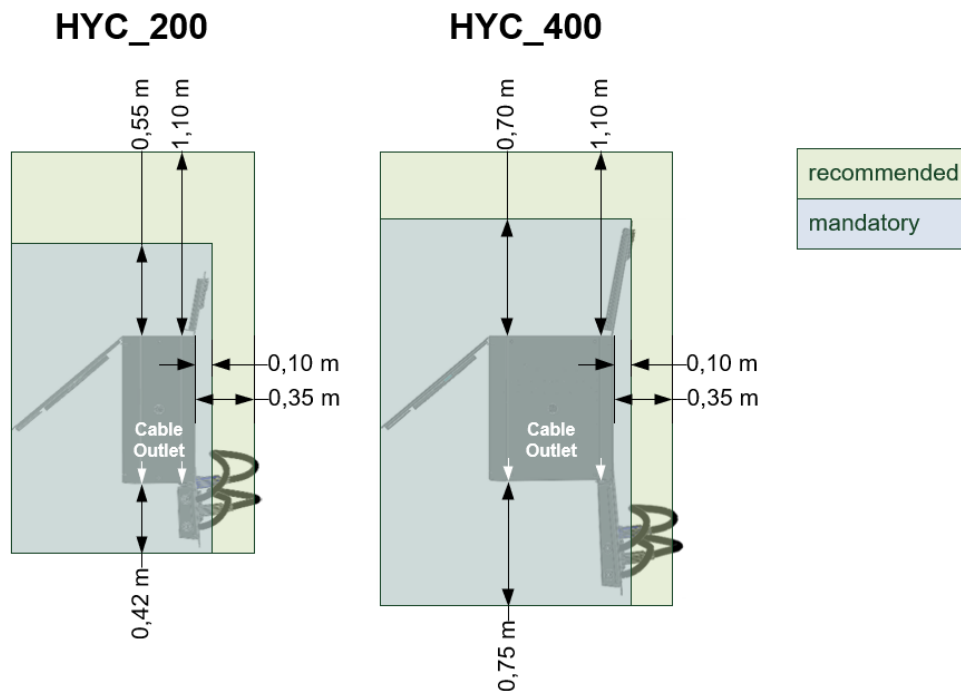


Figure 39: Recommended distances for site configuration

If the hyperchargers operating location is in a closed or partially closed environment, it is essential to eliminate airflow from the air outlet to the air inlet. Any obstruction of the air circulation may lead to a derating of the charging station.

The following points are taken from a publication by German insurers on loss prevention (VdS 3471):

- no highly flammable materials should be stored in the immediate vicinity of the charging station
- in fire-hazardous locations according to VdS 2033, areas with explosion risks, no charging stations are permitted
- the installation of a fire alarm system is recommended - where appropriate – in order to detect fires at an early stage
- when installing in garages, the garage regulations must be considered
- an additional surge protection device in the supply circuit is recommended

4.1.2. Placement of a concrete foundation

The mounting of the hypercharger must be performed on a solid ground, this can be a concrete foundation or a concrete floor. When dimensioning the foundation, it is recommended to perform a static load capacity analysis according to relevant norms.

A foundation can also be ordered optionally from alpitronic (sales@hypercharger.it). This measures 80 x 80 x 102 cm and weighs 770 kg and can be used for both the HYC200 and the HYC400.

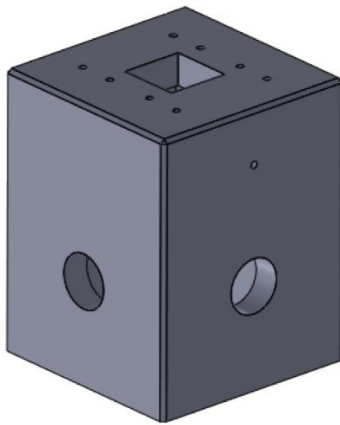


Figure 40: hypercharger concrete foundation

Remark



The hypercharger foundation is designed for level 3 wind zones (maximum wind speed of 27,5 m/s; wind load $q_b = 0,47 \text{ kN/m}^2$) and terrain categories II.

There are no screw eyes for positioning the hypercharger foundation. For this reason, it is recommended to insert a support beam (wooden beam/double-T beam) in the central opening (visible in Figure 40), by means of which a crane can lift and position the foundation.

A clean layer of at least 10 cm should be installed on an area of 1 x 1 m. The foundation should be backfilled with material GW, GI, SW, SI according to DIN 18196 and compacted in layers.

Remark



The foundation should be backfilled to the lower edge of the cable entry plate.

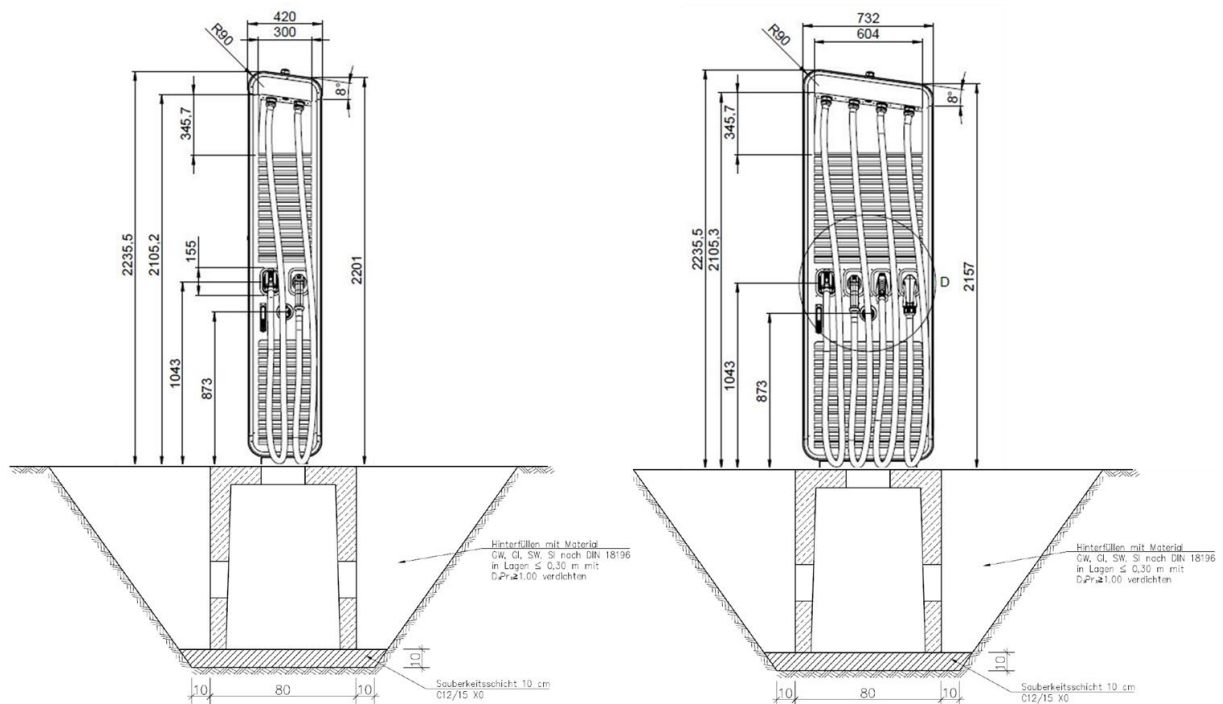


Figure 41: Backfill of the foundation

Remark



The bending radius of the mains cables is 0.73 m due to the concrete foundation. The diameter of the lateral openings is 20 cm.

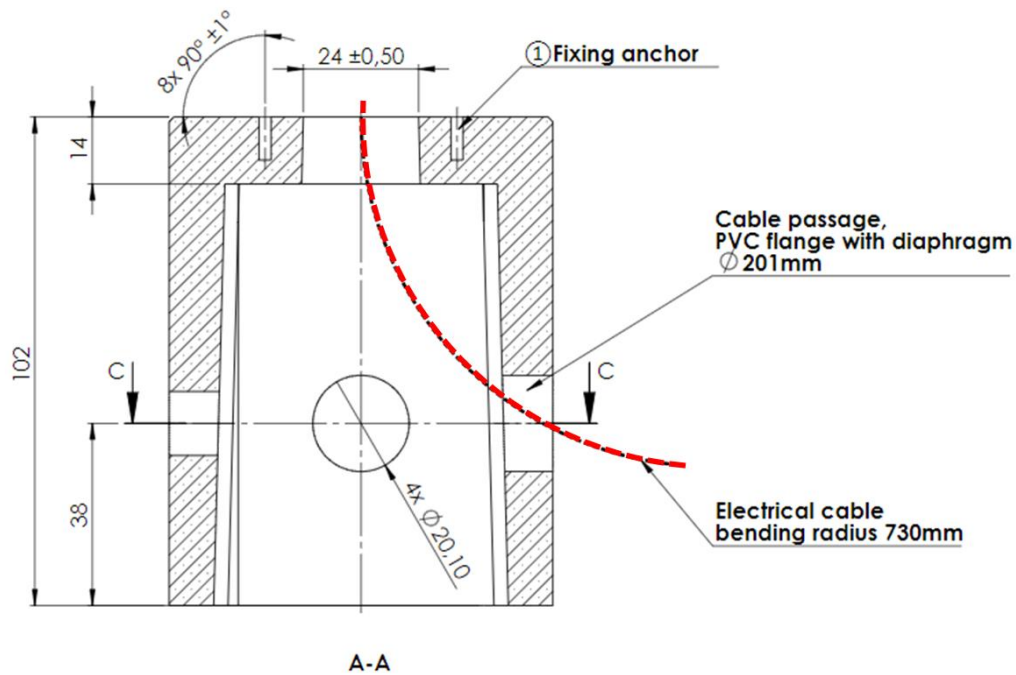


Figure 42: Bending radius mains cables

4.1.3. Mounting the hypercharger base on the foundation

The hypercharger base (or base plate) is delivered with the hypercharger, it is attached to the outside of the wooden packaging.

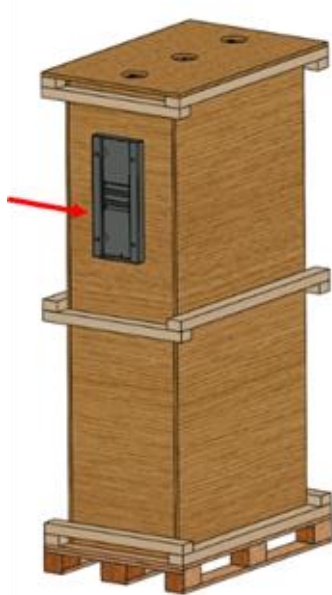


Figure 43: hypercharger base

The hypercharger base includes a cable entry plate with the cable glands, which are determined based on the ordered power cables. This is used for cabling the mains cables; more detailed information is provided in chapter 4.2 on the electrical installation.

The following two figures show the hypercharger bases incl. cable entry plates and their dimensions.

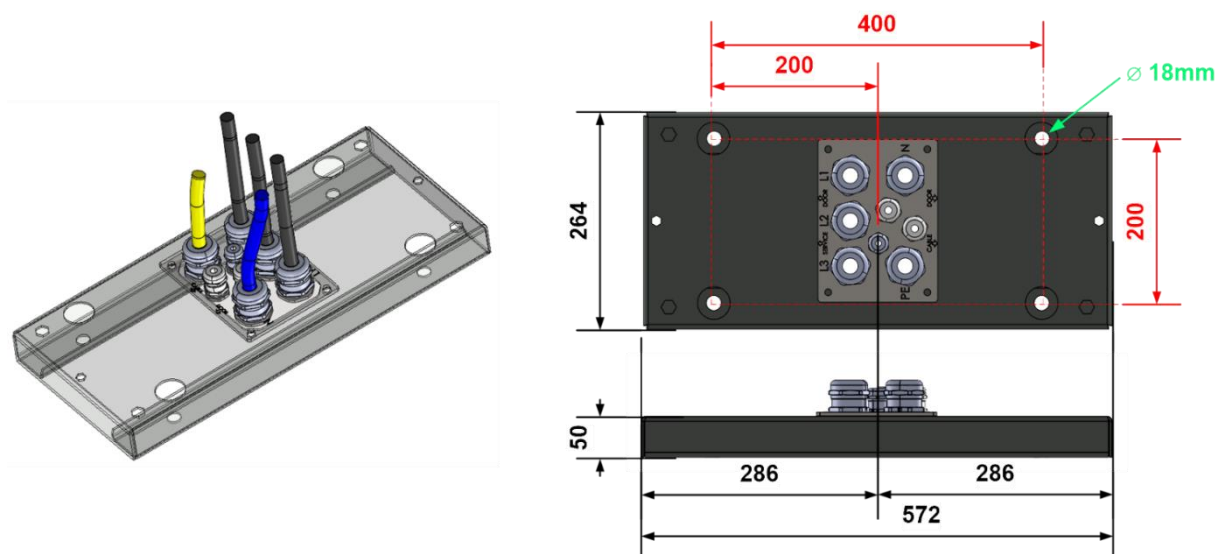


Figure 44: hypercharger base for the HYC200 (dimensions in mm)

paulius.andriuska@ignitis.lt
23.08.2023 12:22:38

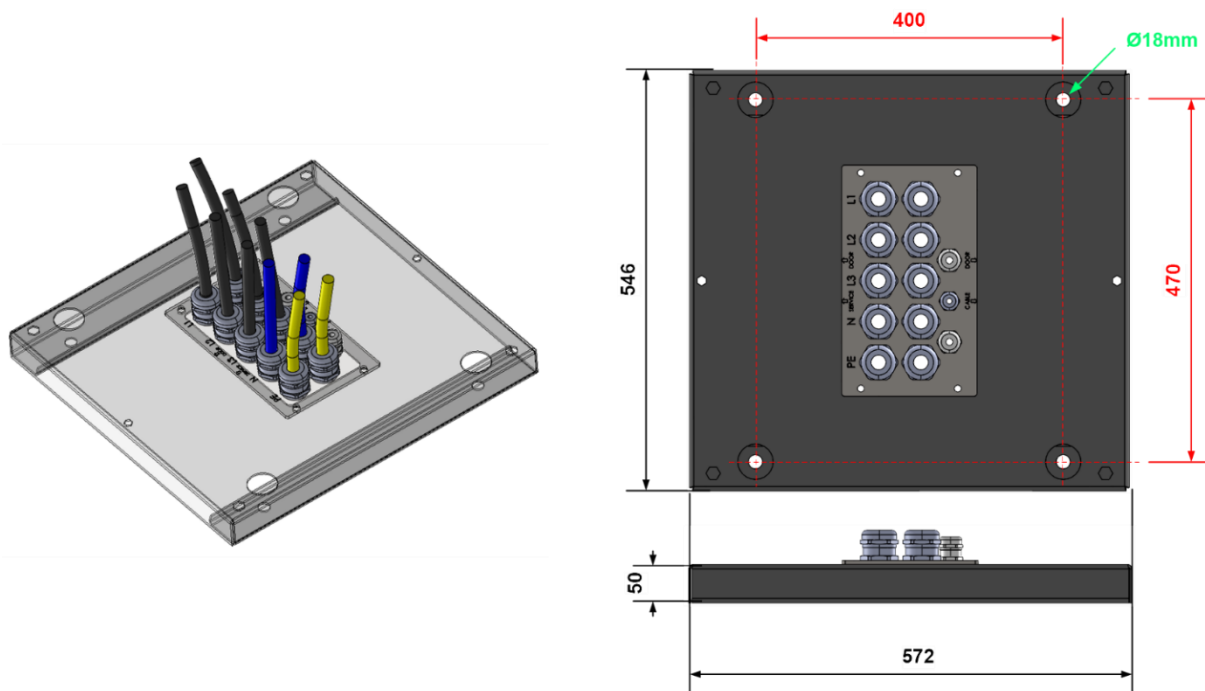


Figure 45: hypercharger base for the HYC400 (dimensions in mm)

Attention



The use of the cable entry plate is mandatory! If not used, dust and dirt can be sucked in, which can damage the hypercharger.

The hypercharger base must be fixed to the concrete foundation. The mains power-supply cables for connecting the hypercharger to the grid are routed through the foundation and the cable entry plate. Thus, the base fixes the connection of the mains supply with the hypercharger, using cable glands.

Remark



If a concrete foundation has been ordered, 4 fixing screws (M16 x 80 mm) and washers (M16 x 30 mm) are supplied with the hypercharger.



If the foundation was not ordered separately, stainless steel screws should be used to mount the base on the foundation.

Attention



The screws must be tightened with a torque of 90 Nm.

The position of the base plate and the cable entries must be defined coming from the foundation.

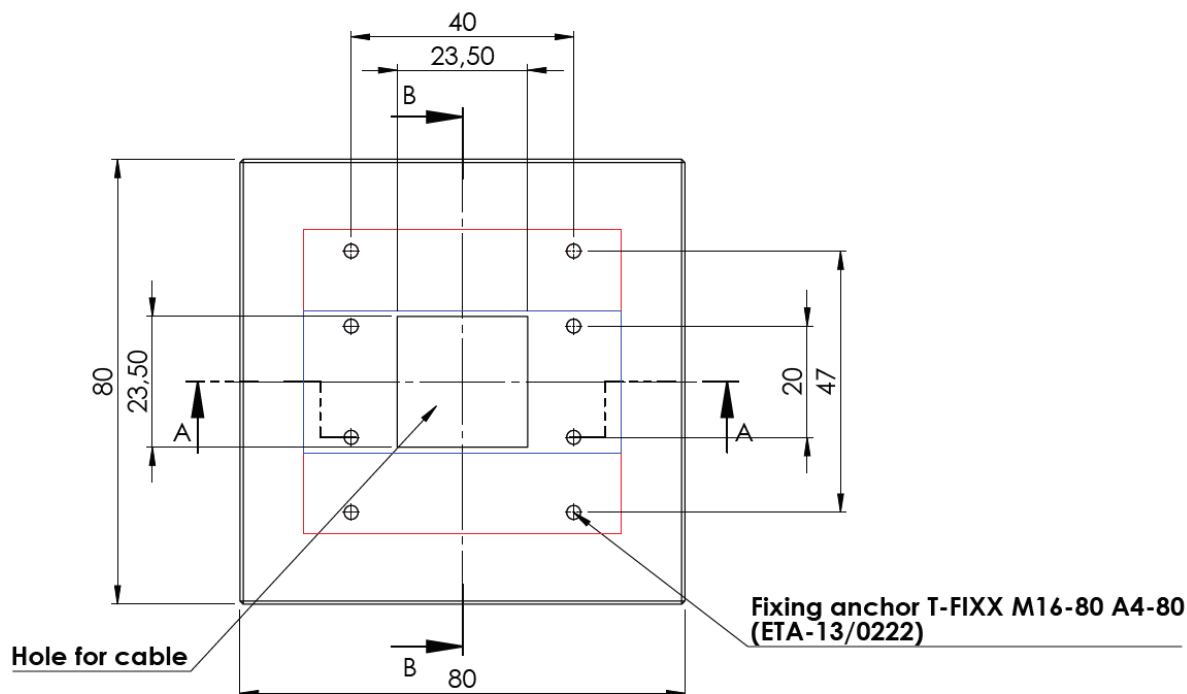


Figure 46: Position of the HYC200 (blue) and HYC400 (red) base on the foundation

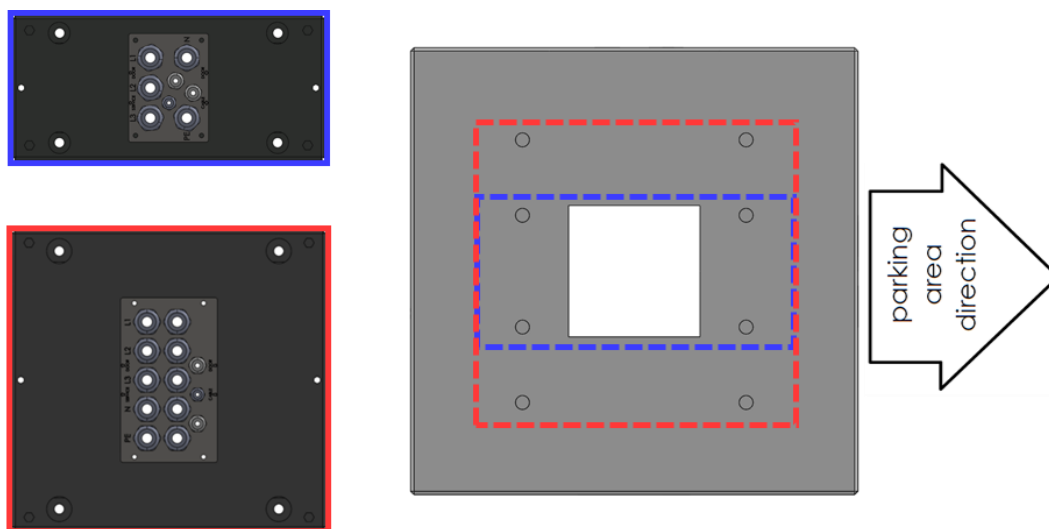


Figure 47: Alignment of the base and cable entry plates on the foundation

The external dimensions for the HYC200 (related to the center of the base plate) are shown in the following figure and specified in Table 19.

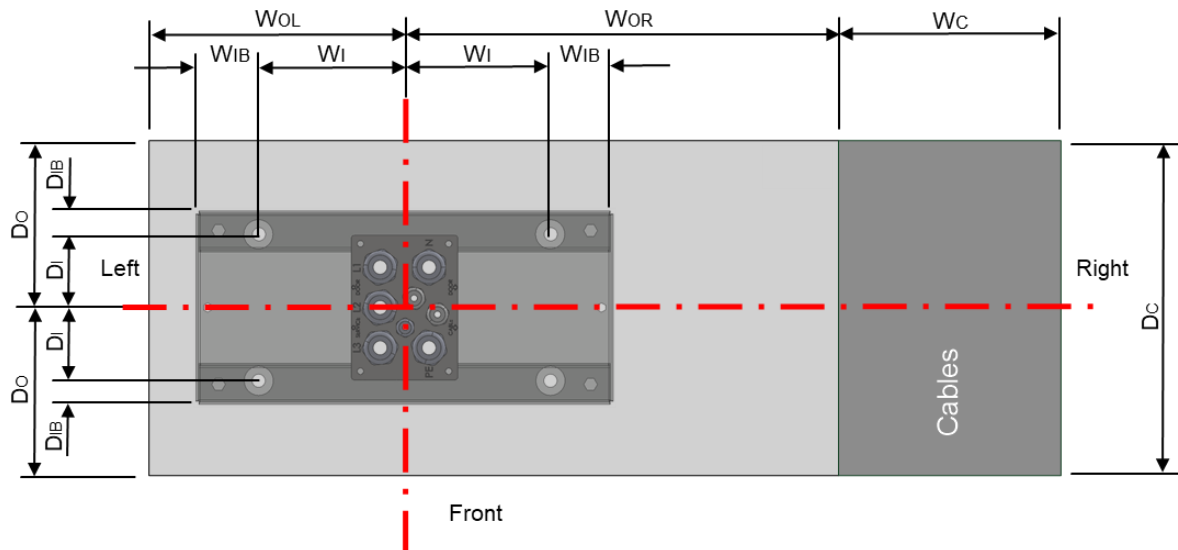


Figure 48: Distances between the base and the outer dimensions of the HYC200 (top view)

The external dimensions for the HYC400 (related to the center of the base plate) are shown in the following figure and specified in Table 19.

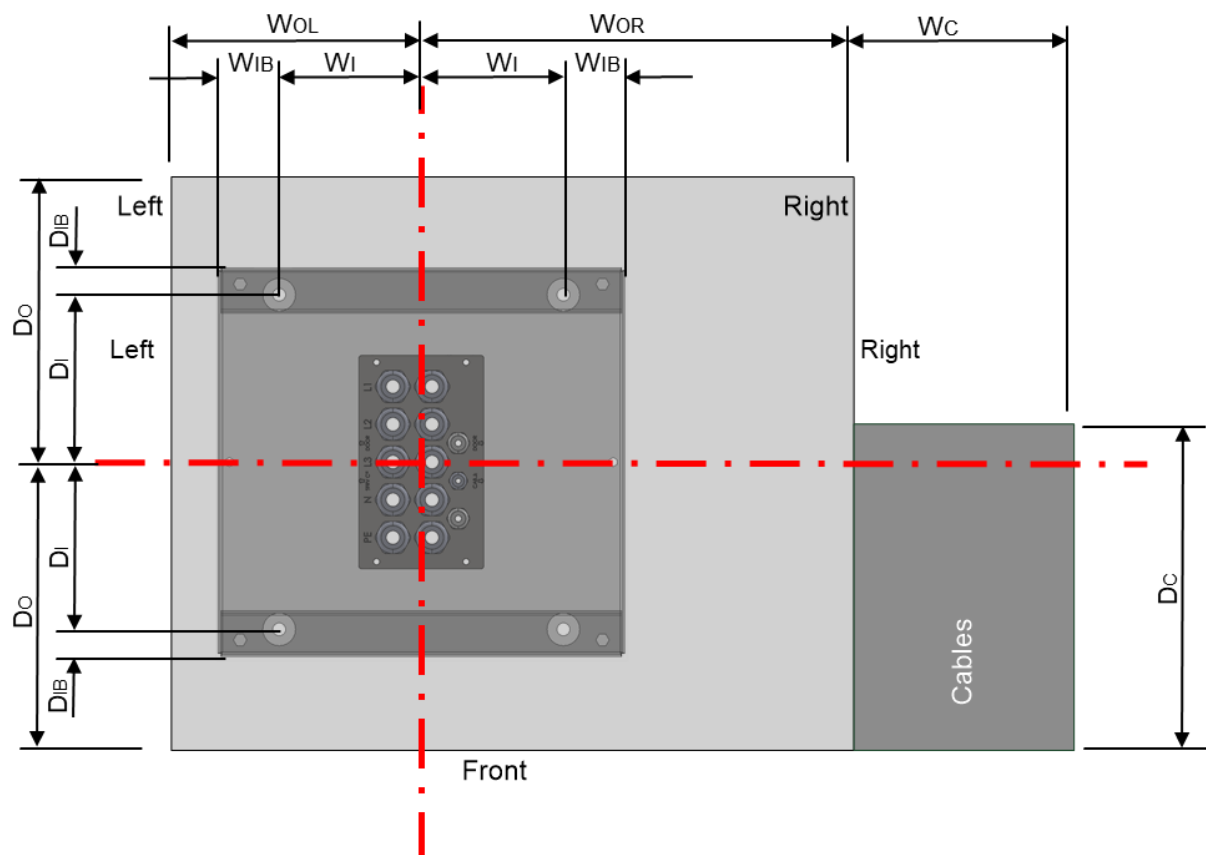


Figure 49: Distances between the base and the outer dimensions of the HYC400 (top view)

Distance	HYC200	HYC400
D _C	420 mm	420 mm
D _I	100 mm	235 mm
D _{IB}	32 mm (± 3 mm)	38 mm (± 3 mm)
D _O	210 mm (± 3 mm)	366 mm (± 3 mm)
W _C	300 mm	300 mm
W _I	200 mm	200 mm
W _{IB}	86 mm (± 3 mm)	86 mm (± 3 mm)
W _{OL}	357 mm (± 3 mm)	357 mm (± 3 mm)
W _{OR}	519 mm (± 3 mm)	516 mm (± 3 mm)

Table 19: Distances between base plate and outer dimensions of charging station

4.1.4. Mounting the hypercharger on the base plate

Before fixing the hypercharger to the base, the power cables must be prepared (see chapter 4.2.3).

Once this step has been carried out, the hypercharger can be positioned on the base with a crane (using the eyelets provided on the top) and screwed tight.

Remark



The screws with which the hypercharger is secured to the wooden pallet on delivery (see chapter 3.3) can be used for fixing (four M12 x 30 mm screws and 32 mm washers).



You can also use 30 or 40 mm washers.

Attention



The screws must be tightened with a torque of 90 Nm.

4.2. Electrical installation

The dimensioning of the cables and the protection devices outside the hypercharger has to be done according to the local regulations and in order to respect the technical specification of the hypercharger stated in chapter 11.

4.2.1. hypercharger schematic HYC200

The following figure shows the schematic of the hypercharger for the HYC200:

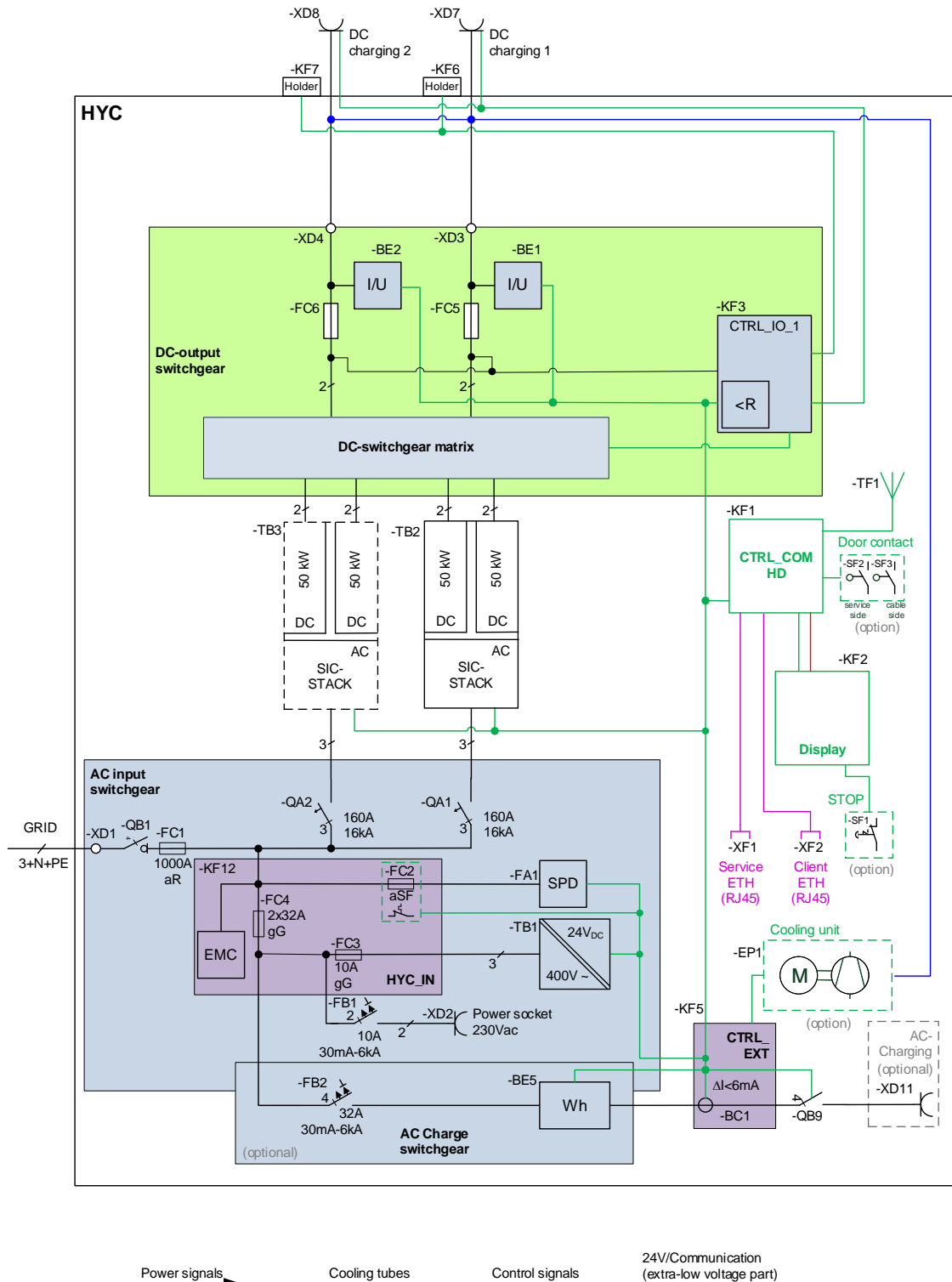


Figure 50: hypercharger schematic for the HYC200

Identifier	Description
-BC1	DC fault current monitoring for AC charging (optional, only when AC-socket or AC cable is present)
-BE1, -BE2	Current/voltage measurement for charge point 1/2 (optional with installation of the calibration law DC meter)
-BE5	AC meter (MID compliant)
-EP1	Cooling unit for cooled charging cable (optional, only with cooled charging cable)
-FA1	SPD, surge arrester
-FB1	10 A circuit breaker with fault current monitoring for internal supply and service-socket
-FB2	32 A circuit breaker with fault current monitoring (optional, only with AC socket)
-FC1	Input fuse (fast-acting)
-FC2	Backup protection SPD with trip monitoring
-FC3	Fuse 24Vdc power supply unit, service socket
-FC4	Backup protection AC charge point (optional)
-FC5	Fuse DC charging cable charge point 1
-FC6	Fuse DC charging cable charge point 2 (optional)
-KF1	CTRL_COM_HD control board
-KF2	CTRL_COM Display
-KF3	CTRL_IO control board
-KF5	CTRL_EXT control board
-KF6, -KF7	Holder charge point 1/2
-KF12	HYC_IN with EMC components and fuses
-QA1, -QA2	160 A circuit breaker / 3P
-QB1	400 A main switch / 4P
-QB9	Contactors for AC charging (optional, only when AC socket is present)
-SF1	Emergency stop button (optional)
-SF2, -SF3	Door contact switch (optional)
-TB1	Auxiliary 24 V power supply
-TB2, -TB3	hypercharger Power-Stacks
-TF1	Antenna (3G, 4G/LTE)
-XD1	Mains input busbars
-XD2	Power socket 230 Vac for service
-XD3	DC-busbar for vehicle cable connection XD7 (DC-outlet 1)
-XD4	DC-busbar for vehicle cable connection XD8 (optional, only when DC-outlet 2 is present)
-XD7	DC charge outlet 1
-XD8	DC charge outlet 2 (optional)
-XD11	AC socket (optional, only when AC socket is present)
-XF1	Ethernet-network-socket (service)
-XF2	Ethernet-network-socket (client-LAN)

Table 20: Legend of the hypercharger schematic for the HYC200

4.2.2. hypercharger schematic HYC400

The following figure shows the schematic of the hypercharger for the HYC400:

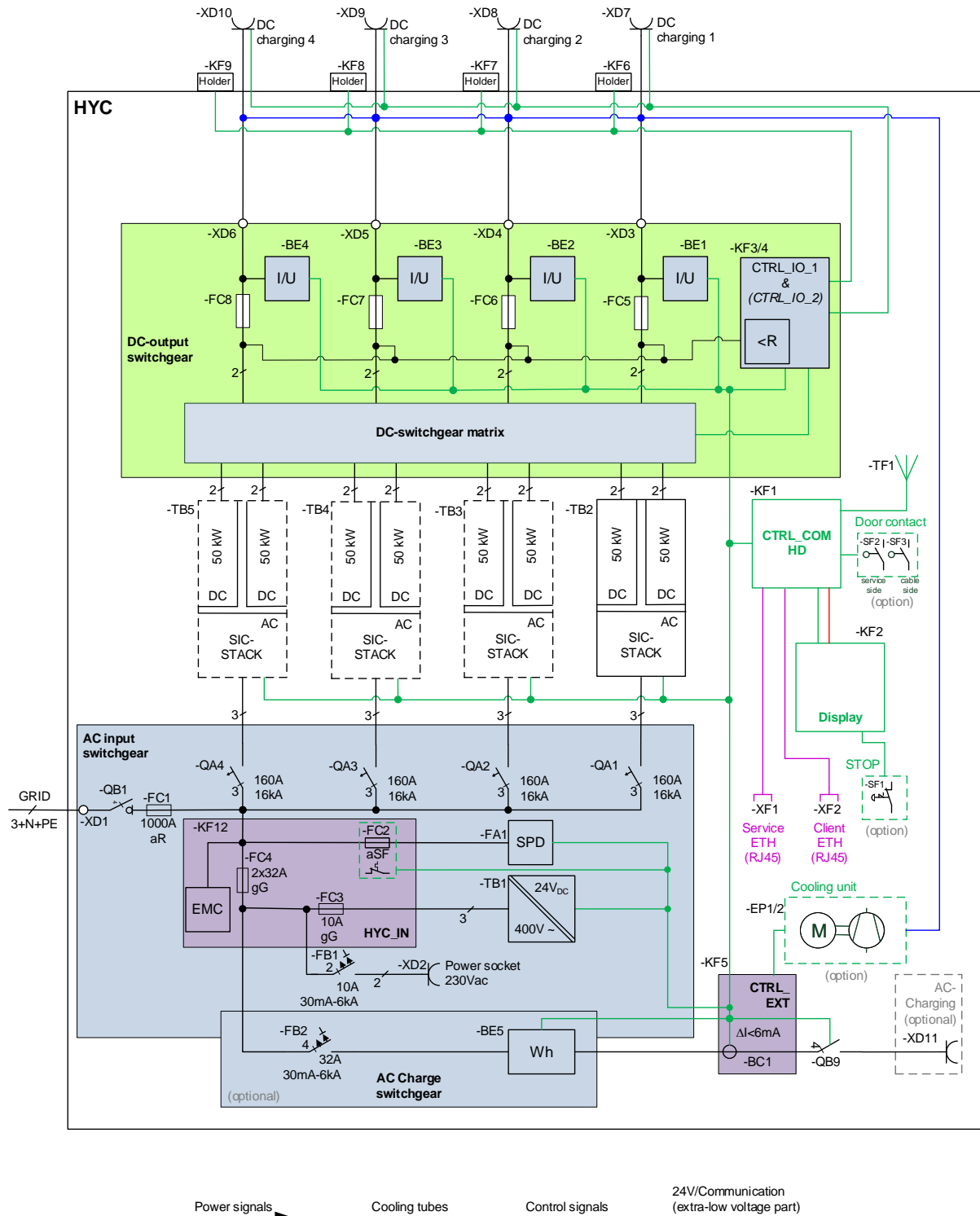


Figure 51: hypercharger schematic for the HYC400

Identifier	Description
-BC1	DC fault current monitoring for AC charging (optional, only when AC-socket or AC cable is present)
-BE1, -BE2, -BE3, -BE4	Current/voltage measurement for charge point 1/2/3/4 (optional with installation of the calibration law DC meter)
-BE5	AC meter (MID compliant)
-EP1, -EP2	Cooling unit for cooled charging cable (optional, for cooled charging cable only)
-FA1	SPD, surge arrester
-FB1	10 A circuit breaker with fault current monitoring for internal power supply and service socket
-FB2	32 A circuit breaker with fault current monitoring (optional, only when AC charging socket is present)
-FC1	Input fuse (fast-acting)
-FC2	Backup protection SPD with trip monitoring
-FC3	Fuse 24Vdc power supply unit, service socket
-FC4	Backup protection AC charge point (optional)
-FC5	Fuse DC charging cable charge point 1
-FC6, -FC7, -FC8	Fuse DC charging cable charge point 2/3/4 (optional)
-KF1	CTRL_COM_HD control board
-KF2	CTRL_COM Display
-KF3	CTRL_IO control board
-KF4	Additional CTRL_IO board (for 3 or 4 DC Outputs)
-KF5	CTRL_EXT control board
-KF6, -KF7, -KF8, -KF9	Holder charge point 1/2/3/4
-KF12	HYC_IN with EMC components and fuses
-QA1, -QA2, -QA3, -QA4	160 A circuit breaker / 3P
-QB1	630 A main switch / 4P
-QB9	Contactors for AC charging (optional, only when AC-socket is present)
-SF1	Emergency stop button (optional)
-SF2, -SF3	Door contact switch (optional)
-TB1	Auxiliary 24 V power supply
-TB2, -TB3, -TB4, -TB5	hypercharger Power-Stacks
-TF1	Antenna (3G, 4G/LTE)
-XD1	Mains input busbars
-XD2	Power socket 230 Vac for service
-XD3	DC-busbar for vehicle cable connection XD7 (DC-outlet 1)
-XD4	DC-busbar for vehicle cable connection XD8 (optional, only when DC-outlet 2 is present)
-XD5	DC-busbar for vehicle cable connection XD9 (optional, only when DC-outlet 3 is present)
-XD6	DC-busbar for vehicle cable connection XD10 (optional, only when DC-outlet 4 is present)
-XD7	DC charge outlet 1

-XD8, -XD9, -XD10	DC charge outlet 2/3/4 (optional)
-XD11	AC socket (optional, only when AC-socket is present)
-XF1	Ethernet-network-socket (service)
-XF2	Ethernet-network-socket (client-LAN)

Table 21: Legend of the hypercharger schematic for the HYC400

4.2.3. Preparation mains power-supply cables

Before the hypercharger base is mounted, the mains-side cables are conducted through foundation and hypercharger base.

As described in chapter 4.1.3, different cable entry plates are available depending on the model:

HYC200	HYC400
5 x M40 Hole for cable glands with a clamping range of: 19-28 mm (L1, L2, L3, N, PE)	10 x M40 Hole for cable glands with a clamping range of: 19-28 mm (2 x L1, L2, L3, N, PE each)
1* x M20 Hole for cable glands with a clamping range of: 7-13 mm	1* x M20 Hole for cable glands with a clamping range of: 7-13 mm
2*x M25 Hole for cable glands with a clamping range of: 11-17 mm (for data cable, if used)	2*x M25 Hole for cable glands with a clamping range of: 11-17 mm (for data cable, if used)

Table 22: Available cable entry plates for hypercharger base

The necessary cable glands are determined by what type of mains power-supply cable is used and should be defined during the ordering process of the hypercharger.

Remark



If you require a modification of the standard variant of the cable entry plate, please contact the sales team (sales@hypercharger.it).

M12 - M16 (preferable M16 - to facilitate the connection) cable lugs can be used to connect the cables.

To determine the position of the cable lugs, a so-called **cable jig** can be used. This can be ordered separately.

This cable jig is mounted to the base of the hypercharger and mimics the position where the cable glands are going to be positioned on the AC input switchgear. By using the cable jig, the cable lugs can easily be brought in the correct position and attached without being hindered by a restricted access inside the cabin (see Figure 55 and Figure 56). After mounting the cable lugs to the cable jig, the cable glands can be tightened, fixing the connection points to the switchgear in the correct position.

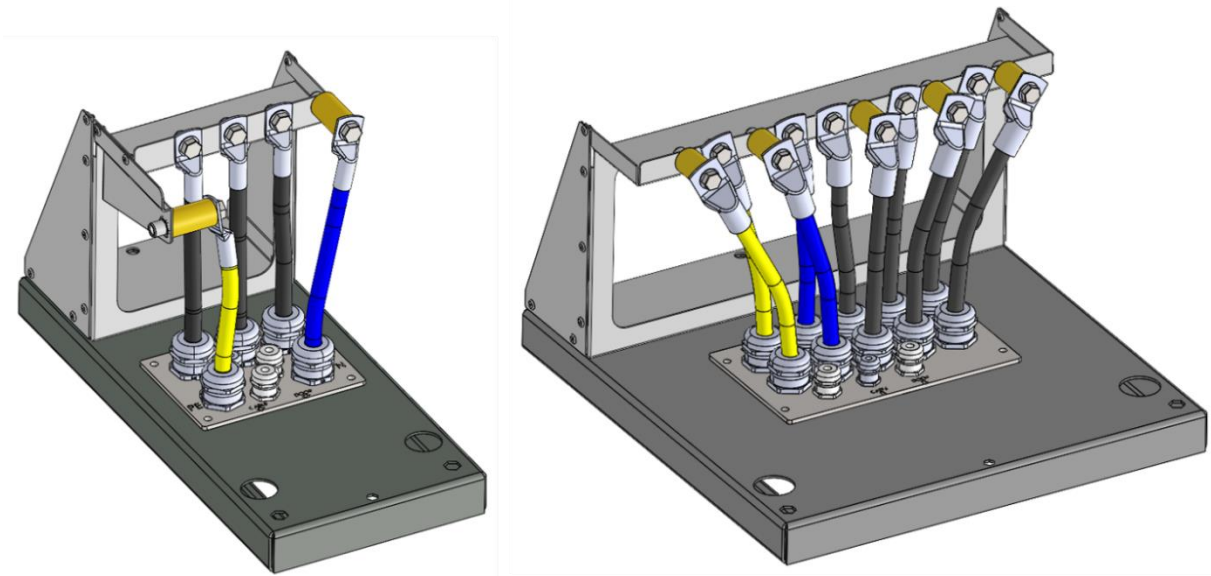


Figure 52: Cable jig, used to prepare mains power supply cables (HYC200 left and HYC400 right)

The cable jig can be removed once the cable lugs are in the correct position and the mechanical installation procedure can continue (see chapter 4.1.4).

Remark



The brass sleeves have a length of 45 mm (HYC400) and 55 mm (HYC200), an outer diameter of 30 mm and an inner bore diameter of 13 mm (suitable for M12 screws).



With the HYC400, two PE and N conductors (as shown in Figure 52) are not necessarily required; one ground and one neutral conductor are also sufficient. The dimensioning is to be selected according to the locally prevailing regulations.

4.2.4. Grid Connection

The hypercharger charging stations can be used in supply networks of the type TT, TN-S, TN-C and TN-CS.

Attention



The necessary protective measures against electric shock and other country-specific requirements must be taken into account.



This product is designed for Type A environments (industrial). Use of this product in Type B environments (residential, commercial, and small business) may cause unwanted electromagnetic interferences. In this case, the user may need to take adequate mitigation measures.

Depending on the grid configuration and the configuration of the hypercharger (Quantity of Power-Stacks, quality of the mains voltage), the protective conductor current can reach currents up to 300 mA. Please take this into account when designing the protective earthing and protective measures.



In certain cases, such as installations in TT supply networks, the regulations at the place of installation of the charging station require the installation of a residual current device (RCD). It is the customer's obligation to assess this requirement. In the event that the installation is mandatory, a residual current device (RCD) of type B or an equivalent protective device against DC residual currents (e.g. RCD type A in conjunction with a suitable device for disconnecting the supply in the event of 6mA DC residual currents) must be installed.

Due to the increased leakage current, a minimum protective conductor cross section of $\geq 10 \text{ mm}^2 \text{ CU}$ or $\geq 16 \text{ mm}^2 \text{ AL}$ is required



The EMC measures of this product comply with the interference voltage limits class A $\leq 20 \text{ kVA}$ (IEC 61851-21-2:2018).

After the hypercharger is mechanically installed (see chapter 4.1), the main-side supply cables can be connected to the hypercharger input busbars.

Use M12 x 25 mm screws for this and tighten them with a torque of exactly 35 Nm.

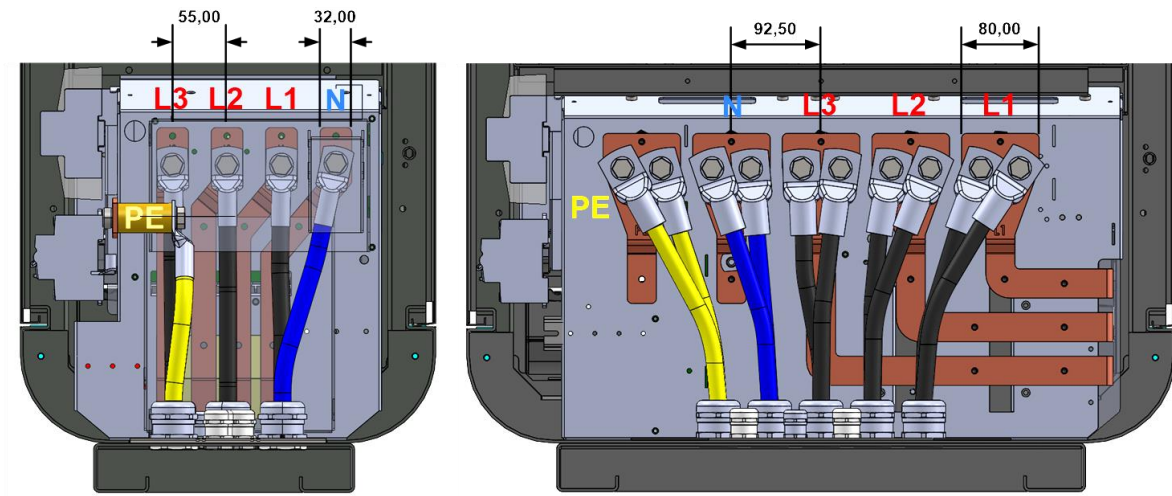


Figure 53: Connecting of the input busbars (dimensions in mm)

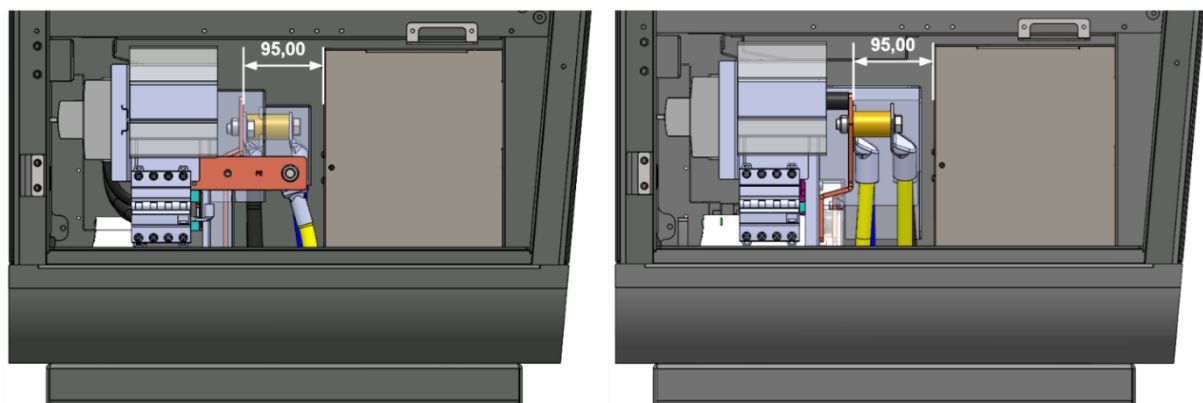


Figure 54: Sideview of the input busbars (dimensions in mm)

Remark



If a cooled cable is used (optional), the cooling unit(s) for cooled charging cable must be removed during grid connection (see 2.6.1). Therefore, remove the fixing screws, disconnect all cables (label them to be able to reconnect them later correctly) and remove the cooling unit.

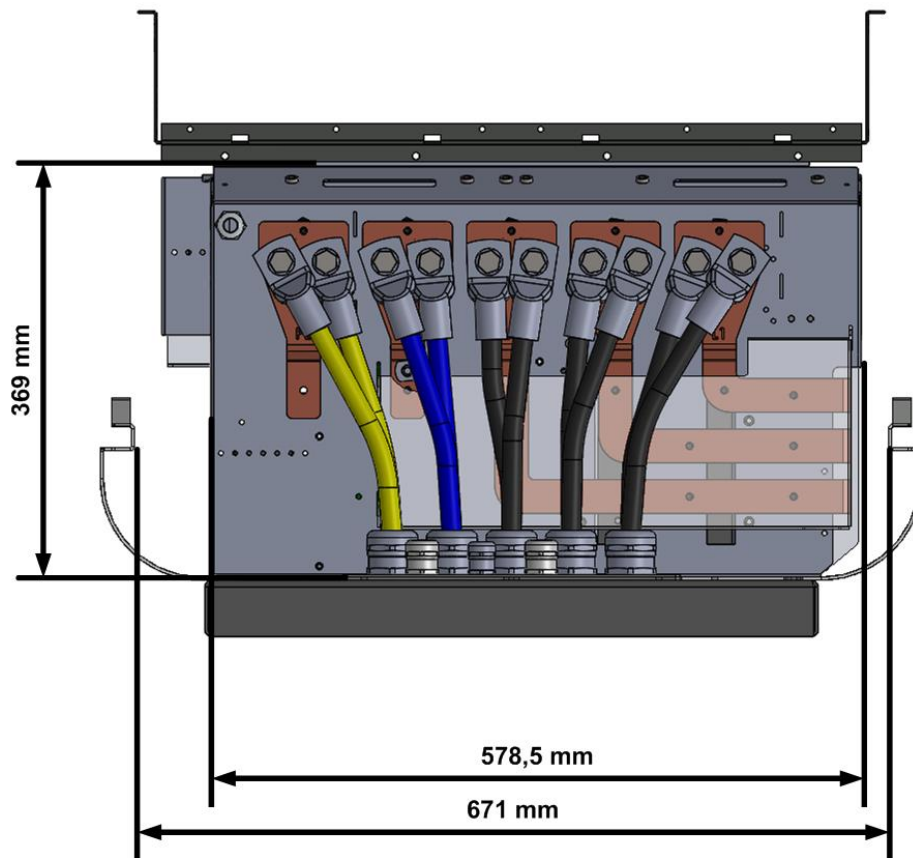


Figure 55: Available installation space in the hypercharger for HYC400 (1)

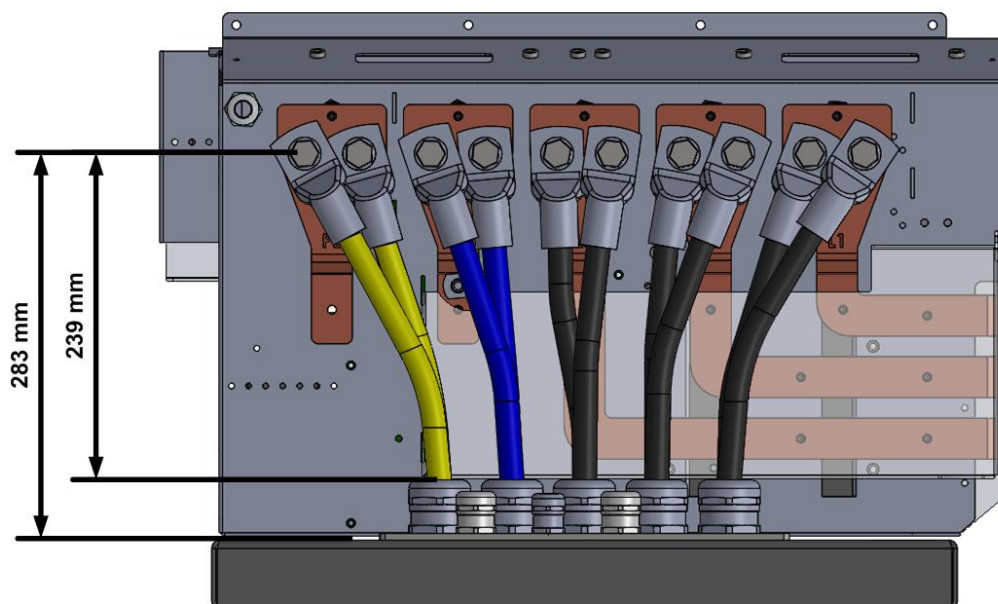


Figure 56: Available installation space in the hypercharger for HYC400 (2)

Recommended conductor cross sections:

Model	Power supply connections	Conductor cross sections
HYC200	L1, L2, L3	1 x 150 ... 240 mm ²
	N	1 x 25 mm ²
	PE (PEN)	1 x 150 ... 240 mm ²
HYC400	L1, L2, L3	2 x 150 ... 240 mm ²
	N	1 x 25 mm ²
	PE (PEN)	1 x 150 ... 240 mm ²

Table 23: Recommended conductor cross sections

The conductor cross sections must be checked and designed according to the fuse protection and cable length.

Remark



Since only the current for the service socket (max. 10 A) and - if present - the current for AC charging (max. 32 A) flows via the neutral conductor, the conductor cross section can be smaller compared to the active conductors.

Especially with the HYC400, one supply line for the neutral conductor is sufficient, the second cable gland can thus be closed.

4.2.5. Overvoltage protection

The hypercharger is equipped with a type 1 + 2 + 3 surge arrester as standard. This means that the charging station can be installed in LPZ zone 0A. It is important to ensure connection to a suitable earthing system, taking into account country-specific legal requirements.

4.3. Checks before initial startup

The operation of this charging station must be carried out taking into account the test instructions described below. All instructions listed below are considered mandatory and must be carried out by the operator of the charging station.

After transport and installation, check the following points:

Check	Execution
Mechanical visual inspection	Mechanically perfect condition of all installed devices
Screw connections, tight fit	Random or complete testing of tightening torques at terminals and mechanical screw connections.
Earthing system	Check if the earthing considers the site-specific conditions as well as the valid standards.
Lightning protections for supply lines	Check if supply line has a lightning protection device in accordance with ISO 61439-2/-7 as well as country-specific norms.
Selectivity	It is necessary to test selectivity, by ensuring that only the device upstream from a fault is triggering the circuit breaker. This should be tested in accordance with ISO 61439-2 as well as other country-specific standards
Operating conditions	Consideration of the operating conditions at the installation site (e.g. mechanical, chemical, corrosive stress) according to ISO 61439-2/-7 as well as deviating country-specific standards
Protection cover	Assuring that the protective covers have been installed after connecting the main supply line.
Residual current protection device	Checking whether a residual current circuit breaker outside the charger is required/has been mounted, in accordance with the site-specific conditions and the valid standards.
Short circuit resistance	Rated current and short-circuit resistance of the main busbar system considering the upstream protective device according to ISO 61439-2/-7
Automatic shutdown of the power supply	The requirements of IEC 60364-4-41, section 411 must be met

Table 24: Checks to be carried out before commissioning

4.4. Commissioning

For the safe operation of the charging station, correct commissioning and the inspection of the safety devices are required.

All the points listed below are considered mandatory and must be carried out by the operator of the hypercharger (or the contracted installation company) **at the moment of commissioning**.

Depending on the individual operating conditions of the hypercharger, further checks may be required. Therefore, the following list should not be considered as complete.

Commissioning checks	Description
External visual inspection	<ul style="list-style-type: none"> Housing condition IP degree of protection (IP54) Stability Accessibility
Inspection of charging cables and connectors	<ul style="list-style-type: none"> Inspect all cable components (cable sleeve, cable, cable connector, mating face, pins) to ensure they are not damaged (e.g. cable sheath is intact, no crimping or cracking, pins are not damaged, cable at transfer point intact etc.) Are all external cable glands tight? For cooled cables (if present): Inspection to ensure that drainage openings are clear
Inspect input power cable gland	Visual inspection to ensure that the screw connections of the input power cables are tight
Inspection of screws	<ul style="list-style-type: none"> Visual spot check of internal screw connections Spot check of tightening torques
Inspect cooling unit (if present), replace coolant if necessary	<ul style="list-style-type: none"> Coolant level Connection Absence of air pockets and any bends Coolant concentration PH value of the coolant
Cleanliness inspection	Check the cleanliness within the charging station
Condensation inspection	Check for the presence of condensation traces within the charging station
Inspection of filter mats	Inspection for sound condition
Inspection of protective measures	<ul style="list-style-type: none"> Visual inspection of the earthing system Test of earthing resistance Test of continuity of equipotential bonding connections
Supply line inspections	<ul style="list-style-type: none"> Test of the insulation resistances on the busbars of the input switchgear/main switch (mains side) Information about the installed protective device Inspection of the protective system
Inspection of insulation resistances at DC charging outlets	Test of the insulation resistance of the pins for every existing DC charging outlet
Inspection of RCD for AC	<ul style="list-style-type: none"> DC: Check tripping time & tripping current AC: Check tripping time & tripping current Test of tripping time & tripping current, as well as the loop impedance Z_{L1-PE} at the AC service socket (XD2)

Inspection of cooling unit	Inspection of fan noise and pump noise
Inspection of RFID reader	Functional test of RFID reader
Test connectivity SIM cards	<ul style="list-style-type: none">• Check the connection to the alpitronic backend• Check the connection to the customer backend
Inspection of the display elements	<ul style="list-style-type: none">• Functional test of screen display + buttons• Functional test of screen display and, if present, touch screen for the credit card terminal
Inspection of LED rings	Functional test of LED rings at connectors
Inspection of components relevant to calibration law (if present, for details see annex on calibration law)	<ul style="list-style-type: none">• Nameplate• Wiring relevant to calibration law• Plastic seals on DC and/or AC meters• Adhesive seals• Overlay

Table 25: Commissioning checks

Attention



Observe all hazard warnings in chapter 1.3



In order to be able to benefit from the contractually stipulated warranty period, the corresponding commissioning protocol incl. photo documentation must be completed and sent to support@hypercharger.it.



The warranty claim may expire if installation & commissioning are not carried out properly.

Remark



The commissioning protocol is available on the document platform "hyperdoc".

5. Diagnosis and parameterization

After successful mechanical and electrical installation of the hypercharger, the correct functioning of the device can be checked by means of a diagnostic and parameterization tool. The diagnostic web interface can be loaded via any browser with a standard IP address:

Default IP address	192.168.1.100
---------------------------	---------------

Table 26: Default Charging Station IP address

Additional information on the user interface can be found in the software-edition of this operation and installation guide.

6. Operating the hypercharger

6.1. Start charging session

6.1.1. Authentication

Please authenticate yourself with your user card by holding it against the RFID reader (contactless icon below the screen).

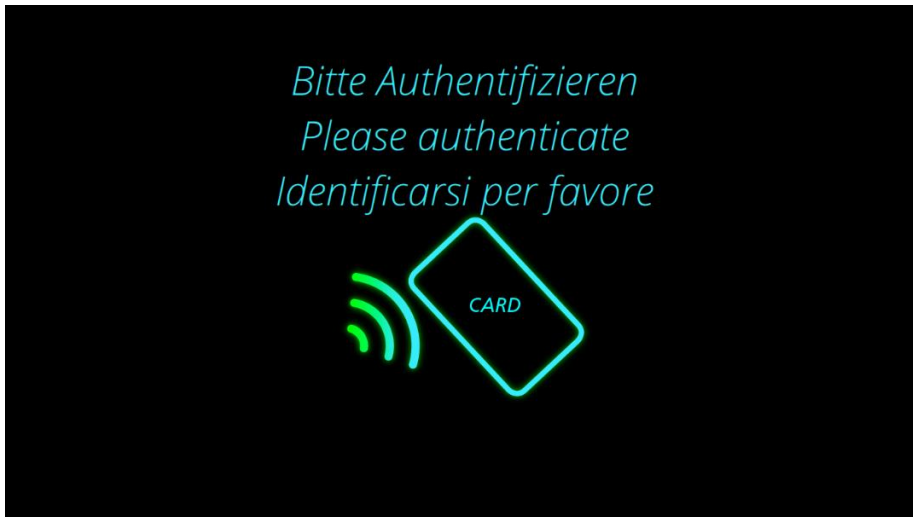


Figure 57: Authentication



Figure 58: Position of RFID reader

Remark



Detailed user guidance for the entire charging process is displayed directly on the charging station screen depending on the selected authentication medium and charging cable. An overview of the user guidance per authentication option can be found in Figure 60.

There are several ways to authenticate yourself at the charging station:

Directly at the charging station:

- NFC² card: Hold your user card against the RFID reader, which is located to the left of the screen ("contactless" symbol). If the charging station has a credit card terminal, the RFID reader is located to the left of the screen (see Figure 6).
- Giro-e: If the operator supports this option, you can authenticate yourself by holding your Giro-e card up to the RFID reader.
- Credit card: If a credit card terminal is available, you can authenticate via credit card by holding it up to the credit card reader below the screen.

Via the backend system:

- Backend: The backend system interacts with the connected charging station via the "Remote Start Transaction", which is regulated by the OCPP protocol. This can be used to start and stop charging processes, among other things.
- App: If provided by the operator, start the operator app that is connected to the charging station via the backend system and follow the instructions on your smart device.

Via the vehicle:

- Auto charge: If the operator offers this option, authentication can also take place directly via the vehicle in the form of "auto charge". In this case, the vehicle is identified via the (VID³ /EVCCID⁴) as soon as the connection has been established via the charging cable.
- Plug & Charge: Insert the charging plug into the vehicle. As soon as the vehicle is connected, it automatically authenticates itself on behalf of the driver at the charging station (using EMAID⁵), among other things, by sending a digital certificate to the back end.

² NFC = "Near Field Communication"

³ VID = "Vehicle Identification Device"

⁴ EVCCID = "Electric Vehicle Communication Controller Identifier"

⁵ EMAID = "E-Mobility Identifier Account"

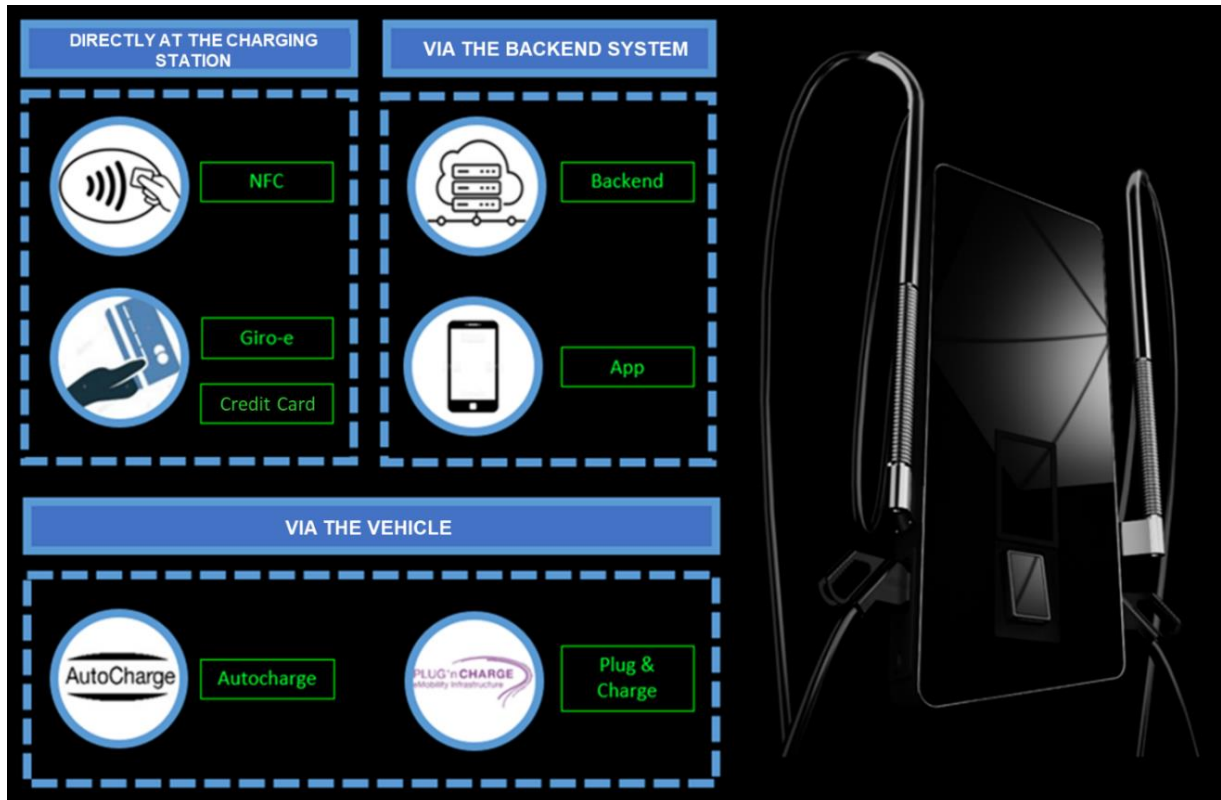


Figure 59: Overview of the authentication options

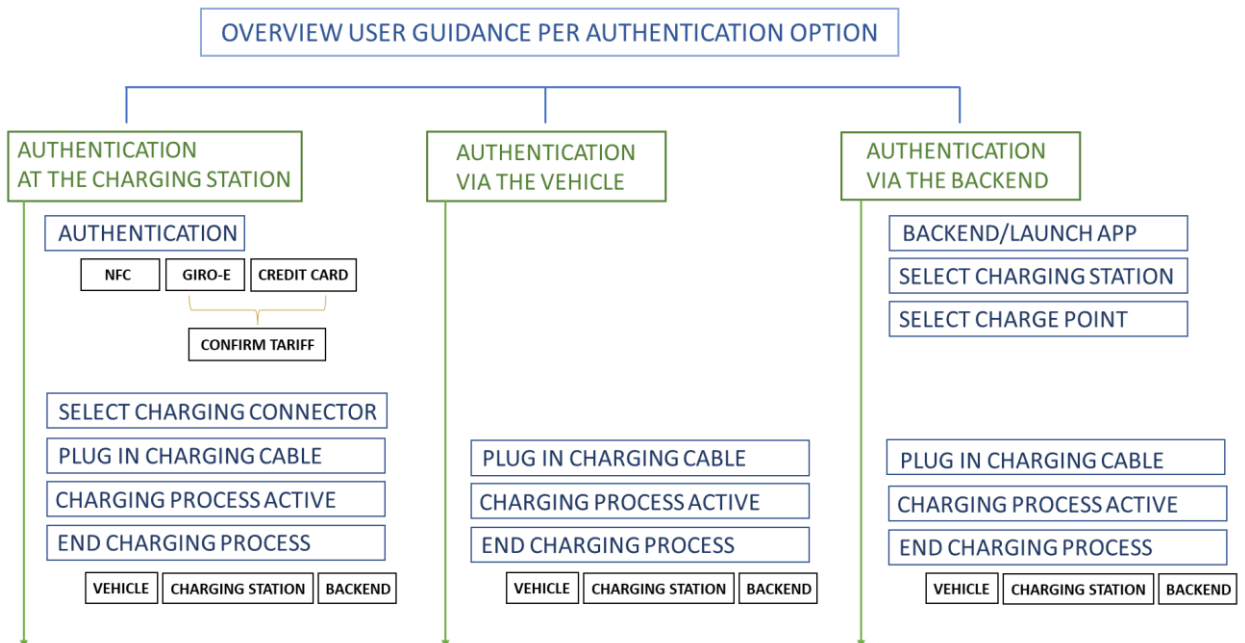


Figure 60: Overview user guidance per authentication option



Figure 61: Kiosk Mode

Remark



If the charging station is running in kiosk mode, no authentication is required. In this case you can directly start a new session by pressing the button below the "New Session" text on the screen.

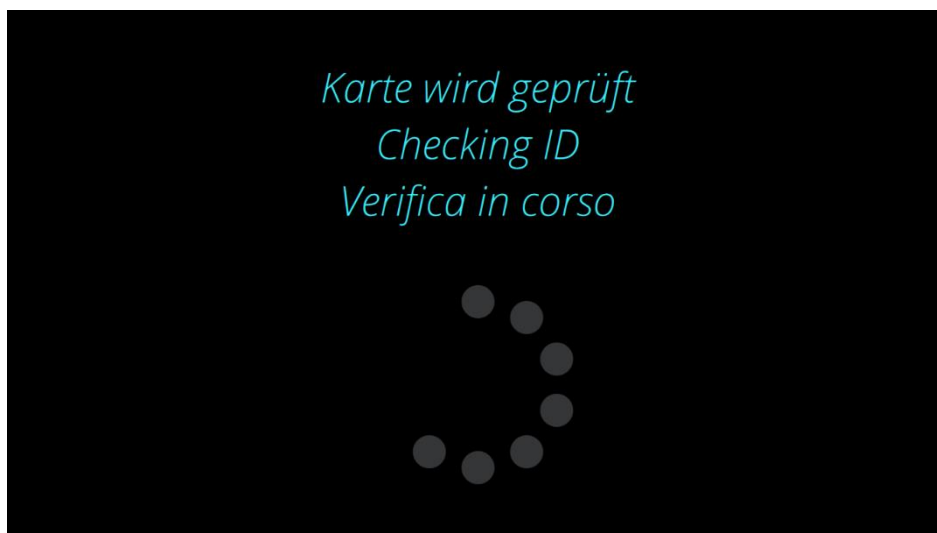


Figure 62: Checking ID

6.1.2. Select the charging plug

Please select the charging plug with which you would like to charge your electric vehicle. You can navigate in the menu by pressing the four buttons below the display window.



Figure 63: Select plug



Figure 64: Buttons for navigation

Remark



Depending on the configuration of the charging station, other symbols may be displayed, as other charging plugs are installed.



"HPC" refers to a liquid-cooled charging cable.



To get to the language selection, press the button on the far left.



Figure 65: Language selection

6.1.3. Connect the plug

After you have selected the plug type, the display will ask you to connect the appropriate charging cable. Connect the charger cable, which begins to flash blue, to the socket provided on your vehicle.

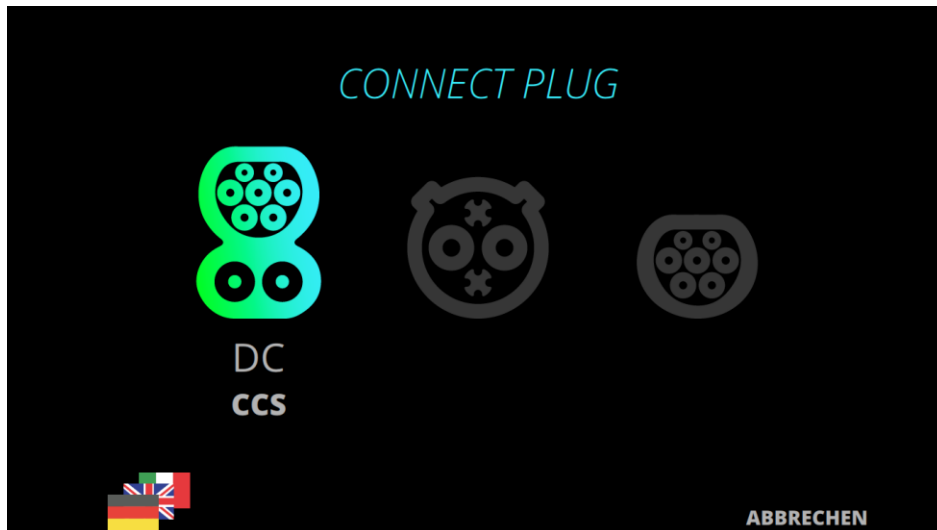


Figure 66: Plug connection

Remark



When using CHAdeMO cables, make sure that they engage correctly.



For CCS cables, make sure that the vehicle locks the charging cable correctly.

6.2. During the charging process

6.2.1. Charging overview

Now an overlay of the active charging process appears.

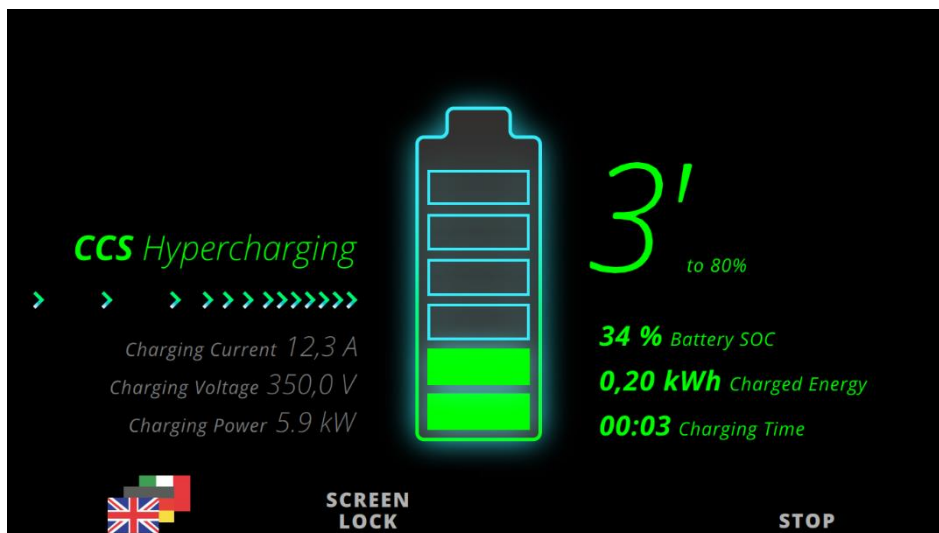


Figure 67: Charging overview

On the left half of the screen you will find information about the charging current, the voltage and the resulting charging power.

On the right half of the screen you can see the estimated time remaining until 80% (bulk state of charge) and later 100% (full SoC) is reached, as well as the current state of charge, the energy already charged and the charging time.

If two vehicles are charged simultaneously, the overlay is displayed in reduced form (see Figure 68).



Figure 68: Charge overview with two active charging processes

Remark



Please note that the display may vary from operator to operator. Some operators hide this information. In this case you can check the SoC inside your vehicle.

6.3. Terminate charging session

6.3.1. Leaving screen saving mode

After a certain time the screen saver of the display is activated. To leave this mode, hold your user card again against the RFID reader (see chapter 6.1.1)

6.3.2. Charging stop

You can terminate the ongoing charging session at any time by pressing the Stop button at the bottom of the overlay.

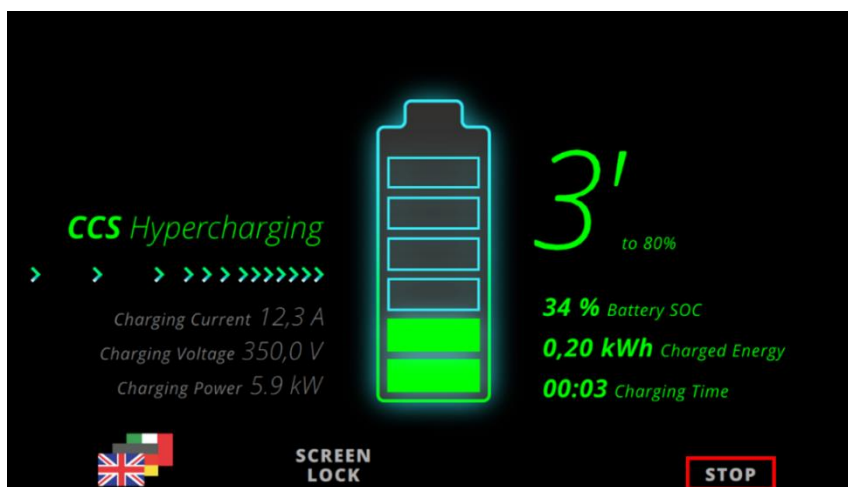


Figure 69: Charging stop

Once you have pressed the button, you need to unplug the charging cable from your car (see Figure 70). Please reconnect it properly to the cable plug holder of the charging station.

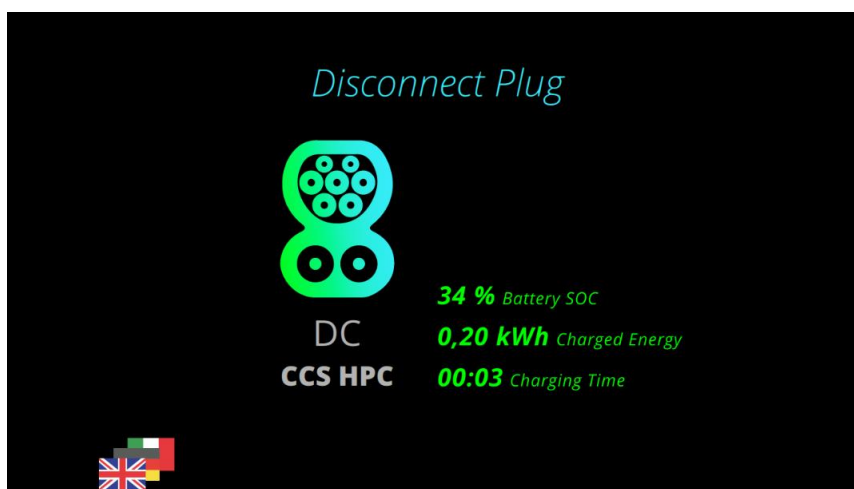


Figure 70: Disconnect Plug

6.4. Procedure for error messages

6.4.1. Authorization failed

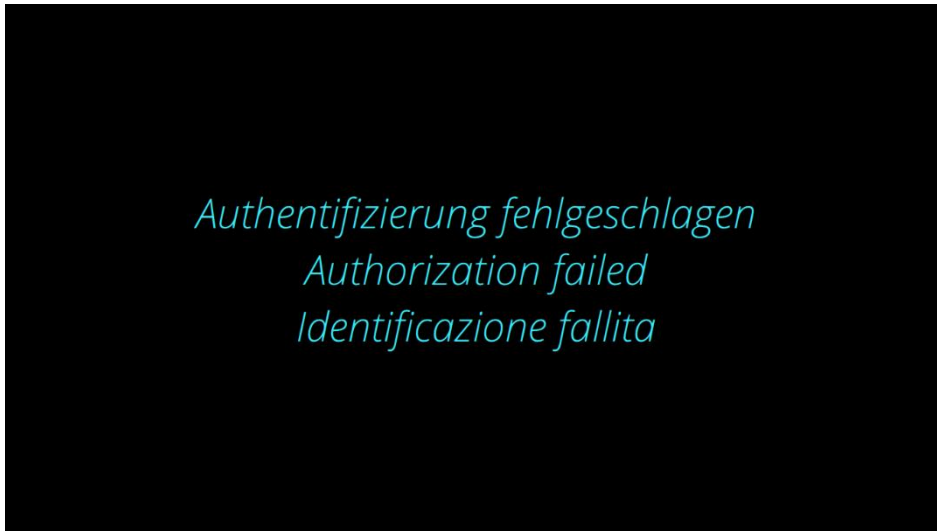


Figure 71: Authorization failed

If this error message appears, retry to hold your card against the RFID reader.

6.4.2. No connector available

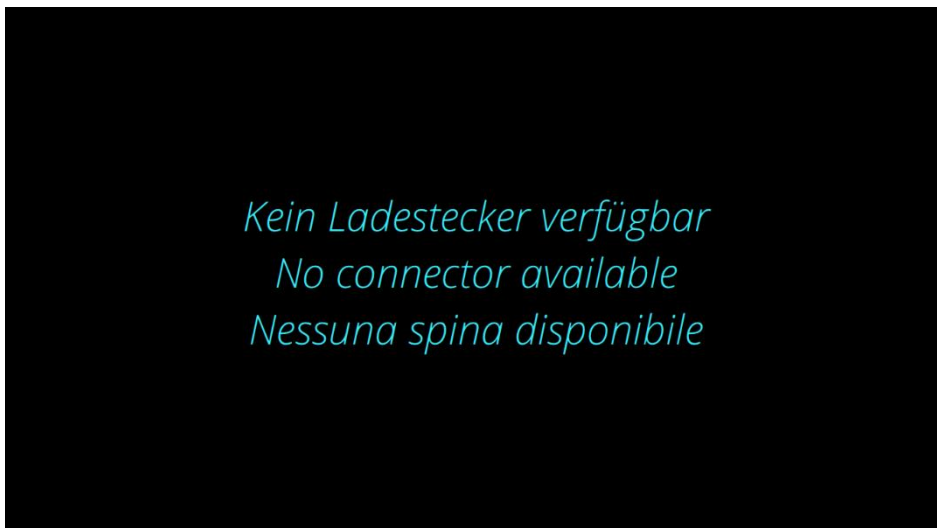


Figure 72: No connector available

All charge points are currently occupied. Please wait until a charging plug becomes free again.

6.4.3. Connector damaged

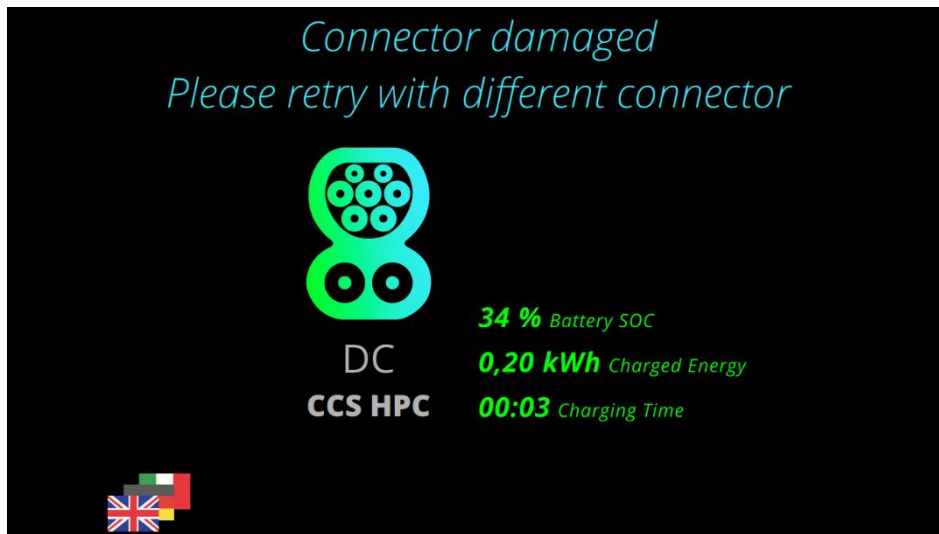


Figure 73: Connector damaged

If this message appears, the operator is already informed about the defect and will correct the fault as soon as possible. In the meantime, if possible, switch to another charging plug.

6.4.4. Communication error with vehicle

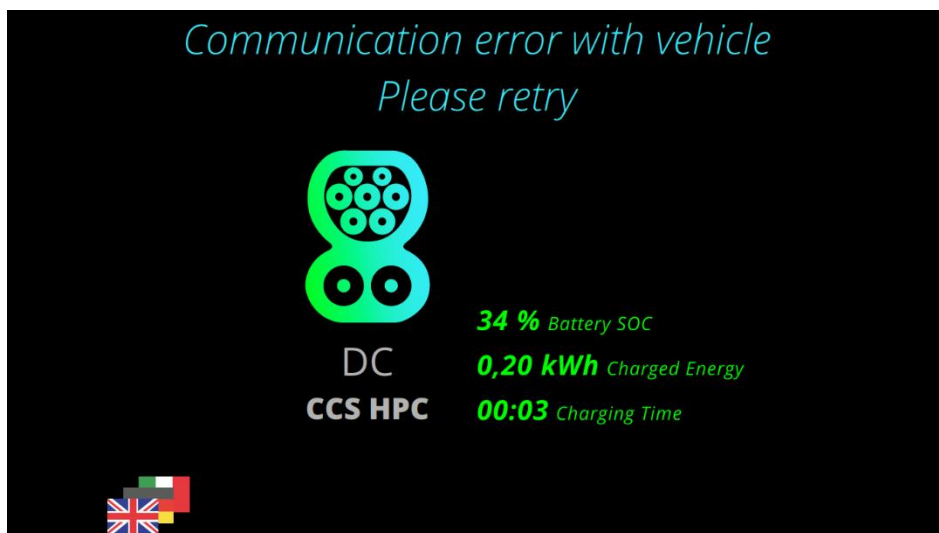


Figure 74: Communication error

When this error message appears, the vehicle was unable to establish a connection to the charging station. Retry to start a charging session on the charger. If that won't help, try to drive the vehicle forward and backward a few meters to reset the charging technology and wake it up from a possible standby.

6.4.5. Failed to lock connector

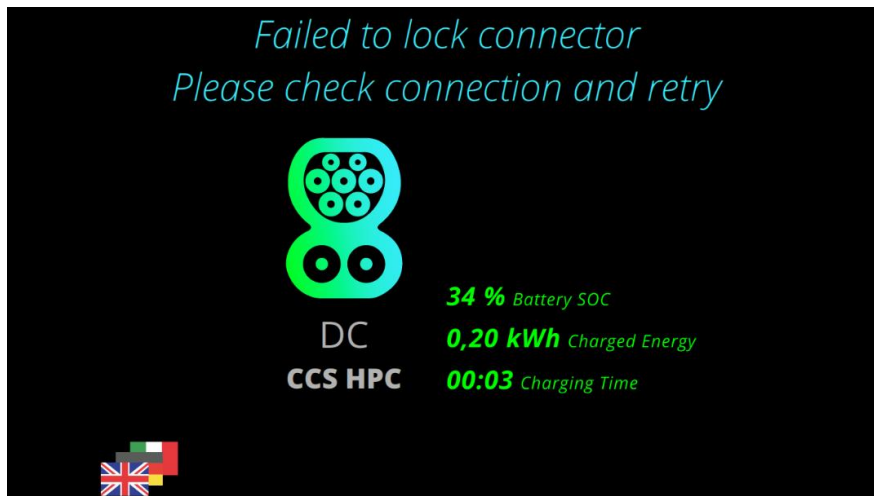


Figure 75: Failed to lock connector

In this case the connector could not be locked correctly by the car.

Attention



Hold the cable in the socket until you can hear the locking mechanism of the car and the charging process is starting!

6.4.6. The car signaled an error

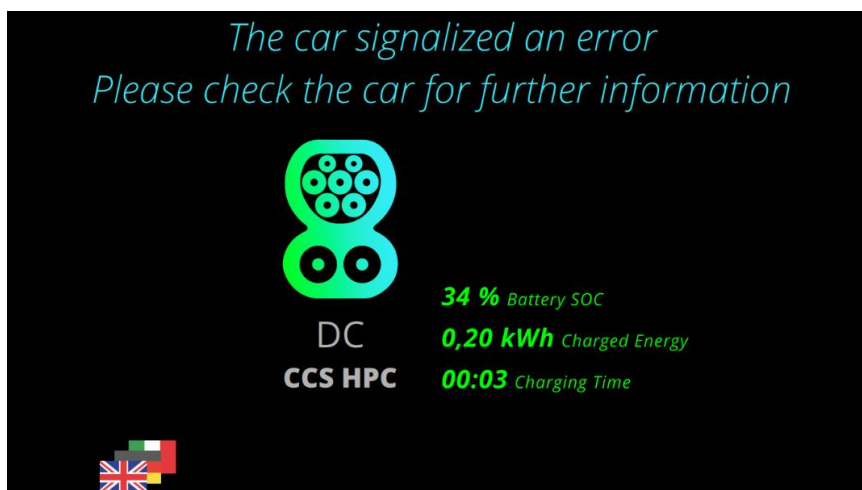


Figure 76: Vehicle Error

The car signals a charging error. Retry to start a charging session on the charger. If that won't help, try to drive the vehicle forward and backward a few meters to wake it up from a possible standby.

paulius.andriuska@ignitis.lt
23.08.2023 12:22:38

6.4.7. Emergency Stop

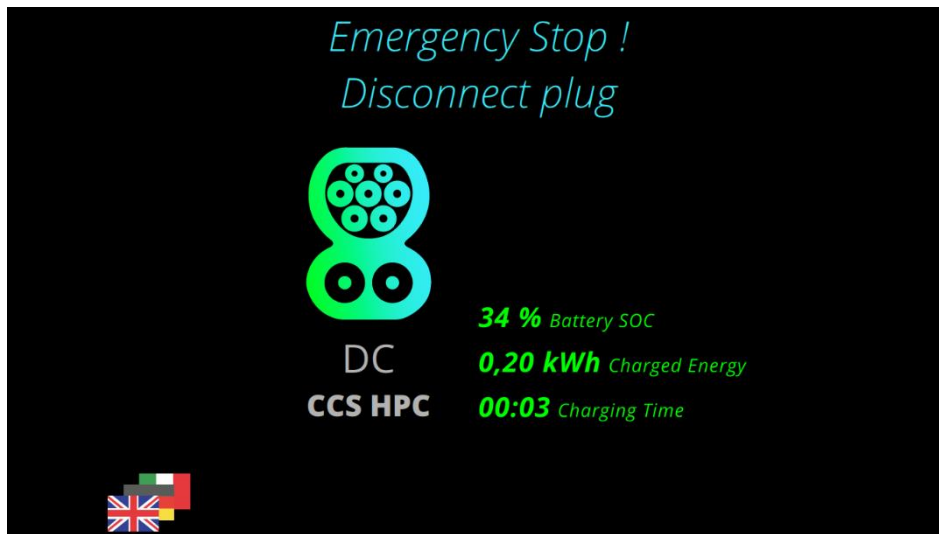


Figure 77: Emergency Stop

Emergency button was pressed. Try to unlock the emergency button and to restart a charging session.

6.4.8. Charging station temporarily unavailable



Figure 78: Maintenance ongoing

A software update is being carried out. After completion, the hypercharger will be available again.

7. Error description and solution

Attention



Attention

Take note of all hazard warnings in chapter 1

Error Description	Possible error cause	Troubleshooting
Display stays dark	No power supply	Check if circuit breakers are switched on
Power-Stack cannot be turned on	The circuit breaker (-QA1-QA4) of the Power-Stack is switched off	Turn on the corresponding circuit breaker
No communication to the backend	No connection via Ethernet or mobile network	Check connection of the Ethernet network (-XF2) or/and antenna (-TF1) Boot the charging station in diagnostics mode and use the diagnostic tool for further fault localization
No charge possible	Error in the configuration of the charging station	Boot the charging station in diagnostics mode and use the diagnostic tool for further fault localization

Table 27: Error description and troubleshooting

8. Annual preventive maintenance

For the safe operation of the charging station, regular maintenance or inspection of the safety equipment is required.

All the points listed below are considered mandatory and must be carried out by the operator of the hypercharger **on an annual basis**.

Depending on the individual operating conditions of the hypercharger, further checks may be required. Therefore, the following list should not be considered as complete.

Maintenance work	Description
External visual inspection	<ul style="list-style-type: none"> Housing condition IP degree of protection (IP54) Stability Accessibility Credit card terminal (if present)
Inspection of charging cables and connectors	<ul style="list-style-type: none"> Inspect all cable components (cable sleeve, cable, cable connector, mating face, pins) to ensure they are not damaged (e.g. cable sheath is intact, no crimping or cracking, pins are not damaged, cable at transfer point intact etc.) Are all external cable glands tight? For cooled cables (if present): Inspection to ensure that drainage openings are clear
Inspect input power cable gland	Visual inspection to ensure that the threaded connections for the input power cables are tight
Inspection of screws	<ul style="list-style-type: none"> Visual spot check of internal screw connections Spot check of tightening torques
Inspect cooling unit (if present), replace coolant if necessary	<ul style="list-style-type: none"> Coolant level Connection Absence of air pockets and any bends Coolant concentration PH value of the coolant
Cleanliness inspection	Check the cleanliness within the charging station
Condensation inspection	Check for the presence of condensation traces within the charging station
Inspection and replacement of filter mats if necessary	Inspection for sound condition and contamination
Inspection of protective measures	<ul style="list-style-type: none"> Visual inspection of the earthing system Test of earthing resistance Test of continuity of equipotential bonding connections
Supply line inspections (only if there is no commissioning protocol)	<ul style="list-style-type: none"> Test of the insulation resistances on the busbars of the input switchgear/main switch (mains side) Information about the installed protective device Inspection of short circuit current
Inspection of insulation resistances at DC charging outlets	Test of the insulation resistance of the pins for every existing DC charging outlet
Inspection of RCD for AC	<ul style="list-style-type: none"> DC: Check tripping time & tripping current AC: Check tripping time & tripping current

	<ul style="list-style-type: none"> • Test of tripping time & tripping current, as well as the loop impedance Z_{L1-PE} at the AC service socket (XD2)
Inspection of overvoltage protection	Inspection of the optical defect display of the overvoltage protection
Test of fault current protective devices	Functional test of circuit breakers with fault current monitoring
Inspection of the main switch	Functional test of the main switch QB1
Inspection of cooling unit	Inspection of fan noise and pump noise
Inspection of RFID reader	Functional test of RFID reader
Test connectivity SIM cards	<ul style="list-style-type: none"> • Check the connection to the alpitronic backend • Check the connection to the customer backend
Inspection of the display elements	<ul style="list-style-type: none"> • Functional test of screen display + buttons • Functional test of screen display and, if present, touch screen for the credit card terminal
Inspection of LED rings	Functional test of LED rings at connectors
Inspection of components relevant to calibration law (if present, for details see annex on calibration law)	<ul style="list-style-type: none"> • Nameplate • Wiring relevant to calibration law • Plastic seals on DC and/or AC meters • Adhesive seals • Overlay • Recalibration of measuring devices that comply with calibration law • If required, functional tests including accuracy tests

Table 28: Maintenance checks

Attention



Observe all hazard warnings in chapter 1.3



In order to be able to benefit from the contractually stipulated warranty period, the corresponding maintenance protocol incl. photo documentation must be completed and sent to support@hypercharger.it.



The warranty claim may expire if the annual maintenance is not carried out properly.

Remark



The maintenance protocol is available on the document platform "hyperdoc".

9. Repair and service

The hypercharger's modular design makes it easy to repair defective components.

Attention



Please note that any repair work on the hypercharger can **exclusively** be carried out by trained personnel and in compliance with the required legal and safety measures!



Please consult with hypercharger support before any repairs are made.
support@hypercharger.it or +39 0471 1961 333



Observe all hazard warnings in chapter 1.3

Remark



More information on hypercharger trainings can be found at our website
<https://training.hypercharger.it/>.



For spare parts orders you can contact sales@hypercharger.it.



Repair instructions can be requested from the hypercharger support.

The hypercharger support team is available from Monday to Friday from 08:00-12:00 and from 13:00-17:00. You can call +39 0471 1961 333 or write an email to support@hypercharger.it.

10. Disposal

Electrical and electronic equipment contains materials, components and substances that may be hazardous and present a risk to human health and the environment. Hence, the hypercharger and its components shall not be discarded together with household waste but must be collected separately.

The hypercharger is subject to the WEEE Directive 2012/19/EU (Waste of Electrical and Electronic Equipment), which is implemented differently by EU countries. Depending on the country, distributors and/or manufacturers must register and report the exported quantities of electrical and electronic equipment and pay a fee if necessary.

Wood and plastic packaging must be disposed of separately. Please contact your local municipality for suitable collection points.

Remark



For more information, please contact the hypercharger support or check directly with a dedicated WEEE advice center.

11. Technical specifications

General technical data and operating conditions:

Parameter	Nominal value
Protection class	IP54
Mechanical impact resistance (IEC62262)	IK10
Installation site	Indoors and outdoors
Type of installation	Floor mounting (base plate)
Accessibility	Unrestricted (also for laymen)
Installation altitude	Up to a maximum of 4.000 m.a.s.l
Humidity-range for transport or storage	0 – 95 % rel. (non-fogging)
Humidity-range for operation	0 – 95 % rel.
Degree of pollution	Pollution degree class 3
Overvoltage category	OVC III
Protection class	Class 1 (protective earthing)
Storage temperature range	-40 °C ... +55 °C
Operating temperature range	-30 °C ... +55 °C (+40 to +55 °C with derating)
Supported charging modes	Mode 4 with optional 22 kW AC charging (Mode 3)
Max. air flow rate HYC200	1500 m³/h
Max. air flow rate HYC400	3000 m³/h

Table 29: Technical data

Type	Wide [mm]	Large [mm]	Height [mm]	Weight [kg]
HYC200	854	420	2250	see Table 17 in chapter 3.1
HYC400	854	732	2250	

Table 30: Mechanical data

Electrical connection data depending on the configuration:

HYC200

Parameter	Nominal value
Operating voltage	400 Vac +N +PE (+10 % / -15 %)
Frequency	50 Hz (± 5 %)
Nominal current	max. 320 A
Connection terminals cross section	Busbar with M12 thread
Max. Rated peak withstand current I_{cp}	48 kA (rms)
Rated short-time withstand current I_{cw}	4 kA (rms) @1 s

Table 31: Electrical connection for HYC200

HYC400

Parameter	Nominal value
Operating voltage	400 Vac +N +PE (+10 % / -15 %)
Frequency	50 Hz (± 5 %)
Nominal current	max. 630 A
Connection terminals cross section	connecting bolt 2x12mm
Rated peak withstand current I_{cp}	48 kA (rms)
Rated short-time withstand current I_{cw}	4 kA (rms) @1 s

Table 32: Electrical connection for HYC400

The hypercharger is designed for the direct connection to the mains supply.

Radio communication

The radio modem of the hypercharger supports the following frequency bands:

Frequency band	Transmission level (maximum nominal power)
WCDMA B1, B8 (UMTS900, UMTS2100)	24 dBm
LTE FDD B1, B3, B7, B8, B20, B28	23 dBm
GSM 900	33 dBm
GSM 1800	30 dBm

Table 33: Frequency bands and transmission levels of HYC200 / HYC400

Attention



Observe all hazard warnings in chapter 1



Due to the higher leakage current, a minimum protective conductor cross-section of $\geq 10 \text{ mm}^2$ CU or $\geq 16 \text{ mm}^2$ AL is required.



Dangerous residual voltages

After disconnecting the HYC50 from the power supply, the discharge time for hazardous voltages of 5 min must be observed before removing the touch guard in the device.



This product can cause a DC fault current $> 6 \text{ mA}$ in the protective conductor. Where a residual current-operated protective device (RCD*) is used for protection against electrical shock, only an RCD of Type B or B+ is allowed on the supply side of this product.
An $I_{\Delta N} = 300 \text{ mA}$ is recommended.

*In certain cases, e.g. installations in TT supply networks, the installation of a residual current device (RCD) is mandatory.



During operation, increased temperatures are to be expected at the air outlets

12. Declaration of Conformity



**Niederspannungs-
Schaltgerätekombinationen nach IEC
EN 61439-7**

CE KONFORMITÄTSEKKLÄRUNG
DICHIARAZIONE DI CONFORMITÀ CE
CE DECLARATION OF CONFORMITY

**Quadri elettrici per bassa tensione
secondo IEC EN 61439-7**



**Low voltage switchgears and
controlgear assemblies in compliance
with the Standard IEC EN 61439-7**

Hersteller:
Costruttore:
Manufacturer:

alpitronic GmbH – srl
Via di Mezzo ai Piani 33
I-39100 Bolzano

Tel. +39 0471 1961 000
Fax: +39 0471 1961 451
info@alpitronic.it

Schaltgerätekombination / Ladestation:
Quadro elettrico / colonnina:
Switchgear assembly / charging station:
Anlage:
Impianto:
Plant:

Ladestation für DC-Laden
Colonnina DC Charger
EV Charging Station

HYPERCHARGER

Typ-Nr.:
N°. tipo:
Type no.:

HYC_200, HYC_400

Jahr der Anbringung der Kennzeichnung:
Anno di apposizione della marcatura CE:
Year of affixing CE marking:

2023

Die Firma **alpitronic GmbH** mit Sitz in I-39100 Bozen, Hersteller der oben beschriebenen Schaltgerätekombination (Ladesäule) erklärt aus eigener Verantwortung, dass die Schaltgerätekombination Konformität mit den Bestimmungen der folgenden gemeinschaftlichen Richtlinien aufweist, wie auch mit der entsprechenden nationalen Gesetzgebung

La ditta **alpitronic srl** con sede a I-39100 Bolzano, costruttrice del quadro elettrico (colonnina) sopra descritto, dichiara sotto la propria responsabilità che il quadro elettrico risulta conforme con quanto previsto dalle seguenti direttive comunitarie, nonché alla relativa legislazione nazionale di recepimento

The company **alpitronic srl** located in I-39100 Bolzano, manufacturer of the above mentioned switchgear assembly (charging station), declares under its own responsibility that the switchgear assembly conforms to what is foreseen by the following European Community directives, as well as to the relative national implementation legislation

Bezug

Riferimento

Reference

Die Richtlinie 2014/35/EU
Niederspannungs-Richtlinie

La direttiva 2014/35/EU
Direttiva bassa tensione

Directive 2014/35/EU
Low Voltage Directive

Die Richtlinie 2014/30/EU
EMV-Richtlinie

La direttiva 2014/30/EU
Direttiva EMC

Directive 2014/30/EU
EMC-Directive

Die Funkanlagenrichtlinie RED 2014/53/EU

Radio Equipment Directive RED 2014/53/EU

Radio Equipment Directive RED 2014/53/EU

und dass die folgende harmonisierte Norm
angewendet wurde

e che è stata applicata la seguente norma
armonizzata

and that the following harmonized Standard
has been applied

Norm Code

Codice norma

Standard code

IEC EN 61439-1: 2021
Niederspannungs-Schaltgerätekombinationen
(NS-SK)
Teil 1: Allgemeine Festlegungen

IEC EN 61439-1: 2021
Apparecchiature assiemate di protezione e
manovra per bassa tensione (quadri BT)
Parte 1: Regole Generali

IEC EN 61439-1: 2021
Low voltage switchgear and control gear
assemblies
Part 1: General Rules

IEC TS 61439-7: 2021
Niederspannungs-Schaltgerätekombinationen
Teil 7: Schaltgerätekombinationen für
bestimmte Anwendung wie Marinas,
Campingplätze, Marktplätze, Ladestationen für
Elektrofahrzeuge

IEC TS 61439-7: 2021
Apparecchiature assiemate di protezione e
manovra per bassa tensione
Parte 7: Applicazioni speciali per porti di
marina, campeggi, piazze di mercato, colonnine
per ricarica di veicoli stradali elettrici

IEC TS 61439-7: 2021
Low voltage switchgear and control gear
assemblies
Part 7: Assemblies for specific applications such
as marinas, camping sites, market squares,
electrical vehicles charging station

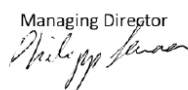
IEC EN 61851-1: 2021

IEC EN 61851-1: 2021

IEC EN 61851-1: 2021

Datum:
Data: 05.06.2023
Date:

Unterschrift:
Firma:
Signature:

Managing Director


paulius.andriuska@ignitis.lt
23.08.2023 12:22:38



**Niederspannungs-
Schaltergerätekomponenten nach IEC
EN 61439-7**

CE KONFORMITÄTSEKLRUNG
DICHIARAZIONE DI CONFORMITÀ CE
CE DECLARATION OF CONFORMITY



**Low voltage switchgears and
controlgear assemblies in compliance
with the Standard IEC EN 61439-7**

Elektrische Ausrüstung von Elektrofahrzeugen –
Konduktive Ladesysteme für Elektrofahrzeuge
Teil 1: Allgemeine Anforderungen

Equipaggiamento elettrico per veicoli elettrici –
Sistemi conduttivi di ricarica
Parte 1: Requisiti Generali

Electric vehicle conducting charging system
Part 1: General requirements

IEC EN 61851-21-2: 2018
Konduktive Ladesysteme für Elektrofahrzeuge
Teil 21-2: EMV-Anforderungen an externe
Ladesysteme für Elektrofahrzeuge

IEC EN 61851-21-2: 2018
Sistemi conduttivi di ricarica per veicoli elettrici
Parte 21-2: Requisiti EMV per sistemi esterni di
ricarica per veicoli elettrici

IEC EN 61851-21-2: 2018
Electric vehicle conductive charging system
Part 21-2: EMC requirements for OFF board
electric vehicle charging systems

IEC EN 61851-23: 2016
Konduktive Ladesysteme für Elektrofahrzeuge
Teil 23: Gleichstromladestationen für
Elektrofahrzeuge

IEC EN 61851-23: 2016
Sistemi conduttivi di ricarica per veicoli elettrici
Parte 23: Sistemi di ricarica in DC per veicoli
elettrici

IEC EN 61851-23: 2016
Electric vehicle conductive charging system
Part 23: DC electric vehicle charging station

IEC EN 61851-24: 2014
Konduktive Ladesysteme für Elektrofahrzeuge
Teil 24: Digitale Kommunikation zwischen einer
Gleichstromladestation für Elektrofahrzeuge
und dem Elektrofahrzeug zur Steuerung des
Gleichstromladevorgangs

IEC EN 61851-24: 2014
Sistemi conduttivi di ricarica per veicoli stradali
elettrici
Parte 24: Comunicazione digitale tra la
colonnina d.c. charge e il veicolo elettrico per il
controllo della carica in d.c.

IEC EN 61851-24: 2014
Electric vehicle conductive charging system
Part 24: Digital communication between a d.c.
EV charging station and an electric vehicle for
control of d.c. charging

IEC 61000-6-4 (2007) +A1 (2011)
IEC 61000-6-2 (2005)
IEC 61000-4-2 (2008)
IEC 61000-4-3 (2006) +A1 (2007) +A2 (2010)
IEC 61000-4-6 (2013)
IEC 61000-4-4 (2012)
IEC 61000-4-5 (2014)
IEC 61000-4-8 (2009)

IEC 61000-6-4 (2007) +A1 (2011)
IEC 61000-6-2 (2005)
IEC 61000-4-2 (2008)
IEC 61000-4-3 (2006) +A1 (2007) +A2 (2010)
IEC 61000-4-6 (2013)
IEC 61000-4-4 (2012)
IEC 61000-4-5 (2014)
IEC 61000-4-8 (2009)

IEC 61000-6-4 (2007) +A1 (2011)
IEC 61000-6-2 (2005)
IEC 61000-4-2 (2008)
IEC 61000-4-3 (2006) +A1 (2007) +A2 (2010)
IEC 61000-4-6 (2013)
IEC 61000-4-4 (2012)
IEC 61000-4-5 (2014)
IEC 61000-4-8 (2009)

IEC 60364-4-41: 2005+AMD
Errichten von Niederspannungsanlagen – Teil
4-41: Schutzmaßnahmen; Schutz gegen
elektrischen Schlag

IEC 60364-4-41: 2005+AMD
Installazioni elettriche a bassa tensione – Parte
4-41: Protezione per la sicurezza - Protezione
contro le scosse elettriche

IEC 60364-4-41: 2005+AMD
Low voltage electrical installations – Part 4-41:
Protection for safety - Protection against
electric shock

IEC 60364-4-43: 2021
Errichten von Niederspannungsanlagen – Teil
4-43: Schutzmaßnahmen - Schutz bei
Überstrom

IEC 60364-4-43: 2021
Installazioni elettriche a bassa tensione – Parte
4-43: Protezione per la sicurezza - Protezione
contro le sovracorrenti

IEC 60364-4-43: 2021
Low-voltage electrical installations – Part 4-43:
Protection for safety - Protection against
overcurrent

HD 60364-7-722: 2016
Errichtung von Niederspannungsanlagen – Teil
7-722: Anforderungen für Betriebsstätten,
Räume und Anlagen besonderer Art –
Stromversorgung für Elektrofahrzeuge

HD 60364-7-722: 2016
Installazioni elettriche a bassa tensione – Parte
7-722: Requisiti per installazioni o ubicazioni
speciali - Forniture per veicoli elettrici

HD 60364-7-722: 2016
Low-voltage electrical installations – Part 7-
722: Requirements for special installations or
locations – Supplies for electric vehicles

EN 301 489-1 V2.2.3
Elektromagnetische Verträglichkeit für
Funkanlagen und -dienste - Teil 1:
Gemeinsame technische Anforderungen

EN 301 489-1 V2.2.3
Compatibilità elettromagnetica e questioni
relative allo spettro delle radiofrequenze (ERM)
– Parte 1: Requisiti tecnici comuni

EN 301 489-1 V2.2.3
Electro Magnetic Compatibility (EMC) standard
for radio equipment and services - Part 1:
Common technical requirement

EN 301 489-3 V2.1.1
Elektromagnetische Verträglichkeit für
Funkanlagen und -dienste - Teil 3:
Spezifische Bedingungen für Funkgeräte
geringer Reichweite (SRD)

EN 301 489-3 V2.1.1
Compatibilità elettromagnetica e questioni
relative allo spettro delle radiofrequenze (ERM)
– Parte 3: Condizioni specifiche per dispositivi a
breve portata (SRD)

EN 301 489-3 V2.1.1
Electro Magnetic Compatibility (EMC)
standard for radio equipment and services;
Part 3: Specific conditions for Short-Range
Devices (SRD)

EN 301 489-52 V1.1.0

EN 301 489-52 V1.1.0

EN 301 489-52 V1.1.0

Datum:
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Unterschrift:
Firma:
Signature:

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**Niederspannungs-
Schaltgerätekombinationen nach IEC
EN 61439-7**

Elektromagnetische Verträglichkeit für
Funkanlagen und -dienste - Teil 52:
Spezifische Bedingungen für mobile und
tragbare zellulare Funkanlagen (UE)

EN 300 330 V2.1.1

Funkanlagen mit geringer Reichweite (SRD) -
Funkgeräte im Frequenzbereich 9 kHz bis
25 MHz und induktive Schleifensysteme im
Frequenzbereich 9 kHz bis 30 MHz

EN 62311: 2020

Bewertung von elektrischen und
elektronischen Einrichtungen in Bezug auf
Begrenzungen der Exposition von Personen in
elektromagnetischen Feldern (0 Hz bis
300 GHz)

EN 50364: 2010

Produktnorm für die Exposition von Personen
gegenüber elektromagnetischen Feldern von
Geräten, die im Frequenzbereich von 0 Hz bis
300 GHz betrieben und in der elektronischen
Artikelüberwachung (EAS), Hochfrequenz-
Identifizierung (RFID) und ähnlichen
Anwendungen verwendet werden

Der Hersteller erklärt unter der eigenen
Verantwortung, dass die oben beschriebene
Schaltgerätekombination (Ladesäule) fach-
gerecht und entsprechend aller Spezifikationen,
die in der Norm IEC EN 61439 und IEC EN 61851
vorgesehen sind, realisiert worden ist.

Er erklärt außerdem, CE-zertifizierte
Komponenten verwendet zu haben, die
Auswahlkriterien und die Montageanleitungen
beachtet zu haben, die in den entsprechenden
Katalogen und Datenblättern angegeben sind,
und während der Montage oder durch Umbau
die Leistungen des verwendeten Materials, die
in den schon genannten Katalogen erklärt
werden, auf keinerlei Weise gefährdet zu
haben.

Diese Leistungen und die ausgeführten
Nachweise gestatten es daher, die Konformität
der genannten Schaltgerätekombination mit
den folgenden Anforderungen der Norm zu
erklären:

Bauanforderungen:

- Festigkeit von Werkstoffen und Teilen der
Schaltgerätekombination

Datum:

Data: 05.06.2023

Date:

**CE KONFORMITÄTSEKLRUNG
DICHIARAZIONE DI CONFORMITÀ CE
CE DECLARATION OF CONFORMITY**

**Quadri elettrici per bassa tensione
secondo IEC EN 61439-7**

Compatibilità elettromagnetica e questioni
relative allo spettro delle radiofrequenze (ERM)
- Parte 52: Condizioni specifiche per
apparecchiature radio mobili cellulari e portatili
(UE)

EN 300 330 V2.1.1

Dispositivi a breve portata (SRD);
Apparecchiature radio da utilizzare nella
gamma di frequenze da 9 kHz a 25 MHz e
sistemi con spire induttive nella gamma di
frequenza da 9 kHz a 30 MHz

EN 62311: 2020

Valutazione degli apparecchi elettronici ed
elettrici in relazione ai limiti di base per
l'esposizione umana ai campi elettromagnetici
(0 Hz - 300 GHz) IEC 62311:2007 (Modificata)

EN 50364: 2010

Limitazione dell'esposizione umana ai campi
elettromagnetici prodotti da dispositivi
operanti nella gamma di frequenza 0 Hz - 300
GHz, utilizzati nei sistemi elettronici
antitaccheggio (EAS), nei sistemi di
identificazione a radio frequenza (RFID) e in
applicazioni similari

La ditta costruttrice dichiara sotto la propria
responsabilità, che il quadro elettrico
(colonnina) sopra descritto è stato realizzato a
regola d'arte e conformemente a tutte le
specifiche previste dalla Norma IEC EN 61439 e
IEC EN 61851.

Dichiara inoltre di avere utilizzato componenti
certificati CE, di avere rispettato i criteri di scelta
e le istruzioni di montaggio indicate sui relativi
cataloghi e fogli d'istruzione e di non avere
compromesso in alcun modo, durante il
montaggio o attraverso modifiche, le
prestazioni del materiale utilizzato dichiarate sui
già citati cataloghi.

Tali prestazioni e le verifiche effettuate
consentono quindi di dichiarare la conformità
del quadro in questione alle seguenti richieste
della norma:

Richieste di Costruzione:

- Robustezza dei materiali e delle parti del
quadro

Unterschrift:

Firma:

Signature:



**Low voltage switchgears and
controlgear assemblies in compliance
with the Standard IEC EN 61439-7**

Electromagnetic Compatibility (EMC)
standard for radio equipment and services;
Part 52: Specific conditions for Cellular
Communication Mobile and portable (UE)

EN 300 330 V2.1.1

Short Range Devices (SRD) - Radio equipment
in the frequency range 9 kHz to 25 MHz and
inductive loop systems in the frequency range
9 kHz to 30 MHz

EN 62311: 2020

Assessment of electronic and electrical
equipment related to human exposure
restrictions for electromagnetic fields (0 Hz -
300 GHz)

EN 50364: 2010

Product standard for human exposure to
electromagnetic fields from devices operating
in the frequency range 0 Hz to 300 GHz, used in
Electronic Article Surveillance (EAS), Radio
Frequency Identification (RFID) and similar
applications

The manufacturer declares under its own
responsibility, that the above-mentioned
switchgear assembly (charging system) has
been constructed according to the state of the
art and in compliance with all the specifications
provided by the Standard IEC 61439 and IEC EN
61851.

Also declares that CE certificated components
have been used, and the assembly instructions
reported in the relevant catalogues and on the
instruction sheets has been followed, and that
the performances of the material used declared
in the above-mentioned catalogues have in no
way been jeopardized during assembling or by
any modification.

These performances and the verifications
carried out therefore allow us to declare
conformity of the switchgear assembly under
consideration of the following requirements of
the Standard.

Constructional requirements:

- Strength of materials and parts of the
assembly

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**Niederspannungs-
Schaltgerätekombinationen nach IEC
EN 61439-7**

- Schutzart
- Luft- und Kriechstrecken
- Schutz gegen elektrischen Schlag
- Einbau von Schaltgeräten und Bauteilen
- Innere Stromkreise und Verbindungen
- Anschlüsse für von außen eingeführter Leiter

Leistungsanforderungen:

- Isolationseigenschaften
- Erwärmung
- Kurzschlussfestigkeit
- Elektromagnetische Verträglichkeit (EMV)
- Mechanische Funktion

Wir erklären schließlich unter unserer Verantwortung, alle Stücknachweise, die von der Norm vorgesehen sind, mit positivem Ausgang ausgeführt zu haben, und zwar:

Bauanforderungen:

- Schutzgrad der Umhüllung
- Luft- und Kriechstrecken
- Schutz gegen elektrischen Schlag und die Durchgängigkeit von Schutzleiterkreisen, Einbau von Schaltgeräten und Komponenten
- Innere Stromkreise und Verbindungen
- Anschlüsse für von außen eingeführter Leiter
- Mechanische Funktion

Leistungsanforderungen:

- Isolationseigenschaften
- Verdrahtung, Leistungen bei Betriebsbedingungen und Funktionalität

CE KONFORMITÄTSEKLRUNG
DICHIARAZIONE DI CONFORMITÀ CE
CE DECLARATION OF CONFORMITY

**Quadri elettrici per bassa tensione
secondo IEC EN 61439-7**

- Grado di protezione degli involucri
- Distanze d'isolamento in aria e superficiali
- Protezione contro la scossa elettrica ed integrità dei circuiti di protezione
- Installazione degli apparecchi di manovra e dei componenti
- Circuiti elettrici interni e collegamenti
- Terminali per conduttori esterni

Richieste di prestazioni:

- Proprietà dielettriche
- Sovratemperatura
- Capacità di tenuta al cortocircuito
- Compatibilità Elettromagnetica (EMC)
- Funzionamento meccanico

Dichiariamo infine, sotto la nostra responsabilità, di aver effettuato con risultato positivo tutte le prove individuali previste dalla norma e precisamente:

Specifiche di costruzione:

- Grado di protezione degli involucri
- Distanze di isolamento in aria e superficiali
- Protezione contro la scossa elettrica ed integrità dei circuiti di protezione
- Installazione dei componenti
- Circuiti elettrici interni e collegamenti
- Terminali per conduttore esterni
- Funzionamento meccanico

Specifiche di prestazione:

- Proprietà dielettriche
- Cablaggio, prestazione di condizioni operative e funzionalità



**Low voltage switchgears and
controlgear assemblies in compliance
with the Standard IEC EN 61439-7**

- Degree of protection
- Clearances and creepage distances
- Protection against electric shock
- Incorporation of switching devices and components
- Internal electrical circuits and connections
- Terminals for external conductions

Performance requirements:

- Dielectric properties
- Temperature-rise limits
- Short-circuit withstand strength
- Electromagnetic compatibility (EMC)
- Mechanical operation

Finally, declares, under its own responsibility that all the routine verifications prescribed by the Standard have been carried out successfully and precisely:

Design specifications:

- Degree of protection of the enclosure
- Clearances and creepage distances
- Protection against electric shock an integrity of protective circuits
- Incorporation of switching devices components
- Internal electrical circuits and connections
- Terminals for external conductors
- Mechanical operation

Performance specifications:

- Dielectric properties
- Wiring, operational performance and function

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