

1. Hypercharger HYC150 and HYC300 harmonics

This document provides information about harmonics of the HYC150 and HYC300 DC fast charger.

1.1. Power data

The table below shows all relevant power data of HYC150 and.

Description	Symbol	formula	HYC_150	HYC_300
Output power	P_{OUT}		150 kW	300 kW
Efficiency @worst case	ETA		92,5%	92,5%
Powerfactor	$\cos(\phi)$		0,99	0,99
Active input power	P_{IN}	$P_{IN} = P_{OUT} / \text{ETA}$	162 kW	324 kW
Apparent input power	S_{IN}	$S_{IN} = P_{IN} / \cos(\phi)$	163 kVA	327 kVA
AC input voltage	U_{IN-nom}		230 V _{RMS}	230V _{RMS}
AC input current	I_{IN}	$I_{IN} = S_{IN} / 3 / U_{IN-nom}$	237 A _{RMS}	474 A _{RMS}

Table 1: hypercharger power data

1.2. Characteristics

Subsequently are listed characteristics of the power electronic which are often asked by energy supply companies.

- Switching frequency: 18kHz
- Topology: 3L PFC (three level Power Factor Correction)
- Controlled / non controlled: controlled

1.3. Harmonics

Table 2 and Table 3 show the harmonic data of HYC150 and HYC300.

Harmonic order	3	5	7	9	11	13	17	19	23
Strom (I_H/I_N)	0,5%	3,6%	1,5%	0,1%	0,7%	0,7%	0,2%	0,4%	0,2%
Ordnungszahl	25	29	31	35	37	41	43	47	49
Strom (I_H/I_N)	0,1%	0,1%	0,1%	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%

Table 2: HYC150 harmonics

Harmonic order	3	5	7	9	11	13	17	19	23
current (I_H/I_N)	0,7%	2,8%	0,9%	0,0%	0,6%	0,7%	0,2%	0,3%	0,2%
Ordnungszahl	25	29	31	35	37	41	43	47	49
current (I_H/I_N)	0,0%	0,1%	0,1%	0,1%	0,1%	0,0%	0,0%	0,0%	0,0%

Table 3: HYC300 harmonics

Version History

Version	Date	Author	Description
1-1	Aug 2020	P. Gruber	First version

Content

1. Hypercharger HYC150 and HYC300 harmonics.....	1
1.1. Power data.....	1
1.2. Characteristics	1
1.3. Harmonics.....	2