

Certificate

No. ESY 075386 0336 Rev. 00

Unit Certificate

Holder of Certificate: **Shenzhen Kstar New Energy Company Limited**

The 9th Floor, R&D Building
Kstar Industrial Park, Guangming Hi-tech Industrial Zone
518107 Shenzhen, Guangdong Province
PEOPLE'S REPUBLIC OF CHINA

Product: **Converter
(Hybrid Inverter & Energy Storage Inverter)**

Model(s): **Hybrid Inverter:
KAC50DP2, KAC49.9DP2, KAC40DP2, KAC30DP2,
KAC29.9DP2, KAC25DP2, KAC20DP2,
KAC50DP2-S0, KAC49.9DP2-S0, KAC40DP2-S0,
KAC30DP2-S0, KAC29.9DP2-S0, KAC25DP2-S0,
KAC20DP2-S0
Energy Storage Inverter:
KAC50D2, KAC49.9D2, KAC40D2, KAC30D2,
KAC29.9D2, KAC25D2, KAC20D2, KAC50D2-S0,
KAC49.9D2-S0, KAC40D2-S0, KAC30D2-S0,
KAC29.9D2-S0, KAC25D2-S0, KAC20D2-S0**


Parameters: See page 2 to 8

Applicable standards: VDE-AR-N 4105:2018
DIN VDE V 0124-100 (VDE V 0124-100):2020

This Certificate confirms the compliance with the above listed standards on a voluntary basis. It refers only to the sample submitted to TÜV SÜD Product Service GmbH and does not certify the quality or safety of the serial products. It was issued according to TÜV SÜD Product Service certification program Photovoltaics and Grid Integration. For details see: www.tuvsud.com/ps-cert

Test report no.: 64290253079001

Date, 2026-04-14



(Billy Qiu)

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Parameters:

Model	KAC50DP2	KAC49.9DP2	KAC40DP2	KAC30DP2
PV terminal parameters				
Maximum input voltage [V _{DC}]	950			
Rated input voltage [V _{DC}]	720			
PV input operating voltage range [V _{DC}]	250-950			
MPPT voltage range (full load) [V _{DC}]	620-800	620-800	500-800	400-800
MPPT tracker number	4			
Maximum operating PV input current [A _{DC}]	45/45/45/45			
Maximum PV short circuit current [A _{DC}]	60/60/60/60			
Maximum input power [W]	100000	100000	80000	60000
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150-900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input parameters				
Rated input voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input frequency [Hz]	50			
Maximum continuous input current [A _{AC}]	160	144	128	96
Maximum continuous input active power [W]	100000	99800	80000	60000
Maximum continuous input apparent power [VA]	110000	99800	88000	66000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)			
Grid terminal output parameters				
Rated output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum output active power [W]	50000	49900	40000	30000
Maximum continuous output apparent power [VA]	55000	49900	44000	33000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)			

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Model	KAC29.9DP2	KAC25DP2	KAC20DP2
PV terminal parameters			
Maximum input voltage [V _{DC}]	950		
Rated input voltage [V _{DC}]	720		
PV input operating voltage range [V _{DC}]	250-950		
MPPT voltage range (full load) [V _{DC}]	400-800	350-800	300-800
MPPT tracker number	4		
Maximum operating PV input current [A _{DC}]	45/45/45/45		
Maximum PV short circuit current [A _{DC}]	60/60/60/60		
Maximum input power [W]	60000	50000	40000
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	200-900		
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input parameters			
Rated input voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input frequency [Hz]	50		
Maximum continuous input current [A _{AC}]	87	80	64
Maximum continuous input active power [W]	59800	50000	40000
Maximum continuous input apparent power [VA]	59800	55000	44000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)		
Grid terminal output parameters			
Rated output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated output frequency [Hz]	50		
Rated output current [A _{AC}]	43	36	29
Maximum continuous output current [A _{AC}]	43	40	32
Rated output active power [W]	29900	25000	20000
Maximum output active power [W]	29900	25000	20000
Maximum continuous output apparent power [VA]	29900	27500	22000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)		

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Model	KAC50DP2-S0	KAC49.9DP2-S0	KAC40DP2-S0	KAC30DP2-S0
PV terminal parameters				
Maximum input voltage [V _{DC}]	950			
Rated input voltage [V _{DC}]	720			
PV input operating voltage range [V _{DC}]	250-950			
MPPT voltage range (full load) [V _{DC}]	620-800	620-800	500-800	400-800
MPPT tracker number	4			
Maximum operating PV input current [A _{DC}]	45/45/45/45			
Maximum PV short circuit current [A _{DC}]	60/60/60/60			
Maximum input power [W]	100000	100000	80000	60000
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150-900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/ discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input/output parameters				
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input/output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous input/output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum continuous input/output active power [W]	50000	49900	40000	30000
Maximum continuous input/output apparent power [VA]	55000	49900	44000	33000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)			

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Model	KAC29.9DP2-S0	KAC25DP2-S0	KAC20DP2-S0
PV terminal parameters			
Maximum input voltage [V _{DC}]	950		
Rated input voltage [V _{DC}]	720		
PV input operating voltage range [V _{DC}]	250-950		
MPPT voltage range (full load) [V _{DC}]	400-800	350-800	300-800
MPPT tracker number	4		
Maximum operating PV input current [A _{DC}]	45/45/45/45		
Maximum PV short circuit current [A _{DC}]	60/60/60/60		
Maximum input power [W]	60000	50000	40000
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	250-900	210-900	200-900
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input/output parameters			
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input/output frequency [Hz]	50		
Rated output current [A _{AC}]	43	36	29
Maximum continuous input/output current [A _{AC}]	43	40	32
Rated output active power [W]	29900	25000	20000
Maximum continuous input/output active power [W]	29900	25000	20000
Maximum continuous input/output apparent power [VA]	29900	27500	22000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)		

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Model	KAC50D2	KAC49.9D2	KAC40D2	KAC30D2
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150–900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input parameters				
Rated input voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input frequency [Hz]	50			
Maximum continuous input current [A _{AC}]	160	144	128	96
Maximum continuous input active power [W]	100000	99800	80000	60000
Maximum continuous input apparent power [VA]	110000	99800	88000	66000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)			
Grid terminal output parameters				
Rated output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum output active power [W]	50000	49900	40000	30000
Maximum continuous output apparent power [VA]	55000	49900	44000	33000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)			

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Model	KAC29.9D2	KAC25D2	KAC20D2
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	200-900		
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input parameters			
Rated input voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input frequency [Hz]	50		
Maximum continuous input current [A _{AC}]	87	80	64
Maximum continuous input active power [W]	59800	50000	40000
Maximum continuous input apparent power [VA]	59800	55000	44000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)		
Grid terminal output parameters			
Rated output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated output frequency [Hz]	50		
Rated output current [A _{AC}]	43	36	29
Maximum continuous output current [A _{AC}]	43	40	32
Rated output active power [W]	29900	25000	20000
Maximum output active power [W]	29900	25000	20000
Maximum continuous output apparent power [VA]	29900	27500	22000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)		

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Model	KAC50D2-S0	KAC49.9D2-S0	KAC40D2-S0	KAC30D2-S0
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150-900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/ discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input/output parameters				
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input/output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous input/output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum continuous input/output active power [W]	50000	49900	40000	30000
Maximum continuous input/output apparent power [VA]	55000	49900	44000	33000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)			

Model	KAC29.9D2-S0	KAC25D2-S0	KAC20D2-S0
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	250-900	210-900	200-900
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input/output parameters			
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input/output frequency [Hz]	50		
Rated output current [A _{AC}]	43	36	29
Maximum continuous input/output current [A _{AC}]	43	40	32
Rated output active power [W]	29900	25000	20000
Maximum continuous input/output active power [W]	29900	25000	20000
Maximum continuous input/output apparent power [VA]	29900	27500	22000
Power factor	0.9 inductive(under-excited) to 0.9 capacitive(over-excited)		

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E.4 Unit certificate

Unit certificate		
Manufacturer	Shenzhen Kstar New Energy Company Limited	
Power generation unit type	<p>[Hybrid Inverter]: <u>KAC50DP2, KAC49.9DP2, KAC40DP2, KAC30DP2, KAC29.9DP2, KAC25DP2, KAC20DP2, KAC50DP2-S0, KAC49.9DP2-S0, KAC40DP2-S0, KAC30DP2-S0, KAC29.9DP2-S0, KAC25DP2-S0, KAC20DP2-S0.</u></p> <p>[Energy Storage Inverter]: <u>KAC50D2, KAC49.9D2, KAC40D2, KAC30D2, KAC29.9D2, KAC25D2, KAC20D2, KAC50D2-S0, KAC49.9D2-S0, KAC40D2-S0, KAC30D2-S0, KAC29.9D2-S0, KAC25D2-S0, KAC20D2-S0.</u></p> <p>Remark: certified on representative model <u>KAC50DP2</u> of family design products, results of the measurement of <u>KAC50DP2</u> be transferred to other models based on transferability rule of measurements in DIN VDE V 0124-100 (VDE V 0124-100):2020-06.</p>	
Assessment values	max. active power $P_{E_{max}}$	50 kW (KAC50DP2)
	max. apparent power $S_{E_{max}}$	55 kVA (KAC50DP2)
	Rated voltage	3/N/PE~, 230/400 V _{AC}
	Rated current (AC) I_r	72.0 A (KAC50DP2)
	Initial short-circuit AC current I''_k	95.6 A (KAC50DP2)
Network connection rule	<p>VDE-AR-N 4105:2018-11 “Generators connected to the low-voltage distribution network”</p> <p>Technical minimum requirements for connection and parallel operation of power generation systems connected to the low-voltage network</p>	
Test requirement	<p>DIN VDE V 0124-100 (VDE V 0124-100):2020-06 “Network integration of power generation systems – Low voltage”</p> <p>Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network</p>	
Test report	64.290.25.30790.01 from 2026-03-23	
The above designated power generation unit meets the requirements of VDE-AR-N 4105:2018-11.		

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E.5 Test report "Network interactions" for power generation units with an input current > 75 A

Extract of the test report for power generation units "Determination of electrical properties"		
System manufacturer:	Shenzhen Kstar New Energy Company Limited The 9th Floor, R&D Building, Kstar Industrial Park, Guangming Hi-tech Industrial Zone, 518107 Shenzhen, Guangdong Province, PEOPLE'S REPUBLIC OF CHINA	
Manufacturer indications:	Type of system	Hybrid Inverter& Energy Storage Inverter
	Max. active power $P_{E_{max}}$	50.0 kW (KAC50DP2) 49.9 kW (KAC49.9DP2) 40.0 kW (KAC40DP2) 30.0 kW (KAC30DP2) 29.9 kW (KAC29.9DP2) 25.0 kW (KAC25DP2) 20.0 kW (KAC20DP2) 50.0 kW (KAC50DP2-S0) 49.9 kW (KAC49.9DP2-S0) 40.0 kW (KAC40DP2-S0) 30.0 kW (KAC30DP2-S0) 29.9 kW (KAC29.9DP2-S0) 25.0 kW (KAC25DP2-S0) 20.0 kW (KAC20DP2-S0) 50.0 kW (KAC50D2) 49.9 kW (KAC49.9D2) 40.0 kW (KAC40D2) 30.0 kW (KAC30D2) 29.9 kW (KAC29.9D2) 25.0 kW (KAC25D2) 20.0 kW (KAC20D2) 50.0 kW (KAC50D2-S0) 49.9 kW (KAC49.9D2-S0) 40.0 kW (KAC40D2-S0) 30.0 kW (KAC30D2-S0) 29.9 kW (KAC29.9D2-S0) 25.0 kW (KAC25D2-S0) 20.0 kW (KAC20D2-S0)
	Rated voltage	3/N/PE~, 230/400 V _{AC}
Measurement period:	From 2026-01-13 to 2026-03-16	

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Rapid voltage change	
Model	<u>KAC50DP2</u>
Connection without provisions (regarding the primary energy carrier)	$K_i=0.54$
Most adverse case when switching between generator levels	$K_i=0.54$
Connection at nominal conditions (of the primary energy carrier)	$K_i=1.09$
Disconnection at rated power	$K_i=1.03$
Worst value of all switching operations	$K_{imax}=1.09$

Flicker (KAC50DP2)					
Network impedance angle Ψ_k	30°	50°	70°	85°	32°
Coefficient of system flicker C_ψ (Maximum)					
L1	--	--	--	--	1.097
L2	--	--	--	--	1.073
L3	--	--	--	--	1.067

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Phase L2-N												
Active power P/Pn[%]	0	10	20	30	40	50	60	70	80	90	100	Limit value
Ordinal number	Ih/Iref [%]											[%]
2	0.187	0.065	0.117	0.102	0.145	0.149	0.131	0.138	0.146	0.174	0.142	8
3	1.240	1.632	1.283	1.184	1.099	1.057	1.052	1.124	1.167	1.259	1.300	-
4	0.063	0.058	0.142	0.085	0.148	0.125	0.113	0.089	0.105	0.115	0.084	4
5	0.975	1.084	0.532	0.785	0.706	0.612	0.552	0.603	0.594	0.661	0.679	10.7
6	0.093	0.031	0.051	0.092	0.177	0.229	0.218	0.078	0.103	0.135	0.088	2.67
7	0.771	0.283	0.659	0.188	0.661	0.778	0.851	0.260	0.214	0.264	0.236	7.2
8	0.039	0.020	0.064	0.030	0.054	0.045	0.041	0.065	0.056	0.066	0.075	2
9	0.500	0.574	0.618	0.265	0.311	0.615	0.751	0.202	0.174	0.076	0.067	-
10	0.062	0.048	0.071	0.064	0.092	0.074	0.055	0.098	0.097	0.118	0.115	1.6
11	0.490	0.429	0.285	0.550	0.265	0.546	0.772	0.303	0.268	0.225	0.202	3.1
12	0.136	0.027	0.117	0.092	0.062	0.062	0.095	0.134	0.119	0.131	0.125	1.33
13	0.357	0.212	0.172	0.513	0.189	0.323	0.550	0.229	0.191	0.126	0.147	2
14	0.048	0.034	0.055	0.075	0.077	0.097	0.083	0.046	0.035	0.046	0.040	-
15	0.096	0.219	0.154	0.248	0.151	0.226	0.359	0.071	0.067	0.030	0.041	-
16	0.032	0.055	0.084	0.119	0.028	0.086	0.121	0.068	0.082	0.053	0.075	-
17	0.288	0.251	0.244	0.113	0.304	0.121	0.196	0.203	0.166	0.122	0.101	-
18	0.128	0.098	0.095	0.043	0.027	0.029	0.069	0.049	0.047	0.038	0.036	-
19	0.213	0.221	0.072	0.135	0.218	0.110	0.080	0.146	0.126	0.092	0.070	-
20	0.036	0.071	0.066	0.025	0.021	0.034	0.041	0.040	0.035	0.033	0.025	-
21	0.090	0.048	0.178	0.112	0.144	0.140	0.144	0.077	0.057	0.042	0.025	-
22	0.031	0.072	0.079	0.069	0.019	0.070	0.056	0.029	0.028	0.027	0.032	-
23	0.148	0.084	0.151	0.174	0.142	0.143	0.040	0.092	0.071	0.037	0.024	-
24	0.065	0.166	0.032	0.024	0.024	0.054	0.045	0.023	0.027	0.021	0.024	-
25	0.128	0.134	0.070	0.137	0.096	0.106	0.043	0.097	0.075	0.051	0.039	-
26	0.031	0.107	0.037	0.038	0.047	0.028	0.031	0.017	0.019	0.016	0.022	-
27	0.092	0.088	0.131	0.035	0.052	0.087	0.055	0.055	0.044	0.021	0.021	-
28	0.014	0.072	0.028	0.042	0.029	0.023	0.045	0.018	0.027	0.021	0.023	-
29	0.101	0.065	0.109	0.060	0.039	0.098	0.043	0.052	0.035	0.022	0.019	-
30	0.017	0.117	0.029	0.038	0.016	0.040	0.034	0.018	0.016	0.015	0.015	-
31	0.081	0.077	0.040	0.090	0.051	0.096	0.018	0.040	0.030	0.018	0.023	-
32	0.019	0.043	0.021	0.029	0.018	0.030	0.018	0.013	0.013	0.016	0.014	-
33	0.080	0.069	0.067	0.083	0.050	0.065	0.035	0.048	0.037	0.020	0.017	-
34	0.011	0.041	0.033	0.023	0.019	0.014	0.028	0.021	0.018	0.022	0.015	-
35	0.062	0.045	0.090	0.074	0.075	0.069	0.054	0.054	0.042	0.019	0.015	-
36	0.010	0.075	0.025	0.025	0.015	0.029	0.029	0.014	0.017	0.012	0.015	-
37	0.049	0.028	0.022	0.048	0.072	0.070	0.049	0.044	0.034	0.019	0.016	-
38	0.012	0.052	0.021	0.027	0.014	0.034	0.027	0.016	0.014	0.014	0.013	-
39	0.043	0.030	0.037	0.024	0.043	0.043	0.039	0.030	0.021	0.016	0.014	-
40	0.011	0.018	0.026	0.021	0.011	0.013	0.019	0.015	0.013	0.014	0.013	-
THC/I _{ref}	2.006	2.190	1.774	1.717	1.639	1.784	1.985	1.437	1.433	1.518	1.542	13
PWHC/I _{ref}	2.299	2.564	2.213	2.133	2.226	2.095	2.111	1.586	1.319	0.929	0.828	22

Certificate

No. **ESY 075386 0336 Rev. 00**

Phase L3-N												
Active power P/Pn[%]	0	10	20	30	40	50	60	70	80	90	100	Limit value
Ordinal number	Ih/Iref [%]											[%]
2	0.074	0.274	0.249	0.106	0.079	0.076	0.118	0.131	0.112	0.092	0.092	8
3	1.341	10.129	19.935	30.479	40.591	50.817	61.042	71.160	80.290	90.335	99.944	-
4	0.095	0.211	0.082	0.231	0.128	0.117	0.122	0.142	0.088	0.061	0.115	4
5	1.267	1.644	1.205	1.258	1.108	1.034	1.021	1.087	1.128	1.234	1.281	10.7
6	0.164	0.136	0.084	0.152	0.205	0.198	0.187	0.109	0.100	0.116	0.134	2.67
7	0.945	1.041	0.523	0.740	0.634	0.552	0.503	0.550	0.532	0.601	0.606	7.2
8	0.103	0.043	0.089	0.103	0.122	0.132	0.119	0.172	0.120	0.160	0.149	2
9	0.807	0.237	0.612	0.186	0.674	0.869	0.967	0.373	0.345	0.336	0.343	-
10	0.037	0.045	0.041	0.085	0.092	0.067	0.086	0.050	0.055	0.065	0.075	1.6
11	0.531	0.575	0.604	0.252	0.299	0.572	0.718	0.187	0.150	0.069	0.045	3.1
12	0.074	0.038	0.042	0.065	0.089	0.066	0.036	0.086	0.127	0.132	0.103	1.33
13	0.444	0.422	0.264	0.516	0.109	0.437	0.684	0.285	0.234	0.209	0.177	2
14	0.133	0.044	0.158	0.169	0.065	0.106	0.167	0.097	0.077	0.106	0.090	-
15	0.369	0.209	0.280	0.415	0.166	0.236	0.445	0.251	0.202	0.195	0.124	-
16	0.058	0.026	0.046	0.088	0.036	0.105	0.133	0.044	0.035	0.038	0.032	-
17	0.142	0.180	0.151	0.257	0.186	0.226	0.343	0.104	0.097	0.044	0.064	-
18	0.084	0.087	0.067	0.055	0.046	0.040	0.084	0.067	0.072	0.057	0.076	-
19	0.243	0.243	0.177	0.095	0.257	0.073	0.171	0.166	0.133	0.098	0.067	-
20	0.119	0.110	0.136	0.106	0.063	0.090	0.108	0.045	0.040	0.036	0.038	-
21	0.200	0.179	0.034	0.134	0.226	0.139	0.106	0.118	0.093	0.042	0.040	-
22	0.052	0.023	0.040	0.035	0.040	0.035	0.062	0.030	0.025	0.027	0.025	-
23	0.084	0.058	0.163	0.085	0.120	0.137	0.151	0.079	0.058	0.045	0.029	-
24	0.072	0.073	0.069	0.035	0.048	0.028	0.040	0.031	0.040	0.024	0.039	-
25	0.129	0.031	0.101	0.101	0.076	0.104	0.029	0.074	0.063	0.031	0.034	-
26	0.051	0.123	0.043	0.066	0.048	0.029	0.087	0.018	0.017	0.018	0.021	-
27	0.104	0.049	0.052	0.074	0.064	0.096	0.044	0.091	0.076	0.051	0.044	-
28	0.039	0.031	0.025	0.042	0.053	0.024	0.029	0.017	0.021	0.016	0.022	-
29	0.068	0.089	0.122	0.059	0.054	0.071	0.074	0.052	0.041	0.022	0.022	-
30	0.043	0.042	0.037	0.024	0.024	0.027	0.018	0.017	0.020	0.024	0.019	-
31	0.077	0.105	0.094	0.060	0.038	0.082	0.032	0.065	0.051	0.033	0.024	-
32	0.017	0.088	0.030	0.027	0.018	0.020	0.047	0.015	0.013	0.015	0.016	-
33	0.050	0.095	0.048	0.105	0.070	0.083	0.067	0.063	0.047	0.030	0.023	-
34	0.018	0.019	0.022	0.024	0.015	0.034	0.018	0.013	0.013	0.017	0.014	-
35	0.049	0.103	0.058	0.059	0.061	0.047	0.044	0.051	0.040	0.022	0.017	-
36	0.018	0.051	0.020	0.030	0.014	0.023	0.015	0.018	0.015	0.019	0.014	-
37	0.035	0.112	0.068	0.037	0.059	0.050	0.057	0.035	0.027	0.016	0.015	-
38	0.011	0.058	0.029	0.017	0.014	0.031	0.017	0.012	0.012	0.013	0.013	-
39	0.036	0.057	0.035	0.017	0.045	0.037	0.058	0.038	0.032	0.019	0.016	-
40	0.014	0.030	0.031	0.021	0.019	0.032	0.028	0.015	0.013	0.014	0.013	-
THC/I _{ref}	0.034	0.061	0.028	0.037	0.027	0.035	0.038	0.030	0.019	0.015	0.016	13
PWHC/I _{ref}	0.011	0.032	0.020	0.023	0.018	0.016	0.023	0.016	0.014	0.014	0.014	22

Remark: Iref= 72.0 A