

Lab ID#: KL19600056
Receipt Date: Nov 6, 2019
Test Date: Jun 14, 2019

Report: 19PS742A

Report Date: Jun 28, 2019

DUT INFORMATION

Brand	Kolink
Manufacturer (OEM)	Kolink
Series	Enclave
Model Number	KL-G600FM
Serial Number	#CK033
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	
Rated Frequency (Hz)	50-60
Rated Power (W)	600
Type	ATX12V
Cooling	120mm Rifle Bearing Fan (EFS-12E12H)
Semi-Passive Operation	X
Cable Design	Fully Modular

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	ErP Lot 6 2010: ✓ ErP Lot 6 2013: ✓ ErP Lot 3 2014 & CEC: Partially
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	88.686%
Efficiency With 10W (≤500W) or 2% (>500W)	56.837
Average Efficiency 5VSB	77.773%
Standby Power Consumption (W)	0.0998521
Average PF	0.986
Avg Noise Output	22.32 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

230V

Average Efficiency	90.512%
Average Efficiency 5VSB	76.470%
Standby Power Consumption (W)	0.1421750
Average PF	0.933
Avg Noise Output	23.19 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	16	16	48	3	0.5
	Watts	103		576	15	6
Total Max. Power (W)		600				

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CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (500mm)	1	1	18-22AWG	No
4+4 pin EPS12V (650mm)	1	1	18AWG	No
6+2 pin PCIe (600mm+100mm)	2	4	18AWG	No
SATA (450mm+120mm+120mm)	2	6	20AWG	No
SATA (450mm) / 4 pin Molex (+120mm+120mm)	2	2 / 4	18-20AWG	No

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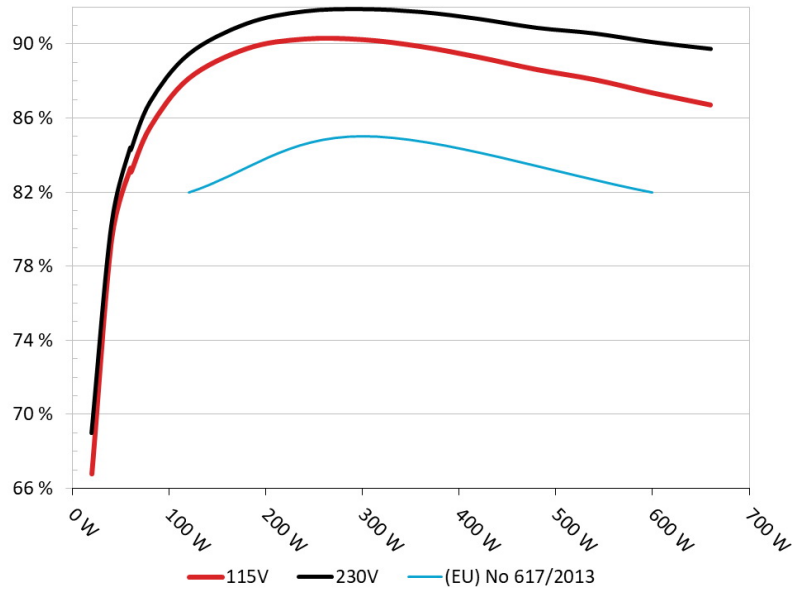
General Data	
Manufacturer (OEM)	Kolink
PCB Type	Double Sided
Primary Side	
Transient Filter	5x Y caps, 3x X caps, 2x CM chokes
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	1x GBU1506 (600V, 15A @ 100°C)
APFC MOSFETS	2x Infineon IPA50R190CE (550V, 15.7A @ 100°C, 0.190hm)
APFC Boost Diode	1x Infineon IDH06G65C6 (650V, 6A @ 145°C)
Hold-up Cap(s)	1x Teapo (420V, 390uF, 2000h @ 105°C, LG)
Main Switchers	4x Great Power GPT10N50AD (500V, 9.7A, 0.70hm)
APFC Controller	On Semiconductor NCP1654
Resonant Controllers	Champion CM6901T6
Topology	Primary side: Full-Bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	4x Nexperia PSMN2R6-40YS (40V, 100A @ 100°C, 5.3mOhm @ 175°C)
5V & 3.3V	DC-DC Converters: 4x Excelliance MOS EMB09N03HR (30V, 35A @ 100°C, 9.5mOhm) PWM Controllers: ANPEC APW7159
Filtering Capacitors	Electrolytics: 10x Teapo (1-3,000h @ 105°C, SC), 1x CapXon (2-5,000h @ 105°C, KF) Polymers: CapXon
Supervisor IC	IN1S313I-DAG & UTC393
Fan Model	DWPH EFS-12E12H (120mm, 12V, 0.50A, Rifle Bearing Fan)
5VSB Circuit	
Rectifier	1x MBR2045CT SBR (45V, 20A)
Standby PWM Controller	Infineon ICE2QR4765

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EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

Efficiency: Kolink KL-G600FM
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

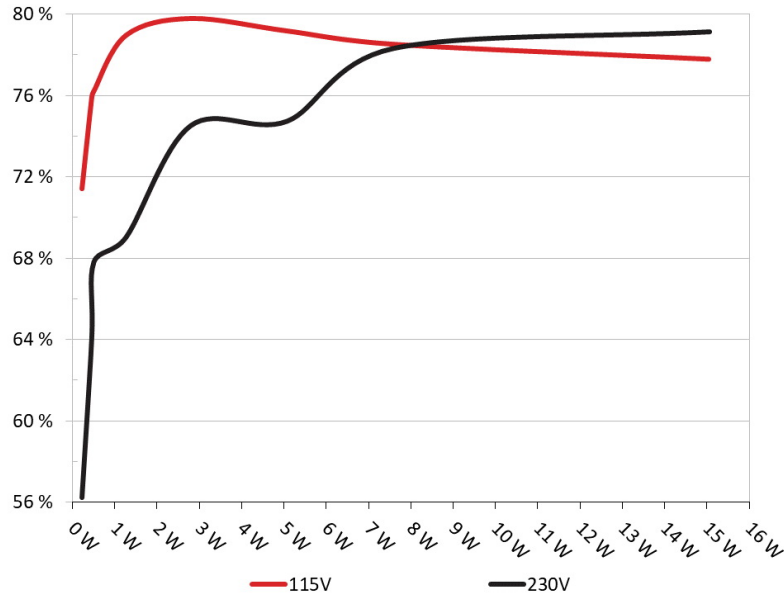


INFO

The PSU's efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used

5VSB EFFICIENCY

5VSB Efficiency: Kolink KL-G600FM
Ambient: 34°C - 36°C (93.2°F - 96.8°F)



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input

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5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	71.429%	0.045
	5.101V	0.322		115.13V
2	0.090A	0.460	75.908%	0.082
	5.099V	0.606		115.13V
3	0.550A	2.798	79.806%	0.312
	5.086V	3.506		115.13V
4	1.000A	5.074	79.195%	0.393
	5.073V	6.407		115.13V
5	1.500A	7.590	78.539%	0.436
	5.059V	9.664		115.13V
6	3.001A	15.051	77.803%	0.493
	5.016V	19.345		115.13V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.230	56.235%	0.017
	5.101V	0.409		230.27V
2	0.090A	0.460	64.067%	0.030
	5.099V	0.718		230.27V
3	0.550A	2.798	74.534%	0.141
	5.086V	3.754		230.28V
4	1.000A	5.075	74.753%	0.222
	5.074V	6.789		230.28V
5	1.500A	7.590	78.336%	0.276
	5.059V	9.689		230.28V
6	3.001A	15.054	79.152%	0.364
	5.017V	19.019		230.27V

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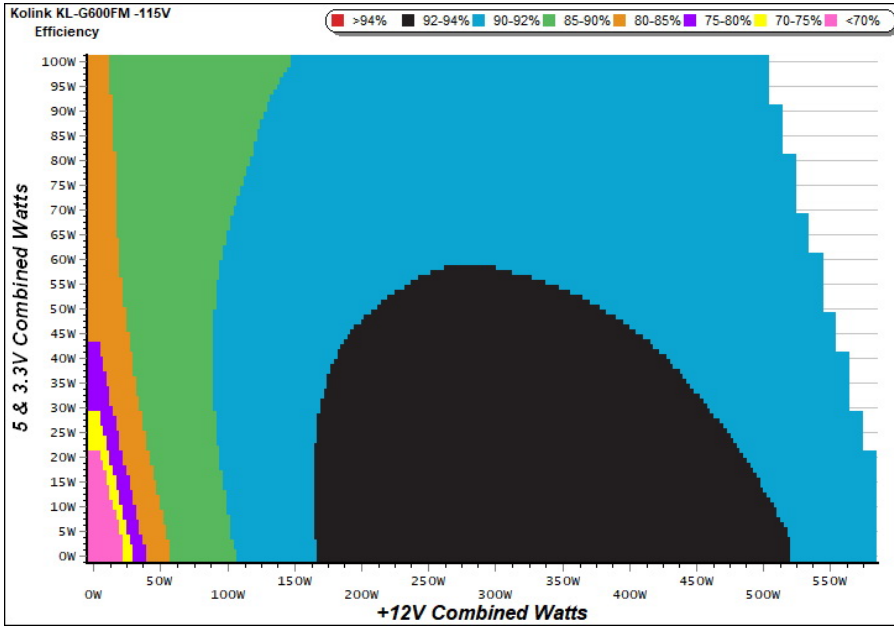
115V

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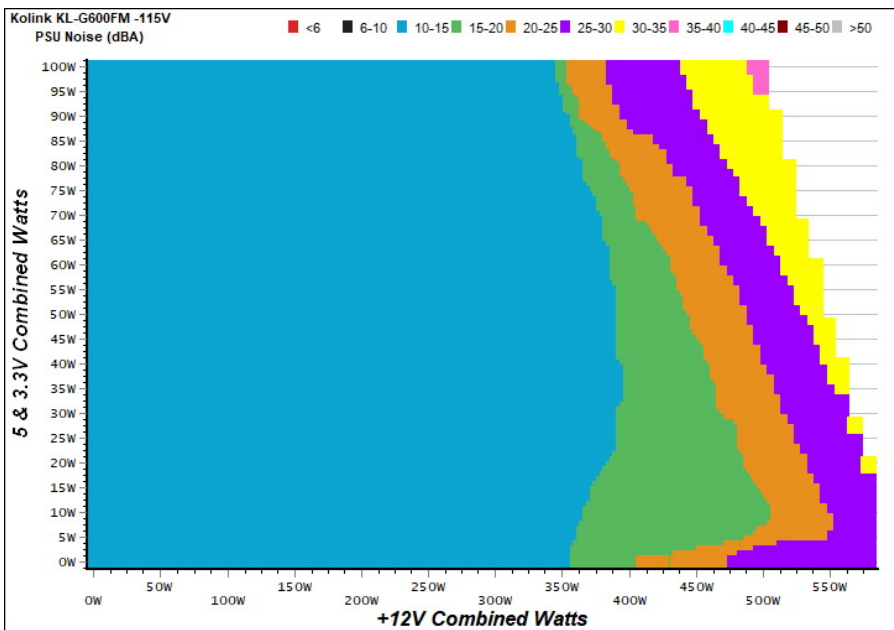
EFFICIENCY GRAPH 115V



INFO

This graph depicts the PSU's efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations

NOISE GRAPH 115V



INFO

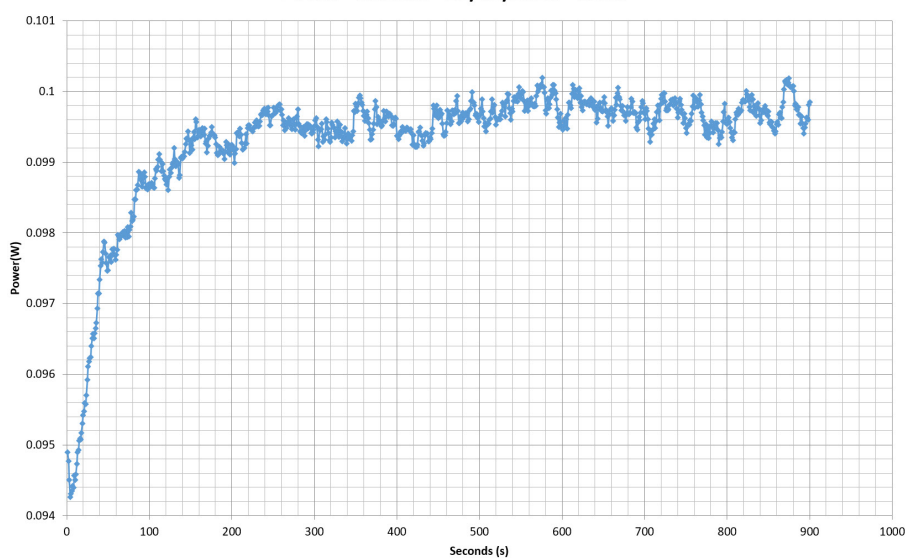
The PSU's noise in its entire operational range and under 30-32 °C (+-2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -115V

Power - #CK033 - 11/06/2019 - 13:09



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Temps (In/Out)	PF/AC Volts
2	9.845A	2.957A	2.959A	1.187A	149.724	90.327%	38.75°C	0.984
	12.077V	5.055V	3.341V	5.048V	165.757		45.79°C	115.16V
5	26.937A	4.960A	4.946A	1.796A	374.731	90.843%	40.55°C	0.989
	12.036V	5.047V	3.334V	5.008V	412.503		49.63°C	115.15V
10	55.360A	8.957A	8.951A	2.529A	749.396	86.220%	44.98°C	0.992
	11.961V	5.029V	3.318V	4.939V	869.171		58.17°C	115.15V

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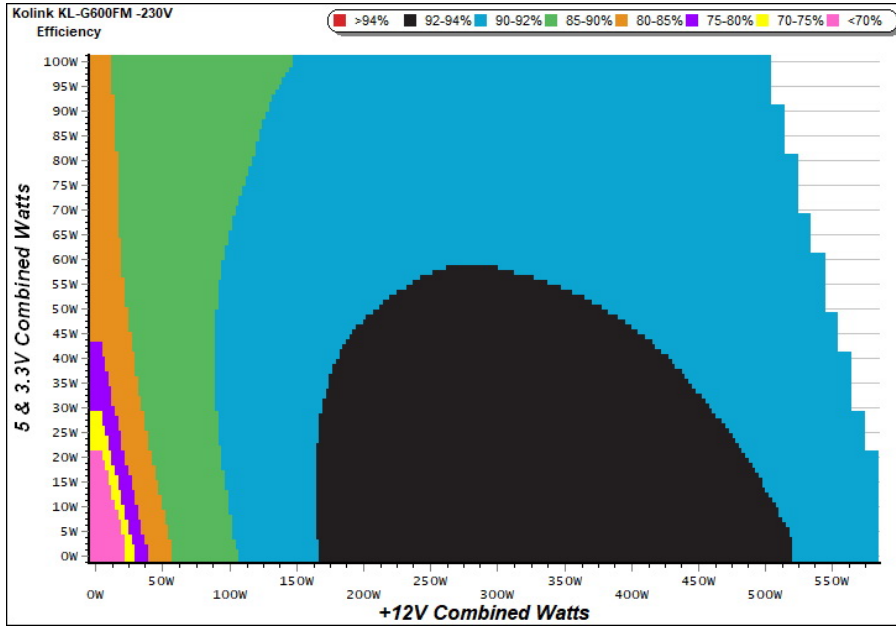
230V

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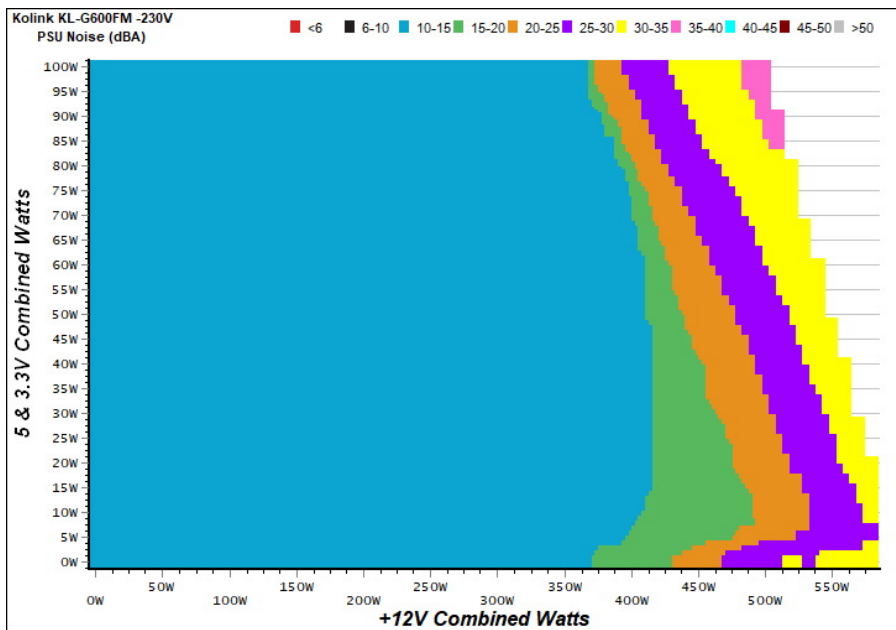
EFFICIENCY GRAPH 230V



INFO

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NOISE GRAPH 230V



INFO

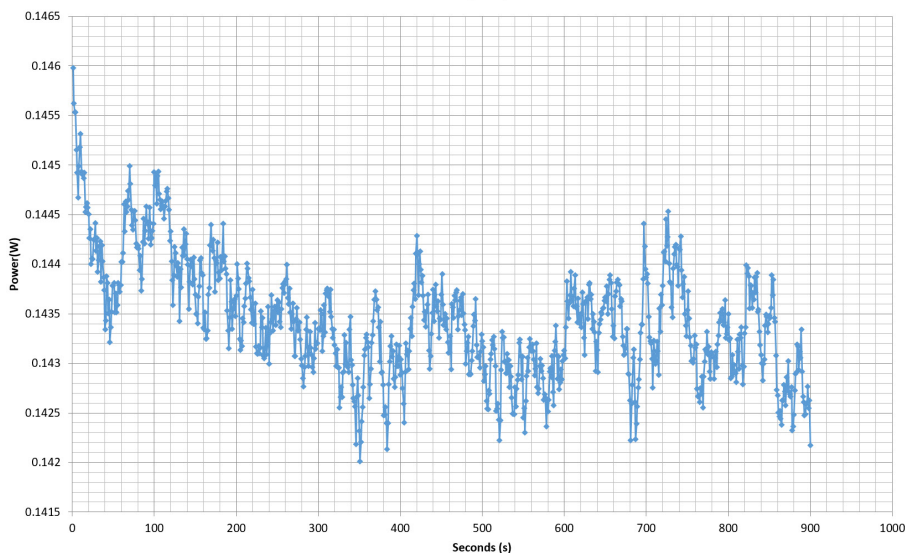
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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VAMPIRE POWER -230V

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
2	7.327A	2.982A	2.937A	1.189A	119.850	89.456%	768	14.5	40.80°C	0.876
	12.140V	5.033V	3.368V	5.046V	133.976				45.20°C	230.27V
5	20.614A	5.012A	4.956A	1.801A	299.848	91.898%	781	14.9	42.25°C	0.955
	12.095V	4.992V	3.329V	4.999V	326.283				48.37°C	230.27V
10	42.468A	9.157A	9.119A	3.058A	599.894	90.117%	1858	40.1	45.93°C	0.979
	12.013V	4.916V	3.257V	4.908V	665.686				54.40°C	230.27V

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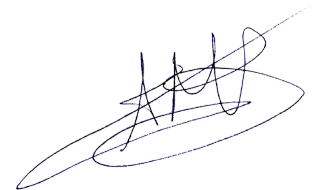
Top side

ENCLAVE 600W					
FULLY MODULAR 80 PLUS GOLD POWER SUPPLY					
AC Input	100-240V, 50-60Hz				
DC Output	+12V	+5V	+3.3V	-12V	+5VSB
Max. Current	48A	16A	16A	0.5A	3.0A
Max. Power	576W	100W		6W	15W
Total Power	600W Continuous Power				

ACHTUNG: Abdeckung nicht entfernen. Bedeckung nur durch Fachkraft öffnen lassen! Die einzelnen Bauelemente sind nicht zum Auswechseln vorgesehen!
 ATTENTION: Ne pas enlever ce couvercle. Seules des personnes habilitées peuvent le faire. Pas de composants remplaçables à l'intérieur.
 FIGYELM: Ne távolítsa el a fedőlapot. A szerszámosztály csak a szaképpozsított személyekéhez tartozhat. Ne cserélje ki az alkatrészeket!
 UWAGA: Nie zdejmuj pokrowca. Nie otwieraj pokrowca tylko przeszkolony personel jest do tego upowazniony. Wzrostki zlozki nie slym napodlegajacych serwisow.

Power specifications label

CERTIFICATIONS 115V

Aristeidis Bitziopoulos
Lab Director

CERTIFICATIONS 230V



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