Hong Hua HA13525H12F-Z (0.5A)

Serial Number

Lab ID 13500111

Certification ID FN25111

Test Result Report ID: 25FN111A

Certificate Issue Date: Apr 26, 2024

Scheme: PHI

Airflow Rating

Static Pressure Rating



Aristeidis Bitziopoulos, Certification Body General Manager

SECTION A: Noise Testing Equipment

Test Environment	Hemi-Anechoic Chamber with 6 dB(A) noise floor
Conditions	25(±2) degrees Celsius, 40-50% humidity
Sound Analyzer	Bruel & Kjaer 2270-S G4 & 2250-L G4
Microphone	Bruel & Kjaer Type 4955-A
Mic Calibrator	Bruel & Kjaer Type 4231
Data Logger	Picoscope TC-08
Testing Methodology	Cybenetics Phi Fan Performance Standard

SECTION B: Fan Testing Instrument Technical Specifications

Manufacturer	Long Win Science & Technology Corporation
Model Number	LW-9266
Air Flow Rate	2.4 – 250 CFM
Accuracy of Air Flow Rate	< 3.5% INFS
Repeatability error	< 2%
Static pressure	0-20mmAq (100mmAq with the high static pressure throttle device)
Overall Dimensions	0.7 (W) x 2.2 (L) x 1.6 (H) m
Power Source	220VAC, 5A, Single Phase, 50/60Hz
Based on Standards	ISO 5801-2007, AMCA 210-0, ASHRAE 51-2007, IEC 61591-2005, GB/T 1236-200

SECTION C: PHI Performance Levels

Pressure at 25 dB(A)	P (mmAq)	1.15
Airflow at 25 dB(A)	Q (CFM)	59.84

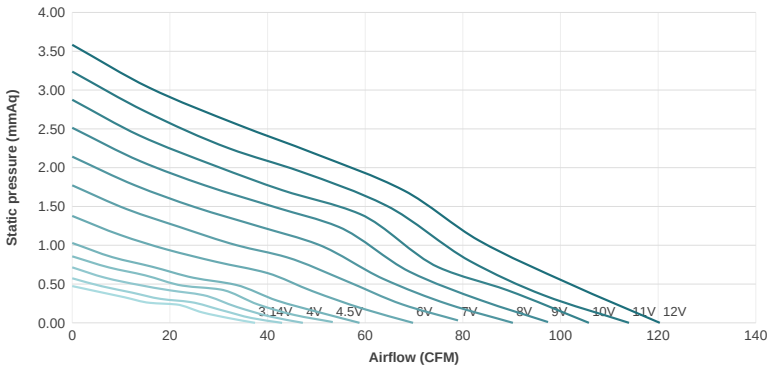
SECTION D: Information about DUT

Product Identification Details	
Brand	Hong Hua
Model	HA13525H12F-Z (0.5A)
Serial Number	-
Product Specifications	
Manufacturer-Provided Information	
Bearing	Fluid Dynamic
Connector	2-Pin
Cable length (mm)	145
Daisy-chain	None
RGB Connector	None
RGB Daisy-chain	None
Cybenetics Measurements	
Max Speed (RPM)	2315
Max Airflow (CFM)	120.34
Max Static Pressure (mmAq)	3.58
Max Fan Noise Level (dBA)	41.60
Fan Max Current (A)	0.38
Fan Weight (gr)	161
Dimensions (W x H x D)	135mm x 135mm x 25mm
Cybenetics Testing Information	
Lab ID	13500111
Date of receipt	-
Testing Date	-
Report Issued Date	Apr 26, 2024
Engineer Name	Georgios Theodoros Sarimpalas

SECTION E: Long Win LW-9266 - Pressure and Airflow

PQ Chart - All Speeds

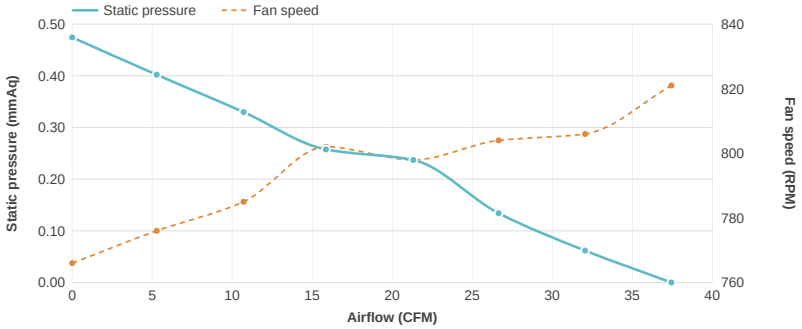
Static pressure against airflow, one curve per speed step



Voltage	Max Airflow (CFM)	Max Static Pressure (mmAq)	Fan Speed (RPM)	Max Power (W)
3.14V	37.44	0.47	766 - 821	0.26
3.5V	42.97	0.57	843 - 899	0.33
4V	47.24	0.71	946 - 1017	0.44
4.5V	53.36	0.86	1044 - 1126	0.57
5V	58.83	1.03	1137 - 1230	0.72
6V	69.80	1.38	1312 - 1438	1.05
7V	79.02	1.77	1472 - 1641	1.46
8V	90.26	2.14	1619 - 1815	1.92
9V	97.44	2.51	1752 - 1966	2.46
10V	105.82	2.87	1873 - 2118	3.08
11V	114.04	3.24	1987 - 2238	3.76
12V	120.34	3.58	2090 - 2382	4.52

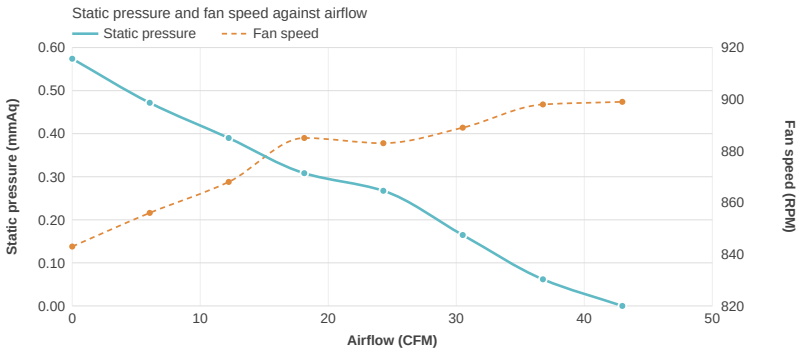
PQ Chart 3.14V

Static pressure and fan speed against airflow



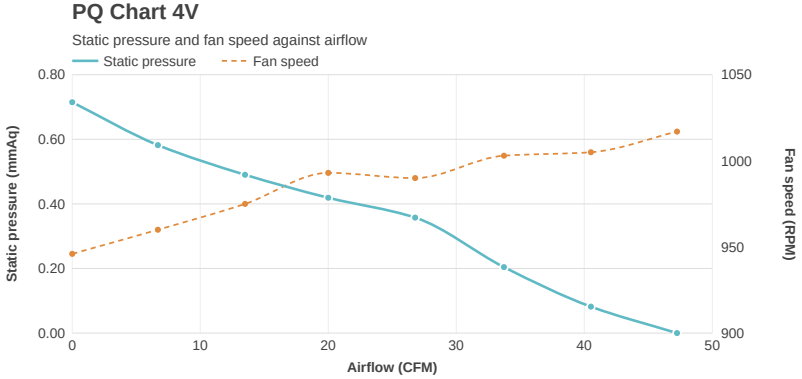
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.47	766	0.084	0.26
5.28	0.40	776	0.081	0.25
10.70	0.33	785	0.079	0.25
15.85	0.26	802	0.075	0.24
21.31	0.24	798	0.076	0.24
26.65	0.13	804	0.075	0.24
32.05	0.06	806	0.074	0.23
37.44	-0.01	821	0.071	0.22

PQ Chart 3.5V



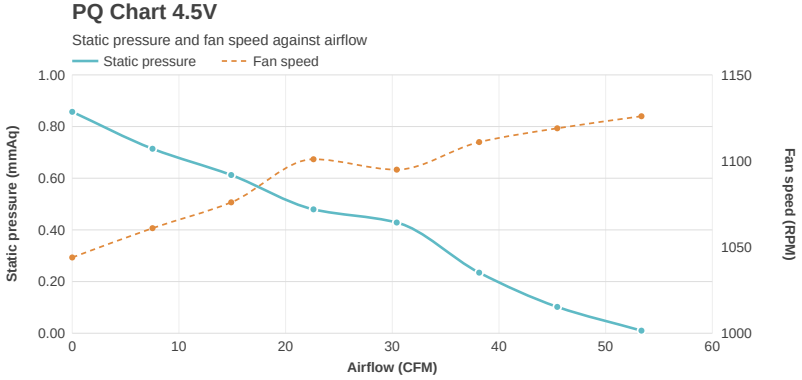
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.57	843	0.095	0.33
6.05	0.47	856	0.092	0.32
12.22	0.39	868	0.089	0.31
18.12	0.31	885	0.085	0.30
24.30	0.27	883	0.086	0.30
30.51	0.16	889	0.085	0.30
36.77	0.06	898	0.083	0.29
42.97	-0.01	899	0.082	0.29

PQ Chart 4V



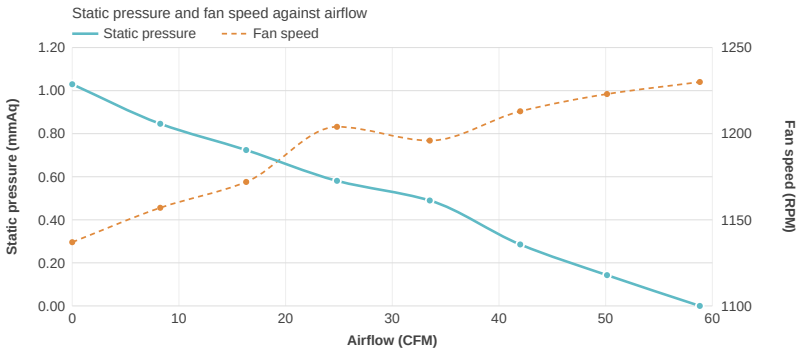
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.71	946	0.111	0.44
6.69	0.58	960	0.107	0.43
13.50	0.49	975	0.104	0.42
20.00	0.42	993	0.100	0.40
26.79	0.36	990	0.101	0.40
33.72	0.20	1003	0.098	0.39
40.51	0.08	1005	0.097	0.39
47.24	0.00	1017	0.094	0.38

PQ Chart 4.5V



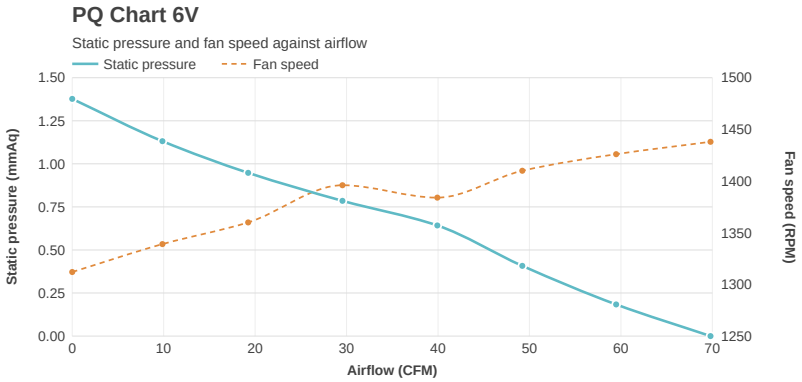
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.86	1044	0.127	0.57
7.52	0.71	1061	0.123	0.55
14.91	0.61	1076	0.120	0.54
22.61	0.48	1101	0.114	0.51
30.41	0.43	1095	0.115	0.52
38.14	0.23	1111	0.111	0.50
45.47	0.10	1119	0.110	0.50
53.36	0.01	1126	0.109	0.49

PQ Chart 5V



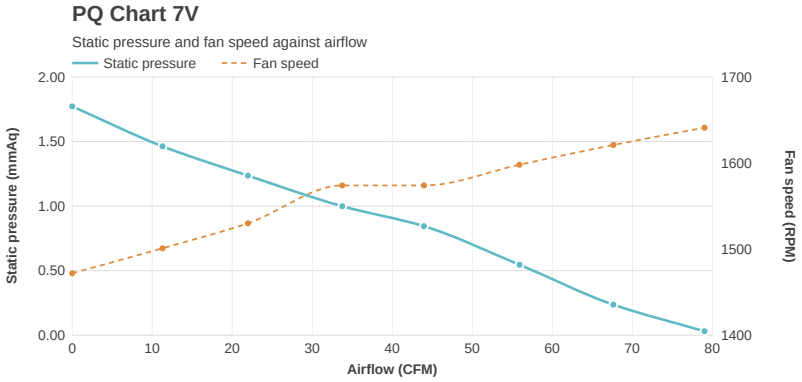
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	1.03	1137	0.143	0.72
8.25	0.85	1157	0.138	0.69
16.30	0.72	1172	0.135	0.68
24.82	0.58	1204	0.128	0.64
33.52	0.49	1196	0.130	0.65
41.99	0.29	1213	0.126	0.63
50.13	0.14	1223	0.124	0.62
58.83	0.00	1230	0.122	0.61

PQ Chart 6V



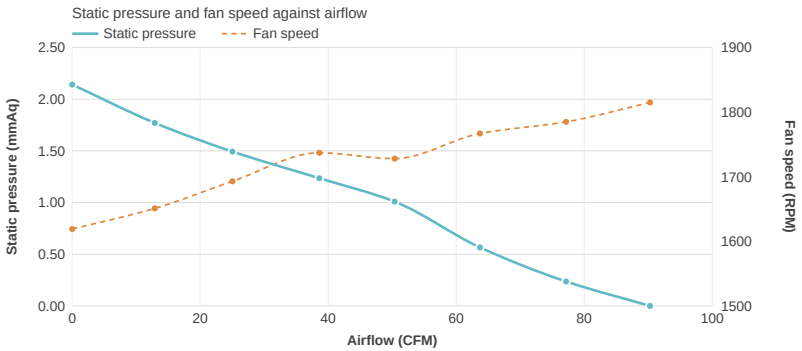
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	1.38	1312	0.175	1.05
9.86	1.13	1339	0.169	1.01
19.25	0.95	1360	0.164	0.98
29.56	0.79	1396	0.156	0.94
39.93	0.64	1384	0.159	0.95
49.22	0.41	1410	0.153	0.92
59.48	0.18	1426	0.150	0.90
69.80	0.00	1438	0.148	0.89

PQ Chart 7V



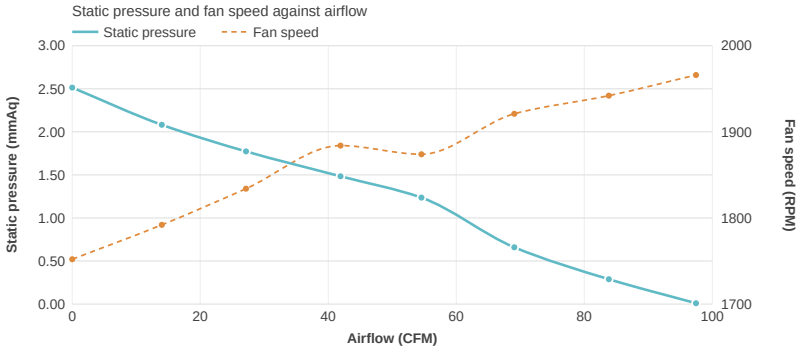
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	1.77	1472	0.208	1.46
11.28	1.46	1501	0.201	1.41
21.96	1.24	1530	0.195	1.37
33.75	1.00	1574	0.185	1.30
43.96	0.84	1574	0.185	1.30
55.90	0.55	1598	0.179	1.25
67.63	0.24	1621	0.174	1.22
79.02	0.03	1641	0.171	1.20

PQ Chart 8V



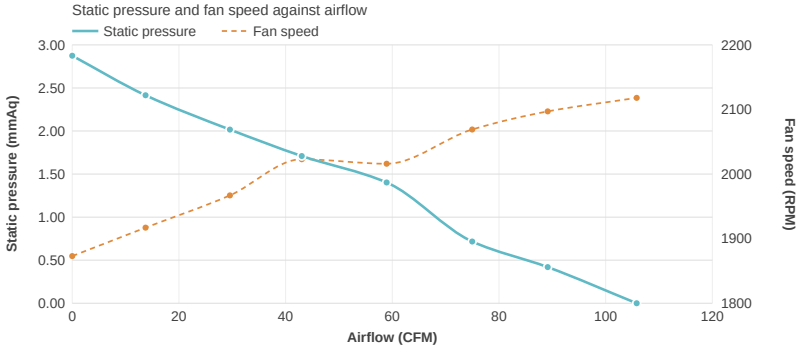
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	2.14	1619	0.240	1.92
12.90	1.77	1651	0.232	1.86
25.04	1.49	1693	0.224	1.79
38.60	1.24	1737	0.214	1.71
50.37	1.01	1728	0.215	1.72
63.70	0.57	1767	0.207	1.66
77.15	0.24	1785	0.203	1.62
90.26	0.00	1815	0.196	1.57

PQ Chart 9V



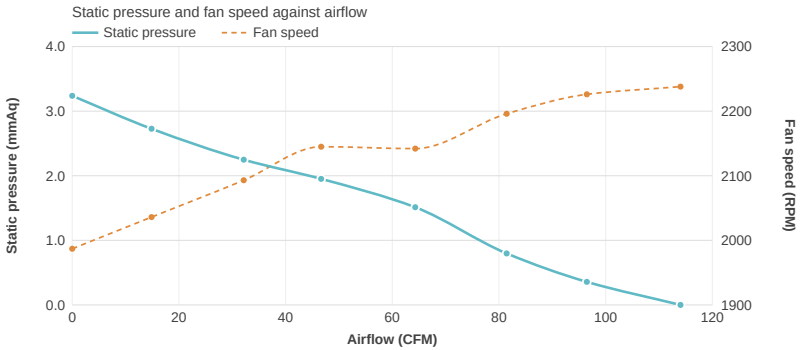
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	2.51	1752	0.273	2.46
14.00	2.08	1792	0.264	2.38
27.15	1.77	1834	0.255	2.30
41.91	1.48	1884	0.244	2.20
54.55	1.24	1874	0.246	2.21
69.07	0.66	1921	0.235	2.12
83.83	0.29	1942	0.231	2.08
97.44	0.01	1966	0.224	2.02

PQ Chart 10V



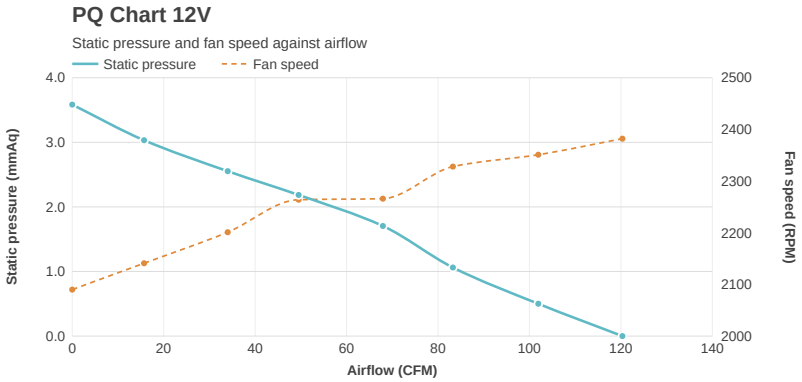
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	2.87	1873	0.308	3.08
13.75	2.42	1917	0.297	2.97
29.56	2.02	1967	0.286	2.86
43.02	1.71	2023	0.274	2.74
58.93	1.40	2016	0.275	2.75
74.99	0.72	2069	0.263	2.63
89.13	0.42	2097	0.257	2.57
105.82	-0.02	2118	0.250	2.50

PQ Chart 11V



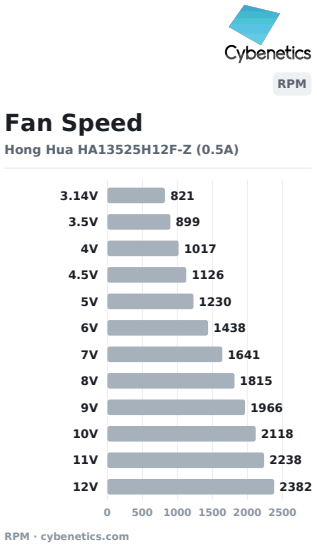
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	3.24	1987	0.342	3.76
14.87	2.73	2036	0.330	3.63
32.16	2.25	2093	0.318	3.50
46.66	1.95	2145	0.305	3.36
64.30	1.51	2142	0.306	3.37
81.44	0.80	2196	0.294	3.23
96.48	0.36	2226	0.288	3.17
114.04	-0.04	2238	0.286	3.15

PQ Chart 12V

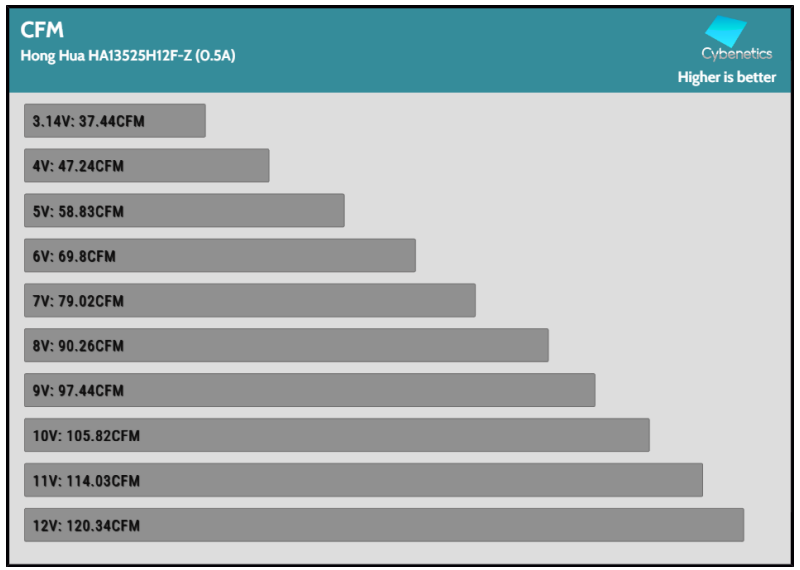


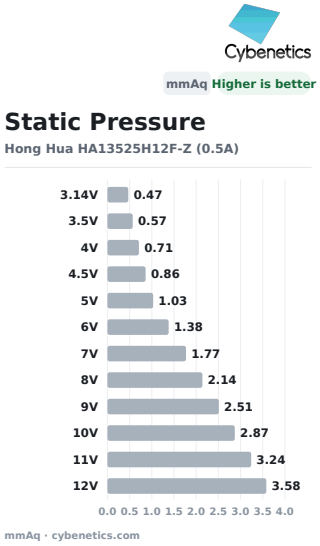
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	3.58	2090	0.377	4.52
15.71	3.03	2141	0.364	4.37
34.00	2.55	2201	0.351	4.21
49.51	2.18	2264	0.336	4.03
67.95	1.71	2266	0.336	4.03
83.27	1.06	2328	0.323	3.88
101.93	0.50	2351	0.317	3.80
120.34	-0.05	2382	0.308	3.70

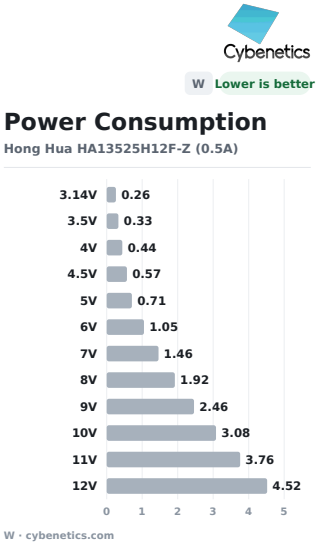
SECTION F: General Performance



Fan Percentage CFM





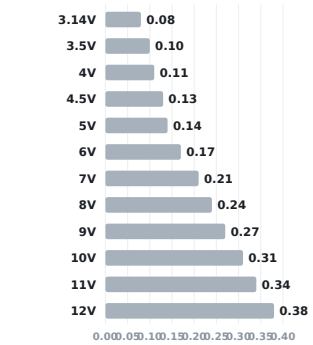


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A Lower is better

Current

Hong Hua HA13525H12F-Z (0.5A)



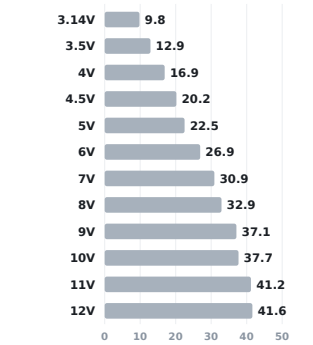
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dB(A) Lower is better

Noise Output

Hong Hua HA13525H12F-Z (0.5A)



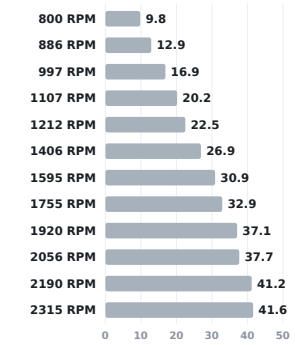
dB(A) · cybenetics.com

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dB(A) Lower is better

Noise at Each Fan Speed

Hong Hua HA13525H12F-Z (0.5A)



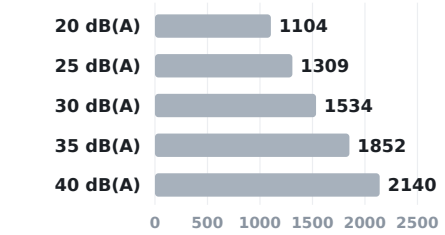
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RPM

Fan Speed at Fixed Noise Levels

Hong Hua HA13525H12F-Z (0.5A)



RPM · cybenetics.com

SECTION G: Uncertainty

Fan Performance Uncertainty Estimation

General Statement

Measurement uncertainty associated with the reported results was evaluated and estimated in accordance with JCGM 100:2008 (Guide to the Expression of Uncertainty in Measurement — GUM) and ISO/IEC 17025:2017, Clauses 7.6 and 7.2.

The uncertainty budget accounts for all significant identified contributors arising from the measurement process, instrumentation, test conditions, and operator interaction.

The reported expanded uncertainty U is obtained by multiplying the combined standard uncertainty uc by a coverage factor k = 2, corresponding to a confidence level of approximately 95 %, assuming a normal probability distribution.

Unless otherwise stated, the reported uncertainty applies only to the specific measurements performed and does not include long-term drift, aging effects, or future environmental changes.

Expanded Measurement Uncertainty by Measurement Type

Measurement	Expanded Uncertainty U (k=2, norm)
Fan Air Flow	±1.23176 % of reading (k=2) — e.g. ±3.69 CFM at 25 CFM, ±4.29 at 92 CFM, ±7.15 at 250 CFM
Fan Static Pressure	±0.6727 Pa

Air flow uncertainty is relative to the reading: $U(Q) = 2 \cdot \sqrt{[(1.8200)^2 + (0.0123176 \cdot Q)^2]}$ CFM, valid over the declared measuring range 2.4 – 250 CFM.

The reported static pressure uncertainty applies over the 0 – 20 mmAq (0 – 196.1 Pa) measuring range of the Long Win LW-9266 apparatus. The apparatus can be extended to 100 mmAq (981 Pa) with the high static pressure throttle device; the uncertainty of that extended range has not been separately verified and the value stated above does not apply to it.

Hong Hua HA13525H12F-Z (0.5A)



Front



Rear

Cybenetics □□□□□□□□□□□□□□□□□□ ETA□□□□□ LAMBDA□□□□□ SAFE□□□□□□□□□□□□□□□□□ DELTA□□□□□□□ PHI□□□□□□□□□

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