# Corsair RS120 MAX

Serial Number -

Lab ID CR12000115

Certification ID FN25115

Test Result Report ID: 25FN115A

Certificate Issue Date: May 21, 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) | 2.10 |
| Airflow at 25 dB(A) | Q (CFM) | 53.78 |

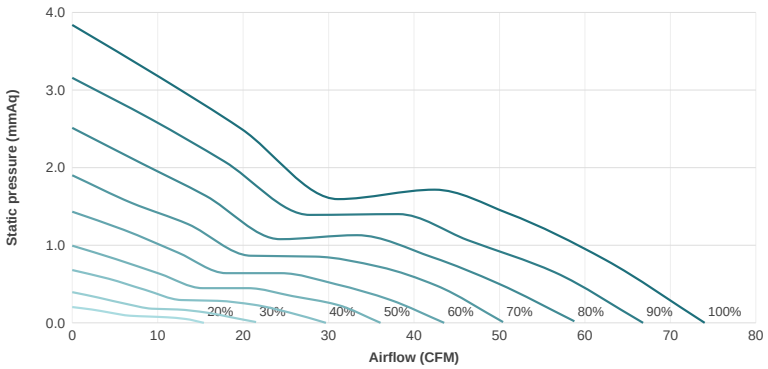
## SECTION D: Information about DUT

| | |
|---|---|
| Product Identification Details | |
| Brand | Corsair |
| Model | RS120 MAX |
| Serial Number | - |
| Product Specifications | |
| Manufacturer-Provided Information | |
| Bearing | Magnetic Levitation |
| Connector | PWM |
| Cable length (mm) | 600 |
| Daisy-chain | None |
| RGB Connector | None |
| RGB Daisy-chain | None |
| Cybenetics Measurements | |
| Max Speed (RPM) | 2013 |
| Max Airflow (CFM) | 74.01 |
| Max Static Pressure (mmAq) | 3.84 |
| Max Fan Noise Level (dBA) | 34.80 |
| Fan Max Current (A) | 0.23 |
| Fan Weight (gr) | 211 |
| Dimensions (W x H x D) | 120mm x 120mm x 30mm |
| Cybenetics Testing Information | |
| Lab ID | CR12000115 |
| Date of receipt | - |
| Testing Date | - |
| Report Issued Date | May 21, 2024 |
| Engineer Name | Georgios Theodoros Sarimpalas |

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

### PQ Chart - All Speeds

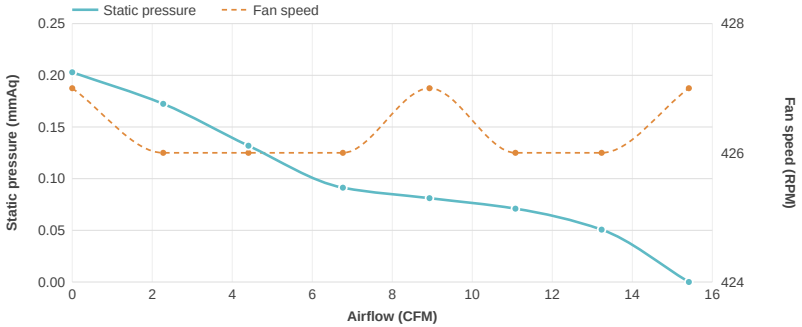
Static pressure against airflow, one curve per speed step




| Speed Setting | Max Airflow (CFM) | Max Static Pressure (mmAq) | Fan Speed (RPM) | Max Power (W) |
|---|---|---|---|---|
| 20% | 15.41 | 0.20 | 426 - 427 | 0.28 |
| 30% | 21.52 | 0.40 | 614 - 616 | 0.35 |
| 40% | 29.69 | 0.68 | 821 - 822 | 0.42 |
| 50% | 36.09 | 0.99 | 1005 - 1008 | 0.60 |
| 60% | 43.53 | 1.43 | 1215 - 1219 | 0.85 |
| 70% | 50.42 | 1.90 | 1401 - 1424 | 1.14 |
| 80% | 58.77 | 2.51 | 1607 - 1612 | 1.57 |
| 90% | 66.81 | 3.16 | 1795 - 1817 | 2.11 |
| 100% | 74.01 | 3.84 | 2001 - 2007 | 2.74 |

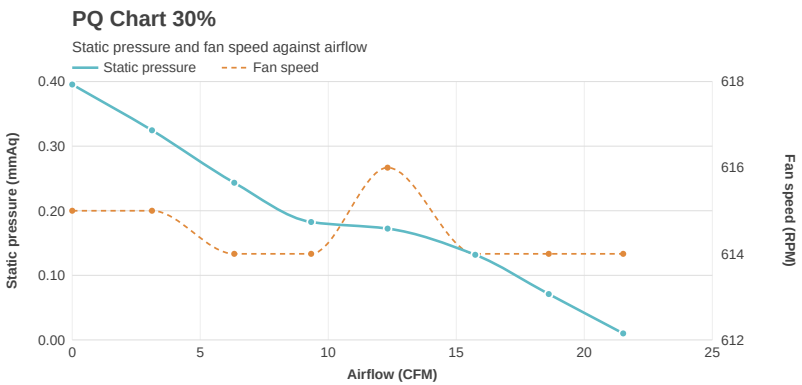
### PQ Chart 20%

Static pressure and fan speed against airflow



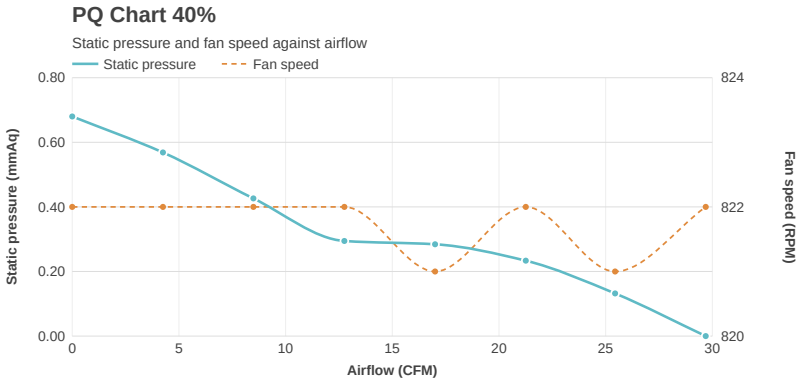

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 0.20 | 427 | 0.023 | 0.28 |
| 2.27 | 0.17 | 426 | 0.023 | 0.28 |
| 4.41 | 0.13 | 426 | 0.023 | 0.28 |
| 6.77 | 0.09 | 426 | 0.022 | 0.26 |
| 8.93 | 0.08 | 427 | 0.022 | 0.26 |
| 11.08 | 0.07 | 426 | 0.022 | 0.26 |
| 13.23 | 0.05 | 426 | 0.022 | 0.26 |
| 15.41 | -0.01 | 427 | 0.022 | 0.26 |

## PQ Chart 30%



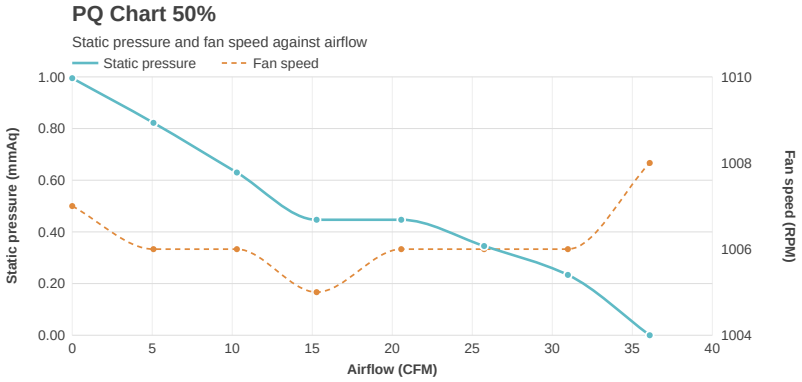

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 0.40 | 615 | 0.029 | 0.35 |
| 3.11 | 0.32 | 615 | 0.028 | 0.34 |
| 6.33 | 0.24 | 614 | 0.027 | 0.32 |
| 9.33 | 0.18 | 614 | 0.027 | 0.32 |
| 12.32 | 0.17 | 616 | 0.027 | 0.32 |
| 15.74 | 0.13 | 614 | 0.027 | 0.32 |
| 18.61 | 0.07 | 614 | 0.026 | 0.31 |
| 21.52 | 0.01 | 614 | 0.026 | 0.31 |

## PQ Chart 40%



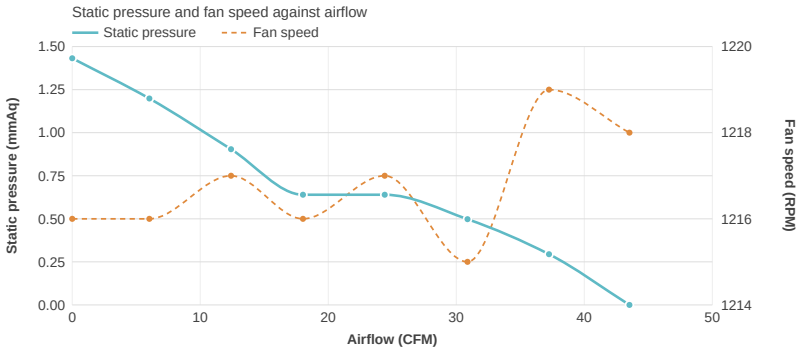

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 0.68 | 822 | 0.035 | 0.42 |
| 4.25 | 0.57 | 822 | 0.034 | 0.41 |
| 8.49 | 0.43 | 822 | 0.035 | 0.42 |
| 12.76 | 0.29 | 822 | 0.035 | 0.42 |
| 17.01 | 0.28 | 821 | 0.035 | 0.42 |
| 21.26 | 0.23 | 822 | 0.035 | 0.42 |
| 25.44 | 0.13 | 821 | 0.035 | 0.42 |
| 29.69 | -0.01 | 822 | 0.034 | 0.41 |

## PQ Chart 50%



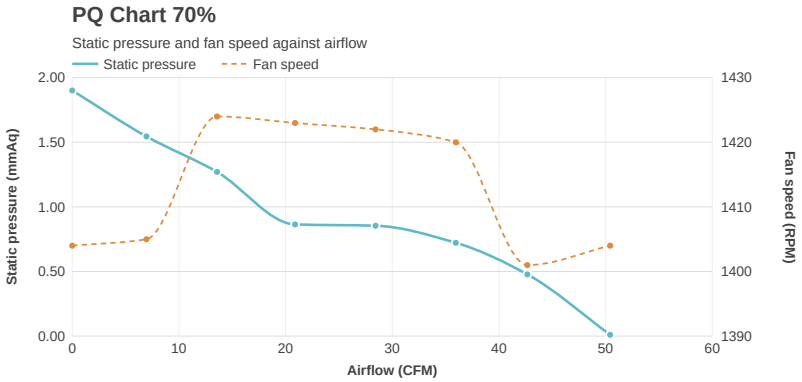

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 0.99 | 1007 | 0.050 | 0.60 |
| 5.08 | 0.82 | 1006 | 0.048 | 0.58 |
| 10.29 | 0.63 | 1006 | 0.045 | 0.54 |
| 15.27 | 0.45 | 1005 | 0.042 | 0.50 |
| 20.56 | 0.45 | 1006 | 0.044 | 0.53 |
| 25.74 | 0.35 | 1006 | 0.043 | 0.52 |
| 30.98 | 0.23 | 1006 | 0.042 | 0.50 |
| 36.09 | 0.00 | 1008 | 0.039 | 0.47 |

## PQ Chart 60%



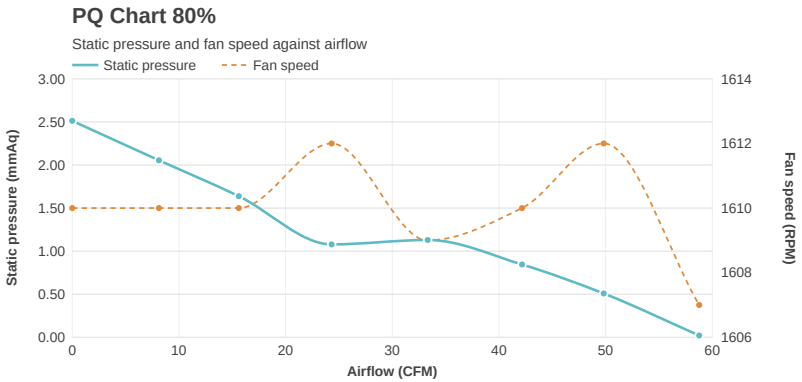

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 1.43 | 1216 | 0.071 | 0.85 |
| 6.03 | 1.20 | 1216 | 0.067 | 0.80 |
| 12.41 | 0.90 | 1217 | 0.062 | 0.74 |
| 18.03 | 0.64 | 1216 | 0.056 | 0.67 |
| 24.41 | 0.64 | 1217 | 0.059 | 0.71 |
| 30.88 | 0.50 | 1215 | 0.060 | 0.72 |
| 37.24 | 0.29 | 1219 | 0.055 | 0.66 |
| 43.53 | 0.00 | 1218 | 0.050 | 0.60 |

## PQ Chart 70%



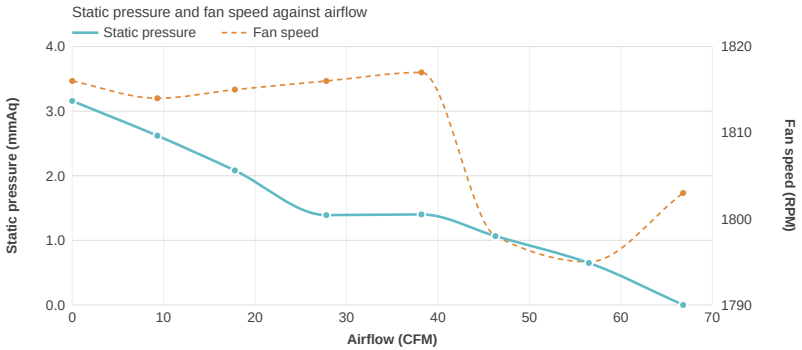

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 1.90 | 1404 | 0.095 | 1.14 |
| 6.95 | 1.55 | 1405 | 0.088 | 1.06 |
| 13.57 | 1.27 | 1424 | 0.085 | 1.02 |
| 20.89 | 0.86 | 1423 | 0.075 | 0.90 |
| 28.44 | 0.85 | 1422 | 0.080 | 0.96 |
| 35.96 | 0.72 | 1420 | 0.081 | 0.97 |
| 42.66 | 0.48 | 1401 | 0.073 | 0.88 |
| 50.42 | 0.01 | 1404 | 0.065 | 0.78 |

## PQ Chart 80%



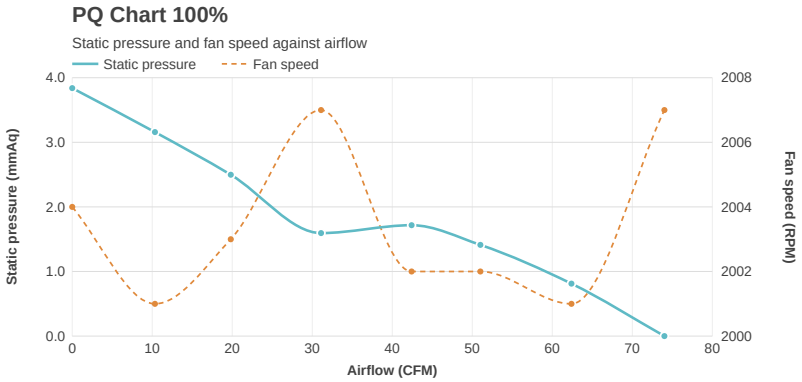

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 2.51 | 1610 | 0.131 | 1.57 |
| 8.13 | 2.06 | 1610 | 0.120 | 1.44 |
| 15.61 | 1.64 | 1610 | 0.112 | 1.34 |
| 24.31 | 1.08 | 1612 | 0.096 | 1.15 |
| 33.32 | 1.13 | 1609 | 0.107 | 1.28 |
| 42.17 | 0.84 | 1610 | 0.105 | 1.26 |
| 49.82 | 0.51 | 1612 | 0.093 | 1.12 |
| 58.77 | 0.02 | 1607 | 0.088 | 1.06 |

## PQ Chart 90%




| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 3.16 | 1816 | 0.176 | 2.11 |
| 9.31 | 2.62 | 1814 | 0.162 | 1.94 |
| 17.79 | 2.08 | 1815 | 0.149 | 1.79 |
| 27.80 | 1.39 | 1816 | 0.126 | 1.51 |
| 38.19 | 1.40 | 1817 | 0.140 | 1.68 |
| 46.28 | 1.07 | 1798 | 0.135 | 1.62 |
| 56.50 | 0.65 | 1795 | 0.122 | 1.46 |
| 66.81 | -0.04 | 1803 | 0.104 | 1.25 |

## PQ Chart 100%



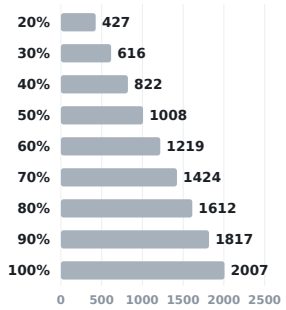

| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---|---|---|---|---|
| 0.00 | 3.84 | 2004 | 0.228 | 2.74 |
| 10.34 | 3.16 | 2001 | 0.208 | 2.50 |
| 19.82 | 2.50 | 2003 | 0.189 | 2.27 |
| 31.10 | 1.59 | 2007 | 0.156 | 1.87 |
| 42.41 | 1.72 | 2002 | 0.180 | 2.16 |
| 51.01 | 1.41 | 2002 | 0.178 | 2.14 |
| 62.39 | 0.81 | 2001 | 0.156 | 1.87 |
| 74.01 | -0.01 | 2007 | 0.133 | 1.60 |

## SECTION F: General Performance

RPM

### Fan Speed

Corsair RS120 MAX

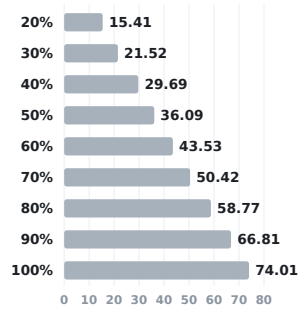



RPM · cybenetics.com

CFM Higher is better

### Airflow

Corsair RS120 MAX

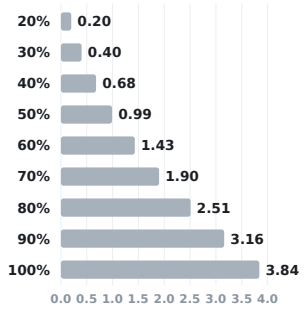



CFM · cybenetics.com

mmAq Higher is better

### Static Pressure

Corsair RS120 MAX

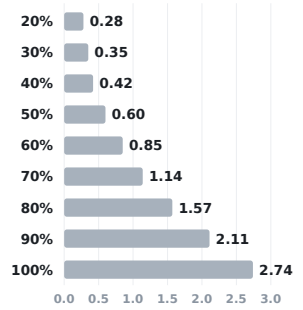



mmAq · cybenetics.com

W Lower is better

### Power Consumption

Corsair RS120 MAX



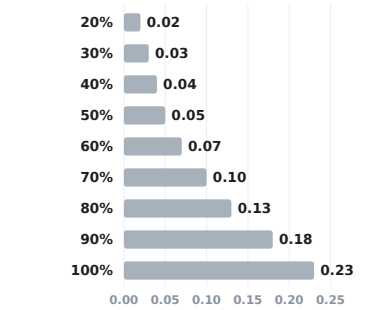

W · cybenetics.com

Cybenetics

A Lower is better

## Current

Corsair RS120 MAX



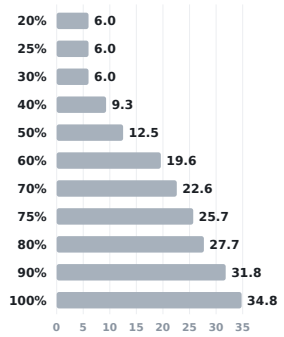

A · cybenetics.com

Cybenetics

dB(A) Lower is better

## Noise Output

Corsair RS120 MAX



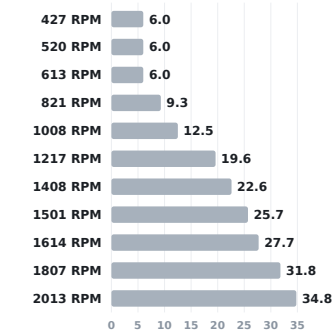

dB(A) · cybenetics.com

Cybenetics

dB(A) Lower is better

## Noise at Each Fan Speed

Corsair RS120 MAX



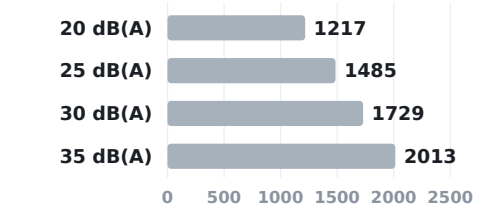

dB(A) · cybenetics.com

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RPM

## Fan Speed at Fixed Noise Levels

Corsair RS120 MAX




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# 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.

## Corsair RS120 MAX



Front



Rear

Cybenetics bietet freiwillige Zertifizierungsprogramme für Netzteile – ETA für Effizienz, LAMBDA für Lautstärke und SAFE für Sicherheit und korrekten Betrieb – sowie für Kühlprodukte mit DELTA für die Schalldämmung von Gehäusen und PHI für Luftstrom und statischen Druck von Lüftern

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