Noctua NF-A12x25

Serial Number

Lab ID NC12000004

Certification ID FN25004

Test Result Report ID: 25FN4A

Certificate Issue Date: Apr 27, 2023

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)	1.60
Airflow at 25 dB(A)	Q (CFM)	45.45

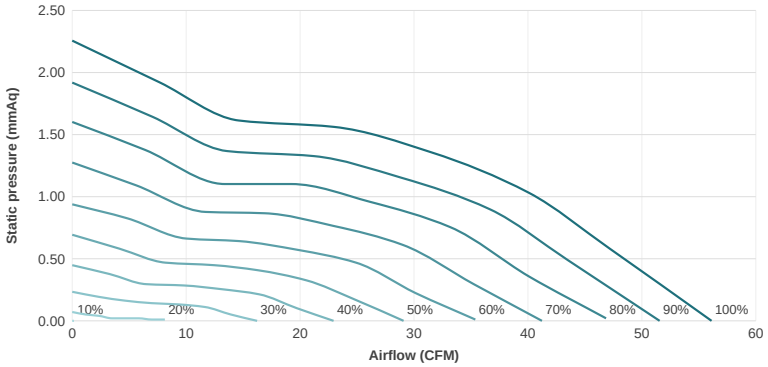
SECTION D: Information about DUT

Product Identification Details	
Brand	Noctua
Model	NF-A12x25
Serial Number	-
Product Specifications	
Manufacturer-Provided Information	
Bearing	SSO2
Connector	PWM
Cable length (mm)	195
Daisy-chain	None
RGB Connector	None
RGB Daisy-chain	None
Cybenetics Measurements	
Max Speed (RPM)	2134
Max Airflow (CFM)	56.11
Max Static Pressure (mmAq)	2.26
Max Fan Noise Level (dBA)	31.30
Fan Max Current (A)	0.12
Fan Weight (gr)	250
Dimensions (W x H x D)	120mm x 120mm x 25mm
Cybenetics Testing Information	
Lab ID	NC12000004
Date of receipt	-
Testing Date	-
Report Issued Date	Apr 27, 2023
Engineer Name	Georgios Theodoros Sarimpalas

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

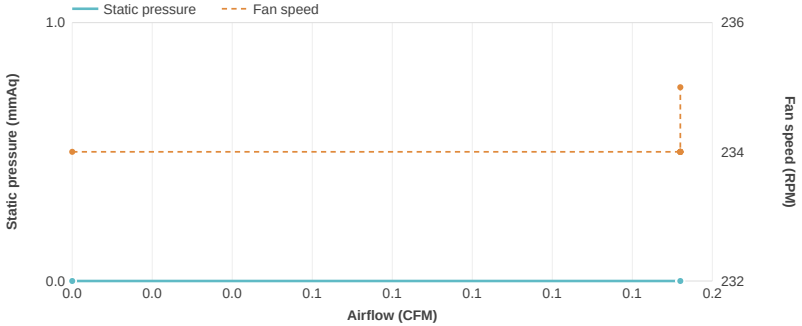
PQ Chart - All Speeds

Static pressure against airflow, one curve per speed step



PQ Chart 10%

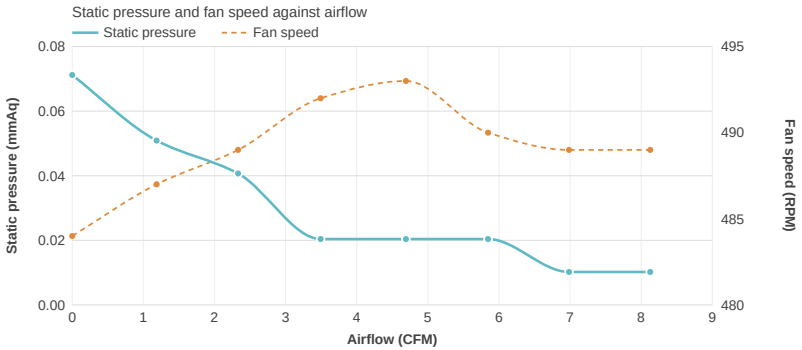
Static pressure and fan speed against airflow



Speed Setting	Max Airflow (CFM)	Max Static Pressure (mmAq)	Fan Speed (RPM)	Max Power (W)
10%	0.15	-0.02	234 - 235	0.12
20%	8.13	0.07	484 - 493	0.17
30%	16.23	0.23	717 - 737	0.24
40%	22.94	0.45	928 - 961	0.32
50%	29.08	0.69	1128 - 1179	0.44
60%	35.38	0.94	1328 - 1389	0.60
70%	41.23	1.27	1507 - 1597	0.78
80%	46.85	1.60	1680 - 1791	1.01
90%	51.56	1.92	1830 - 1959	1.24
100%	56.11	2.26	1978 - 2132	1.50

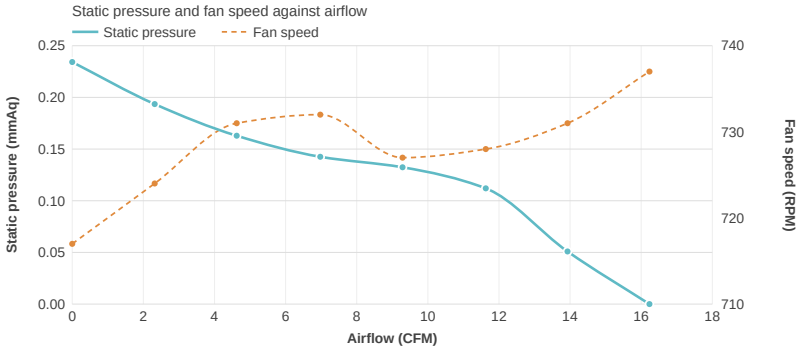
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	-0.04	234	0.010	0.12
0.15	-0.03	234	0.010	0.12
0.15	-0.04	234	0.010	0.12
0.15	-0.03	234	0.009	0.11
0.15	-0.03	234	0.009	0.11
0.15	-0.02	234	0.009	0.11
0.15	-0.03	234	0.009	0.11
0.15	-0.03	235	0.009	0.11

PQ Chart 20%



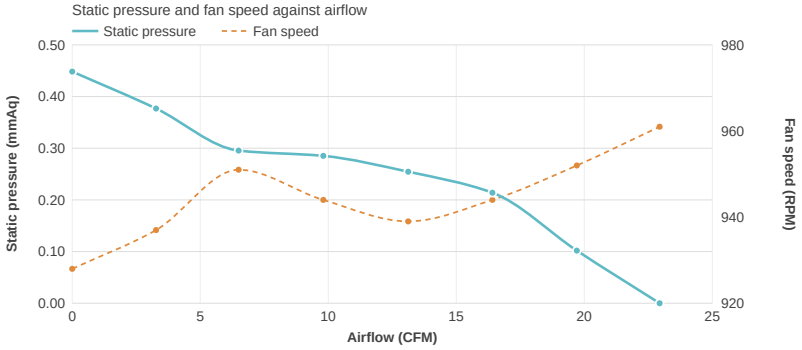
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.07	484	0.014	0.17
1.19	0.05	487	0.014	0.17
2.33	0.04	489	0.013	0.16
3.49	0.02	492	0.013	0.16
4.69	0.02	493	0.013	0.16
5.85	0.02	490	0.013	0.16
6.99	0.01	489	0.013	0.16
8.13	0.01	489	0.013	0.16

PQ Chart 30%



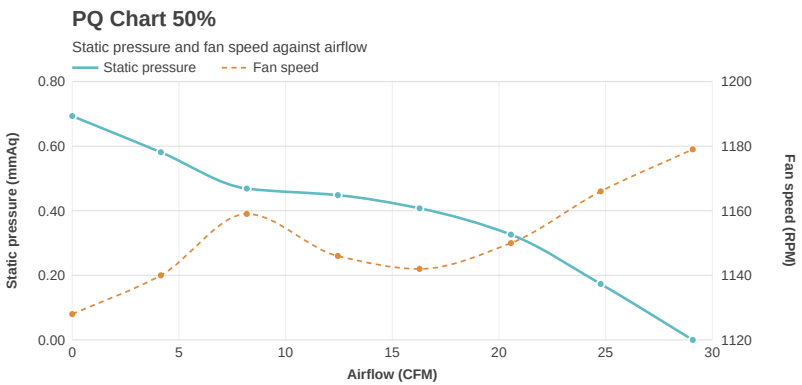
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.23	717	0.020	0.24
2.32	0.19	724	0.019	0.23
4.62	0.16	731	0.019	0.23
6.98	0.14	732	0.019	0.23
9.29	0.13	727	0.019	0.23
11.63	0.11	728	0.019	0.23
13.93	0.05	731	0.019	0.23
16.23	0.00	737	0.019	0.23

PQ Chart 40%



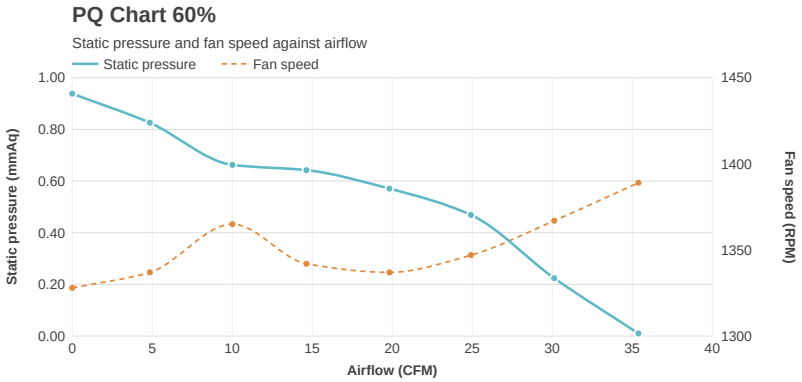
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.45	928	0.027	0.32
3.27	0.38	937	0.027	0.32
6.50	0.30	951	0.026	0.31
9.81	0.29	944	0.026	0.31
13.12	0.25	939	0.027	0.32
16.41	0.21	944	0.027	0.32
19.71	0.10	952	0.026	0.31
22.94	0.00	961	0.026	0.31

PQ Chart 50%



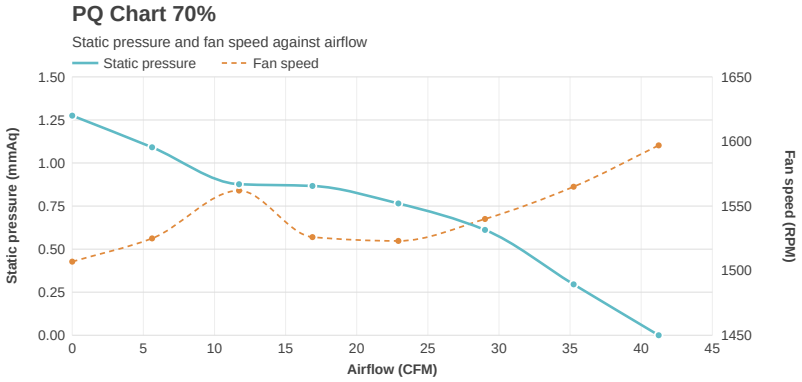
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.69	1128	0.037	0.44
4.15	0.58	1140	0.037	0.44
8.18	0.47	1159	0.035	0.42
12.45	0.45	1146	0.036	0.43
16.28	0.41	1142	0.037	0.44
20.56	0.33	1150	0.036	0.43
24.77	0.17	1166	0.035	0.42
29.08	0.00	1179	0.034	0.41

PQ Chart 60%



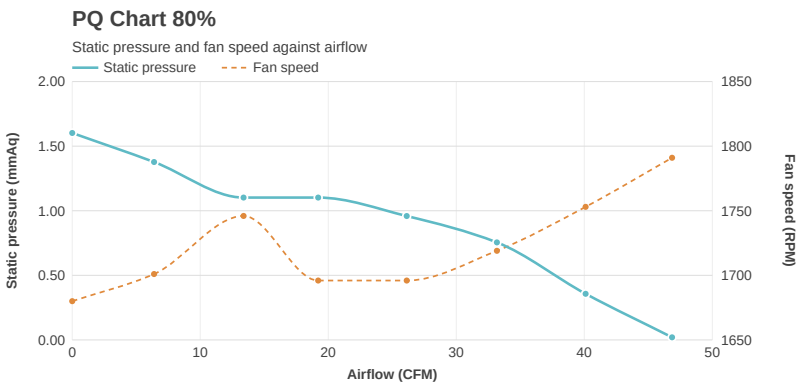
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	0.94	1328	0.050	0.60
4.85	0.83	1337	0.049	0.59
10.01	0.66	1365	0.048	0.58
14.64	0.64	1342	0.049	0.59
19.82	0.57	1337	0.049	0.59
24.92	0.47	1347	0.049	0.59
30.12	0.22	1367	0.047	0.56
35.38	0.01	1389	0.046	0.55

PQ Chart 70%



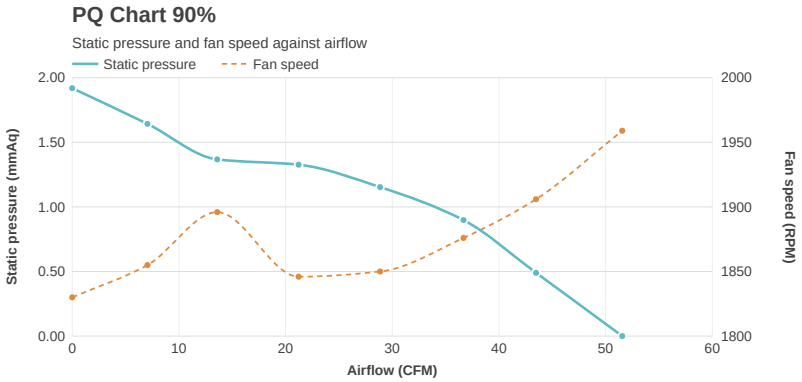
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	1.27	1507	0.065	0.78
5.61	1.09	1525	0.064	0.77
11.73	0.88	1562	0.061	0.73
16.89	0.87	1526	0.064	0.77
22.93	0.76	1523	0.064	0.77
29.02	0.61	1540	0.063	0.76
35.25	0.30	1565	0.061	0.73
41.23	0.00	1597	0.058	0.70

PQ Chart 80%



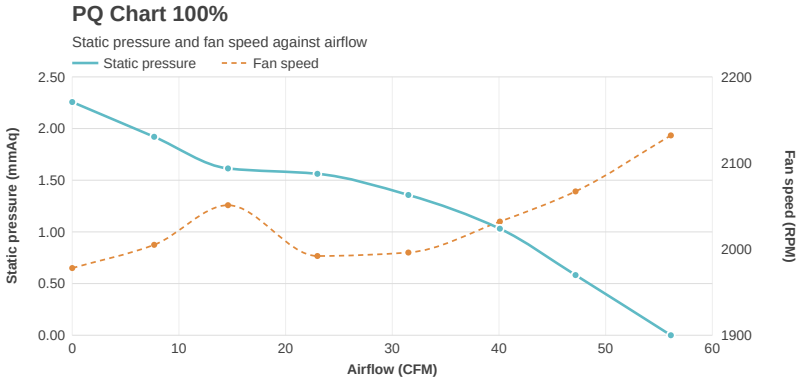
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	1.60	1680	0.084	1.01
6.39	1.38	1701	0.082	0.98
13.39	1.10	1746	0.078	0.94
19.21	1.10	1696	0.082	0.98
26.13	0.96	1696	0.082	0.98
33.17	0.75	1719	0.080	0.96
40.10	0.36	1753	0.078	0.94
46.85	0.02	1791	0.075	0.90

PQ Chart 90%



Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	1.92	1830	0.103	1.24
7.05	1.64	1855	0.101	1.21
13.59	1.37	1896	0.097	1.16
21.22	1.33	1846	0.101	1.21
28.86	1.15	1850	0.101	1.21
36.67	0.90	1876	0.099	1.19
43.48	0.49	1906	0.096	1.15
51.56	0.00	1959	0.092	1.10

PQ Chart 100%



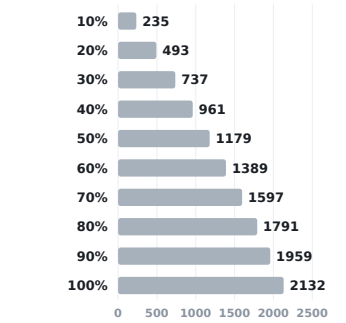
Airflow (CFM)	Static Pressure (mmAq)	Fan Speed (RPM)	Current (A)	Power (W)
0.00	2.26	1978	0.125	1.50
7.68	1.92	2005	0.122	1.46
14.60	1.61	2051	0.117	1.40
22.98	1.56	1992	0.123	1.48
31.51	1.36	1996	0.123	1.48
40.08	1.03	2032	0.120	1.44
47.17	0.58	2067	0.116	1.39
56.11	-0.01	2132	0.110	1.32

SECTION F: General Performance

RPM

Fan Speed

Noctua NF-A12x25

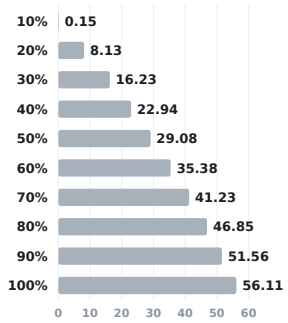


RPM · cybenetics.com

CFM Higher is better

Airflow

Noctua NF-A12x25

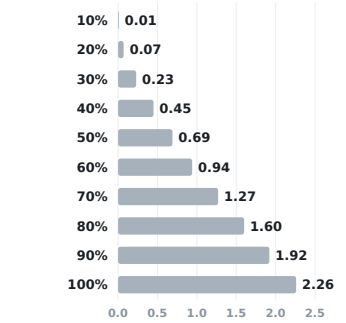


CFM · cybenetics.com

mmAq Higher is better

Static Pressure

Noctua NF-A12x25

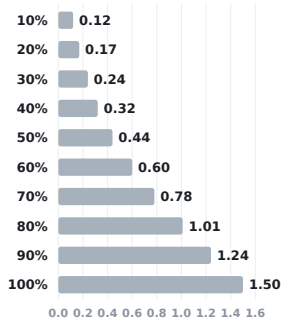


mmAq · cybenetics.com

W Lower is better

Power Consumption

Noctua NF-A12x25



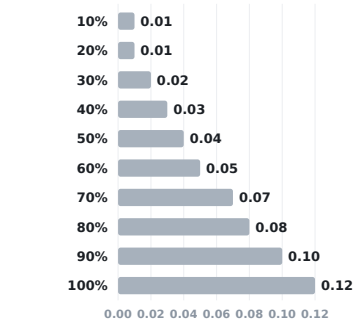
W · cybenetics.com

Cybenetics

A Lower is better

Current

Noctua NF-A12x25



A · cybenetics.com

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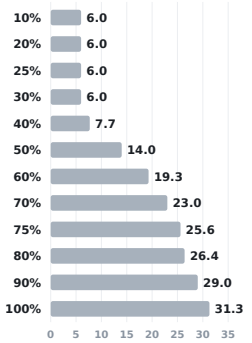
dB(A) Lower is better

Noise Output

Noctua NF-A12x25



dB(A) · cybenetics.com

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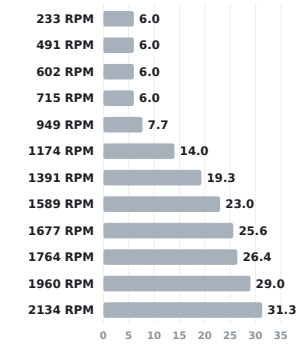
dB(A) Lower is better

Noise at Each Fan Speed

Noctua NF-A12x25



dB(A) · cybenetics.com

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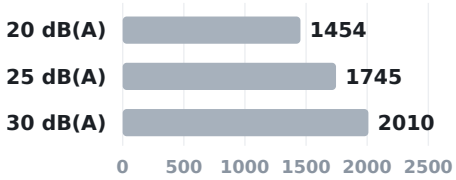
RPM

Fan Speed at Fixed Noise Levels

Noctua NF-A12x25



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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.





Noctua NF-A12x25

Front

Rear

Cybenetics 提供自願性認證方案: 電源供應器方面有 ETA (效率)、 LAMBDA (噪音) 與 SAFE (安全與正確運作)；散熱產品方面有 DELTA (機殼隔音) 與 PHI (風扇風量與靜壓)

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