



L15

4U Workstation
Tower PC Liquid Cooler

PRODUCT SPECIFICATIONS

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Model Number: L15

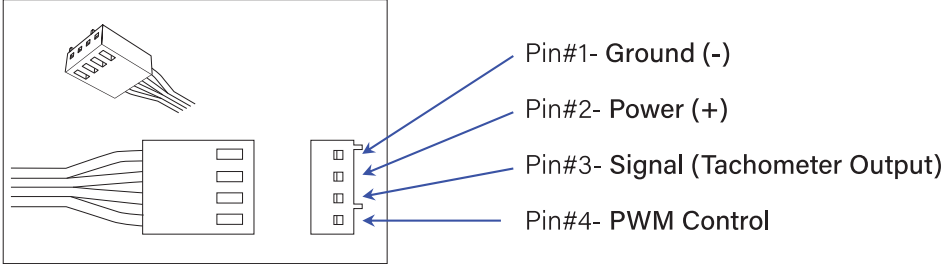
- Desktop Liquid Cooling Solution Recommended for CPU Models as Following
 - Intel® Processor, Socket LGA1200
 - Intel® Processor, Socket LGA1700
 - Intel® Processor, Socket LGA1151, 1150, 1155, 1156
 - Intel® Processor, Socket LGA2011 Square, 2066 ILM Mounting
 - Intel® Processor, Socket LGA1356, 1366
 - AMD® Processor, Socket FM2, FM1, AM2+, AM2, AM3, AM4, AM5
- For 4U Server / Tower PC

Overall Specification

- Cold Plate Module with Copper base
- Space-saving lightweight Radiator
- Dual 12 cm Cooling Fans with 4-Pin PWM Function
- Stand-alone Water Pump with Powerful Flow Rate 1.7 Litter Per Minute
- 300 mm Black Pair EPDM Tube Assembled
- Mounting Accessories are included
- Shin-Etsu Series Thermal Compound Pre-Printed on Base
- Support CPU Power up to 253 Watts(Intel) and up to 185 Watts(AMD) Heat Dissipation at 30° C ambient temperature

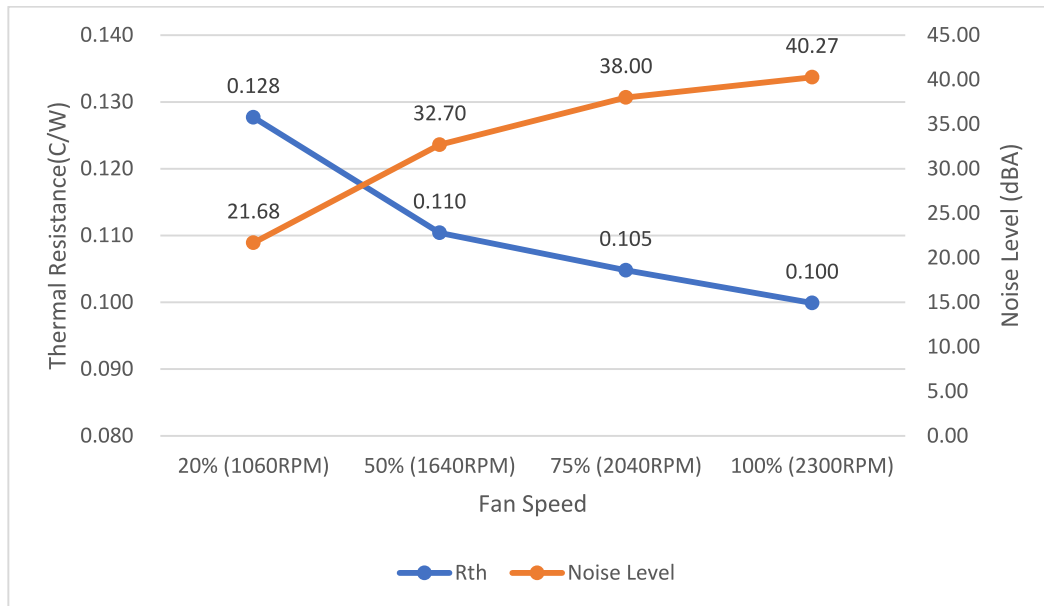
Fan Specification

Model Number	DF121225BM
Dimension	120 x 120 x 25 mm
Bearing	Double Ball Bearing
Rated Voltage	12V
Rated Speed	At Duty Cycle 0~20%: 1000 ± 200 RPM At Duty Cycle 50%: 1650 ± 200 RPM At Duty Cycle 100%: 2400 ±10% RPM
Input Power	At Duty Cycle 0~20%: 0.64 W At Duty Cycle 50%: 1.22 W At Duty Cycle 100%: 2.88 W
Maximum Airflow	At Duty Cycle 0~20%: 34.4 CFM At Duty Cycle 50%: 54.1 CFM At Duty Cycle 100%: 76.8 CFM
Rated Static Pressure	At Duty Cycle 0~20%: 1.0 mm-H2O At Duty Cycle 50%: 2.35 mm-H2O At Duty Cycle 100%: 4.5 mm-H2O

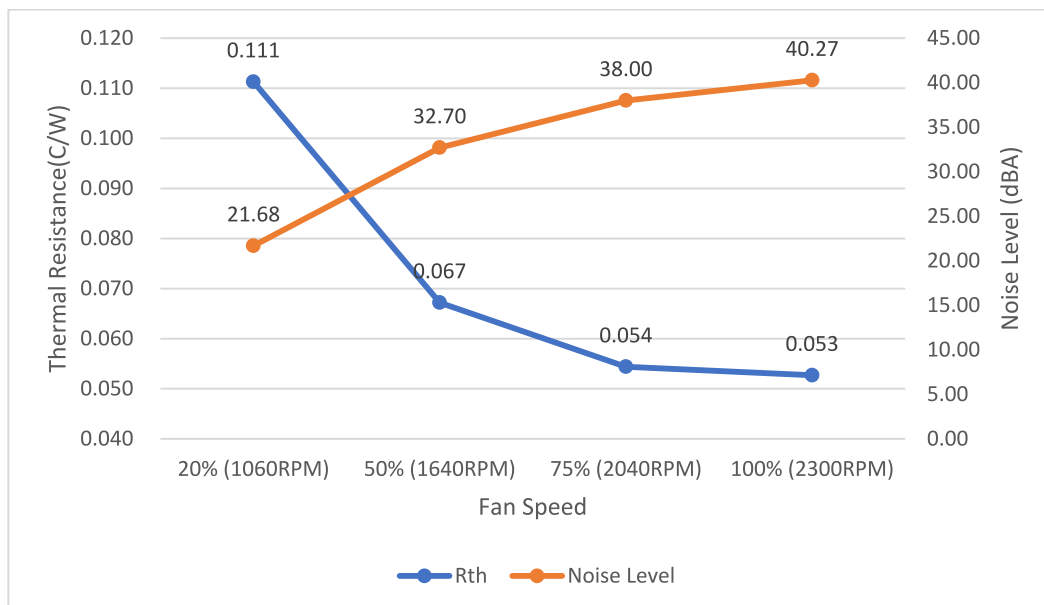
Acoustical Noise	At Duty Cycle 0~20%: 16 dBA At Duty Cycle 50%: 29.8 dBA At Duty Cycle 100%: 38 dBA
Lead Wire Pin Out Diagram	 <p>Pin#1- Ground (-) Pin#2- Power (+) Pin#3- Signal (Tachometer Output) Pin#4- PWM Control</p>

Performance Chart: Active Cooler L15 Thermal Resistance Thermal Resistance vs. Fan Speed (Duty Cycle and RPM)

LGA 1700



Socket AM5

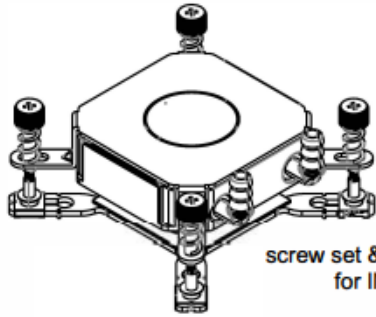


CONFIDENTIAL DOCUMENT

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REV#	DESCRIPTION	CHECKER	DATE
1.1	CORRECTED HOSE PLACEMENT	JUN	12/13/23

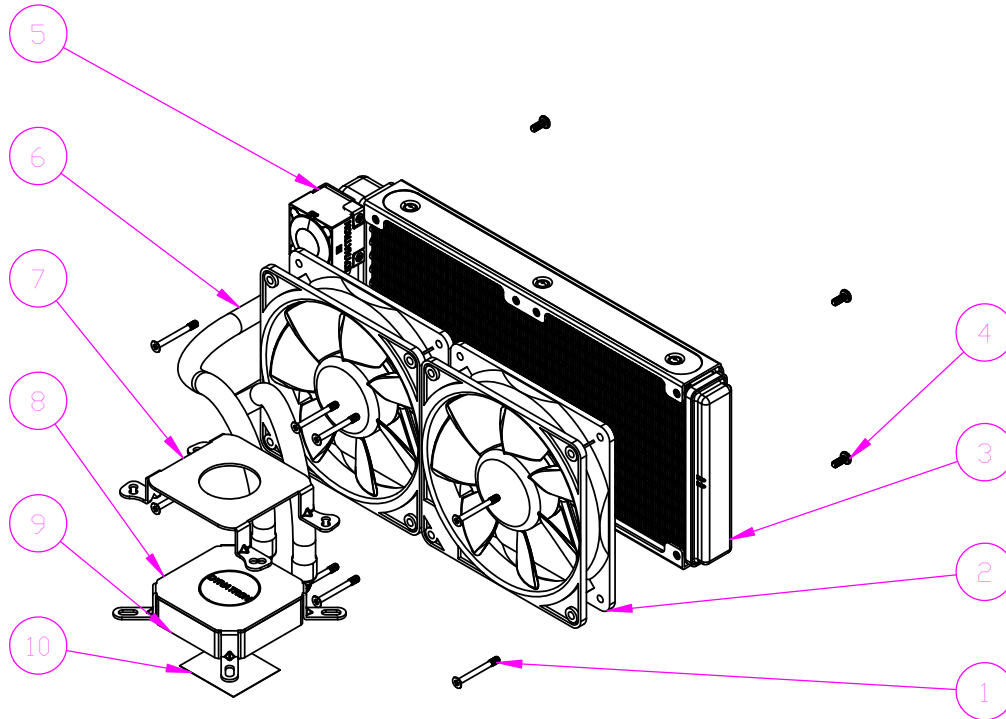
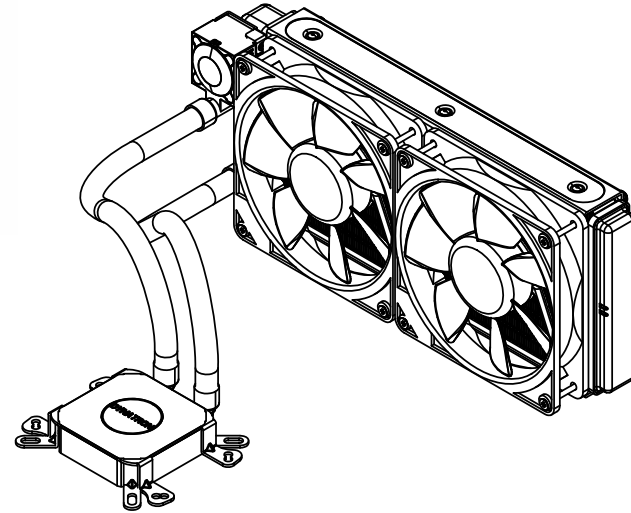
ASSEMBLY PARTS




screw set & universal backplate for INTEL sockets



Y-cable for fan power connection



10	THERMAL GREASE	SHIN-ETSU 7762	N/A
9	COLDPLATE	COPPER BASE, PLASTIC COVER	1
8	INTEL RETENTION BRACKET	STEEL	1
7	AMD RETENTION BRACKET	STEEL	1
6	HOSE, 300MM	EPDM	2
5	PUMP, P50	PLASTIC	1
4	SCREW, MOUNTING	STEEL	4
3	RADIATOR	ALUMINUM, STEEL	1
2	FA, DF1212025BM-PWM	PLASTIC	2
1	SCREW, FAN	STEEL	8
ITEM #	DESCRIPTION	MATERIAL	QTY.

	DATE	NAME	 DYNATRON CORPORATION <small>TOP MOTOR</small>
DRAWN	12/13/2023	JUN	
CHECKED	12/13/2023	JUN	
ENG.APPR.			
			TITLE:
			LIQUID COOLER L15
			BOM & exploded Assembly Drawing
			MFG.APPR.
			COMMENTS:
			DWG. NO.
			DNY-EP-L15
			REV
			1.1

NOTES:
THE FIGURE IS FOR REFERENCE ONLY, AND NOT FOR SCALE

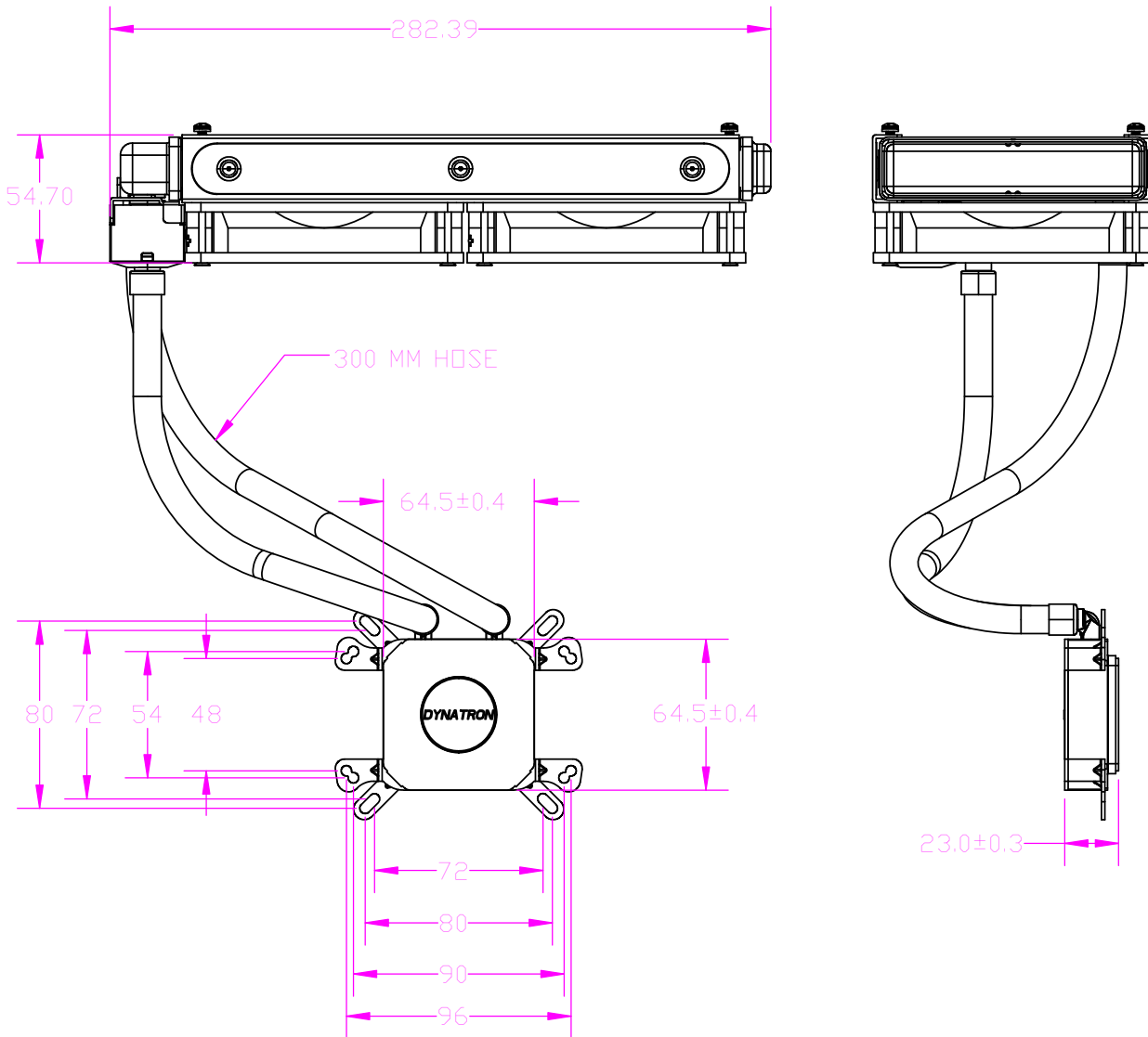
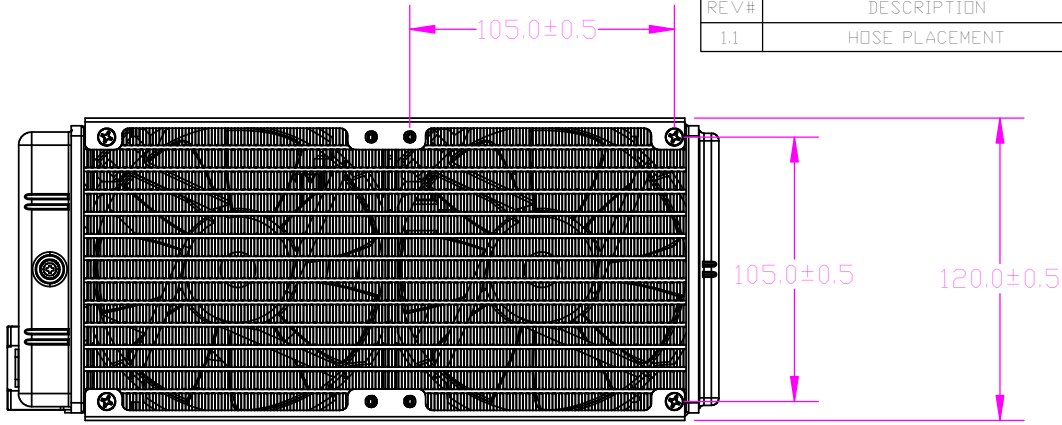
4

3

2

1

REV#	DESCRIPTION	CHECKER	DATE
1.1	HOSE PLACEMENT	JUN	12/13/23



	NAME	DATE
DRAWN BY	JUN	12/13/2023
CHECKED BY	JUN	12/13/2023
ENG. APPROVED		
MFG. APPROVED		

 **DYNATRON CORPORATION**

TOP MOTOR
 TITLE:
 LIQUID COOLER L15
 OVERALL DIMENSION
 DRAWING

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VIEW		DWG. No:	REV.
UNITS	MM	DYN-BD-L15	1.1

4

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D

C

C

B

B

A

A



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

Specification for Approval

Customer:		
Model Number:	DF121225BM (120*120*25mm)	
Part Number:		
Issued Date:	Wednesday, June 01, 2022	
Customer Approval		
Approval:	Check:	
<p>Corporate Headquarters Dynatron Corporation 41458 Christy Street, Fremont, California 94538, U.S.A. Tel: 510-498-8888 Fax: 510-498-8488</p>	<p>Manufactory TOP MOTOR TECHNOLOGY(HUIZHOU)CO,LTD Baishi Village, Qiuchang Town, Huiyang Dist, Huizhou City, Guangdong Province, P.R. China Tel: 86-752-353-5591 (Rep.) Fax: 86-752-353-5592</p>	
<p><i>Los Angeles Office (U.S.A.)</i> 337 Paseo Sonrisa, Walnut, California 91789 U.S.A. Tel: 909-598-2222 Fax: 909-598-8158</p>	<p><i>Taipei Office (Taiwan, R.O.C.)</i> 8F, No. 35, Lane:221 Gang Cian. Road, Taipei, Taiwan, R.O.C. Tel: 886-2-27995799 (Rep.) Fax: 886-2-2799-9577</p>	
Approval:	Check:	Handler:
Simon Wang	-	Xiaohu Lian



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TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

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1. SCOPE

This specification defines the electrical and mechanical characteristics of the □ AC / ■ DC Brush Less (■ 2-Balls Bearing/ □ Liquid State) axial flow fan, which is carefully designed and manufactured for your special needs by Dynatron Corporation.

2. ELECTRICAL CHARACTERISTICS

Items		Description		
1.	Rated Voltage	DC 12 V		
2.	Operating Voltage	10.8V~13.2V		
3.	PWM Frequency 25KHz	Duty Cycle D=20%	Duty Cycle D=50%	Duty Cycle D=100%
4.	Start Voltage	8V		
5.	Air Flow – At rated voltage zero static pressure (minimal value)	0.97m ³ / min (34.4CFM)	1.53m ³ / min (54.1CFM)	2.18m ³ / min (76.8CFM)
6.	Static Pressure – At rated voltage At zero air flow	1.00mm -H ₂ O (0.04inch-H ₂ O)	2.35mm -H ₂ O (0.09inch-H ₂ O)	4.5mm-H ₂ O (0.177inch-H ₂ O)
7.	Input Current (Max.)	0.05A	0.10A	0.24A
8.	Speed	1000RPM±200	1650RPM±200	2400RPM±10%
9.	Acoustical Noise	16.00dBA	29.8dBA	38dBA
10.	Input Power	0.64W	1.22W	2.88W
11.	Insulation Resistance – Between Frame and Terminal	10 M ohm at DC 500 V		
12.	Dielectric Strength – Between Frame and Terminal	5 MA (Max.) @ AC 500 V 60 Hz 1 min.		
13.	Life – Continuous operating under normal temperature (40 °C or 104 °F)	70,000 hours		
14.	Rotation	Counterclockwise Air Discharged		
15.	Lead Wires	UL 2468,AWG 28 or Equivalent “-”: Black; “+”: Black;“s”: Black; “PWM”: Black.		



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3. MECHANICAL CHARACTERISTICS

Items		Description
1.	Dimension	Display as Drawing
2.	Frame	PBT UL94V-0 (Black GP)
3.	Impeller	PBT UL94V-0 (B6A-G0067, Gray)
4.	Bearing System	2-Ball Bearing
5.	Weight	110±5grams

4. ENVIRONMENTAL

Items		Description
1.	Operating Temperature	- 10 °C ~ + 65 °C (65 %RH)
2.	Storage Temperature	- 30 °C ~ + 70 °C (65 %RH)
3.	Vibration Test	Displacement Amplitude: 0.75mm(Equivalent 10G) Frequency Range: 10Hz<->55Hz/30SEC. Lineair Scanning 120 Cycle Endurance Timer Per Axis: 30Min. Orientation:X,Y,Z.
4.	Drop Test	Motor withstands one free body drop from 30 cm in high onto 10 mm thickness of wooden board for each of the three faces in minimum packing condition.
5.	Acoustic Noise	16.00/29.8/38dBA – Curve (16.50/30.75/38.89dBA Max) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

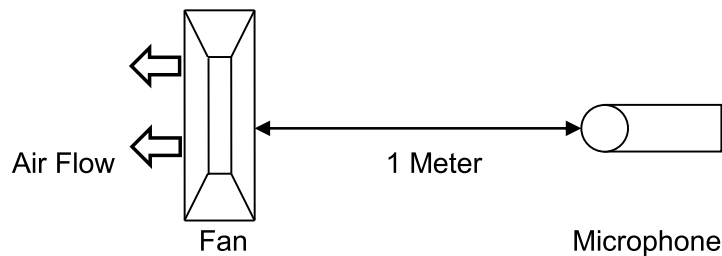


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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5. PROTECTION

Items		Description
1.	Polarity Protection	For polarity error connection to power, the circuit withstands reversed connection between positive and negative leads.
2.	Locked Rotor Protection	Motor winding protects the motor from damage in 72 hours of locked rotor condition at rated voltage.

6. ATTACHMENTS

- 6.1. Product Dimension
- 6.2. Frequency Generator Output
- 6.3. P-Q Curve Test report
- 6.3. TUV Certificate
- 6.4. UL Certificate
- 6.5. Electrical specifications for PWM production

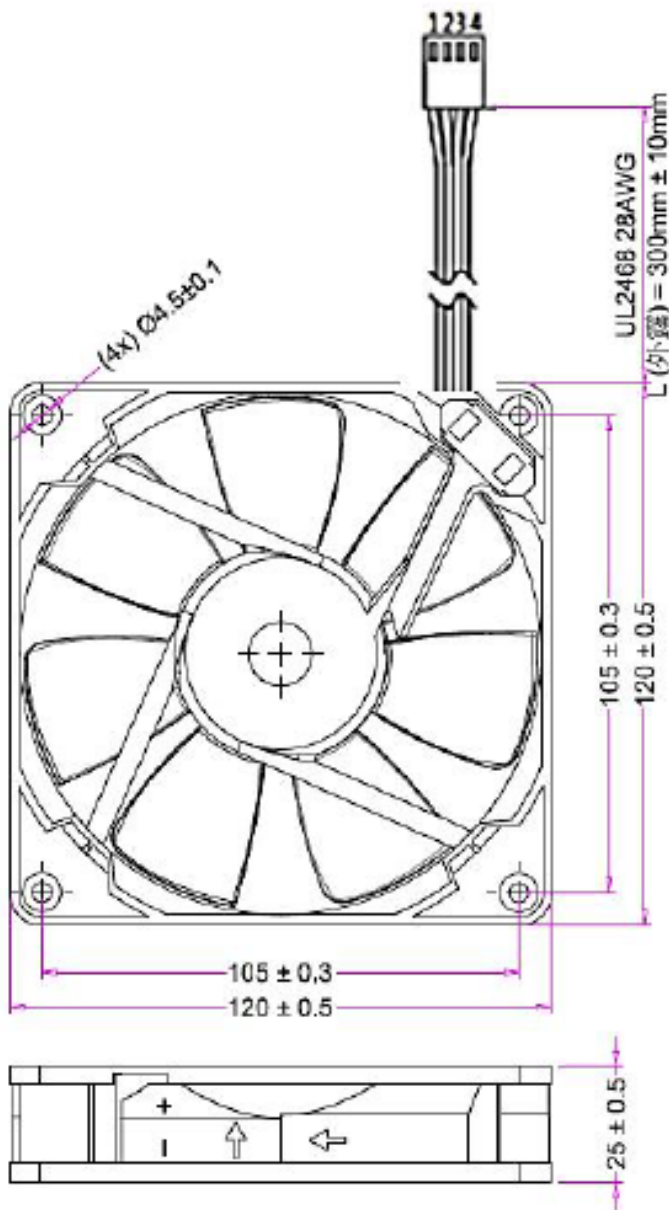


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6.1 Product Dimension



Note:

1. Lead Wire : 2468 #28AWG 80°C 300V UL, CSA Approval
PIN 1: Black Wire ----- Ground
PIN 2: Black Wire ----- Power
PIN 3: Black Wire ----- Tach Signal
PIN 4: Black Wire ----- PWM Control
2. Connector: Black of 2.54-pin or Equivalent



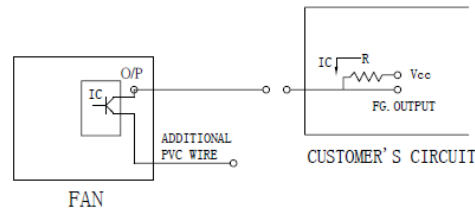
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6.2. Frequency Generator Output

FREQUENCY GENERATOR O/P:

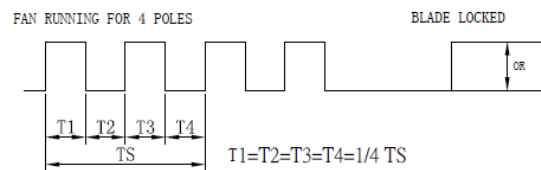
Frequency generator function is activated by an internal IC for customer's application.
Electrical schematic:



CUSTOMER'S CIRCUIT

Vcc = From +5 To +28 VDC (Generally using +12 or +24 VDC)
Ic = 5 mA max.
R = V/I (Output "R" value calculation)

• SUPPLY A WAVEFORM:

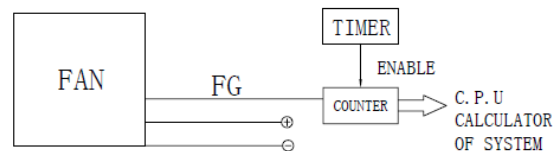


N=R.P.M. (Rotation speed will be different for various models
L/M/H/HH/VH/SH)
 $TS=60/N$ (Sec)
* Voltage level after blade locked

• OUTPUT LEVEL:

High = Vcc 10%
Low = 0~0.5V
Ic = 5 mA max.

• APPLICATION:



• FUNCTIONS:

- By means of waveform & customer's design, schematic can reach alarm function, either in the form of buzzing or LED flashing. Adjust rotation speed.
- When power supply output voltage level decreases, it will result in the lowering of fan rotation speed. The irregular situation will be controlled by using FG. O/P through P/S circuit to increase the output voltage and result in a stable rotation speed.



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6.3. P-Q Curve Test



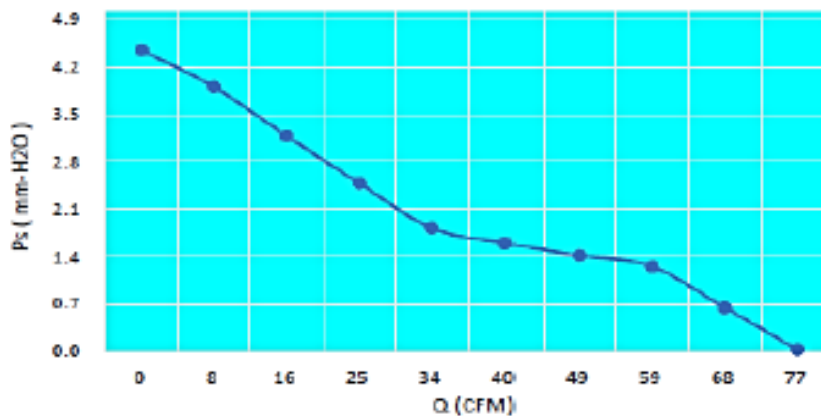
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FAN TEST PERFORMANCE CURVES

Speed (RPM)	2400
Noise (dBA)	38
Date	6/1/2022

P (mm-H ₂ O)	P (in-H ₂ O)	Q (m ³ / min)	Q (CFM)
0.02	0.001	2.180	76.76
0.64	0.025	1.918	67.55
1.25	0.050	1.663	58.56
1.41	0.056	1.403	49.40
1.60	0.064	1.141	40.17
1.82	0.072	0.960	33.80
2.48	0.099	0.699	24.63
3.18	0.127	0.451	15.88
3.90	0.155	0.233	8.20
4.45	0.177	0.000	0.00



Address : Baishi Village, Quchang Town, Huiyang Dist., Huizhou City, Guangdong Province, P.R.China

TEL : 86-0752-3535591 FAX : 86-0752-3535592



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6.4. TUV Certificate

Zertifikat		Certificate			
Zertifikat Nr. <i>Certificate No.</i> R 50064443		Blatt <i>Page</i> 0007			
Ihr Zeichen <i>Client Reference</i> 12046290/LC Tech		Unser Zeichen <i>Our Reference</i> ZTW1-CCO- 10013649 006		Ausstellungsdatum <i>Date of Issue</i> 07.05.2007 <i>(day/mo/yr)</i>	
Genehmigungsinhaber <i>License Holder</i> Dynaeon Industrial Co., Ltd. 8F, No. 35, 37, Lane 221 Gang Cian Rd. Neihu, Taipei 114 Taiwan, R.O.C.			Fertigungsstätte <i>Manufacturing Plant</i> Dynaeon Ind. Co., Ltd. Ta-Li Management Zone Ching-Hsi, Dongguan P.R. China		
Prüfzeichen <i>Test Mark</i>		Geprüft nach <i>Tested acc. to</i> EN 60950-1:2001+A11			
Zertifiziertes Produkt (Geräteidentifikation) <i>Certified Product (Product Identification)</i>			Lizenzentgelte - Einheit <i>License Fee - Unit</i>		
Ventilator (DC Fan)					
wie Blatt (as page) 01					
Ergänzung (Addition)					
Bezeichnung : DF (X1) (X2) (X3) (X4) (X5) ZZZZZ- (X6)					
(Type Designation)					
(X1) steht für (stands for): 05, 12, 24					
(X2) steht für (stands for): 12, 14, 15, 25, 40, 50, 60, 70, 77, 80, 92			1		
(X3) steht für (stands for): 10, 15, 20, 25, 28			1		
(X4) steht für (stands for): S, B, P, Q					
(X5) steht für (stands for): U, H, M, L, E					
(X6) steht für (stands for): A, B, C, D			1		
Z steht für (stands for): A-Z, 0-9 oder (or) freibleibend (blank)					
Nennspannung : DC 5V ((X1)= 05); DC 12V ((X1)= 12);					
(Rated Voltage) DC 24V ((X1)= 24)					
Nennstrom : siehe Anlage					
(Rated Current) (see appendix)					
ANLAGE (Appendix): 1					
<p>Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde. Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht. This certificate is based on our Testing and Certification Regulation. The product fulfills above mentioned requirements, the production is subject to surveillance.</p>					
<p>TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety</p>			 3		
			 Dipl.-Ing. F. Stroelzel		



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6.5. UL Certificate



ONLINE CERTIFICATIONS DIRECTORY

GPWV2.E157868 Fans, Electric - Component

[Page Bottom](#)

Fans, Electric - Component

[See General Information for Fans, Electric - Component](#)

DYNAEON INDUSTRIAL CO LTD
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

E157868

DC fans, Models D(F)1206(Z)(Y1)(X1), D(F)1207(Z)(Y1)(X1), where (F) may be F or C, (Z) may be SH, BH, BA, SM, BM, BB, SL, BL, BC, SD, BE, BF, SG, BI, BJ, SK, BN, BO, SP, BQ, BR, SS, BT, BU, SV, BW, BX, SY, BY or BZ, (Y1) may be "-", 0 through 9 or A through Z, (X1) may be 0 through 9 or A through Z.

Models DF248015(S)(X)(Y)(Z)(W), DF488015(S)(X)(Y)(Z)(W), where (S) may be S, B or P, (X) may be U, H, M or L, (Y) and (Z) may be any alphanumeric character, blank, "-" or any symbol, (W) may be seven any alphanumeric character, blank, "-" or any symbol.

Models DF121225(A)(B)(C), DF121225(A)E(C), DF241225(A)(B)(C), DF128015(A)U(C), DF128015(A)(B)(C), DF128025(A)U(C), DF128025(A)(B)(C), DF128025(A)E(C), DF248025(A)U(C), DF248025(A)(B)(C), DF129225(A)(B)(C), DF129225(A)E(C), DF249225(A)U(C), DF249225(A)(B)(C), DF126010(A)(B)(C), DF246025(A)U(C), DF246025(A)(B)(C), DF126025(A)U(C), DF126025(A)(B)(C), DF126025(A)E(C), DB126015BU(C), DB126015B(B)(C), DF123010(A)(B)(C), DF053010(A)(B)(C), DF127015(A)U(C), DF127015(A)(B)(C), DF245010(A)(B)(C), where (A) may be S, B, P or Q, (B) may be H, M or L, (C) may be xxxxxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Models DF122510(X)(Y2)(Z)-(M), DF124020(X)(Y2)(Z)-(M), DF244020(X)(Y1)(Z)-(M), DF126025(X)(Y3)(Z)-(M), DF246025(X)(Y3)(Z)-(M), DF121225(X)(Y1)(Z)-(M), DF124028(X)(Y3)(Z)-(M), where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be U, H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank, (M) may be A or B.

Models DF054010(X)(Y2)(Z1)(Z2)-A, DF054010(X)L(Z1)(Z2)-B, DF124010(X)(Y2)(Z1)(Z2)-A, DF124010(X)L(Z1)(Z2)-B, DF244010(X)(Y2)(Z1)(Z2)-A, DF125015(X)(Y1)(Z1)(Z2)-A, DF125020(X)(Y3)(Z1)(Z2)-A, DF126015(X)(Y1)(Z1)(Z2)-A, DF246015(X)M(Z1)(Z2)-A, DF246015(X)L(Z1)(Z2)-A, DF128020(X)(Y1)(Z1)(Z2)-A, DF128020(X)L(Z1)(Z2)-B, DB127015(X)(Y2)(Z)-A series, where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be H, M, L or E, (Z1) may be blank or 3, (Z2) is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF125010(X)(Y)(Z)-A, DF126020(X)(Y)(Z)-A, DF246020(X)(Y)(Z)-A, DF121525(X)(Y1)(Z)-A, DF121525(X)(Y2)(Z)-B series, Where (X) may be S, B, P or Q, (Y) may be H, M or L, (Y1) may be U, H or M, (Y2) may be L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF128025(X)(a)(Y)-A, DF121225(X)(b)(Y)-C, DF121225(X)E(Y)-C, DF127720(X)(a)(Y)-A, DF121425(X)(c)(Y)-A, DF126010(X)E(Y)-A series, where (X) may be S, B, P, Q, (a) may be H, M, L or E, (b) may be M or L, (c) may be U, H, M, L or E, (Y) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF054010(X)(Y1)(Z1)(Z2)-C, DF124010(X)(Y2)(Z1)(Z2)-C, DF244010(X)(Y2)(Z1)(Z2)-C, DF124020BU(Z1)(Z2)-C, DF124020(X)(Y1)(Z1)(Z2)-C, DF124028BU(Z1)(Z2)-C, DF124028(X)(Y1)(Z1)(Z2)-C, DF126025BU(Z1)(Z2)-C, DF126025(X)(Y1)(Z1)(Z2)-C, DF127015BU(Z1)(Z2)-A, DF127015(X)(Y1)(Z1)(Z2)-A, DF128025BU(Z1)(Z2)-B, DF128025(X)(Y1)(Z1)(Z2)-B, DF129225BU(Z1)(Z2)-A, DF129225(X)(Y1)(Z1)(Z2)-A, DF121225BU(Z1)(Z2)-D, DF121225(X)(Y1)(Z1)(Z2)-D, DF121425(X)(Y1)(Z1)(Z2)-B, DB127015BU(Z1)(Z2)-B, DB127015(X)(Y1)(Z1)(Z2)-B, DB058015(X)(Y3)(Z1)(Z2)-A, where (X) may be S, B, P or Q, where (Y1) may be H, M, L or E, where (Y2) may be U, H, M, L or E, where (Y3) may be M or L, where (Z1) may be blank or 3, where (Z2) may be is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DB128015(X)(Y1)-(Z)-A, DF128038(X)(Y1)-(Z)-A, DB121225(X)(Y2)-(Z)-A, DF054010(X)(Y2)-(Z)-D, DF124010(X)(Y3)-(Z)-D, DF244010(X)(Y4)-(Z)-D, DF125010(X)(Y2)-(Z)-B, DF126010(X)(Y5)-(Z)-B series, where (X) may be S, B, P, Q, (Y1) may be U, H, M, L or E, (Y2) may be H, M or L, (Y3) may be U, M, L or E, (Y4) may be U, H, M or L, (Y5) may be H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Electric fans, Models DC0504, -1204, -1205, -1206, DF1204, -1208, -2408, -0504, -0505, -1205, -2406 followed by "S" or



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"B", followed by two alphanumeric characters.

Low voltage fans, Models DB1206, DF1209, -1212, -2409, DH1204 followed by B or S, followed by two alphanumeric characters.



Marking: Company name or trademark **TOP MOTOR** and model designation.

Last Updated on 2008-02-18

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ONLINE CERTIFICATIONS DIRECTORY

GPWV8.E157868

Fans, Electric Certified for Canada - Component

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DYNAEON INDUSTRIAL CO LTD
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

E157868

DC fans, Models D(F)1206(Z)(Y1)(X1), D(F)1207(Z)(Y1)(X1), where (F) may be F or C, (Z) may be SH, BH, BA, SM, BM, BB, SL, BL, BC, SD, BE, BF, SG, BI, BJ, SK, BN, BO, SP, BQ, BR, SS, BT, BU, SV, BW, BX, SY, BY or BZ, (Y1) may be "-", 0 through 9 or A through Z, (X1) may be 0 through 9 or A through Z.

Models DF248015(S)(X)(Y)(Z)(W), DF488015(S)(X)(Y)(Z)(W), where (S) may be S, B or P, (X) may be U, H, M or L, (Y) and (Z) may be any alphanumeric character, blank, "-" or any symbol, (W) may be seven any alphanumeric character, blank, "-" or any symbol.

Models DF121225(A)(B)(C), DF121225(A)E(C), DF241225(A)(B)(C), DF128015(A)U(C), DF128015(A)(B)(C), DF128025(A)U(C), DF128025(A)(B)(C), DF128025(A)E(C), DF248025(A)U(C), DF248025(A)(B)(C), DF129225(A)(B)(C), DF129225(A)E(C), DF249225(A)U(C), DF249225(A)(B)(C), DF126010(A)(B)(C), DF246025(A)U(C), DF246025(A)(B)(C), DF126025(A)U(C), DF126025(A)(B)(C), DF126025(A)E(C), DB126015BU(C), DB126015B(B)(C), DF123010(A)(B)(C), DF053010(A)(B)(C), DF127015(A)U(C), DF127015(A)(B)(C), DF245010(A)(B)(C), where (A) may be S, B, P or Q, (B) may be H, M or L, (C) may be xxxxxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Models DF122510(X)(Y2)(Z)-(M), DF124020(X)(Y2)(Z)-(M), DF244020(X)(Y1)(Z)-(M), DF126025(X)(Y3)(Z)-(M), DF246025(X)(Y3)(Z)-(M), DF121225(X)(Y1)(Z)-(M), DF124028(X)(Y3)(Z)-(M), where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be U, H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank, (M) may be A or B.

Models DF054010(X)(Y2)(Z1)(Z2)-A, DF054010(X)L(Z1)(Z2)-B, DF124010(X)(Y2)(Z1)(Z2)-A, DF124010(X)L(Z1)(Z2)-B, DF244010(X)(Y2)(Z1)(Z2)-A, DF125015(X)(Y1)(Z1)(Z2)-A, DF125020(X)(Y3)(Z1)(Z2)-A, DF126015(X)(Y1)(Z1)(Z2)-A, DF246015(X)M(Z1)(Z2)-A, DF246015(X)L(Z1)(Z2)-A, DF128020(X)(Y1)(Z1)(Z2)-A, DF128020(X)L(Z1)(Z2)-B, DB127015(X)(Y2)(Z)-A series, where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be H, M, L or E, (Z1) may be blank or 3, (Z2) is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF125010(X)(Y)(Z)-A, DF126020(X)(Y)(Z)-A, DF246020(X)(Y)(Z)-A, DF121525(X)(Y1)(Z)-A, DF121525(X)(Y2)(Z)-B series, Where (X) may be S, B, P or Q, (Y) may be H, M or L, (Y1) may be U, H or M, (Y2) may be L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF128025(X)(a)(Y)-A, DF121225(X)(b)(Y)-C, DF121225(X)E(Y)-C, DF127720(X)(a)(Y)-A, DF121425(X)(c)(Y)-A, DF126010(X)E(Y)-A series, where (X) may be S, B, P, Q, (a) may be H, M, L or E, (b) may be M or L, (c) may be U, H, M, L or E, (Y) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF054010(X)(Y1)(Z1)(Z2)-C, DF124010(X)(Y2)(Z1)(Z2)-C, DF244010(X)(Y2)(Z1)(Z2)-C, DF124020BU(Z1)(Z2)-C, DF124020(X)(Y1)(Z1)(Z2)-C, DF124028BU(Z1)(Z2)-C, DF124028(X)(Y1)(Z1)(Z2)-C, DF126025BU(Z1)(Z2)-C, DF126025(X)(Y1)(Z1)(Z2)-C, DF127015BU(Z1)(Z2)-A, DF127015(X)(Y1)(Z1)(Z2)-A, DF128025BU(Z1)(Z2)-B, DF128025(X)(Y1)(Z1)(Z2)-B, DF129225BU(Z1)(Z2)-A, DF129225(X)(Y1)(Z1)(Z2)-A, DF121225BU(Z1)(Z2)-D, DF121225(X)(Y1)(Z1)(Z2)-D, DF121425(X)(Y1)(Z1)(Z2)-B, DB127015BU(Z1)(Z2)-B, DB127015(X)(Y1)(Z1)(Z2)-B, DB058015(X)(Y3)(Z1)(Z2)-A, where (X) may be S, B, P or Q, where (Y1) may be H, M, L or E, where (Y2) may be U, H, M, L or E, where (Y3) may be M or L, where (Z1) may be blank or 3, where (Z2) may be is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DB128015(X)(Y1)-(Z)-A, DF128038(X)(Y1)-(Z)-A, DB121225(X)(Y2)-(Z)-A, DF054010(X)(Y2)-(Z)-D, DF124010(X)(Y3)-(Z)-D, DF244010(X)(Y4)-(Z)-D, DF125010(X)(Y2)-(Z)-B, DF126010(X)(Y5)-(Z)-B series, where (X) may be S, B, P, Q, (Y1) may be U, H, M, L or E, (Y2) may be H, M or L, (Y3) may be U, M, L or E, (Y4) may be U, H, M or L, (Y5) may be H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Electric fans, Models DC0504, -1204, -1205, -1206, DF0504, -0505, -1204, -1205, -1208, -2406, -2408 followed by "S" or



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"B", followed by two alphanumeric characters.

Low voltage fans, Models DB1206, DF1209, -1212, -2409, DH1204 followed by B or S, followed by two alphanumeric characters.



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6.6. Electrical specifications for PWM production

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Electrical Specifications for PWM production

Voltage

Fan operating voltage shall be within the range 12V \pm 1.2V.

Current

Peak fan current draw during start-up operation (with 13.2V applied, with fan operating in the free stream condition) shall not exceed 2.0 A.

Fan current spike during start-up operation (with 13.2V applied with fan operating in the free stream condition) shall be allowed to exceed 1.0 A for a duration of no greater than 1.0 sec.

Tachometer Output Signal

Fan shall provide tachometer output signal with the following characteristics:

- * Two pulses per revolution
- * Open-collector or open-drain type output
- * Motherboard will have a pull up to 12V, maximum 13.2V

PWM Control Input Signal

- The following requirements are measured at the PWM(control) pin of the fan cable connector: PWM Frequency: Target frequency 25kHz, acceptable operational range 21 kHz to 28 KHz
- Maximum voltage for logic low: $V_{IL}=0.8V$
- Absolute maximum current sourced: $I_{max}=5mA$ (short circuit current)
- Absolute maximum voltage level: $V_{max}=5.25V$ (open circuit voltage)

Fan Speed Control

1.1 Maximum Fan Speed Requirements

The maximum fan speed shall be specified for the fan model by the vendor and correspond to 100% duty cycle PWM signal input.

1.2 Minimum Fan Speed Requirements

The vendor shall specify the minimum RPM and the corresponding PWM duty cycle. This specified minimum RPM shall be 30% of maximum RPM or less. The fan shall be able to start and run at this RPM. To allow a lower specified minimum RPM, it is acceptable to provide a higher PWM duty cycle to the fan motor for a short period of time for startup conditions. This pulse should not exceed 30% maximum RPM and should last no longer than 2 seconds.



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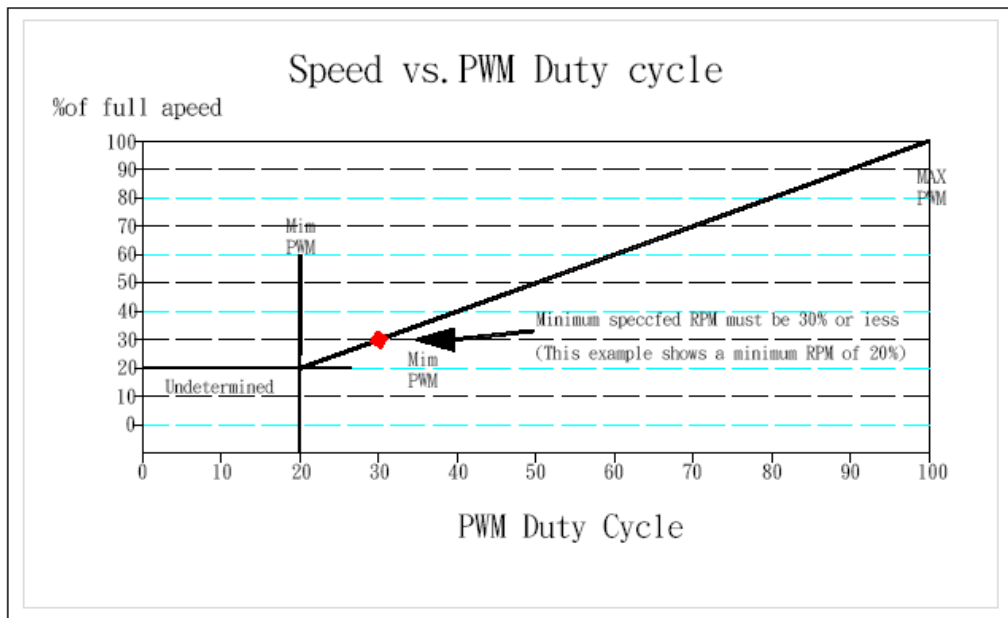
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USA Dynatron Corp.

1.3 Fan Speed Response PWM Control Input Signal

The PWM input shall be delivered to the fan through the control signal on Pin4. Fan speed response to this signal shall be a continuous and monotonic of the duty cycle of the signal, from 100% to the minimum specified RPM. The fan RPM (as a percentage of maximum RPM) should match the PWM duty cycle within $\pm 10\%$. If no control signal is present the fan shall operate at maximum RPM.

Figure 1 Fan speed Response to PWM Control input Signal



1.4 Operation Below Minimum RPM

For all duty cycles less than the minimum duty cycle, the RPM shall not be greater than the minimum RPM. The following graphs and definitions show three recommended solutions to handle PWM duty cycles that are less than the minimum operational RPM, as a percentage of maximum.

Reference resource by Intel's 4-wire PWM Fan controlled specification.



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Specification for Approval

Customer:		
Model Number:	watercooler pump	
Part Number:		
Issued Date:	Wednesday, August 31, 2016	
Version:	A	
Customer Approval		
Approval:	Check:	
Corporate Headquarters Dynatron Corporation 33200 Western Avenue Union City, CA 94587 U.S.A. Tel: 510-498-8888 Fax: 510-498-8488	<i>Taipei Office</i> <i>(Taiwan, R.O.C.)</i> 8F, No. 35, Lane:221 Gang Cian. Road, Taipei, Taiwan, R.O.C. Tel: 886-2-27995799 (Rep.) Fax: 886-2-2799-9577	Manufactory TOP MOTOR TECHNOLOGY(HUI ZHOU)CO,LTD Baishi Village, QiuchangTown, Huiyang Dist, HuizhouCity, Guangdong Province, P.R.China Tel: 86-752-822-8000 (Rep.) Fax: 86-752-822-8999
Approval:	Check:	Handler:
Simon Wang	-	Hui mei



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3.	MECHANICAL CHARACTERISTICS	4
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1. SCOPE

This specification defines the electrical and mechanical characteristics of the □ AC / ■ DC Brush Less (■ Sleeve Bearing / □ 2-Balls Bearing) axial flow fan, which is carefully designed and manufactured for your special needs by Dynatron Corporation.

2. ELECTRICAL CHARACTERISTICS

Items		Description
1.	Rated Voltage	DC 12 V
2.	Start Voltage	DC 9 V
3.	Operating Voltage	10.2V~13.8V
4.	Flow Rate (minimal value)	1.7 LPM
5.	Input Current	0.25 A (Max)
6.	Input Power	3.0 W
7.	Speed	4000RPM ± 10%
8.	Insulation Resistance – Between Frame and Terminal	10 M ohm at DC 500 V
9.	Dielectric Strength – Between Frame and Terminal	5 mA (Max.) @ AC 500 V 60 Hz 1 min.
10.	Life – Continuous operating under normal temperature (40 °C or 104 °F)	50,000 hours
11.	Rotation	Counterclockwise Air Discharged
12.	Autorestart Time	3-5sec
13.	Lead Wires	UL 2468, awg 26 or Equivalent “-”: Black; “+”: Black; “s”: Black.
14.	Acoustical Noise	30.00dBA



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3. MECHANICAL CHARACTERISTICS

Items		Description
1.	Dimension	Display as Drawing
2.	Frame	PPS UL94V-0 (Black GP)
3.	Impeller	PPS UL94V-0 (Black GP)
4.	Bearing System	Ceramic Bearing
5.	Weight	56±5grams

4. ENVIRONMENTAL

Items		Description
1.	Operating Temperature	- 10 °C ~ + 65 °C (65 %RH)
2.	Storage Temperature	- 30 °C ~ + 70 °C (65 %RH)
3.	Vibration Test	Displacement Amplitude: 0.75mm(Equivalent 10G) Frequency Range: 10Hz<->55Hz/30SEC. Lineear Scanning 120 Cycle Endurance Timer Per Axis: 30Min. Orientation:X,Y,Z.
4.	Drop Test	Motor withstands one free body drop from 30 cm in high onto 10 mm thickness of wooden board for each of the three faces in minimum packing condition.
5.	Acoustic Noise	30.00dBA – Curve (30.50Max) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

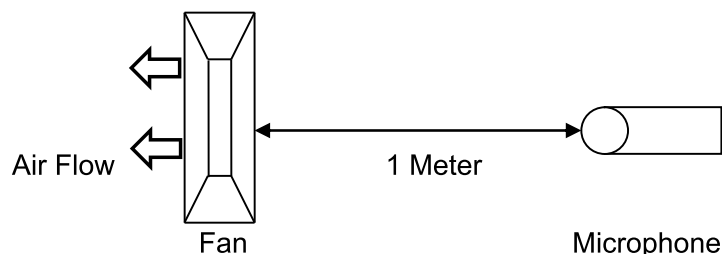


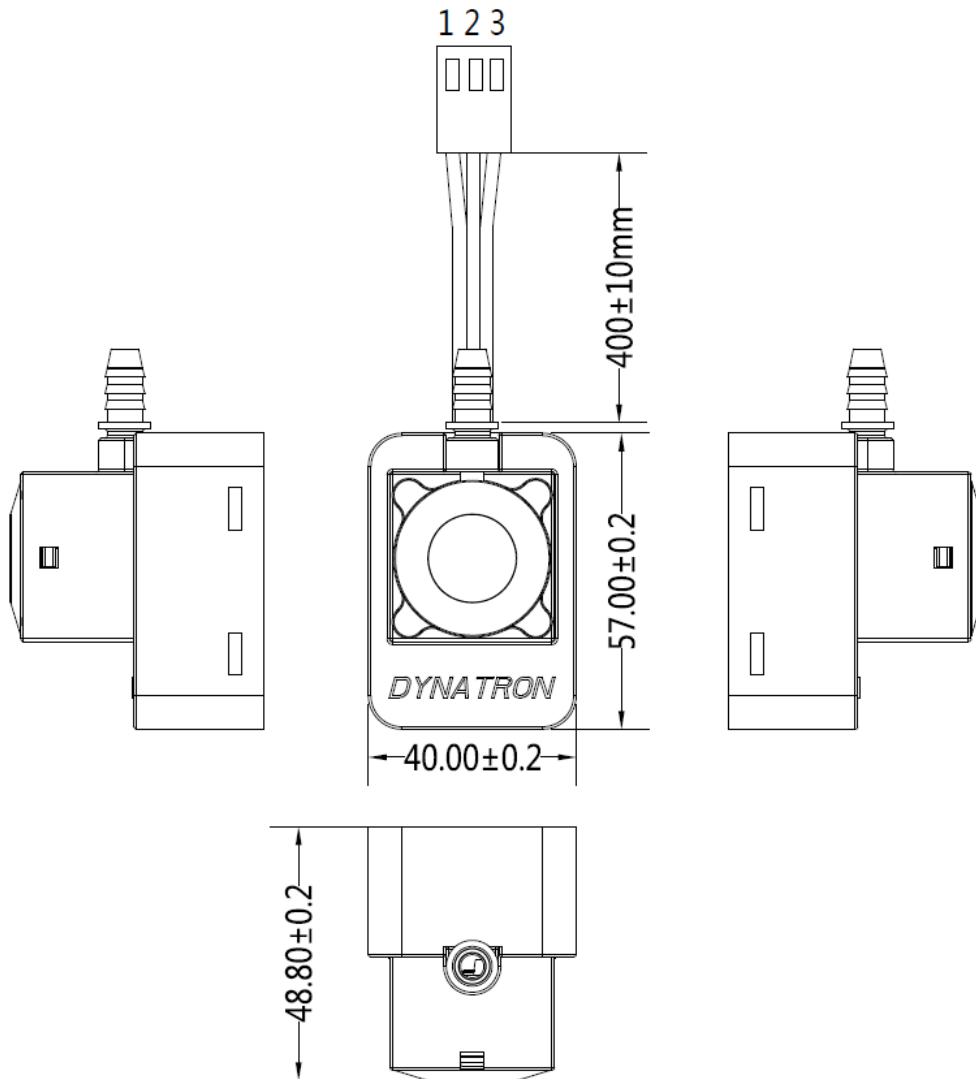
Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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DIMENSION:



1.Note:

1.Leed Wire:UL2468 #26AWG

PIN 1: Black Wire ----Ground

PIN 2: Black Wire ----Power

PIN 3: Black Wire ----Signal

2.Connector:2510-3P



Certificate of Environment Protection

環保證明書

Document Number: RH-L15-R0

Customer: 客戶名稱:	Company: _____ Address: _____ Phone Number: ____ - ____ - _____
Issue Date:	11/22/2019
Product Model Number:	L 15
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