DYNATRON

# L15

4U Workstation
Tower PC Liquid Cooler

PRODUCT SPECIFICATIONS

# Table of Contents





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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, AM3, 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 Overclocking Power Mode up to 250 Watts Heat Dissipation

# Fan Specification

| | |
|---|---|
| Model Number | DF121225SM |
| Dimension | 120 x 120 x 25 mm |
| Bearing | Sleeve Bearing |
| Rated Voltage | 12V |
| Rated Speed | At Duty Cycle 0~20%: 1000 ± 200 RPM<br>At Duty Cycle 50%: 1650 ± 200 RPM<br>At Duty Cycle 100%: 2400 ±10% RPM |
| Input Power | At Duty Cycle 0~20%: 0.64 W<br>At Duty Cycle 50%: 1.22 W<br>At Duty Cycle 100%: 2.88 W |
| Maximum Airflow | At Duty Cycle 0~20%: 34.4 CFM<br>At Duty Cycle 50%: 54.1 CFM<br>At Duty Cycle 100%: 76.8 CFM |
| Rated Static Pressure | At Duty Cycle 0~20%: 1.0 mm-H2O<br>At Duty Cycle 50%: 2.35 mm-H2O<br>At Duty Cycle 100%: 4.5 mm-H2O |



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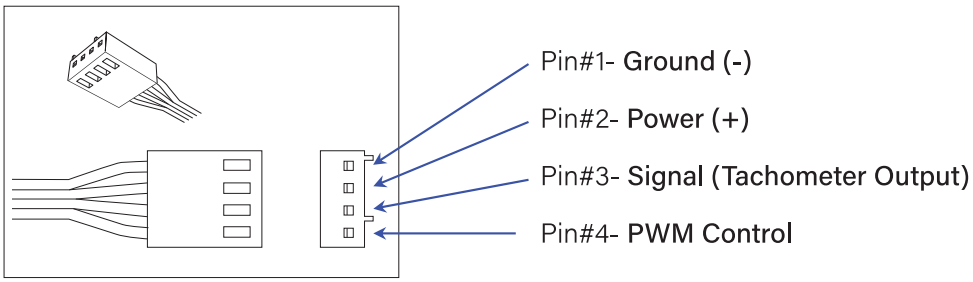
| | |
|---|---|
| Acoustical Noise | At Duty Cycle 0~20%: 16 dBA<br>At Duty Cycle 50%: 29.8 dBA<br>At Duty Cycle 100%: 38 dBA |
| Lead Wire Pin Out Diagram |  |



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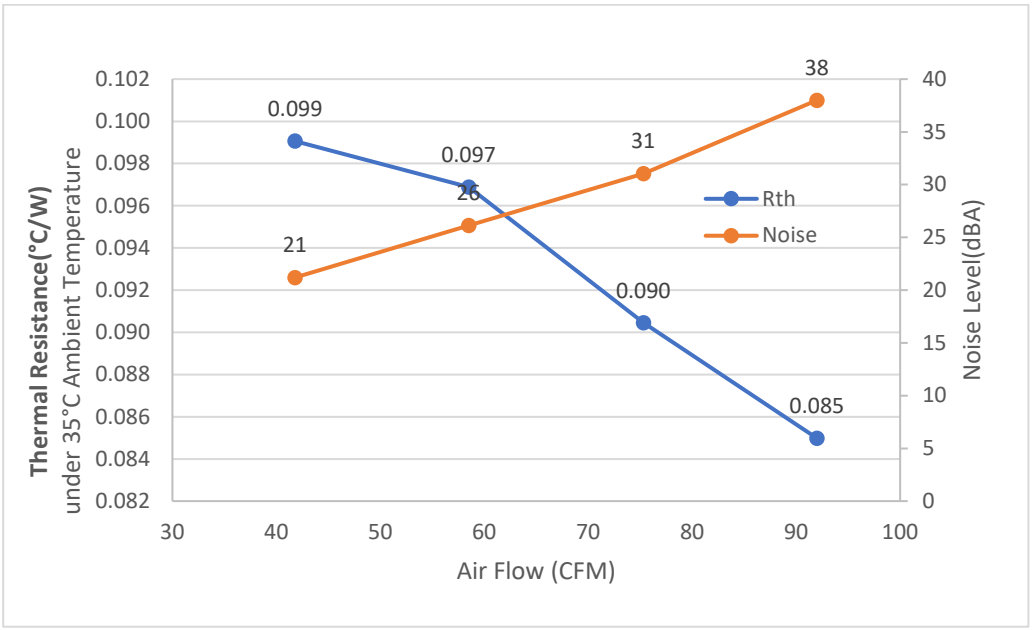
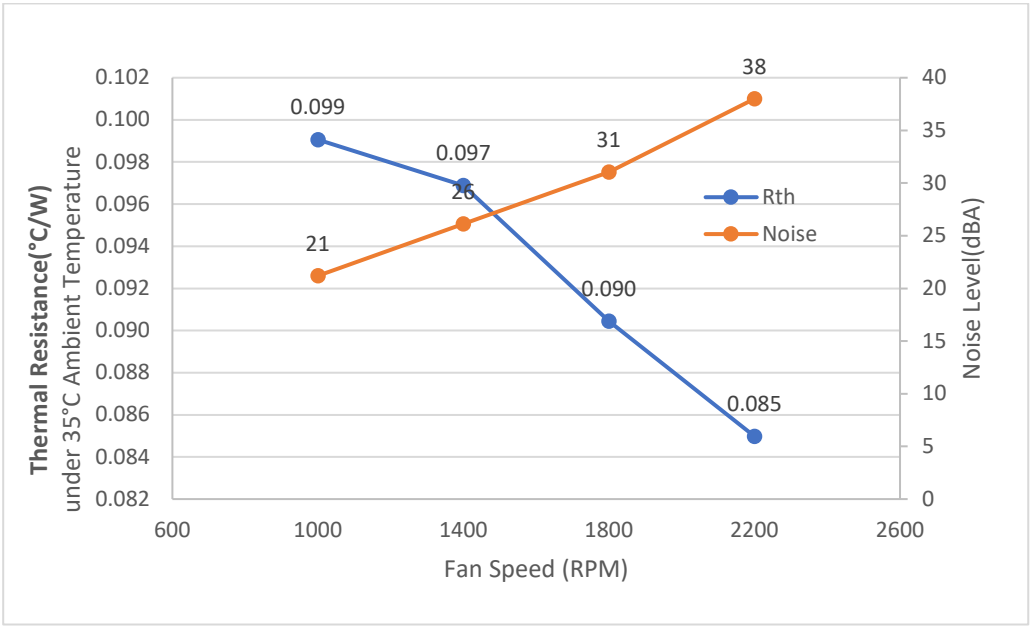
# L15 Thermal Performance Curve

## Cooling performance vs. Airflow




## Cooling Performance vs. Fan speed



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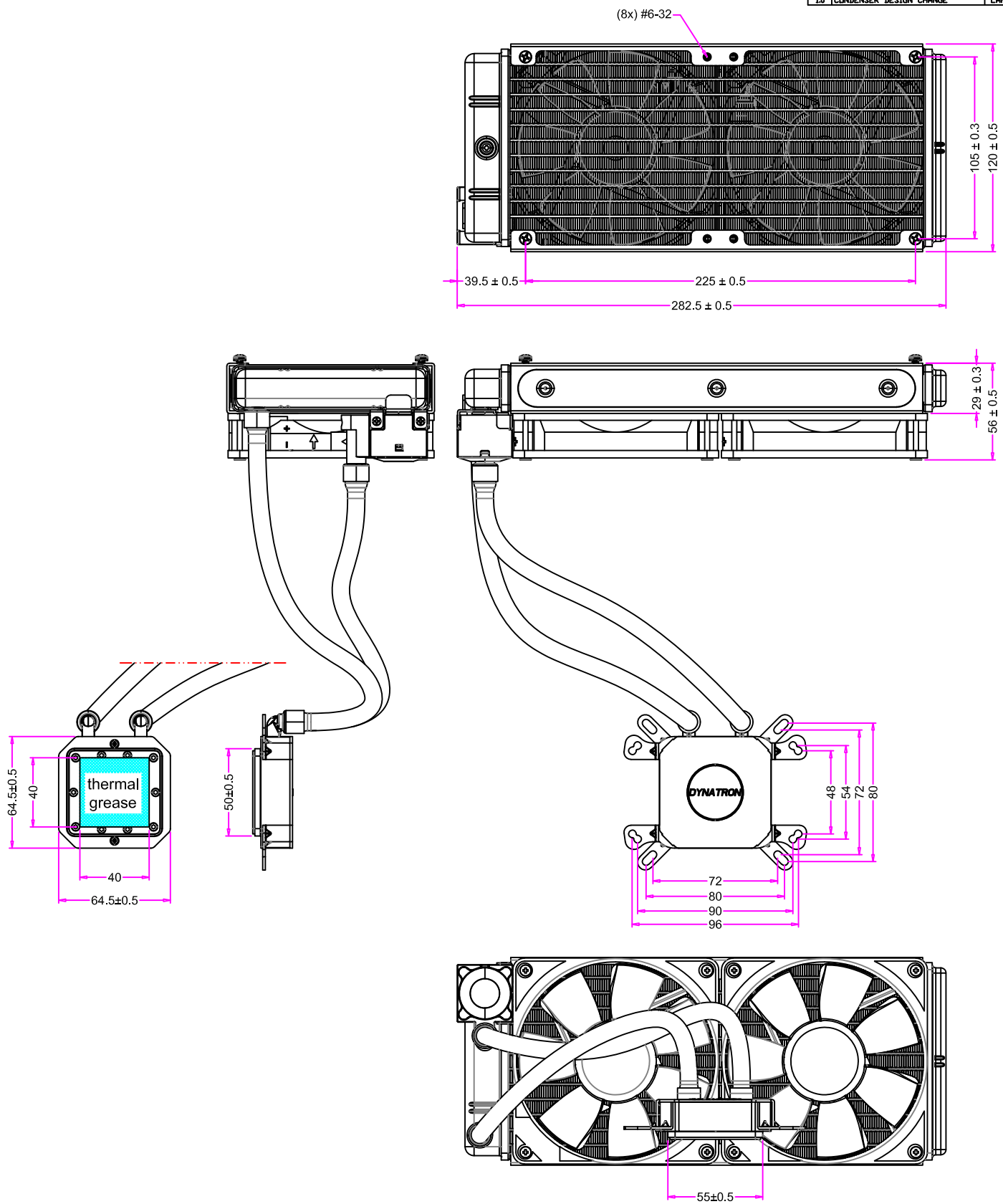
| REV# | DESCRIPTION | CHECKER | DATE |
|---|---|---|---|
| 0.0 | INITIAL RELEASE | FAWN | 03/03/20 |
| 1.0 | CONDENSER DESIGN CHANGE | LANG | 05/31/22 |




| | NAME | DATE |
|---|---|---|
| DRAWN BY | ENGR | 05/31/2022 |
| CHECKED BY | LANG | 05/31/2022 |
| ENG.APPROVED | | |
| MFG.APPROVED | - | - |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TOP MOTOR

DYNATRON CORPORATION

TITLE: Liquid Cooler Model **L15**
Overall Dimension Drawing

| VIEW | | DWG. No: | REV. |
|---|---|---|---|
| UNITS | MM | DYN-DM-L15 | 1.0 |

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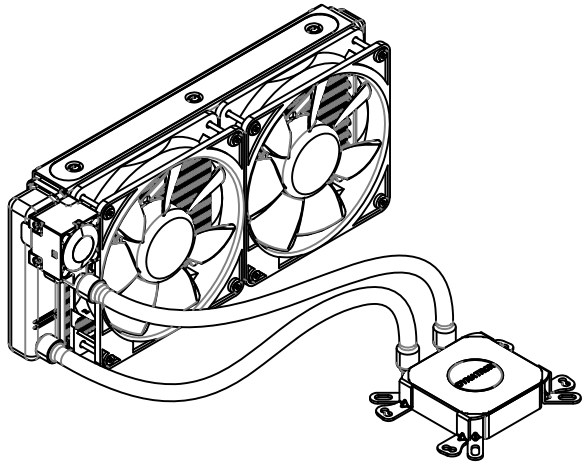
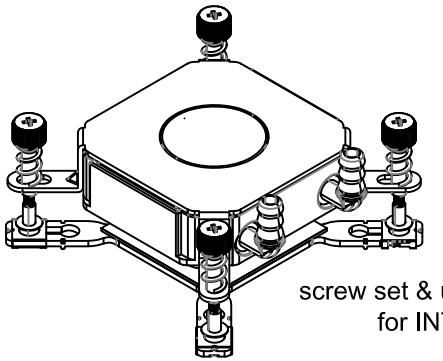
| REV# | DESCRIPTION | CHECKER | DATE |
|---|---|---|---|
| 0.0 | INITIAL RELEASE | FAWN | 03/03/2020 |
| 1.0 | CONDENSER DESIGN CHANGE | LANG | 05/31/2022 |

## ASSEMBLY PARTS

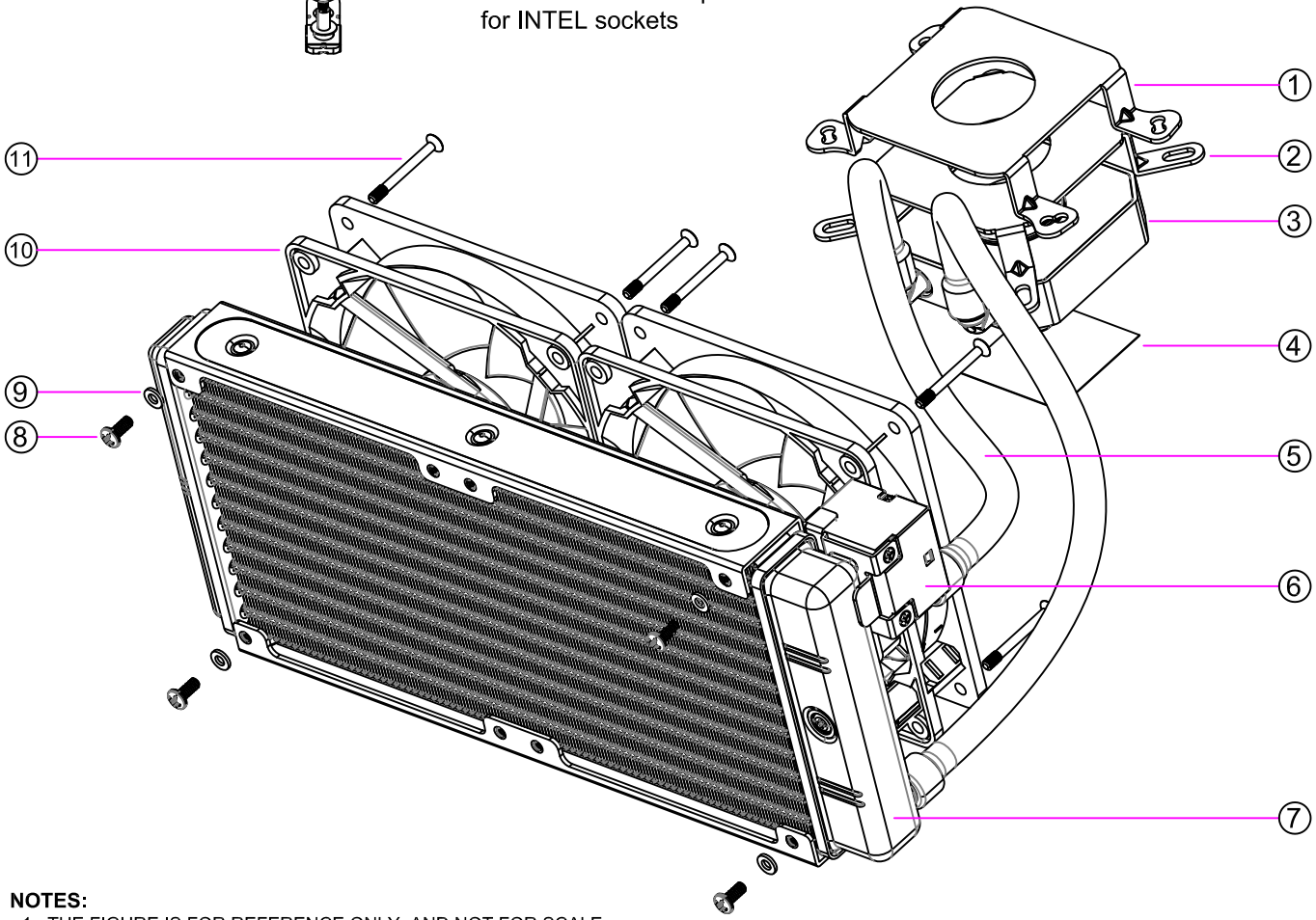
Y- cable
for fan power connection

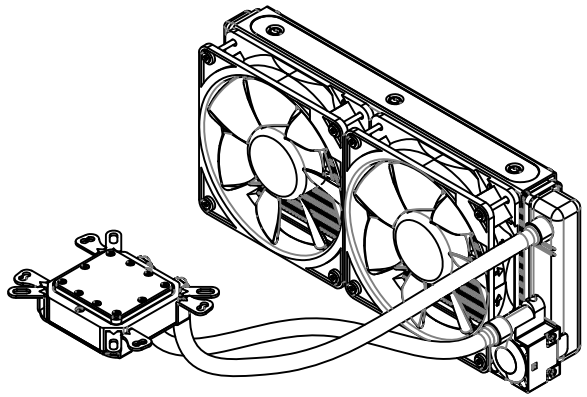
## WHOLE SET OF COOLER





screw set & universal backplate
for INTEL sockets



**NOTES:**

1. THE FIGURE IS FOR REFERENCE ONLY, AND NOT FOR SCALE
2. CONDENSER OVERALL DIMENSION : 282.5 x 120 x 56 mm

| ITEM# | DESCRIPTION | MATERIAL | QTY. |
|---|---|---|---|
| 11 | SCREW, COOLING FAN MOUNTING, # 6-32 | STEEL | 8 |
| 10 | COOLING FAN, 120mm x 25mm, MODEL # DF121225SM - PWM | PBT | 2 |
| 9 | SPACER, 1 mm OF THICKNESS | STEEL | 4 |
| 8 | SCREW, FOR CHASSIS MOUNTING, # 6-32 | STEEL | 4 |
| 7 | RADIATOR | ALUMINUM ALLOY | 1 |
| 6 | LIQUID PUMP, MODEL # PUMP50 | PPS | 1 |
| 5 | HOSE, 300 mm OF LENGTH | EPDM | 2 |
| 4 | THERMAL GREASE, PRE-PRINTED | SHIN-ETSU 7762 | 1 |
| 3 | COLD PLATE, WITH COPPER 1100 BASE | PPS | 1 |
| 2 | RETENTION, FOR SOCKET 115X/1200/1365/1366/1700/2011/2066 | SK7 | 1 |
| 1 | RETENTION, FOR SOCKET AM3 / AM4 / AM5 | SK7 | 1 |

| | DATE | NAME |
|---|---|---|
| DRAWN | 05/31/2022 | Engr |
| CHECKED | 05/31/2022 | LANG |
| ENG. APPR. | | |
| MFG. APPR. | | |
| Q.A. | | |
| COMMENTS: | | |

DYNATRON CORPORATION

TITLE:
Liquid Cooler Model **L15**
BOM & Exploded Assembly Drawing

DWG. No: DYN-EP-L15

REV 1.0

TOP MOTOR

# DYNATRON CORPORATION

***TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD***

# *Specification for Approval*

| | |
|---|---|
| Customer: | |
| Model Number: | DF121225SM (120*120*25mm) |
| Part Number: | |
| Issued Date: | Wednesday, June 01, 2022 |

**Customer Approval**

| Approval: | Check: |
|---|---|
| | |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Tel: 510-498-8888
Fax: 510-498-8488

Manufactory
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Tel: 86-752-353-5591 (Rep.)
Fax: 86-752-353-5592

*Los Angeles Office (U.S.A.)*
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Walnut, California 91789
U.S.A.
Tel: 909-598-2222
Fax: 909-598-8158

*Taipei Office (Taiwan, R.O.C.)*
8F, No. 35,Lane:221
Gang Cian. Road, Taipei,
Taiwan, R.O.C.
Tel: 886-2-27995799 (Rep.)
Fax: 886-2-2799-9577


| Approval: | Check: | Handler: |
|---|---|---|
| Simon Wang | - | Xiaohu Lian |

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1. SCOPE
   This specification defines the electrical and mechanical characteristics of the ☐ AC / ■ DC Brush Less ( ■ Liquid State / □ 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. | 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 | 7V | | |
| 5. | Air Flow – At rated voltage zero static pressure (minimal value) | 0.97m³ / min (34.4CFM) | 1.53m³ / min (54.1CFM) | 2.18m³ / min (76.8CFM) |
| 6. | Static Pressure – At rated voltage At zero air flow | 1.00mm -$H_2O$ (0.04inch-$H_2O$) | 2.35mm -$H_2O$ (0.09inch-H2O) | 4.5mm-$H_2O$ (0.177inch-H2O) |
| 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.)<br>@ 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<br>“-”: Black; “+”: Black;“s”: Black; “PWM”: Black. | | |

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 | Sleeve 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)<br>Frequency Range: 10Hz<->55Hz/30SEC.<br>Lineear Scanning 120 Cycle<br>Endurance Timer Per Axis: 30Min.<br>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<br>(16.50/30.75/38.89dBA Max)<br>Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.) |

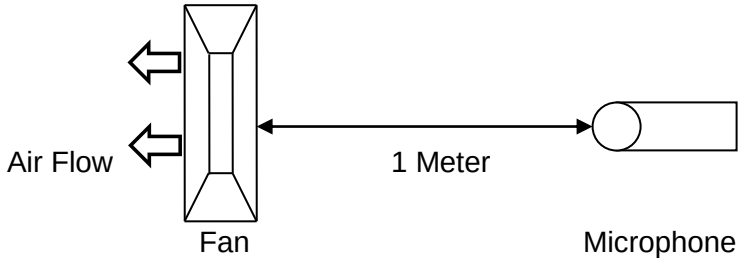



Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.

5. PROTECTION

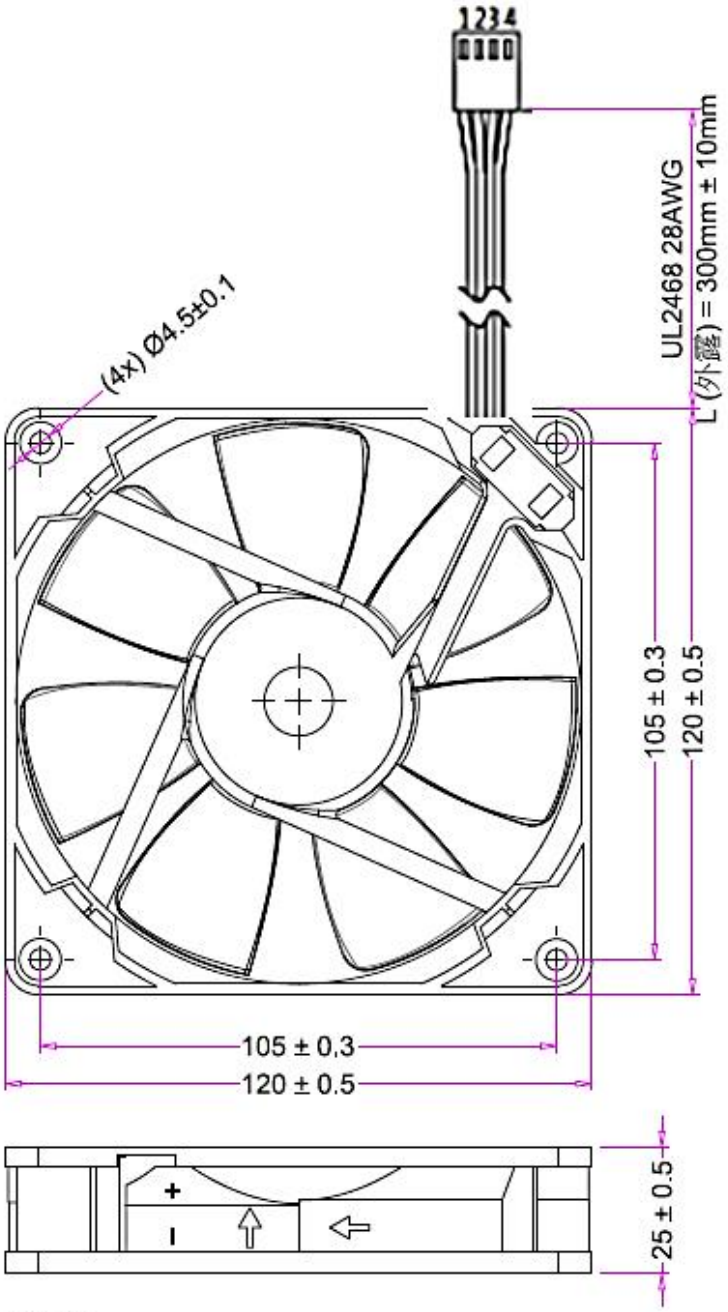
| Items | | Description |
|---|---|---|
| 1. | Polarity Protection | For polarity error connection to power, the circuit withstands reversed connection between positive and negative leads. |
| 2. | Locked Rotor Protection | Motor winding protects the motor from damage in 72 hours of locked rotor con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

# DYNATRON CORPORATION

*TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD*

6.1 Product Dimension





**Label**

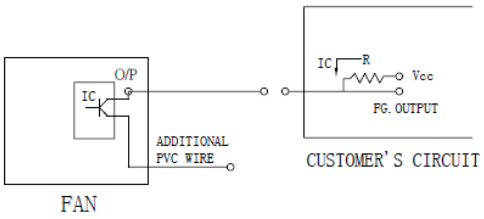
Note:

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

## 6.2. Frequency Generator Output

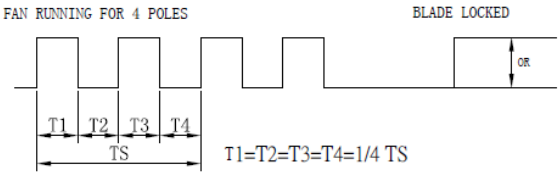
FREQUENCY GENERATOR O/P:

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)

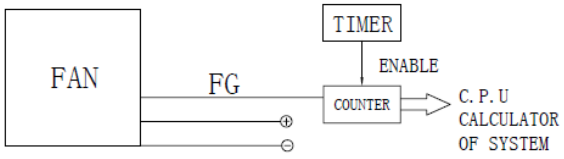
- **SUPPLY A WAVEFORM:**




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.

6.3. P-Q Curve Test

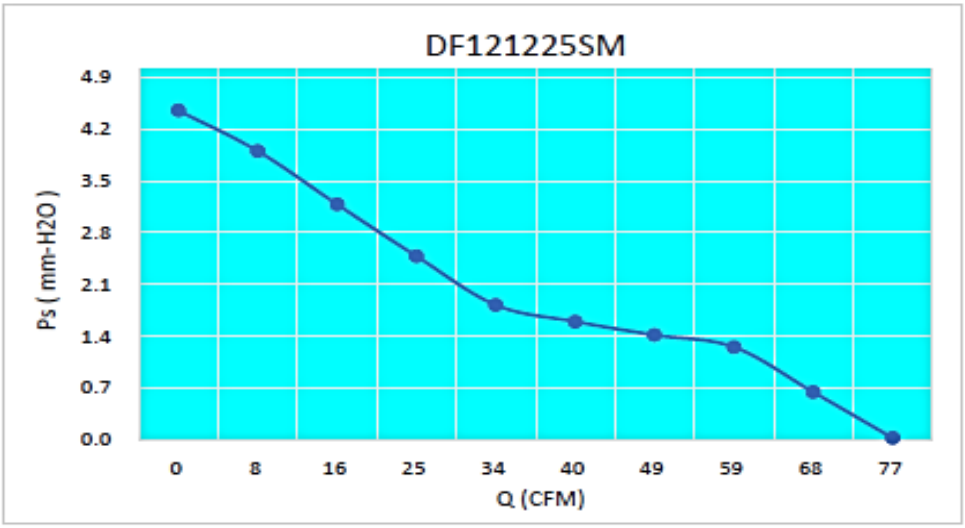
TOP MOTOR

TOP MOTOR TECHNOLOGY (HUIZHOU) CO., LTD.

## FAN TEST PERFORMANCE CURVES

| | |
|---|---|
| **Model #** | DF121225SM |
| **Speed (RPM)** | 2400 |
| **Noise (dBA)** | 38 |
| **Date** | 6/1/2022 |

| P (mm-H2O) | P (in-H2O) | Q (m³ / 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, Qiuchang Town, Huiyang Dist., Huizhou City, Guangdong Province, P.R.China

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

## 6.4. TUV Certificate

**Zertifikat** *Certificate*

TÜV

**Zertifikat Nr.** *Certificate No.*
R 50064443

**Blatt** *Page*
0007

| **Ihr Zeichen** *Client Reference* | **Unser Zeichen** *Our Reference* | **Ausstellungsdatum** | *Date of Issue (day/mo/yr)* |
|---|---|---|---|
| 12046290/LC Tech | ZTW1-CCO- 10013649 006 | 07.05.2007 | |

**Genehmigungsinhaber** *License Holder*
Dynaeon Industrial Co., Ltd.
8F, No. 35, 37, Lane 221
Gang Cian Rd.
Neihu, Taipei 114
Taiwan, R.O.C.

**Fertigungsstätte** *Manufacturing Plant*
Dynaeon Ind. Co., Ltd.
Ta-Li Management Zone
Ching-Hsi, Dongguan
P.R. China

**Prüfzeichen** *Test Mark*
TÜV Rheinland Product Safety | BAUART GEPRÜFT / TYPE APPROVED

**Geprüft nach** *Tested acc. to*
EN 60950-1:2001+A11

**Zertifiziertes Produkt** (Geräteidentifikation) *Certified Product (Product Identification)*

**Lizenzentgelte - Einheit** *License Fee - Unit*

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 (Rated Voltage) : DC 5V ((X1)= 05); DC 12V ((X1)= 12); DC 24V ((X1)= 24)
Nennstrom (Rated Current) : siehe Anlage (see appendix)

TÜV Rheinland Product Safety GmbH — TÜV Rheinland — Zertifizierungsstelle — 3

ANLAGE (Appendix): 1

*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.*

**Zertifizierungsstelle**

**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

**Dipl.-Ing. F. Stoelzel**

## 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** E157868
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

**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 xxxxxxxxx, 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 th1rough 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

"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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## Fans, Electric Certified for Canada - Component

See General Information for Fans, Electric Certified for Canada - Component

**DYNAEON INDUSTRIAL CO LTD** E157868
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

**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 xxxxxxxxx, 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 th1rough 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

"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 , model designation and Recognized Component Mark for Canada, c RU .

Last Updated on 2008-02-18

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6.6. Electrical specifications for PWM production

USA Dynatron Corp.

## Electrical Specifications for PWM production

**Voltage**

Fan operating voltage shall be whthin the range 12V+/-1.2V.

**Current**

Peak fan current draw during start-up operation(with 13.2V applied,with fan operating in the free stream condifion)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 cnnector:PWM Frequency:Target frequency 25kHz, acceptable operational range 21 kHz to 28 Khz Maximum voltage for logic low:VIL=0.8V Absolute maximum current sourced:Imax=5mA(short circuit current) Absolute maximum voltage level:Vmax=5.25V(open circuit voltage)**

**Fan Speed Control**

**1.1Maximum 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 S peed Requirements**

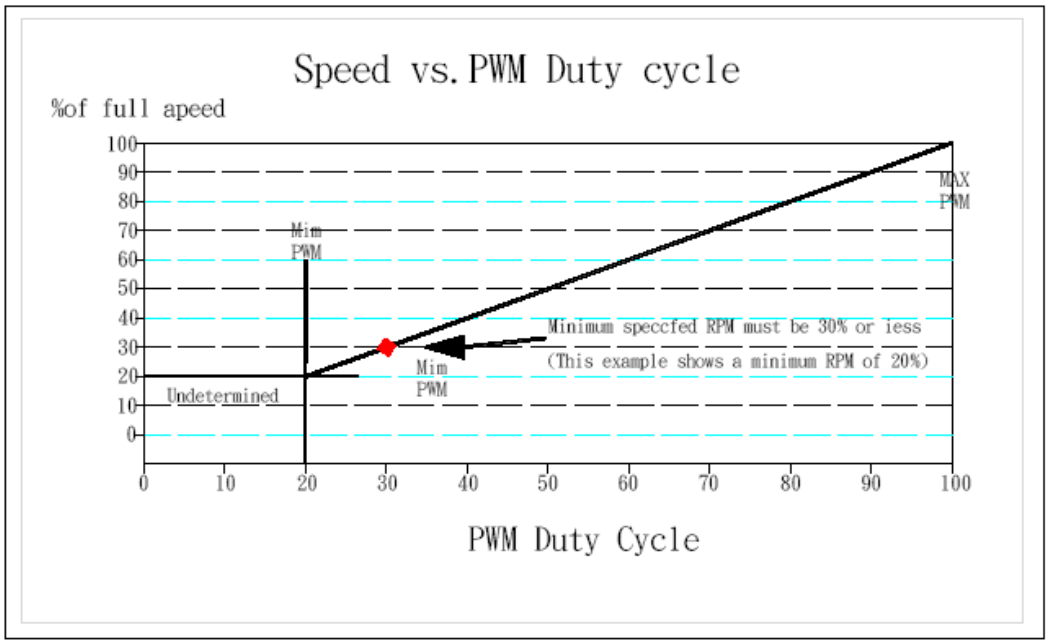
The vendor shall specify the minimum RPM and the corresponding PWM duty cycle. This specified minimum RPM shall be 30% of maximum RPM or less.The fan shall be able to start and run at this RPM. To allow a lower specified minimum RPM,it is acceptable to provide a higher PWM duty cycle to the fan motor 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.

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 ±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 floolw ing graphs and definitions show three recommended solutions to handle PWM duty cycles that are less than the minimum operational PRM,as a percentage of maximum.

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

# DYNATRONCORPORATION

***TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD***

# *Specification for Approval*

| | |
|---|---|
| Customer: | |
| Model Number: | watercooler pump |
| Part Number: | |
| Issued Date: | Wednesday, August 31, 2016 |
| Version: | A |

| Customer Approval | |
|---|---|
| Approval: | Check: |
| | |

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

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 –<br>Between Frame and Terminal | 10 M ohm at DC 500 V |
| 9. | Dielectric Strength –<br>Between Frame and Terminal | 5 mA (Max.)<br>@ 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<br>"-": Black; "+": Black; "s": Black. |
| 14. | Acoustical Noise | 30.00dBA |

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)<br>Frequency Range: 10Hz<->55Hz/30SEC.<br>Lineear Scanning 120 Cycle<br>Endurance Timer Per Axis: 30Min.<br>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)<br>Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.) |

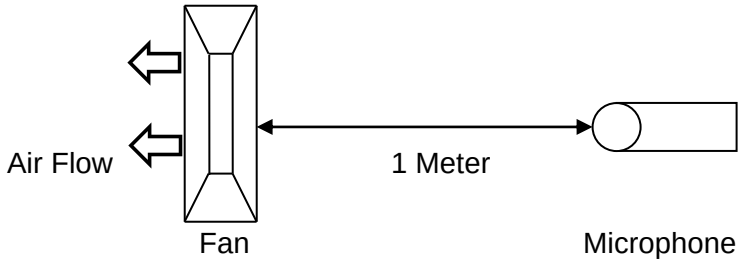
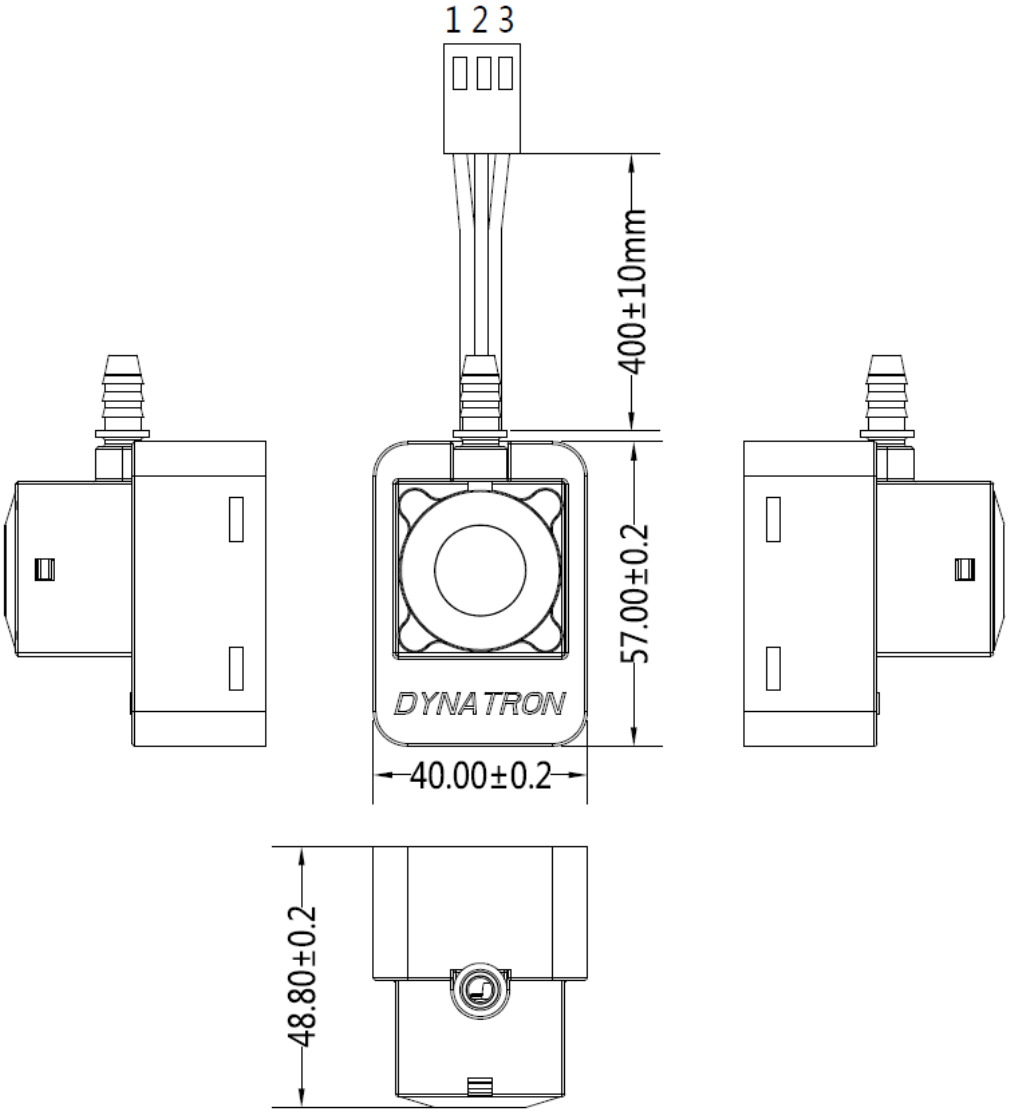



Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.

# 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 Protectio
# 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* |

***Dynatron Corporation*** hereby declares and certifies that all components manufactured

are RoHS compliant according to the definitions and restrictions given by the European Union's

Restriction (Directive 2002/95/EC) (Decision2011/65/EU)RoHS 2, on the restriction of the use of certain Hazardous Substances in the electrical and electronic equipment. Also, compliance to the most recent list of substances on the REACH candidate list.

**Number of substances on**

**the Candidate List: 168 (last updated: 17/12/2015)**

No exemptions are claimed in order for the part to be compliant with the RoHS directive.

***Dynatron Corporation /*** 政久興業股份有限公司證明所有產品,零件 (包括附屬品, 包裝類) 之環境管理物質完全符合 RoHS, WEEE, 及該環保標準之規定, 並承諾遵 循以上之證明.

***Dynatron Corporation.***
**33200 Western Ave,**
**Union City, CA 94587**
**www.Dynatron-corp.com**

**Title (職務):** ASSISTANT-MANAGER

**Signature (簽字):** Dan Lee

Date: 11 / 22 / 2019