DC MOTORS

www.dcm-mfg.com

DCM MANUFACTURING, INC.
3” DIAMETER MOTOR SELECTION CRITERIA

MOUNTING:
“3 in. Diameter Can style” motors are available with various stud extensions on a 2.312 bolt circle. Extensions may be on one or both sides of the motor. Consult DCM for availability of a specific length.

CUSTOMER SUPPLIED DATA:
Voltage: (6 thru 48 Volt normally available)
Motor Load: Speed, Torque, and Current.
(An existing motor can be tested by DCM & matched)
Shaft Diameter: Length (Single or Double Extension)
Material: (Carbon Steel Standard - Stainless Steel)

PERFORMANCE & LIFE:
Many factors influence the life of the motor. Both electrical and mechanical factors are involved. In general, if a motor runs cooler, it has a longer life. Factors such as bearing style (i.e. ball, sleeve, etc.), motor length, air flow thru vents or Over non-vented motors, and size of the brush components, all help determine the motor life in a given application.

DCM Series Wound DC Motors have the armature and field windings connected in a series circuit. These type motors normally drive loads that require precise speed regulation. Starting torque developed in series motors normally ranges between 300% and 375% of full load, but can be as high as 800% of full load torque. These motors can easily be configured in 2 & 3 speed, as well as reversible models.

DCM Permanent Magnet DC Motors produce high running torque, and provide a relatively simple, high efficiency DC drive as compared to wound field motors. High efficiency and a linear speed torque curve are primary advantages of a DCM Permanent Magnet DC motor. These motors are easily reversed by changing polarity.
ELECTRICAL SPECIFICATIONS

INSULATION: CLASS B (130° C)
VOLTAGE RATING: 6-48 VOLTS DC NOMINAL
EFFICIENCY: UP TO 75%
IMATION: CW, CCW, OR REVERSIBLE
BRUSH LIFE: UP TO 2,000 HOURS DEPENDING ON MODEL AND APPLICATION
UP TO 5,000 HOURS WITH SPECIAL BRUSHES & COMPONENTS

MECHANICAL SPECIFICATIONS

SHAFT: 1137-1144 CRS (STANDARD)
300/400 SERIES SS OR CUSTOM AS REQ'D
BEARINGS: PM IRON (STANDARD)
PM BRONZE OR BALL BEARINGS OPTIONAL
LUBRICATION: SYNTHETIC, LIFETIME LUBRICATED
LEADS: 10GA, TYPE GPT (80° C) (STANDARD)
OTHER GAUGES OR HIGHER RATINGS AS REQ'D
WIRE TERMINATIONS: 1/4˝ STRIP (STANDARD)
OTHER TERMINALS (I.E. #10 RING, BULLET) AS REQ'D
ELECTRICAL SPECIFICATIONS

- INSULATION: CLASS B (130°C)
- VOLTAGE RATING: 6-48 VOLTS DC NOMINAL
- EFFICIENCY: UP TO 80%
- ROTATION: CW, CCW, OR REVERSIBLE
- BRUSH LIFE: UP TO 2,000 HOURS DEPENDING ON MODEL AND APPLICATION

MECHANICAL SPECIFICATIONS

- ENCLOSURE: CARBON STEEL (VENTED OR NON-VENTED)
- SHAFT: 1137-1144 CRS (STANDARD) 300/400 SERIES SS OR CUSTOM AS REQ'D
- BEARINGS: PM IRON (STANDARD) PM BRONZE OR BALL BEARINGS OPTIONAL
- LUBRICATION: SYNTHETIC, LIFETIME LUBRICATED
- LEADS: 14GA AWG TYPE GPT (80°C) (STANDARD) OTHER GAUGES OR HIGHER RATINGS AS REQ'D
- WIRE TERMINATIONS: 1/4˝ STRIP (STANDARD) OTHER TERMINALS (I.E. #10 RING, BULLET) AS REQ'D
CUSTOM FLANGE MOUNT MOTOR

Contact Information:
Company Name: ____________________________
Customer Name: ____________________________
Title: ___________________________________________________________________

Company Address:
Street: ____________________________________________
City: _________________________ State: ______ Postal/Zip: ____________
Country Code: _______________ Phone:( ) _______________ Fax:( ) _______________
E-mail Address: ___________________________________________________________________

Motor Type: Series Wound DC Motor or Permanent Magnet DC Motor

Mechanical Configuration:
Face to Face Length (“A” Dimension): ____________________
Shaft Diameter (“F”): 1/4” or 5/16” or 3/8”
Shaft Material: 1137-1144 CRS (Standard) or Other: ____________________
Shaft Flat Length (Single - “C1” Dimension): ____________________ (Double - “C2” Dimension): ____________________
Shaft Flat Height (Single - “D1” Dimension): ____________________ (Double - “D2” Dimension): ____________________
Lead Exit Style (“C”): Black Grommet or Brass Eyelet or Molded Lead Grommet or Other: ____________________
Ventilation: Non-Vented or Axially Vented or Custom: ____________________

Performance Parameters:
Input Voltage: ____________________
Input Current: ____________________
Input Power: ____________________
Loaded Speed(s) (rpm): High: ___________ Med: ___________ Low: ___________
Max Current(s) (amps): High: ___________ Med: ___________ Low: ___________
Loaded Torque (oz-in): High: ___________ Med: ___________ Low: ___________

Part Application Information:
Estimated Annual Usage: ____________________
Shipment Lot Sizes: ____________________
Target Price: ____________________
Application: ____________________
End Product: ____________________
Special Instructions or Sketch: ____________________
**MODEL INFORMATION**

<table>
<thead>
<tr>
<th>PART#</th>
<th>VOLTS</th>
<th>TYPE</th>
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<tbody>
<tr>
<td>TA5000038</td>
<td>12VDC</td>
<td>PERMANENT MAGNET</td>
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<tr>
<td>TB5000026</td>
<td>24VDC</td>
<td>PERMANENT MAGNET</td>
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</table>

**FEATURES**
- BALL BEARINGS FRONT AND REAR
- MULTI-PURPOSE END CAP DESIGN FOR MOUNTING
- LONG LIFE
- VARIOUS SHAFT CONFIGURATIONS AVAILABLE

**SPECIFICATIONS**
- NOMINAL VOLTAGE: 26 VDC
- NOMINAL SPEED: 2600 RMP
- NOMINAL CURRENT: 3.5 A
- ROTATION: REVERSIBLE
- OPERATION: CONTINUOUS
- AMBIENT TEMP: -40° C +80° C

**APPLICATIONS**
- BLOWERS
- AXIAL SHIFT MOTORS
- REEL DRIVERS
- PUMPS
- BLOWERS FOR AUTOMOBILE AIR CONDITIONERS

**3” DIAMETER MOTOR**

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**GRAPH**
- Speed
- Current
- Torque (Oz - In)

**DIAGRAM**
- Dimensions
- Connector
- Terminal
- Wire Length
**MODEL INFORMATION**

<table>
<thead>
<tr>
<th>PART#</th>
<th>VOLTS</th>
<th>TYPE</th>
<th>SHAFT</th>
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</thead>
<tbody>
<tr>
<td>D-001-955BBS</td>
<td>12VDC</td>
<td>PERMANENT MAGNET</td>
<td>DOUBLE</td>
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</table>

**3” DIAMETER MOTOR**

![Diagram of 3” DIAMETER MOTOR]

- **Torque (Oz-IN)**
  - 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400

- **Speed (RPM)**
  - 5000 4500 4000 3500 3000 2500 2000 1500 1000 500 0

- **Current (Amps)**
  - 100 90 80 70 60 50 40 30 20 10 0

- **Diagram Dimensions**
  - 10.01 [254.25]
  - 4.51 [114.5]
  - 2.75 [69.85] TYP
  - 2.25 [57.15] TYP

- **Dimensions**
  - .3149 [8.0] TYP
  - .2728 [6.93]
  - .2736 [6.95]

- **Cable Information**
  - \( \phi.10 \) [\( \phi2.5 \)] CABLE BLACK (-)
  - \( \phi.10 \) [\( \phi2.5 \)] CABLE WHITE (+)
  - 7.28 [185.0] WIRE LENGTH

- **Other Information**
  - \( \phi2.95 \) [\( \phi75.0 \)]
  - .160 [6.3] FEMALE CONNECTOR WITH HEAT SINK INSULATION
**DC MOTORS**

**PERMANENT MAGNET**

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**MODEL INFORMATION**

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<tr>
<th>PART#</th>
<th>VOLTS</th>
<th>WATTS</th>
<th>TYPE</th>
<th>SHAFT</th>
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<td>180W</td>
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*STANDARD BUILD 24VDC AND VARIOUS SHAFT LENGTHS AND CONNECTORS AVAILABLE*

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**3.09” DIAMETER MOTOR**

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**TYPICAL PERFORMANCE @ 13.5VDC**

<table>
<thead>
<tr>
<th>TORQUE (OZ-IN)</th>
<th>SPEED (RPM)</th>
<th>CURRENT (AMPS)</th>
<th>VOLTAGE (VOLTS)</th>
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<td>3980</td>
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<tr>
<td>70</td>
<td>3550</td>
<td>22.1</td>
<td>13.5</td>
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</tbody>
</table>
3" DIAMETER MOTOR

PART# | VOLTS | TYPE         | SHAFT
-----|-------|--------------|-------
MTR-5 | 12VDC | PERMANENT MAGNET | DOUBLE

**Model Information**

- **Part Number**: MTR-5
- **Volts**: 12VDC
- **Type**: Permanent Magnet
- **Shaft**: Double

**Dimensions**

- Orange (+): 1.45 [36.8]
- Black (-): 0.312 [7.9]
- Ref: Essex 521218A2 (Male)
  Essex 541217A4 (Female)
- Torque: 4.5±5 [114±13]
- Shaft Diameter: 0.280±005 [7.1±0.1]
- Shaft Length: 10.00 [254]
- Diameter: 4.98 [126.6]
- Shaft Diameter: 2.51 [63.7]

**Speed vs. Torque Graph**

- **SPEED (RPM)** vs. **CURRENT (AMPS)**
  - **SPEED** (Linear)
  - **CURRENT** (Linear)

**Graph Details**

- **Torque (Oz - In)**:
  - 0 to 210
- **Speed (RPM)**:
  - 0 to 5500
- **Current (Amperes)**:
  - 0 to 44
PERMANENT MAGNET

**MODEL INFORMATION***

<table>
<thead>
<tr>
<th>PART#</th>
<th>VOLTS</th>
<th>WATTS</th>
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<td>225W</td>
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*STANDARD BUILD 24VDC AND VARIOUS SHAFT LENGTHS AVAILABLE*

**4˝ DIAMETER MOTOR**

**TYPICAL PERFORMANCE @ 13.5VDC 12V-160W 4-POLE PM MOTORS**

<table>
<thead>
<tr>
<th>TORQUE (OZ-IN)</th>
<th>SPEED (RPM)</th>
<th>CURRENT (AMPS)</th>
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**TYPICAL PERFORMANCE @ 13.5VDC 12V-225W 4-POLE PM MOTORS**

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4" DIAMETER MOTOR

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<th>PART#</th>
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**MODEL INFORMATION**

**PART#**

**VOLTS**

**WATTS**

**TYPE**

**SHAFT**

**TORQUE (OZ - IN)**

**SPEED (RPM)**

**CURRENT (AMPS)**

**SPEED**

**CURRENT**