

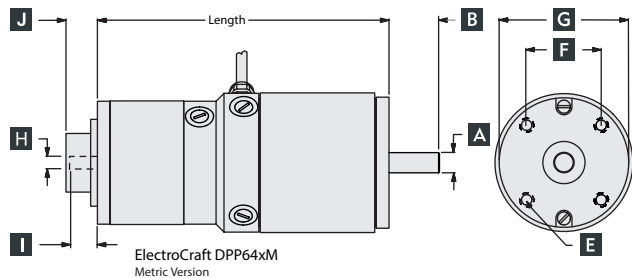
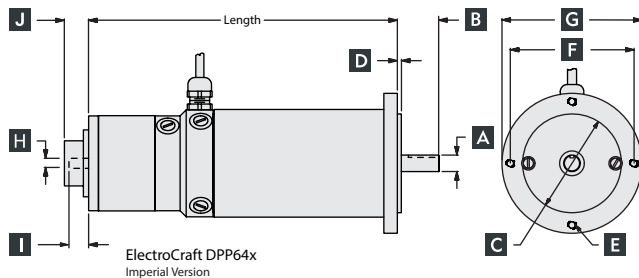
### High-Torque. Long life.

Our ElectroCraft DirectPower™ Plus 640 Series features a rugged, heavy-gauge steel housing construction for long-life and durability. This high-efficiency motor includes dynamically balanced armatures, sealed ball bearings, and replaceable brushes.



| DPP640 BRUSH MOTOR |                         |
|--------------------|-------------------------|
| <b>Size</b>        | 4.1 inches or 106 mm    |
| <b>Peak Torque</b> | to 240 oz-in or 169 Ncm |

| Model   | MAX Length | MAX Length (with tachometer) | A                      | B                  | C                    | D                  | E   | F                        | G                               | H                      | I                 | J                    |
|---------|------------|------------------------------|------------------------|--------------------|----------------------|--------------------|---|--------------------------|---------------------------------|------------------------|-------------------|----------------------|
|         |            |                              | Front Shaft Diameter   | Front Shaft Length | Pilot Diameter       | Pilot Length (Ref) | Mount Hole Callout (Ref)  | Mount Hole Spacing (Ref) | Flange External Dimension (Ref) | Rear Shaft Diameter    | Rear Shaft Length | Encoder Length (max) |
| DPP642  | 4.1 in     | 6.9 in                       | 0.5000 in<br>0.4995 in | 1.282 in<br>±0.03  | 3.000 in<br>2.997 in | 0.12 in            | (4) 1/4-20 UNC-2B<br>THRU EQ SP on<br>3.750 in D.B.C.           | 2.651 in                 | 4.25 in OD                      | 0.3750 in<br>0.3747 in | 0.43 in<br>±0.030 | 0.43 in              |
| DPP643  | 5.7 in     | 8.5 in                       |                        |                    |                      |                    |   |                          |                                 |                        |                   |                      |
| DPP644  | 6.7 in     | 9.5 in                       |                        |                    |                      |                    |   |                          |                                 |                        |                   |                      |
| DPP642M | 106 mm     | 175 mm                       | 12.00 mm<br>11.99 mm   | 30 mm<br>±0.762    | N/A                  | N/A                | (4) M6 x 1-6H<br>7.62 mm<br>Deep Min EQ SP on<br>63.5 mm D.B.C. | 63.5 mm                  | 78 mm OD                        | 8.00 mm<br>7.99 mm     | 10.9 mm<br>±0.762 | 10.9 mm              |
| DPP643M | 146 mm     | 215 mm                       |                        |                    |                      |                    |   |                          |                                 |                        |                   |                      |
| DPP644M | 173 mm     | 242 mm                       |                        |                    |                      |                    |   |                          |                                 |                        |                   |                      |



### DPP640 Model Number

1 - Frame Size  
(Imperial or Metric)

**D P P 6 4 2**

Product Name      Frame Size

2 - Torque

**T - 1 0 0**

Optional Tachometer      Continuous Torque (oz-in)

3 - Winding

4 - Features

**V 6 0 - 1 2 2 - C**

Voltage      Rear Shaft      Front Shaft      Lead Shaft Option      Encoder

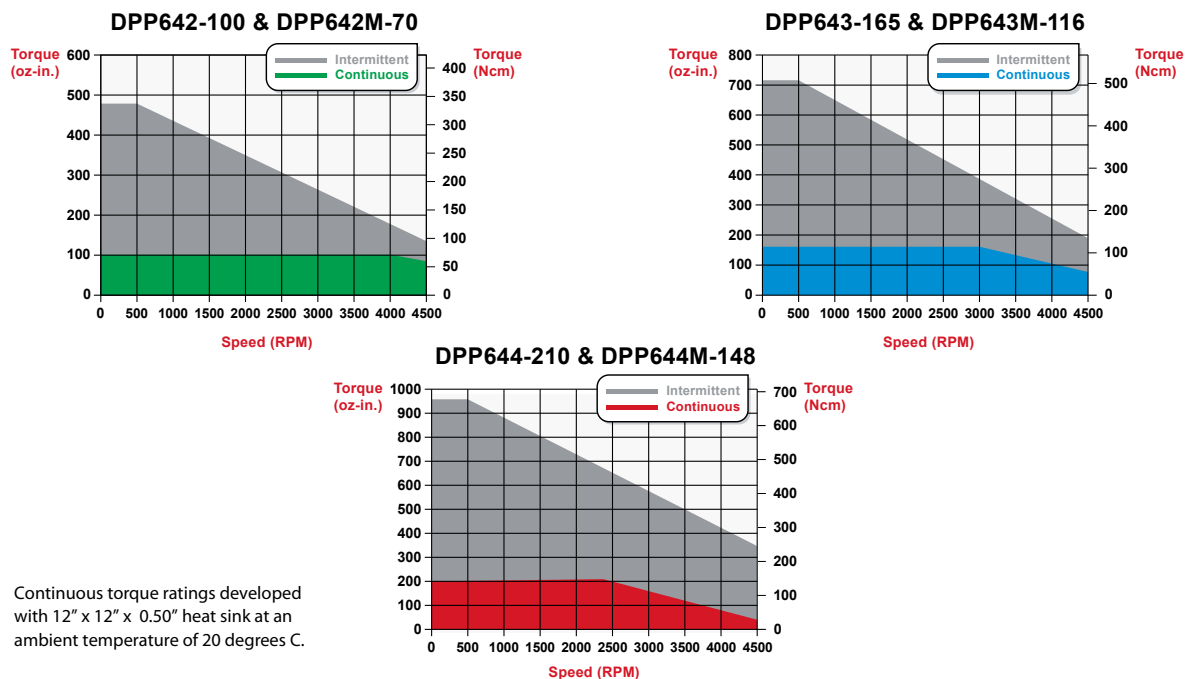
**D P P 6 4 2 M**

Product Name      Frame Size      Optional Metric

**T - 7 0**

Optional Tachometer      Continuous Torque (Ncm)

## DPP640 - Performance



## DPP640 Mechanical / Winding Data

### DPP640 Stack/Torque Sizes

| Stack Size Models                       | DPP642-100 | DPP643-165 | DPP644-210 |
|---|------------|------------|------------|
| Continuous Stall Torque (oz-in)         | 100        | 165        | 210        |
| Continuous Stall Torque (Ncm)           | 70.61      | 116.51     | 148.28     |
| Peak Torque (oz-in)                     | 480        | 775        | 960        |
| Peak Torque (Ncm)                       | 338.93     | 547.23     | 677.86     |
| Rotor Inertia (oz-in-sec <sup>2</sup> ) | 0.0190     | 0.0300     | 0.0370     |
| Rotor Inertia (g-cm <sup>2</sup> )      | 1341.8     | 2118.6     | 2612.9     |
| Thermal Resistance (C / Watts)          | 2.7        | 2.2        | 1.9        |
| Weight (lbs)                            | 8.0        | 10.5       | 12.0       |
| Weight (Kg)                             | 3.62       | 4.76       | 5.44       |
| Length (inches)                         | 4.1        | 5.7        | 6.7        |
| Length (mm)                             | 10.4       | 14.5       | 17.0       |
| Number of Poles                         | 2          | 2          | 2          |

### DPP640 Winding Options

| Winding Models                     | 100V48 | 100V60 | 165V48 | 165V60 | 210V48 | 210V60 |
|------------------------------------|--------|--------|--------|--------|--------|--------|
| Design Voltage (VDC)               | 48     | 60     | 48     | 60     | 48     | 60     |
| Continuous Current (Amps)          | 6      | 5      | 6      | 6      | 7      | 5      |
| Peak Current (Amps)                | 25     | 20     | 30     | 23     | 28     | 22     |
| Voltage Constant ±10% (VDC/kRPM)   | 13.7   | 17.5   | 19.3   | 24.8   | 25.2   | 32.4   |
| Torque Constant ±10% (oz-in / Amp) | 18.5   | 23.6   | 26.1   | 33.6   | 34.1   | 43.8   |
| Torque Constant ±10% (Ncm / Amp)   | 13.064 | 16.665 | 18.431 | 23.727 | 24.080 | 30.930 |
| Resistance ±10% (Ohms)             | 1.0    | 1.5    | 1.2    | 1.5    | 1.1    | 1.7    |
| Inductance ±10% (mH)               | 1.2    | 2.0    | 1.2    | 2.0    | 2.0    | 3.3    |
| Motor Constant (oz-in / √ Watt)    | 18.54  | 19.27  | 24.2   | 27.84  | 32.43  | 33.58  |
| Motor Constant (Nm / √ Watt)       | 2.09   | 2.18   | 2.73   | 3.15   | 3.66   | 3.79   |
| Electrical Constant (msec)         | 1.23   | 1.33   | 1.04   | 1.37   | 1.81   | 1.94   |
| Mechanical Constant (msec)         | 7.83   | 7.24   | 7.26   | 5.48   | 4.98   | 4.65   |

