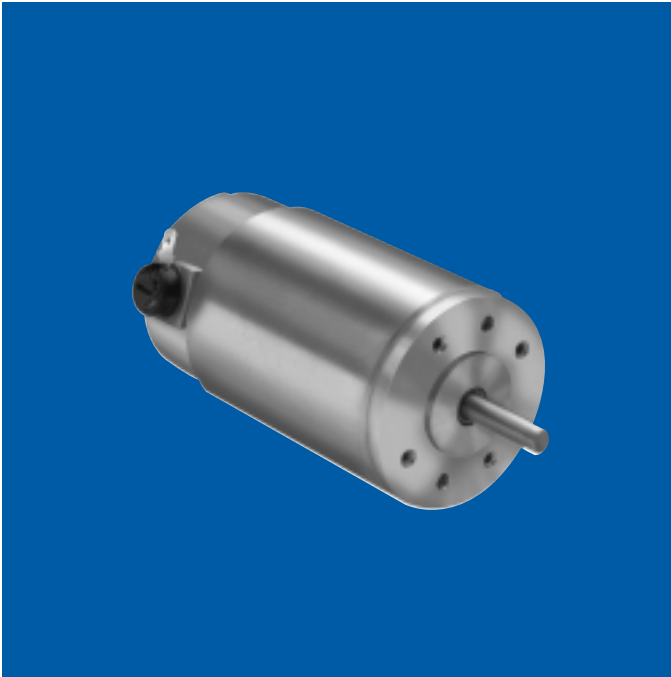


# IM-21 MOTORS

DC Permanent Magnet Motors

# E-2600

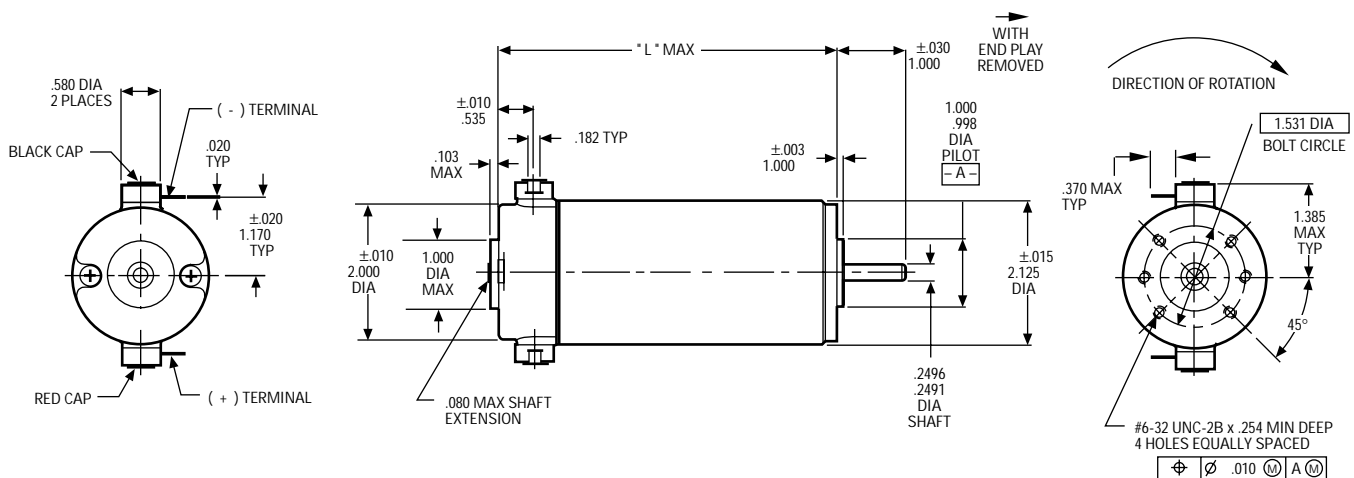


power rating: To .1 hp (74.6 W)  
 voltage: 12, 19.1, 24, 30.3 standard windings  
 weight: 26 to 46 ozs.  
 armature: Skewed for lower cogging torque  
 inertia: See table, opposite page  
 electrical time constant: 1.6 milliseconds max  
 mechanical time constant: 10 milliseconds max  
 typical no load torque: 2.0 oz. in.  
 shaft: Precision-ground and hardened stainless steel.  
 Options: length, flats, pinions, gears  
 terminals: Tab type to mate with Amp 187 series push-on receptacles, or equivalent  
 magnets: High energy ceramic to withstand high pulse currents without demagnetizing  
 bearings:

Ball: Pre-loaded to withstand higher side loads and low end play  
 Sleeve: Self-aligning and life lubricated to withstand a 2-lb. side load with .003" to .040" axial end play

cover: Steel housing  
 end bells: Die-cast zinc  
 winding insulation rating: 180°C  
 winding temperature rise: \*\*\*See chart, opposite page  
 options available:  
 • EMI suppression  
 • Optical encoders

## Dimensions



ROTATION (VIEWED FROM SHAFT END)  
 CW - POSITIVE VOLTAGE TO (+) NEGATIVE VOLTAGE TO (-)  
 CCW - REVERSE POLARITY

**NOTE:** Consult factory prior to preparing spec control prints. Dimensions are for reference only.

## Standard Part Numbers and Data

| VOLTAGE (VDC)                | A                        |                            | B                                     |                            | C                             |                                 |                                     | D                            |   |                            | STANDARD PART NUMBERS* |                 |
|------------------------------|--------------------------|----------------------------|---------------------------------------|----------------------------|-------------------------------|---------------------------------|-------------------------------------|------------------------------|---|----------------------------|------------------------|-----------------|
|                              | SPEED ±10% no load (rpm) | TORQUE (oz. in.) max rated | TORQUE (oz. in.) ** theoretical stall | CURRENT (amps) max no load | CURRENT (amps) max rated load | CURRENT (amps) ** nominal stall | TORQUE CONSTANT $K_T$ (oz. in./amp) | TERMINAL RESISTANCE R (ohms) | INERTIA (oz. in. sec <sup>2</sup> ) x10 <sup>-3</sup> | TEMP. RISE (***) (°C/watt) |                        |                 |
| Motor Length "L" Max. 3.203" |                          |                            |                                       |                            |                               |                                 |                                     |                              |   |                            | ball bearings          | sleeve bearings |
| 12.0                         | 4200                     | 15                         | 95                                    | .63                        | 5.4                           | 20.7                            | 3.82                                | 0.58                         | 2.0   | 6.0                        | 537A131-1              | 537A136-1       |
| 19.1                         |                          |                            |                                       | .41                        | 3.5                           | 16.5                            | 5.88                                | 1.16                         |   |                            | -2                     | -2              |
| 24.0                         |                          |                            |                                       | .32                        | 2.7                           | 12.8                            | 7.56                                | 1.87                         |   |                            | -3                     | -3              |
| 30.3                         |                          |                            |                                       | .26                        | 2.4                           | 10.3                            | 9.45                                | 2.95                         |   |                            | -4                     | -4              |
| Motor Length "L" Max. 3.703" |                          |                            |                                       |                            |                               |                                 |                                     |                              |   |                            |                        |                 |
| 12.0                         | 3700                     | 20                         | 140                                   | .60                        | 6.1                           | 26.7                            | 4.28                                | 0.45                         | 2.9   | 5.6                        | 537A132-1              | 537A137-1       |
| 19.1                         |                          |                            |                                       | .38                        | 3.9                           | 21.2                            | 6.76                                | 0.90                         |   |                            | -2                     | -2              |
| 24.0                         |                          |                            |                                       | .30                        | 3.1                           | 16.7                            | 8.60                                | 1.44                         |   |                            | -3                     | -3              |
| 30.3                         |                          |                            |                                       | .23                        | 2.4                           | 13.0                            | 11.06                               | 2.34                         |   |                            | -4                     | -4              |
| Motor Length "L" Max. 4.078" |                          |                            |                                       |                            |                               |                                 |                                     |                              |   |                            |                        |                 |
| 12.0                         | 3750                     | 24                         | 190                                   | .63                        | 7.4                           | 34.3                            | 4.15                                | 0.35                         | 3.4   | 4.7                        | 537A133-1              | 537A138-1       |
| 19.1                         |                          |                            |                                       | .39                        | 4.5                           | 27.7                            | 6.99                                | 0.69                         |   |                            | -2                     | -2              |
| 24.0                         |                          |                            |                                       | .32                        | 3.7                           | 22.6                            | 8.54                                | 1.06                         |   |                            | -3                     | -3              |
| 30.3                         |                          |                            |                                       | .26                        | 2.9                           | 17.7                            | 10.87                               | 1.71                         |   |                            | -4                     | -4              |
| Motor Length "L" Max. 4.453" |                          |                            |                                       |                            |                               |                                 |                                     |                              |   |                            |                        |                 |
| 12.0                         | 3100                     | 30                         | 220                                   | .56                        | 7.5                           | 35.3                            | 5.18                                | 0.34                         | 4.1   | 4.3                        | 537A134-1              | 537A139-1       |
| 19.1                         |                          |                            |                                       | .33                        | 4.6                           | 26.9                            | 8.46                                | 0.71                         |   |                            | -2                     | -2              |
| 24.0                         |                          |                            |                                       | .27                        | 3.8                           | 21.8                            | 10.35                               | 1.10                         |   |                            | -3                     | -3              |
| 30.3                         |                          |                            |                                       | .21                        | 3.0                           | 17.1                            | 13.17                               | 1.77                         |   |                            | -4                     | -4              |
| Motor Length "L" Max. 4.953" |                          |                            |                                       |                            |                               |                                 |                                     |                              |   |                            |                        |                 |
| 12.0                         | 3175                     | 35                         | 290                                   | .47                        | 8.8                           | 46.2                            | 5.15                                | 0.26                         | 5.0   | 4.0                        | 537A135-1              | 537A140-1       |
| 19.1                         |                          |                            |                                       | .38                        | 5.7                           | 37.5                            | 7.90                                | 0.51                         |   |                            | -2                     | -2              |
| 24.0                         |                          |                            |                                       | .30                        | 4.4                           | 28.9                            | 10.15                               | 0.83                         |   |                            | -3                     | -3              |
| 30.3                         |                          |                            |                                       | .23                        | 3.4                           | 22.6                            | 12.97                               | 1.34                         |   |                            | -4                     | -4              |

\*\* Because of brush drop and field distortion, current and torque indicated will not always be attainable

\*\*\* Winding temperature rise measured when mounted to 8.00" x .25" aluminum plate. Multiply by 1.4 when mounted to a heat insulator.

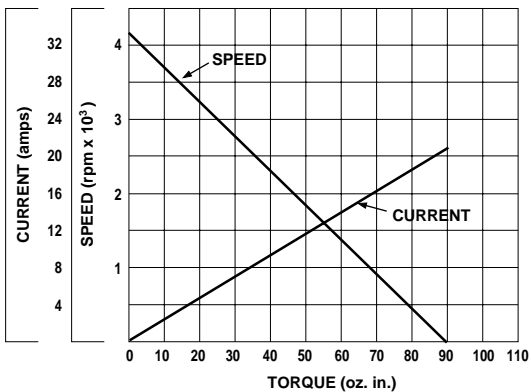
### \*When You Order

Units shown above are standard and may be ordered by part number. Remember to include armature winding dash number, EXAMPLE: 537A131-1

### Typical Motor Performance

Part No.: 537A131-1

Voltage: 12 VDC



Part No.: 537A135-3

Voltage: 24 VDC

