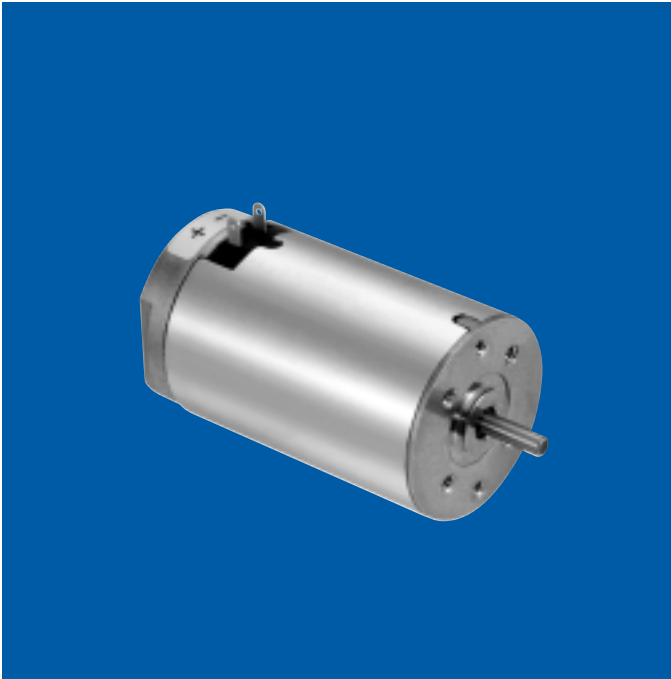


# IM-15 MOTORS

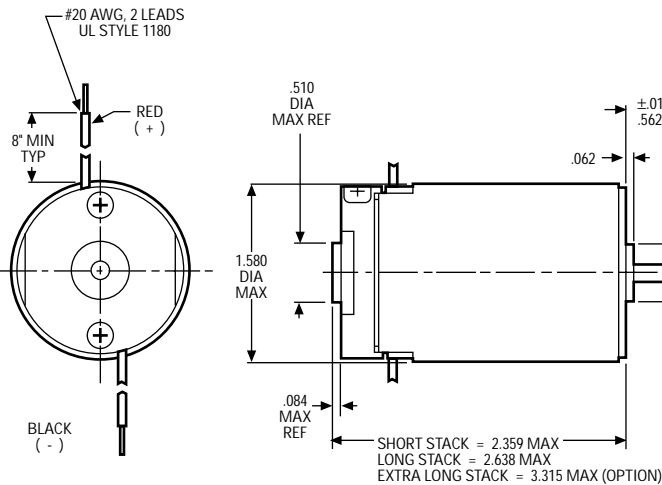
DC Ceramic Permanent Magnet Motors

# E-2400

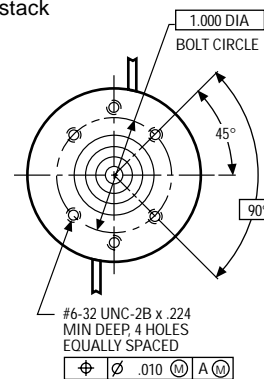


power rating: To .03 hp (22.4 W)  
 voltage: 12 or 24 VDC  
 weight: 9 ounces (short stack)  
 11 ounces (long stack)  
 inertia: See table, opposite page  
 electrical time constant: 1.0 millisecond max  
 mechanical time constant: 25.0 milliseconds max  
 typical no load torque: 0.6 oz. in.  
 shaft: Precision-ground and hardened stainless steel.  
 Options: length, flats, pinions, gears. Shaft material may change depending upon options selected  
 magnets: High energy ceramic to provide greater torque and high-pulse current without demagnetizing  
 bearings:  
 Ball: Pre-loaded to withstand higher side loads  
 Sleeve: Self-aligning sleeve bearings are life-lubricated and withstand a 2-lb. side load and have .002" to .027" axial end play  
 cables/leads: 8" min. #20 AWG 2 leads UL style 1180  
 cover: Steel housing, zinc plate  
 end bells: Die-cast zinc  
 winding insulation rating: 180°C  
 winding temperature rise: \*\*See table, opposite page  
 options available:

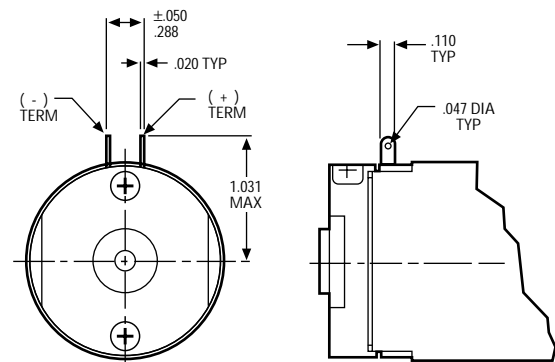
## Dimensions



- Gear train (see Bulletin E-2430 and E-2435)
- EMI suppression
- Extra long stack



## Terminal Configuration



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

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

# E-2400

## Standard Part Numbers and Data

| VOLTAGE (VDC)                        | SPEED ±10% NO LOAD (rpm) | CURRENT NO LOAD (max amps) | RATED TORQUE (oz. in.) | CURRENT AT RATED TORQUE (max amps) | INERTIA (oz. in. sec. <sup>2</sup> x 10 <sup>-4</sup> ) | TEMP. ** RISE (°C/ watt) | TORQUE CONSTANT (oz. in./ amp) | RESISTANCE (ohms) | STANDARD PART NUMBER* |                             |
|--------------------------------------|--------------------------|----------------------------|------------------------|------------------------------------|---|--------------------------|--------------------------------|-------------------|-----------------------|-----------------------------|
|                                      |                          |                            |                        |                                    |   |                          |                                |                   | WITH LEADS            | WITH QUICK CONNECT TERMINAL |
| <b>Short Stack — Sleeve Bearings</b> |                          |                            |                        |                                    |   |                          |                                |                   |                       |                             |
| 12                                   | 5,200                    | .250                       | 4.0                    | 2.0                                | 4.75  | 8.5                      | 2.95                           | 2.25              | 403A6005-2            | 403A6075-2                  |
| 24                                   | 5,200                    | .125                       | 4.0                    | 1.0                                | 4.75  | 8.5                      | 6.00                           | 9.00              | 403A6005-3            | 403A6075-3                  |
| 12                                   | 5,950                    | .300                       | 5.0                    | 2.6                                | 4.60  | 8.5                      | 2.60                           | 1.10              | 403A278-2             | 403A280-2                   |
| 24                                   | 6,000                    | .180                       | 5.0                    | 1.3                                | 4.60  | 8.5                      | 5.30                           | 4.50              | 403A278-3             | 403A280-3                   |
| <b>Long Stack — Sleeve Bearings</b>  |                          |                            |                        |                                    |   |                          |                                |                   |                       |                             |
| 12                                   | 5,200                    | .300                       | 5.0                    | 2.3                                | 6.00  | 7.0                      | 3.00                           | 2.00              | 403A6006-2            | 403A6076-2                  |
| 24                                   | 5,200                    | .150                       | 5.0                    | 1.2                                | 6.00  | 7.0                      | 6.10                           | 6.60              | 403A6006-3            | 403A6076-3                  |
| 12                                   | 6,400                    | .330                       | 6.0                    | 3.1                                | 5.90  | 7.0                      | 2.50                           | 0.85              | 403A279-2             | 403A281-2                   |
| 24                                   | 6,150                    | .180                       | 6.0                    | 1.6                                | 5.90  | 7.0                      | 5.20                           | 3.50              | 403A279-3             | 403A281-3                   |
| <b>Short Stack — Ball Bearings</b>   |                          |                            |                        |                                    |   |                          |                                |                   |                       |                             |
| 12                                   | 5,200                    | .250                       | 4.0                    | 2.0                                | 4.75  | 8.5                      | 2.95                           | 2.25              | 403A6007-2            | 403A6077-2                  |
| 24                                   | 5,200                    | .125                       | 4.0                    | 1.0                                | 4.75  | 8.5                      | 6.00                           | 9.00              | 403A6007-3            | 403A6077-3                  |
| 12                                   | 5,950                    | .300                       | 5.0                    | 2.6                                | 4.60  | 8.5                      | 2.60                           | 1.10              | 403A282-2             | 403A284-2                   |
| 24                                   | 6,000                    | .180                       | 5.0                    | 1.3                                | 4.60  | 8.5                      | 5.30                           | 4.50              | 403A282-3             | 403A284-3                   |
| <b>Long Stack — Ball Bearings</b>    |                          |                            |                        |                                    |   |                          |                                |                   |                       |                             |
| 12                                   | 5,200                    | .300                       | 5.0                    | 2.3                                | 6.00  | 7.0                      | 3.00                           | 2.00              | 403A6008-2            | 403A6078-2                  |
| 24                                   | 5,200                    | .150                       | 5.0                    | 1.2                                | 6.00  | 7.0                      | 6.10                           | 6.60              | 403A6008-3            | 403A6078-3                  |
| 12                                   | 6,400                    | .330                       | 6.0                    | 3.1                                | 5.90  | 7.0                      | 2.50                           | 0.85              | 403A283-2             | 403A285-2                   |
| 24                                   | 6,150                    | .180                       | 6.0                    | 1.6                                | 5.90  | 7.0                      | 5.20                           | 3.50              | 403A283-3             | 403A285-3                   |

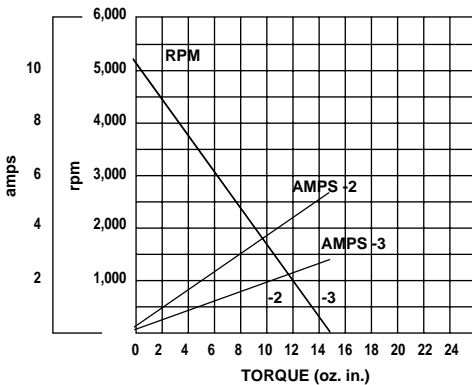
\*\*Winding temperature rise measured when mounted to 8.00" x 8.00" x .25" aluminum plate. Multiply by 1.4 when mounted to a heat insulator

### \*When You Order

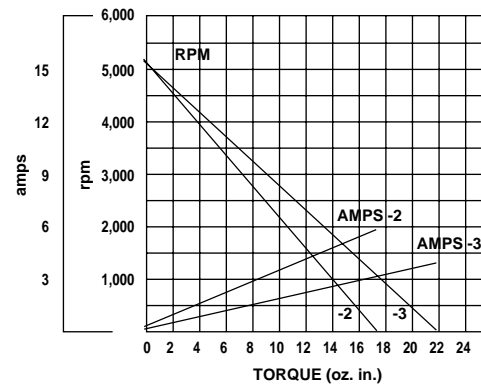
Units shown above are standard and may be ordered by part number. Remember to include armature winding dash number, EXAMPLE: 403A6005-2

## Typical Motor Performance

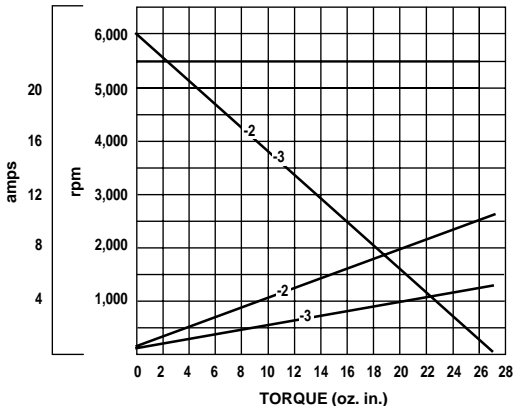
Short Stack Motors  
Part Nos.: 403A6005, 6007, 6075, 6077



Long Stack Motors  
Part Nos.: 403A6006, 6008, 6076, 6078



Part Nos.: 403A278, 403A280, 403A282, 403A284



Part Nos.: 403A279, 403A281, 403A283, 403A285

