

**SPECIFICATIONS:**

|   |   |
|---|---|
| NUMBER OF PHASES: 2                         | ROTOR INERTIA: 38 g-cm <sup>2</sup> ( 0.21 oz-in <sup>2</sup> ) NOM |
| STEPS PER REVOLUTION: 400                   | DETENT TORQUE: 12 mNm ( 1.7 oz-in) MIN                              |
| STEP ANGLE: 0.9°                            | BEARINGS: 625ZZ   |
| STEP TO STEP ACCURACY: ±0.045° [1], [2]     | INSULATION CLASS: B   |
| POSITIONAL ACCURACY: ±5% [1], [3]           | HYSTERESIS: N/A%  |
| SHAFT RUNOUT: 0.03 mm T.I.R. MAX            | TEMP. RISE: 80 °C MAX. [9]  |
| RADIAL PLAY: 0.02 mm MAX (.5KG RADIAL LOAD) | OPERATING TEMP. RANGE: -20 TO+50 °C                                 |
| END PLAY: 0.08 mm MAX (.5KG AXIAL LOAD)     | STORAGE TEMP. RANGE: -30 TO+70 °C                                   |
| MAXIMUM RADIAL LOAD: 21N ( 4.72lb)          | RELATIVE HUMIDITY RANGE: 15 TO 85 %                                 |
| MAXIMUM AXIAL LOAD: 10N ( 2.25lb)           | WEIGHT: 0.23 kg ( 0.51 lb)  |

|                 | [7]                             | [8]                            | [1]                 | [1]                     |                            |
|-----------------|---------------------------------|--------------------------------|---------------------|-------------------------|----------------------------|
| SPECIFICATION   | RESISTANCE PER PHASE (ohm ±10%) | INDUCTANCE PER PHASE (mH ±20%) | RATED CURRENT (amp) | HOLDING TORQUE (Nm MIN) | HOLDING TORQUE (oz-in Min) |
| CONNECTION      |                                 |                                |                     |                         |                            |
| BI-POLAR SERIES | 20                              | 35                             | 0.5                 | 0.26                    | 36.82                      |

NOTES, UNLESS OTHERWISE SPECIFIED:

- [1] MEASUREMENTS MADE AT RATED CURRENT IN EACH PHASE.
- [2] BETWEEN ANY TWO ADJACENT FULL STEP POSITIONS.
- [3] MAXIMUM ERROR IN 360°.
- 4. HIPOT 500 VAC, 60 Hz FOR ONE MINUTE.
- 5. LEADS: 4, AWG 26, 7 STRAND MIN., UL AND CSA APPROVED, UL 1007
- 6. INSULATION RESISTANCE: 100 MEGOHMS MIN AT 500 VDC.
- [7] AS MEASURED ACROSS EACH PHASE.
- [8] AS MEASURED ACROSS EACH PHASE USING AN A.C. INDUCTANCE BRIDGE AT 1 KHz.
- [9] AS MEASURED BY THE CHANGE IN RESISTANCE METHOD, WITH RATED CURRENT APPLIED TO 2 PHASES; WITH MOTOR AT REST.
- [10] ADD "D" TO END OF PART NUMBER IF DOUBLE SHAFT IS REQUIRED. ENCODER HOLES INCLUDED WITH REAR SHAFT VERSION ONLY.
- 11. ROTOR & STATOR LAMINATED CONSTRUCTION.
- 12. THIS MOTOR IS MANUFACTURED IN COMPLIANCE WITH THE CURRENT EU RoHS DIRECTIVE.
- [13] MOTOR LABEL TO INCLUDE "ROHS" COMPLIANT, AMP P/N, 'MADE IN (COUNTRY OF ORIGIN)', AND DATE CODE.
- 14. HIGH TORQUE MOTOR DESIGN

HT17-221

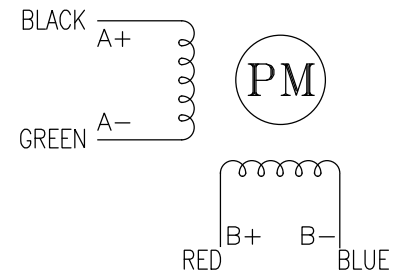
REVISIONS

| ECO NO. | REV | DESCRIPTION         | DATE    | APPROVED  |
|---------|-----|---------------------|---------|-----------|
| 6947    | A   | PRELIMINARY RELEASE | 4/11/14 | D.MACLEOD |
| 7048    | B   | ERROR CORRECTION    | 8/11/14 | D.MACLEOD |
| 7446    | C   | REVISE NOTE 12      | 6/6/16  | J KORDIK  |
| 8250    | D   | ADD UL MARK, SPECS  | 6/5/19  | J KORDIK  |
| -       | -   | -                   | -       | -         |
| -       | -   | -                   | -       | -         |
| -       | -   | -                   | -       | -         |
| -       | -   | -                   | -       | -         |
| -       | -   | -                   | -       | -         |
| -       | -   | -                   | -       | -         |
| -       | -   | -                   | -       | -         |
| -       | -   | -                   | -       | -         |

LABEL DETAIL



PHASE DETAIL



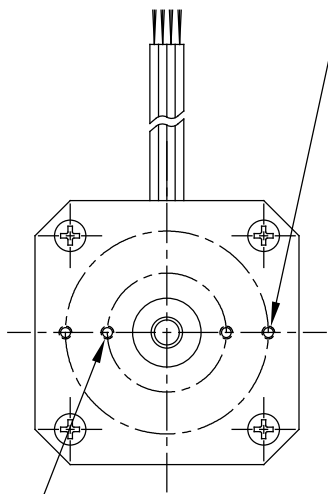
FULL STEP SWITCHING SEQUENCE  
BI-POLAR, FACING MOUNTING END

| STEP | A+ | A- | B+ | B- |       |
|------|----|----|----|----|-------|
| 0    | +  | -  | +  | -  | CCW ↑ |
| 1    | -  | +  | +  | -  |       |
| 2    | -  | +  | -  | +  |       |
| 3    | +  | -  | -  | +  |       |
| 4    | +  | -  | +  | -  |       |

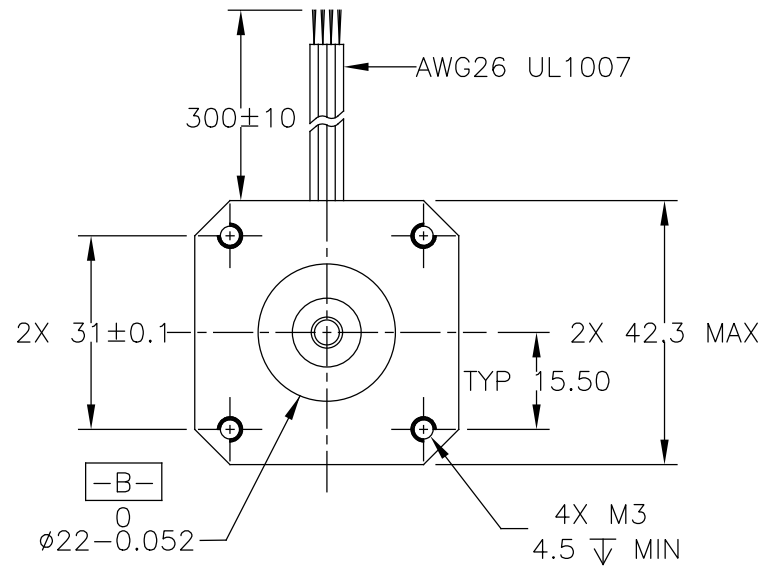
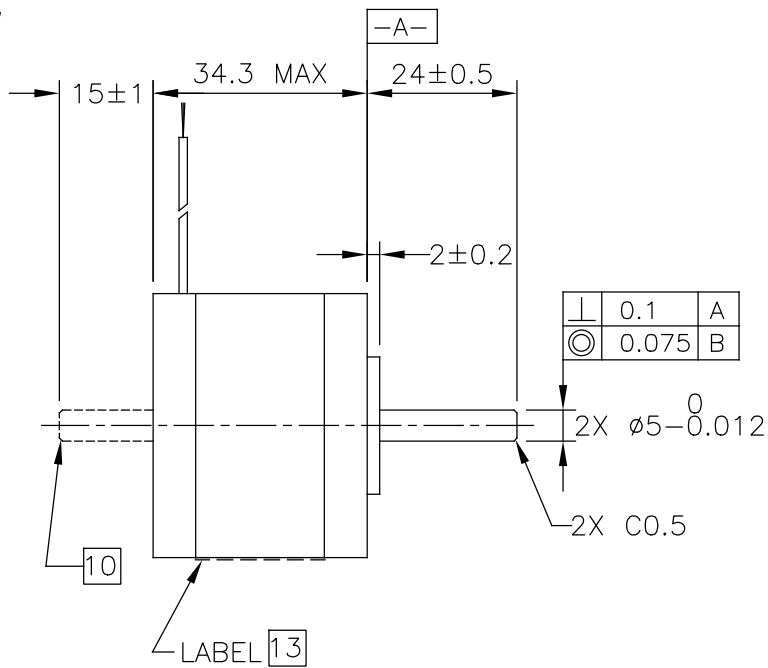
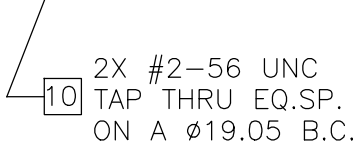
CW ↓


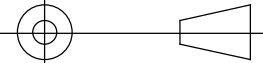
|                    |         |                               |                               |                     |          |
|--------------------|---------|-------------------------------|-------------------------------|---------------------|----------|
| CONTRACT NO.<br>-  |         | APPLIED MOTION PRODUCTS, INC. |                               |                     |          |
| APPROVALS          | DATE    | <b>STEP MOTOR OUTLINE</b>     |                               |                     |          |
| DRAWN<br>K. KESLER | 8/11/14 |                               |                               |                     |          |
| CHECKED<br>-       | -       | <b>B</b>                      | COMPUTER DATA<br>BASE DRAWING | DWG NO.<br>HT17-221 | REV<br>D |
| APPROVED<br>-      | -       |                               | SCALE: NONE                   | SHEET 1 OF 2        |          |
| APPROVED<br>-      | -       |                               |                               |                     |          |

2X #2-56 UNC  
TAP THRU EQ.SP.  
ON A  $\phi 32.5$  B.C.



2X #2-56 UNC  
TAP THRU EQ.SP.  
ON A  $\phi 19.05$  B.C.



|  |   |              |  |
|--|---|--------------|--|
| <p>TOLERANCES</p> <p>*ALL DIMENSIONS IN MM</p> <p>DECIMALS: MM</p> <p>X.XX = ±0.13</p> <p>X.X = ±0.25</p> <p>ANGLES:</p> <p>MACH. = ±0.5°</p> <p>CHAM. = ±5°</p> <p>COMPUTER DATA<br/>BASE DRAWING</p> | THIRD ANGLE PROJECTION  |              |  <p>APPLIED<br/>MOTION<br/>PRODUCTS, INC.</p> |
|  |  |              |  |
|  | APPROVALS   | DATE         | <p>B</p> <p>DWG NO. HT17-221</p> <p>SCALE: NONE</p>  |
|  | DRAWN<br>K. KESLER  | 8/11/14      |  |
| CHECKED  | -   | SHEET 2 OF 2 |  |
| APPROVED   | -   |              |  |

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