

26M048D

A

REVISIONS			DIST	AI	BR	SP
LTR	DESCRIPTION	DATE	APVD			
A	ORIGINAL RELEASE PER ECOS03643	1/12/98				

RECORD OF REVISION STATUS OF EACH SHEET

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
A	A	A	A	A	A	A	A																								

PRODUCT SPECIFICATION

APPROVALS DATE

PREPARED	KALA	12/17/97
CHECKED		12/18/97
DSGN ENGR		1/2/98
QA		20 Jan 98

**Portescap**

PRODUCT SPECIFICATION

SIZE CODE IDENT NO 26M048D

↓ CONTINUATION SHEET

1.0 SCOPE :

THIS SPECIFICATION ESTABLISHES THE PERFORMANCE, DESIGN, TEST AND ACCEPTANCE REQUIREMENTS FOR THE 26M048D SERIES LOGIC STEPPER MOTOR.

2.0 APPLICABLE DOCUMENTS : NONE

3.0 REQUIREMENTS :

3.1 ITEM DEFINITION :

3.1.1 THE 26M048D UNIPOLAR STEPPER MOTOR IS A TWO PHASE, PERMANENT MAGNET, INDUCTOR TYPE MOTOR WITH TWO BIFILAR WOUND COILS HAVING EACH COIL HALF TERMINATED. APPLICATION OF D.C. PULSES TO THE COILS IN PROPER SEQUENCE PROVIDES ROTARY MOTION IN CONTROLLED ANGULAR INCREMENTS (STEPS).

3.1.2 THE 26M048D BIPOLAR STEPPER MOTOR IS A TWO PHASE, PERMANENT MAGNET, INDUCTOR TYPE MOTOR WITH TWO MONOFILAR WOUND COILS. REVERSING THE DIRECTION OF CURRENT THROUGH THE COILS IN PROPER SEQUENCE PROVIDES ROTARY MOTION IN CONTROLLED ANGULAR INCREMENTS (STEPS).

3.2 CHARACTERISTICS :

SEE TABLE 1 FOR CHARACTERISTICS OTHER THAN THOSE LISTED BELOW.

3.2.1 PERFORMANCE :

3.2.1.1 TORQUE VS SPEED :

UNIPOLAR MOTOR ONLY - SEE FIGURE 1  
BIPOLAR MOTOR ONLY - SEE FIGURE 2

3.2.1.2 GENERATED VOLTAGE : SEE DETAIL SPECIFICATION.

3.2.1.3 DIRECTION OF ROTATION : SEE SWITCHING SEQUENCE TABLE 2.

3.2.1.4 POWER INPUT : 2.7 WATTS

3.2.1.5 LIFE : 2000 HOURS PER QTP 902-6001-001 PARA 3.2.3

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**CONTINUATION SHEET**

**3.2.2 PHYSICAL :**

**3.2.2.1 ROTOR :** PERMANENT MAGNET

**3.2.2.2 BEARINGS :**

OIL IMPREGNATED POROUS METAL ROTOR AND OUTPUT SHAFT BEARINGS.

**3.2.2.3 WEIGHT :** 1.2 OUNCES

**3.2.2.4 SIZE :**

MOUNTING AND CONFIGURATION SHALL BE IN ACCORDANCE WITH FIGURE 3.

**3.2.2.5 DUTY CYCLE :** CONTINUOUS

**3.2.3 ENVIRONMENTAL CONDITIONS :** SEE TABLE 1.

**3.2.4 IDENTIFICATION :**

**3.2.4.1 DATE CODE :**

THE YEAR AND WEEK OF MANUFACTURE SHALL BE MARKED WITH INDELIBLE INK OR EQUIVALENT ON THE MOTOR.

**3.2.4.2 MOTOR IDENTIFICATION :**

THE FOLLOWING FORMAT AND INFORMATION SHALL BE MARKED ON THE MOTOR DECAL :

: P/N  
VOLTS  
OHMS/COIL

**4.0 QUALITY ASSURANCE PROVISIONS :**

**4.1 TEST CONDITIONS :**

WHENEVER THE PRESSURE AND TEMPERATURE EXISTING AT THE TIME OF THE TEST ARE NOT SPECIFIED DEFINITELY, IT IS UNDERSTOOD THAT THE TEST IS TO BE MADE AT ATMOSPHERIC PRESSURE (APPROX. 29.9 INCHES OF MERCURY) AND AT ROOM TEMPERATURE (APPROX. 25°C).

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NONE	A	26M048D_PS 3

4.2 **QUALIFICATION :**

SPECIAL TESTS AND EXAMINATIONS RELATING TO SECTION 3 REQUIREMENTS, WITH THE EXCEPTION OF THOSE LISTED UNDER QUALITY CONFORMANCE INSPECTION PARA 4.3 ARE WAIVED, BUT TESTS DEMONSTRATING CONFORMANCE OF THIS DESIGN OR OF SIMILAR DESIGN WILL BE SUPPLIED ON SPECIAL ORDER FROM THE PURCHASER.

4.3 **QUALITY CONFORMACE INSPECTION :**

ALL PRODUCTION LOTS SHALL BE INSPECTED AND TESTED TO ASSURE CONFORMACE WITH ACCEPTANCE TEST PROCEDURE 900-0038-001.

5.0 **PREPARATION FOR DELIVERY :**

UNLESS SPECIFIED OTHERWISE IN THE CONTRACT OR PURCHASE ORDER, ALL ITEMS SUPPLIED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE PACKED AND PACKAGED IN A MANNER TO ASSURE ACCEPTANCE BY COMMON CARRIER AND SAFE DELIVERY AT DESTINATION.

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<b>SCALE</b>	NONE	<b>REV.</b>	<b>SHEET</b>
		A	4
		26M048D_PS	

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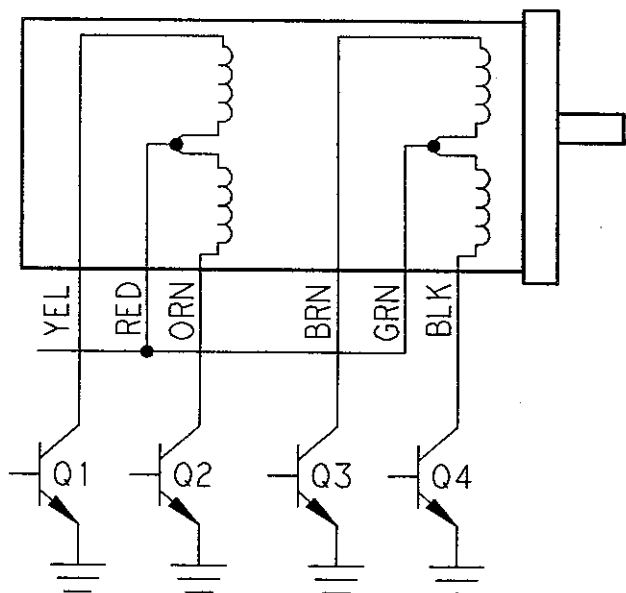
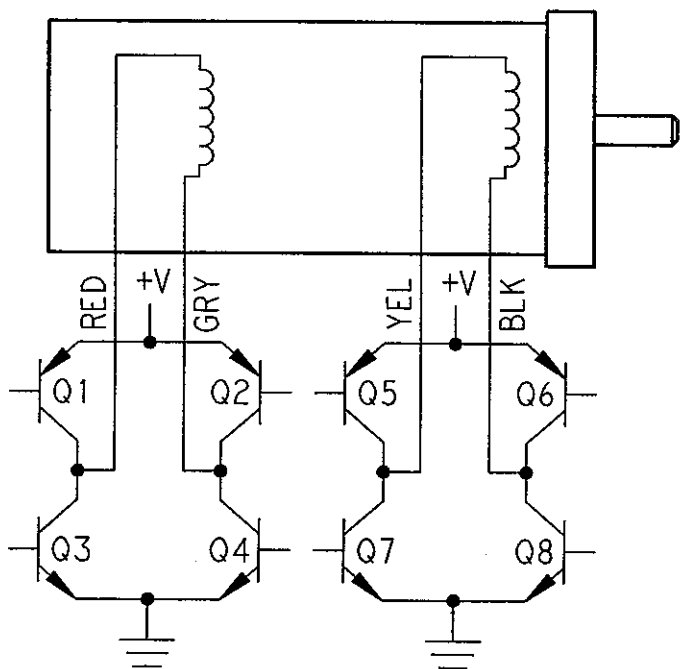
		UNIPOLAR		BIPOLAR	
		26M048D		26M048D	
SUFFIX DESIGNATION		1U	2U	1B	2B
DC OPERATING VOLTAGE		5	12	5	12
RESISTANCE PER WINDING	OHMS	19.6	110	19.8	108
INDUCTANCE PER WINDING	mH	4.9	33	12.0	55
HOLDING TORQUE (MIN) *	mNm/oz-in	11.5/1.63		14.5/2.05	
PULL-OUT TORQUE (MIN) @ 100 PPS	mNm/oz-in	7.46/1.06		9.15/1.30	
ROTOR MOMENT OF INERTIA	g.m <sup>2</sup>	$1.1 \times 10^{-4}$			
DETENT TORQUE	mNm/oz-in	4.2/0.6			
STEP ANGLE		7.5°			
STEP ANGLE TOLERANCE *		±.5°			
STEPS PER REVOLUTION		48			
MAX. OPERATING TEMPERATURE		100°C			
AMBIENT TEMPERATURE RANGE :					
OPERATING		-20°C TO 70°C			
STORAGE		-40°C TO 85°C			
BEARING TYPE		BRONZE SLEEVE			
INSULATION RESISTANCE AT 500 VDC		100 megohms			
DIELECTRIC WITHSTANDING VOLTAGE		650 ±50 VRMS 60 Hz FOR 1 TO 2 SECONDS			
LEAD WIRES		28 AWG			

\* MEASURED WITH 2 PHASES ENERGIZED

TABLE 1

SIZE	CODE IDENT NO.	DWG. NO.		
<b>A</b>		26M048D		
SCALE	NONE	REV. A	26M048D_PS	SHEET 5





BIPOLAR

UNIPOLAR

STEP	Q1-Q4	Q2-Q3	Q5-Q8	Q6-Q7
1	ON	OFF	ON	OFF
2	ON	OFF	OFF	ON
3	OFF	ON	OFF	ON
4	OFF	ON	ON	OFF
1	ON	OFF	ON	OFF

CCW ROTATION (downward arrow)  
CW ROTATION (upward arrow)

STEP	Q1	Q2	Q3	Q4
1	ON	OFF	ON	OFF
2	ON	OFF	OFF	ON
3	OFF	ON	OFF	ON
4	OFF	ON	ON	OFF
1	ON	OFF	ON	OFF

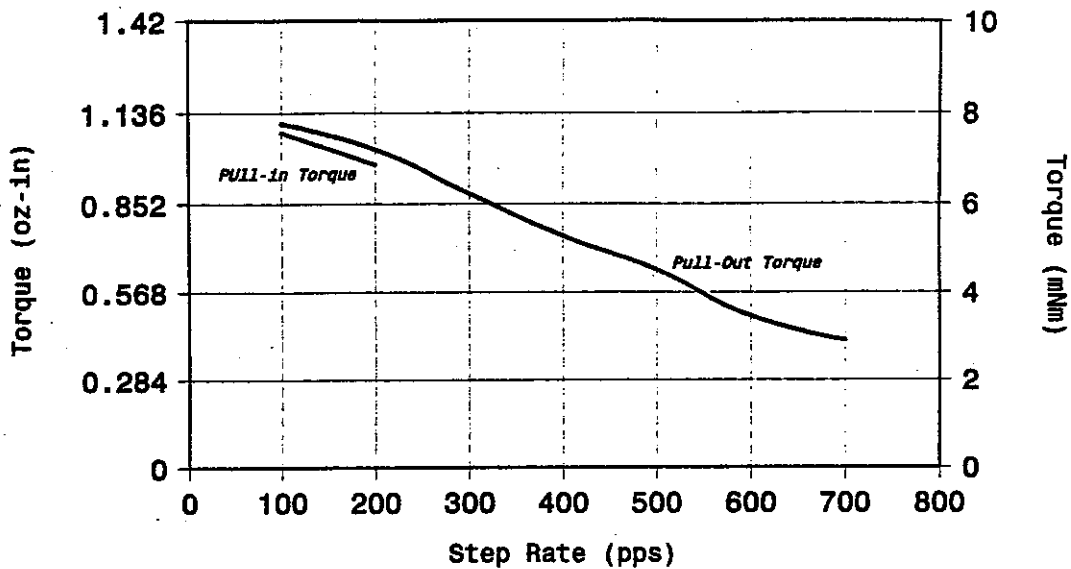
CCW ROTATION (downward arrow)  
CW ROTATION (upward arrow)

TABLE 2

SIZE	CODE IDENT NO.	DWG. NO.
<b>A</b>		26M048D
SCALE NONE	REV. A	26M048D_PS SHEET 6

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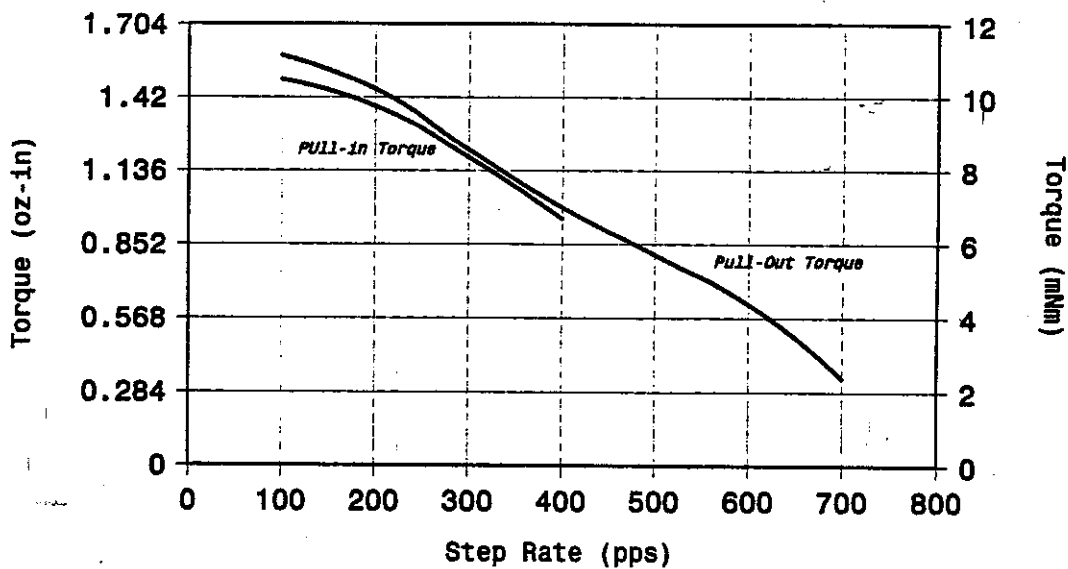
**26M048D**  
L/R Unipolar Drive



For reference only

**FIGURE 1**

**26M048D**  
L/R Bipolar Drive



For reference only

**FIGURE 2**

SIZE	CODE IDENT NO.	DWG. NO.
<b>A</b>		<b>26M048D</b>
SCALE NONE	REV. A	26M048D_PS SHEET 7



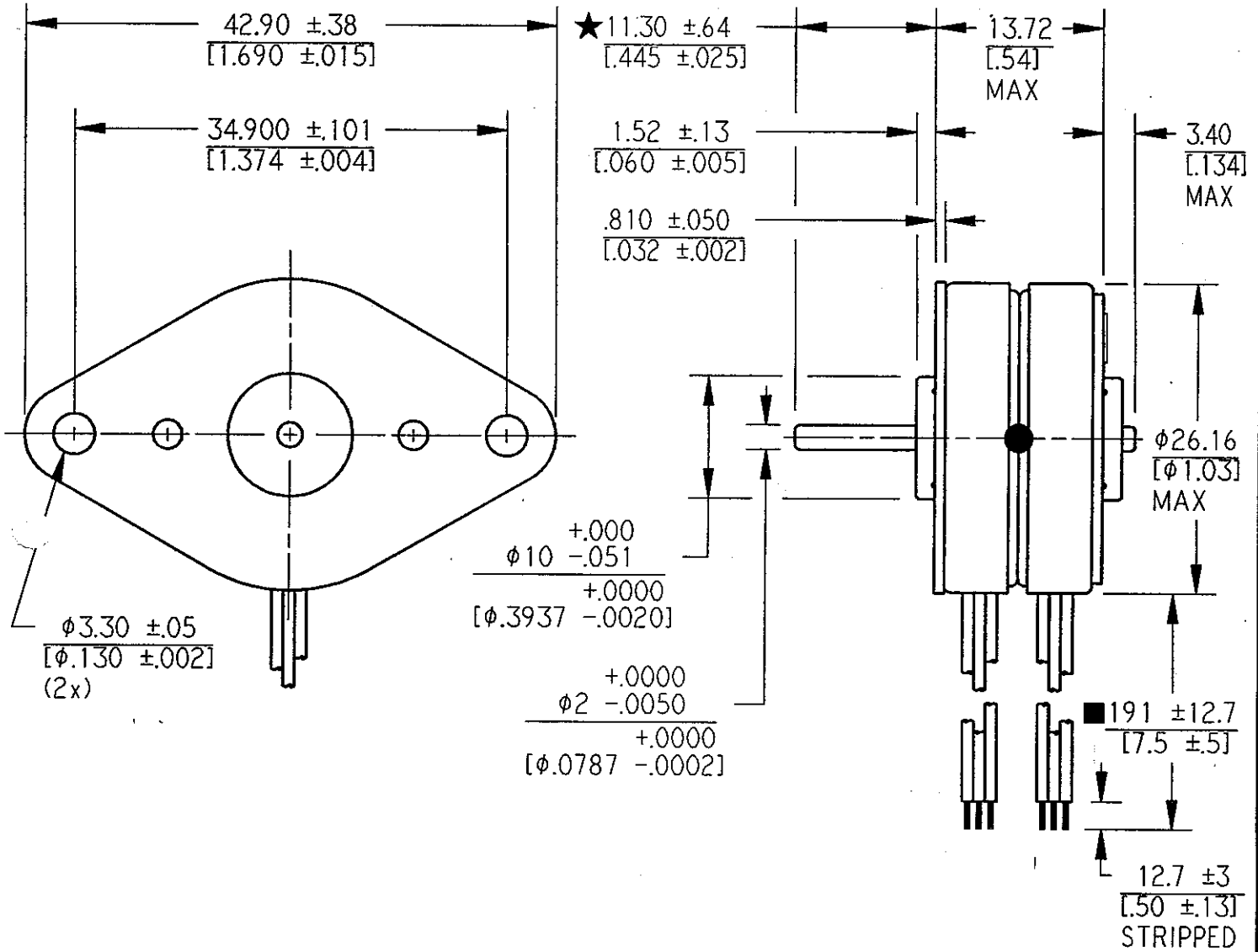


FIGURE 3

DIMENSIONS : MILLIMETERS  
[INCHES]

-LEGEND-

CHARACTERISTIC	SYMBOL
CRITICAL	★
MAJOR	■
MINOR	NO SYMBOL

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