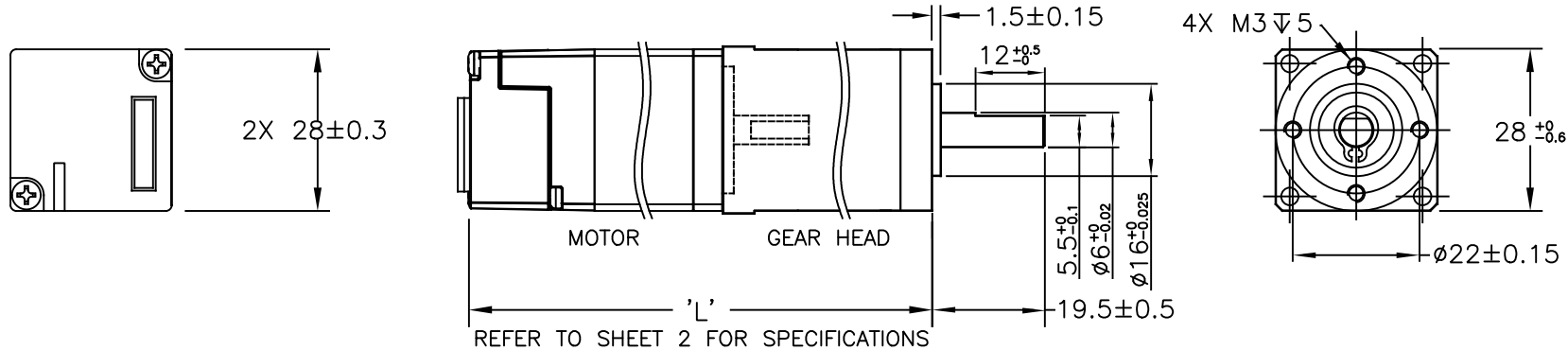


MOTOR SPECIFICATIONS:	GEARMOTOR SPECIFICATIONS:
NUMBER OF PHASES: 2	TEMP. RISE: 80 °C MAX. [6]
STEP ANGLE: 1.8°	OPERATING AMB. TEMP. RANGE: -20 TO +50 °C
RATED CURRENT: REF TABS BELOW	STORAGE TEMP. RANGE: -20 TO +70 °C
ROTOR INERTIA: REF TABS BELOW - NOM [4]	RELATIVE HUMIDITY: 85% MAX NON-CONDENSING
HOLDING TORQUE: REF TABS BELOW - NOM [5]	
INSULATION CLASS: CLASS B (130°)	

TABULATED DATA	TSM11Q-1RM	TSM11Q-2RM	TSM11Q-3RM
RATED CURRENT:	0.95 A	1.1 A	1.1 A
ROTOR INERTIA:	0.023 g-cm <sup>2</sup> /1.27E-04 oz-in <sup>2</sup>	0.031 g-cm <sup>2</sup> /1.70E-04 oz-in <sup>2</sup>	0.046 g-cm <sup>2</sup> /2.55E-04 oz-in <sup>2</sup>
HOLDING TORQUE:	0.065 Nm/9.2 oz-in	0.08 Nm/11.3 oz-in	0.125 Nm/17.7 oz-in

REVISIONS				
ECO NO.	REV	DESCRIPTION	DATE	APPROVED
7XXX	A	INITIAL RELEASE	7/2/18	J.KORDIK
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-



REFER TO SHEET 2 FOR SPECIFICATIONS

NOTES, UNLESS OTHERWISE SPECIFIED:

- HIPOT 500 VAC, 60 Hz FOR ONE MINUTE.
- INSULATION RESISTANCE: 100 MEGOHMS MIN AT 500 VDC.
- AS MEASURED BY THE CHANGE IN RESISTANCE METHOD, WITH RATED CURRENT APPLIED TO 2 PHASES; WITH MOTOR AT REST.
- THIS MOTOR IS MANUFACTURED IN COMPLIANCE WITH THE CURRENT EU RoHS DIRECTIVE.
- ALL MOTOR SPECIFICATIONS AND OPERATING INSTRUCTIONS CAN BE FOUND AT APPLIED-MOTION.COM.

Motor Connector Table		
Pin	Name	Description
1	Y2	Open drain outputs with suppression diode (30 VDC 100 mA in max.)
2	Y1	
3	X4	Digital inputs (input high voltage 5-24 VDC, input low voltage below 1 VDC, signal frequency 1 MHz in max.)
4	X3	
5	X2	Digital inputs (input high voltage 5-24 VDC, input low voltage below 2 VDC, signal frequency 1 MHz in max.)
6	X1	
7	RX-	RS-422/485 interface differential signals
8	RX+	
9	TX-	
10	TX+	
11	+	V+ power supply (typ. 24 VDC)
12	-	V- power ground (GND)

TOLERANCES		CONTRACT NO.		APPLIED MOTION PRODUCTS, INC.	
*ALL DIMENSIONS IN MM		-			
DECIMALS: MM		-			
X.XX = ±0.13		APPROVALS	DATE	<b>INTEGRATED MOTOR WITH GEARHEAD ASSEMBLY - SPECIFICATIONS</b>	
X.X = ±0.25		DRAWN	06/20/18		
ANGLES:		CHECKED	-		
MACH. = ±0.5°		APPROVED	-		
CHAM. = ±5°		APPROVED	-	B	COMPUTER DATA BASE DRAWING
COMPUTER DATA BASE DRAWING		APPROVED	-	DWG NO. <b>TSM11Q-XRM-GXXX</b> REV <b>A</b>	
		SCALE: NONE		SHEET 1 OF 2	

GEARMOTOR TECHNICAL DETAILS:					
ASSEMBLY P/N	TSM11Q-1RM-G004	TSM11Q-1RM-G005	TSM11Q-1RM-G012	TSM11Q-1RM-G014	TSM11Q-1RM-G022
TOTAL WEIGHT-MOTOR & GEARHEAD	169 g ( 0.37 lbs)	169 g ( 0.37 lbs)	184 g ( 0.40 lbs)	184 g ( 0.40 lbs)	184 g ( 0.40 lbs)
ASSEMBLY LENGTH - TOTAL 'L'	83.3 mm ( 3.28 in)	85.5 mm ( 3.37 in)	85.8 mm ( 3.38 in)	85.8 mm ( 3.38 in)	93.3 mm ( 3.68 in)

GEARHEAD TECHNICAL DETAILS:					
GEARHEAD P/N	28PH004.00-L1	28PH005.50-L1	28PH012.76-L1	28PH014.29-L1	28PH022.00-L1
RATIO	4:1	5.5:1	12.76:1184	14.29:1	22.01:1
MAX TORQUE CONTINUOUS	0.5 Nm ( 70.80 oz-in)	0.5 Nm ( 70.80 oz-in)	2.0 Nm ( 283.22 oz-in)	2.0 Nm ( 283.22 oz-in)	2.0 Nm ( 283.22 oz-in)
MAX TORQUE	0.8 Nm ( 113.3 oz-in)	0.8 Nm ( 113.3 oz-in)	4.0 Nm ( 566.45 oz-in)	4.0 Nm ( 566.45 oz-in)	4.0 Nm ( 566.45 oz-in)
MAX RADIAL LOAD	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)
MAX AXIAL LOAD	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)
INERTIA	1.0 g-cm <sup>2</sup> ( 0.005oz-in <sup>2</sup> )	1.0 g-cm <sup>2</sup> ( 0.005oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )
BACKLASH	≤ 1.2 °	≤ 1.2 °	≤ 1.8 °	≤ 1.8 °	≤ 1.8 °
EFFICIENCY	90 %	90 %	81 %	81 %	81 %

GEARMOTOR TECHNICAL DETAILS:					
ASSEMBLY P/N	TSM11Q-2RM-G004	TSM11Q-2RM-G005	TSM11Q-2RM-G012	TSM11Q-2RM-G014	TSM11Q-2RM-G022
TOTAL WEIGHT-MOTOR & GEARHEAD	217.3 g ( 0.48 lbs)	217.3 g ( 0.48 lbs)	232.3 g ( 0.51 lbs)	232.3 g ( 0.51 lbs)	232.3 g ( 0.51 lbs)
ASSEMBLY LENGTH - TOTAL 'L'	92.5 mm ( 3.64 in)	94.7 mm ( 3.73 in)	95 mm ( 3.74 in)	95 mm ( 3.74 in)	102.5 mm ( 4.04 in)

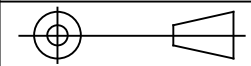
GEARHEAD TECHNICAL DETAILS:					
GEARHEAD P/N	28PH004.00-L1	28PH005.50-L1	28PH012.76-L1	28PH014.29-L1	28PH022.00-L1
RATIO	4:1	5.5:1	12.76:1	14.29:1	22.01:1
MAX TORQUE CONTINUOUS	0.5 Nm ( 70.80 oz-in)	0.5 Nm ( 70.80 oz-in)	2.0 Nm ( 283.22 oz-in)	2.0 Nm ( 283.22 oz-in)	2.0 Nm ( 283.22 oz-in)
MAX TORQUE	0.8 Nm ( 113.3 oz-in)	0.8 Nm ( 113.3 oz-in)	4.0 Nm ( 566.45 oz-in)	4.0 Nm ( 566.45 oz-in)	4.0 Nm ( 566.45 oz-in)
MAX RADIAL LOAD	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)
MAX AXIAL LOAD	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)
INERTIA	1.0 g-cm <sup>2</sup> ( 0.005oz-in <sup>2</sup> )	1.0 g-cm <sup>2</sup> ( 0.005oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )
BACKLASH	≤ 1.2 °	≤ 1.2 °	≤ 1.8 °	≤ 1.8 °	≤ 1.8 °
EFFICIENCY	90 %	90 %	81 %	81 %	81 %

GEARMOTOR TECHNICAL DETAILS:					
ASSEMBLY P/N	TSM11Q-3RM-G004	TSM11Q-3RM-G005	TSM11Q-3RM-G012	TSM11Q-3RM-G014	TSM11Q-3RM-G022
TOTAL WEIGHT-MOTOR & GEARHEAD	268.3 g ( 0.59 lbs)	268.3 g ( 0.59 lbs)	283.3 g ( 0.62 lbs)	283.3 g ( 0.62 lbs)	283.3 g ( 0.62 lbs)
ASSEMBLY LENGTH - TOTAL 'L'	103.7 mm ( 4.08 in)	105.9 mm ( 4.17 in)	106.2 mm ( 4.18 in)	106.2 mm ( 4.18 in)	113.7 mm ( 4.48 in)

GEARHEAD TECHNICAL DETAILS:					
GEARHEAD P/N	28PH004.00-L1	28PH005.50-L1	28PH012.76-L1	28PH014.29-L1	28PH022.00-L1
RATIO	4:1	5.5:1	12.76:1	14.29:1	22.01:1
MAX TORQUE CONTINUOUS	0.5 Nm ( 70.80 oz-in)	0.5 Nm ( 70.80 oz-in)	2.0 Nm ( 283.22 oz-in)	2.0 Nm ( 283.22 oz-in)	2.0 Nm ( 283.22 oz-in)
MAX TORQUE	0.8 Nm ( 113.3 oz-in)	0.8 Nm ( 113.3 oz-in)	4.0 Nm ( 566.45 oz-in)	4.0 Nm ( 566.45 oz-in)	4.0 Nm ( 566.45 oz-in)
MAX RADIAL LOAD	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)
MAX AXIAL LOAD	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)	≤ 20 N ( 4.5 lbs)
INERTIA	1.0 g-cm <sup>2</sup> ( 0.005oz-in <sup>2</sup> )	1.0 g-cm <sup>2</sup> ( 0.005oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )	0.6 g-cm <sup>2</sup> ( 0.003oz-in <sup>2</sup> )
BACKLASH	≤ 1.2 °	≤ 1.2 °	≤ 1.8 °	≤ 1.8 °	≤ 1.8 °
EFFICIENCY	90 %	90 %	81 %	81 %	81 %

MATERIAL SPECIFICATIONS	
GEARTRAIN	Y15 (1213) STEEL
HOUSING	304 STAINLESS STEEL
INPUT/OUTPUT FLANGE	LY12 ALUMINUM
OUTPUT SHAFT	40Cr STEEL
PINION	Y15 (1213) STEEL

THIRD ANGLE PROJECTION



APPROVALS	DATE
DRAWN R.JONEZ	06/20/18
CHECKED -	-
APPROVED -	-



**INTEGRATED MOTOR WITH GEARHEAD  
ASSEMBLY - SPECIFICATIONS**

B	DWG NO. <b>TSM11Q-XRM-GXXX</b>	REV A
SCALE: NONE		SHEET 2 OF 2