

**GEARMOTORS
DC PERMANENT MAGNET
MILITARY QUALITY**

**MODEL EML
BULLETIN 171A117/133**

2796 Culver Ave., Dayton, Ohio 45429
PH: 513/294-1041 FAX: 294-8336

ELECTRICAL SPECIFICATIONS

Voltage: 12, 27, 50 and 115 VDC are standard. Other voltages available. Reverse side of sheet shows complete EML gearmotor data.

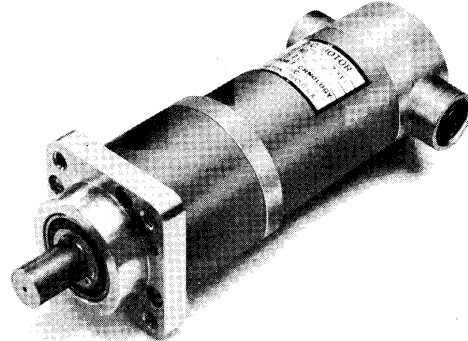
Speed: Motor input speeds up to 7920 rpm can be used to drive this precision planetary geartrain, of ratios from 3.67 to 6564.

Connection Method: Double conductor shielded cables, #18 AWG per MIL-W-16878, type E.

Rotation: Counter clockwise, with red lead plus (+) and black lead minus (-), viewing from shaft end.

Reversibility: Unit reverses rotation when voltage is reversed.

The Motor Technology Model EML planetary gearmotor is designed and built for precision, durability and very high torque-to-size performance. Common uses include military, aerospace and medical applications — where the needs for performance and dependability rank high in priority. For pinions, RFI filters, brakes or any modifications you may need, consult with M.T.I. application engineers. See Bulletin 170A105 for additional motor information.



MODEL EML GEARMOTOR

MECHANICAL SPECIFICATIONS

Rating: 0.10 hp with torques to 300 lb. in.

Gears: Precision cut, heat treated alloy steel.

Bearings: Output shaft supported by two ball bearings to support overhung loads. All planet gears are mounted on anti-friction bearings.

Backlash: Less than 3°.

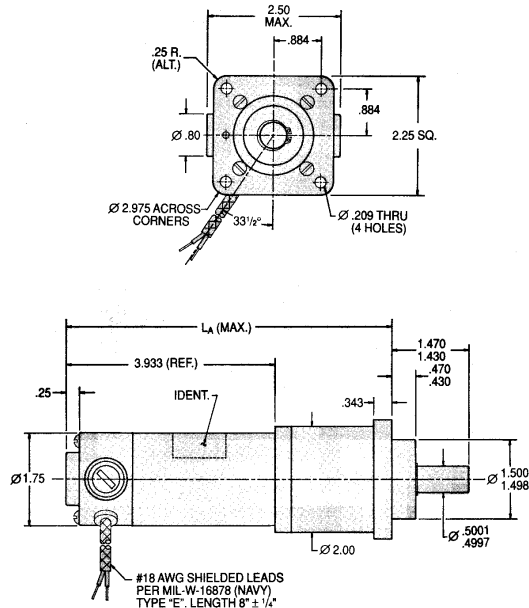
Shaft: Precision ground 8620 alloy steel per QQ-S-624, heat treated and case hardened.

Protection: Aluminum parts finished per MIL-C-5541A. Ring gear and motor housing cadmium plated per QQ-P-416, type 2, class 2.

Lubrication: Motor bearings life lubricated per MIL-G-3278. Gearbox lubricated with grease per MIL-G-23827A. Special lubricants are available.

Weight: 2.4 to 3.4 lbs., depending on ratios.

DIMENSIONS



**MODEL EML
BULLETIN 171A117/133**

**GEARMOTORS
DC PERMANENT MAGNET
MILITARY QUALITY**

2796 Culver Ave., Dayton, Ohio 45429
PH: 513/294-1041 FAX: 294-8336

BASIC GEARMOTOR DATA — STANDARD PART NUMBERS

SPEED REDUCTION RATIO	MAXIMUM ¹ CONT. DUTY TORQUE LB.IN.	TORQUE ² MULTIPLIER	LENGTH L _A DIMENSION	STANDARD EML GEARMOTOR PART NUMBERS (Add armature dash number; see below.)
3.67	3.50	3.4	5.269	171A117-
5.80	5.57	5.4	5.269	171A118-
13.4	12.5	12.1	5.739	171A119-
21.3	19.8	19.2	5.739	171A120-
33.6	31.2	30.3	5.739	171A121-
49.3	43.6	42.3	6.149	171A122-
78	69.0	66.9	6.149	171A123-
123	108	105	6.149	171A124-
195	172	167	6.149	171A125-
286	240	233	6.559	171A126-
452	300	368	6.559	171A127-
715	300	583	6.559	171A128-
1132	300	928	6.559	171A129-
1658	300	1285	6.969	171A130-
2623	300	2030	6.969	171A131-
4149	300	3210	6.969	171A132-
6564	300	5080	6.969	171A133-

¹This rating is for gearbox only. To determine output of any motor-gearbox combination, multiply motor torque by the torque multiplier for that ratio.

²Torque multiplier ratio is the gear ratio multiplied by its efficiency.

BASIC EML ARMATURE DATA¹

INPUT VOLTAGE DC	NO-LOAD SPEED RPM	RATED TORQUE OZ.IN.	STALL TORQUE OZ.IN.	NO-LOAD CURRENT AMPS MAX.	RATED TORQUE CURRENT AMPS	STALL CURRENT AMPS	ARMATURE DASH NUMBERS
12	7920	9.0	176	1.80	5.8	87	-1
12	6330	11.5	141	1.35	5.5	56	-2
12	4870	15.8	108	0.979	5.5	33	-3
12	3960	22.0	88	0.756	5.9	22	-4
27	7130	10.1	158	0.699	2.5	31	-5
27	5700	13.1	127	0.528	2.4	20	-6
27	4450	18.4	99	0.389	2.5	12	-7
27	3560	19.8	79	0.295	2.1	7.8	-8
50	5280	14.4	117	0.260	1.32	9.2	-9
50	4190	20.5	93	0.195	1.40	5.8	-10
50	3300	18.3	73	0.145	0.99	3.6	-11
115	6070	12.1	135	0.134	0.57	5.3	-12
115	4820	16.4	107	0.101	0.58	3.4	-13
115	3790	21.0	84	0.075	0.56	2.1	-14
115	3030	16.8	67	0.056	0.36	1.3	-15
115	2410	13.5	54	0.044	0.24	0.84	-16

¹For complete EML motor data and tolerances see Bulletin 170A105.

HOW TO SELECT A UNIT

The complete part number must include a standard EML gearmotor part number (above) plus an applicable EML armature dash number from the basic motor data chart (left). Use the following trial and error technique to start:

1. Assume motor speed of 5,000 RPM and divide it by the required output speed to get approximate ratio.
2. From ratios charted above, select closest one.
3. Check maximum torque rating of that ratio with your actual requirement. Adjust ratio and motor speed up or down as needed.
4. Calculate output torque by multiplying motor torque by the "torque multiplier" of the ratio selected.
5. Select armature from voltage, load and speed required.

HOW TO ORDER: Order by standard part number (example: 171A117-7), making sure to include the armature dash number. Note any modifications as exceptions to the standard.