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

GEARMOTORS
DC PERMANENT MAGNET
MILITARY QUALITY

MODEL EMR
BULLETIN 171A100/116

ELECTRICAL SPECIFICATIONS

Voltage: 6, 12, 27, 50 and 115 VDC are standard. Other voltages available. Reverse side of sheet shows complete EMR gearmotor data.

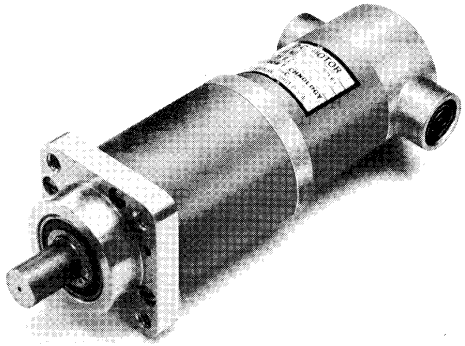
Speed: Motor input speeds up to 8750 rpm can be used to drive this precision planetary geartrain, of ratios from 3.67 to 6564.

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 EMR 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 170A100 for additional motor information.



MODEL EMR GEARMOTOR

MECHANICAL SPECIFICATIONS

Rating: 0.062 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°.

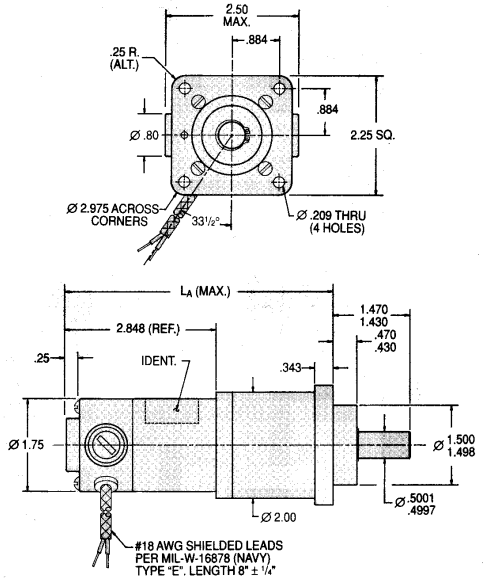
Shaft: Precision ground 8620 alloy steel per QQ-S-624, heat treated and case hardened.

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: 1.9 to 2.9 lbs., depending on ratios.

DIMENSIONS



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BASIC GEARMOTOR DATA — STANDARD PART NUMBERS

SPEED REDUCTION RATIO	MAXIMUM[1] CONT. DUTY TORQUE LB.IN.	TORQUE[2] MULTIPLIER	LENGTH L_A DIMENSION	STANDARD EMR GEARMOTOR PART NUMBERS (Add armature dash number; see below.)
3.67	2.18	3.49	4.184	171A100-
5.80	3.44	5.51	4.184	171A101-
13.4	7.56	12.1	4.654	171A102-
21.3	12.0	19.2	4.654	171A103-
33.6	19.0	30.3	4.654	171A104-
49.3	26.4	42.3	5.064	171A105-
78	41.8	66.9	5.064	171A106-
123	65.9	105	5.064	171A107-
195	104	167	5.064	171A108-
286	146	233	5.474	171A109-
452	230	368	5.474	171A110-
715	300	583	5.474	171A111-
1132	300	928	5.474	171A112-
1658	300	1285	5.884	171A113-
2623	300	2030	5.884	171A114-
4149	300	3210	5.884	171A115-
6564	300	5080	5.884	171A116-

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

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

BASIC EMR ARMATURE DATA[3]

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
6	7780	5.7	62	3.32	7.3	60	–1
6	6220	7.7	50	2.52	7.3	39	–2
6	4780	9.5	38	1.89	6.6	23	–3
12	7780	9.3	62	1.65	5.3	30	–4
12	6220	12.5	50	1.26	5.3	19	–5
12	4980	10.0	40	.984	3.4	12	–6
27	8750	7.9	70	.828	2.4	17	–7
27	7000	11.0	56	.651	2.5	11	–8
27	5600	11.2	45	.497	2.0	7.0	–9
27	4440	8.8	35	.392	1.25	4.3	–10
50	6480	12.7	52	.319	1.36	5.0	–11
50	5180	10.4	41	.246	0.92	3.2	–12
50	4110	8.2	33	.197	0.58	2.0	–13
115	7450	10.0	60	.165	0.56	2.9	–14
115	5960	11.9	48	.125	0.50	1.8	–15
115	4730	9.5	38	.097	0.34	1.2	–16

[3] For complete EMR motor data and tolerances see Bulletin 170A100.

HOW TO SELECT A UNIT

The complete part number must include a standard EMR gearmotor part number (above) plus an applicable EMR 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: 171A106-9), making sure to include the armature dash number. Note any modifications as exceptions to the standard.