2796 Culver Ave., Dayton, Ohio 45429
PH: 937/294-1041 FAX: 294-8336
www.motortech.com

GEARMOTORS
DC PERMANENT MAGNET
MILITARY QUALITY

MODEL FMR
BULLETIN 226A100/112

ELECTRICAL SPECIFICATIONS

Voltage: 12, 27, 50, 115 and 180 VDC are standard. Other voltages available. Reverse side of sheet shows complete FMR gearmotor data.

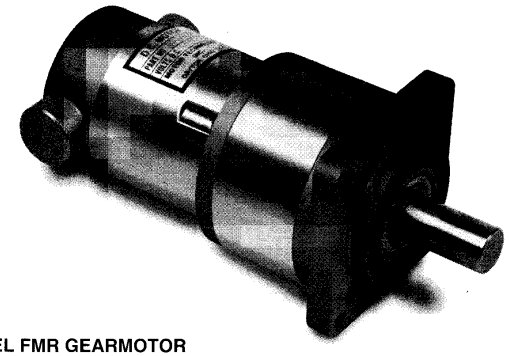
Speed: Motor input speeds up to 7240 rpm can be used to drive this precision planetary geartrain, of ratios from 3.81 to 940.

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 FMR 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 225A100 for additional motor information.



MODEL FMR GEARMOTOR

MECHANICAL SPECIFICATIONS

Rating: 0.085 hp with torques to 1100 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°.

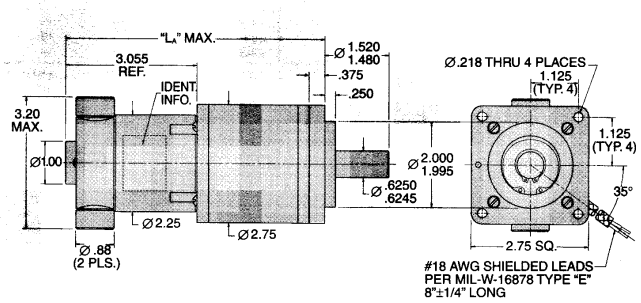
Shaft: Precision ground 8620 alloy steel per QQ-S-624, heat treated and case hardened.

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: 3.33 to 6.20 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 FMR GEARMOTOR PART NUMBERS (Add armature dash number; see below.)
3.81	5.53	3.54	4.765	226A100–
5.54	8.05	5.15	4.765	226A101–
14.5	19.5	12.5	5.250	226A102–
21.1	28.4	18.2	5.250	226A103–
30.7	42.0	26.5	5.250	226A104–
55.3	70.0	44.5	5.735	226A105–
80.3	100	64.6	5.735	226A106–
117	147	94.1	5.735	226A107–
170	213	136	5.735	226A108–
306	356	228	6.595	226A109–
445	520	333	6.595	226A110–
647	760	484	6.595	226A111–
940	1100	703	6.595	226A112–

[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 FMR 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
12	6050	15	151	1.99	7.73	62.1	–1
12	4800	21	120	1.51	7.87	39.1	–2
12	3810	25	95	1.10	7.10	24.6	–3
27	6800	13	170	1.03	3.49	34.9	–4
27	5400	18	135	.78	3.44	22.0	–5
27	4285	26	107	.58	3.66	13.9	–6
50	6300	14	157	.50	1.87	16.2	–7
50	5000	20	125	.39	1.88	10.2	–8
50	3970	25	99	.28	1.78	6.41	–9
115	7240	12	181	.26	.83	9.29	–10
115	5750	17	144	.20	.81	5.85	–11
115	4700	21	114	.15	.83	3.80	–12
115	3820	25	90	.11	.74	2.45	–13
180	4860	22	112	.09	.52	2.47	–14
180	3980	25	89	.06	.49	1.61	–15

[3] For complete FMR motor data and tolerances see Bulletin 225A100.

HOW TO SELECT A UNIT

The complete part number must include a standard FMR gearmotor part number (above) plus an applicable FMR 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: 226A103-6), making sure to include the armature dash number. Note any modifications as exceptions to the standard.