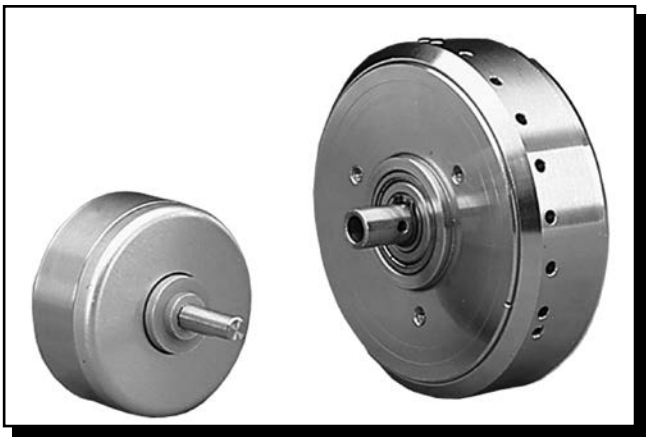
HPM/HPMC Series Permanent Magnet Brakes & Clutches

FEATURES

- Torque up to 210 oz·in
- Speed up to 10,820 rpm
- Power up to 450 W
- Ideal solution for when electrical power cannot be provided to the coil
- Torque independent of speed
- Long, maintenance-free life
- Operational smoothness
- Superior torque repeatability
- Excellent environmental stability



DESCRIPTION

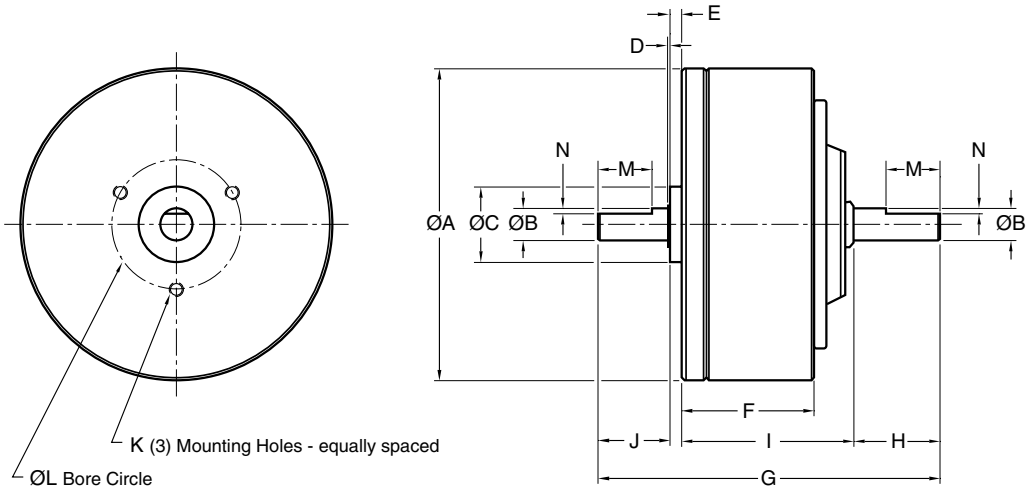
Magtrol Hysteresis Permanent Magnet Brakes and Clutches are ideal in applications where electrical power cannot be provided to a brake or clutch coil. While best suited to applications where fixed torque is to be applied, adjustable units can be made specifically tailored to the application. Typically provided as brake units, with the addition of an input shaft, the same unit can be used as a clutch. In a clutch application, the pole/case member becomes the drive element, and the rotor/shaft assembly becomes the driven element of the clutch with torque being transmitted through the magnetic air-gap. Magtrol Hysteresis Permanent Magnet devices provide all the superior operating characteristics of smooth operation, precise repeatability and long life inherent in all of Magtrol's hysteresis devices.

RATINGS

Brake Model	Clutch Model	Rated Torque*	Maximum Speed**	Kinetic Power		External Inertia	Angular Acceleration	Weight
				5 Minutes	Continuous			
		oz·in	*rpm*	*W*	*W*	*lb·in·s²*	*rad/s²*	*lb*
HPM-2.5	**HPMC-2.5**	2.5	10,820	20	7	3.8 × 10-6	41,100	0.17
HPM-8	**HPMC-8**	8	10,140	60	15	3.3 × 10-5	15,200	0.49
HPM-16	**HPMC-16**	16	6,340	75	20	5.6 × 10-5	17,900	0.65
HPM-32	**HPMC-32**	32	3,800	90	25	8.6 × 10-5	23,300	1.06
HPM-120	**HPMC-120**	120	3,380	300	75	9.1 × 10-4	8,240	4.06
HPM-210	**HPMC-210**	210	2,900	450	110	2.75 × 10-3	4,770	7.73

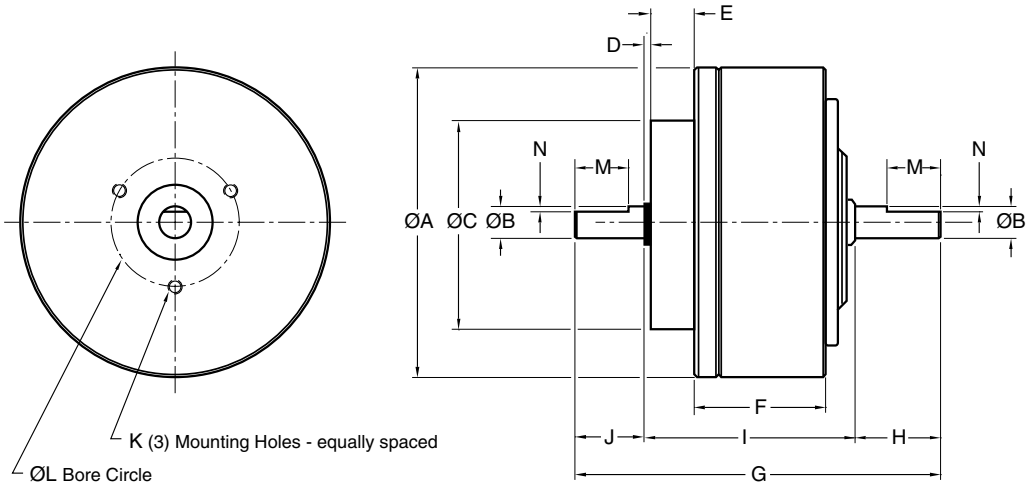
* *Permanent Magnet Brakes can be charged at factory to produce lower torque if desired.*
** *Maximum speed listed will produce 5-minute kinetic power rating at rated torque.*

PERMANENT MAGNET BRAKE DIMENSIONS



Brake Model	ØA	ØB	ØC	D	E	F	G	H	I	J	K	ØL	M	N
HPM-2.5	1.250	0.1250	0.375	0.015	0.030	0.840	1.564	0.290	0.940	0.290	#4-40 × 0.16	0.750	---	---
HPM-8	1.750	0.1875	0.500	0.015	0.060	0.915	2.109	0.500	0.953	0.584	#4-40 × 0.16	0.687	0.375	0.025
HPM-16	1.970	0.1875	0.500	0.019	0.096	0.812	2.109	0.515	0.940	0.540	#4-40 × 0.20	0.750	0.375	0.025
HPM-32	2.250	0.2500	0.625	0.025	0.094	0.865	2.431	0.562	1.125	0.625	#6-32 × 0.20	0.906	0.375	0.030
HPM-120	3.625	0.3750	0.875	0.025	0.130	0.985	3.490	0.910	1.654	0.800	#8-32 × 0.25	1.500	0.625	0.060
HPM-210	4.437	0.5000	1.125	0.035	0.156	2.410	4.693	1.062	2.510	0.930	#10-32 × 0.38	1.750	0.625	0.060

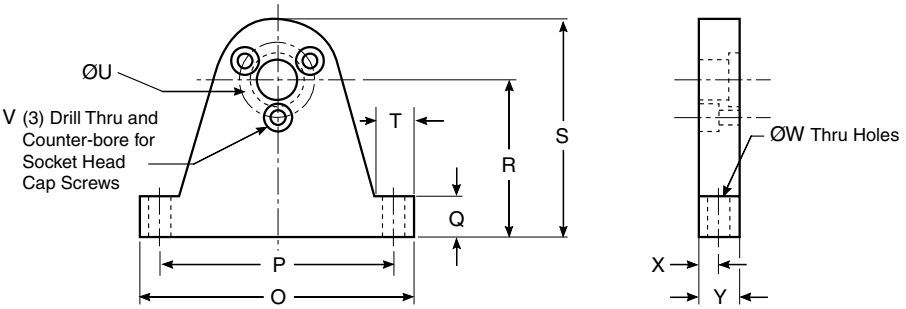
PERMANENT MAGNET CLUTCH DIMENSIONS



Clutch Model	ØA	ØB	ØC	D	E	F	G	H	I	J	K	ØL	M	N
HPMC-2.5	1.250	0.1250	1.059	0.032	0.250	0.840	1.803	0.290	1.224	0.290	#4-40	0.750	---	---
HPMC-8	1.750	0.1875	1.000	0.032	0.312	0.915	2.375	0.500	1.295	0.584	#4-40	0.687	0.375	0.025
HPMC-16	1.970	0.1875	1.000	0.032	0.312	0.812	2.340	0.515	1.283	0.545	#4-40	0.750	0.375	0.025
HPMC-32	2.250	0.2500	1.500	0.032	0.375	0.865	2.719	0.562	1.532	0.625	#6-32	0.906	0.375	0.030
HPMC-120	3.625	0.3750	2.000	0.032	0.375	0.985	3.736	0.910	2.026	0.800	#8-32	1.500	0.625	0.060
HPMC-210	4.437	0.5000	2.250	0.062	0.500	2.410	5.060	1.062	3.067	0.935	#10-32	1.750	0.625	0.060

PILLOW BLOCKS

Pillow Block Assemblies are an available option for all brake units.



Pillow Block Model	For Brake Models	O	P	Q	R	S	T	ØU	V	ØW	X	Y
4736	HPM-2.5	1.75	1.500	0.31	1.000	1.500	0.25	0.750	#4-40	0.125	0.125	0.25
4702	HPM-8	2.50	2.125	0.37	1.437	2.120	0.38	0.687	#4-40	0.201	0.187	0.38
4703	HPM-16	2.50	2.125	0.37	1.437	2.120	0.38	0.750	#4-40	0.201	0.187	0.38
4705	HPM-32	2.50	2.125	0.37	1.437	2.120	0.38	0.906	#6-32	0.201	0.187	0.38
4711	HPM-120	4.00	3.500	0.37	2.000	3.190	0.50	1.500	#8-32	0.201	0.250	0.50
4714	HPM-210	4.00	3.500	0.37	2.375	3.690	0.50	1.750	#10-32	0.201	0.250	0.50

SPECIAL DESIGNS

Since 1953, Magtrol has created literally thousands of special and modified brake and clutch designs to help solve specific application problems for our customers.

Common Modifications

- Special Shaft Configurations: keyways, flats, holes and hollow
- Dust Covers
- Speed Pickups
- Special Mounting Configurations
- Higher Torque Devices
- High Speed Units

Higher Torque Capability

It is Magtrol's policy never to overstate the capabilities of our products. As a result, our brakes and clutches are conservatively rated. However, Magtrol can typically provide higher torque of up to 15% to 25% above rated value in the same size device to meet your requirements. Special designs capable of producing even higher torques are also available.

OTHER OPTIONS

Couplings

Although intended for coupled service, moderate overhung loads can be tolerated, depending on such operating characteristics as speed, weight, and center of gravity of load. Care should be taken to make certain that the shaft is properly aligned. Couplings should be of proper size and flexibility to adequately protect bearings from undue stress and shock loading.

SOLID MODELS

Solid 3D models are available for Magtrol Hysteresis Devices at:

www.magtrol.com/brakesandclutches/permanent_magnet.html

Due to the continual development of our products, we reserve the right to modify specifications without forewarning.

www.magtrol.com

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