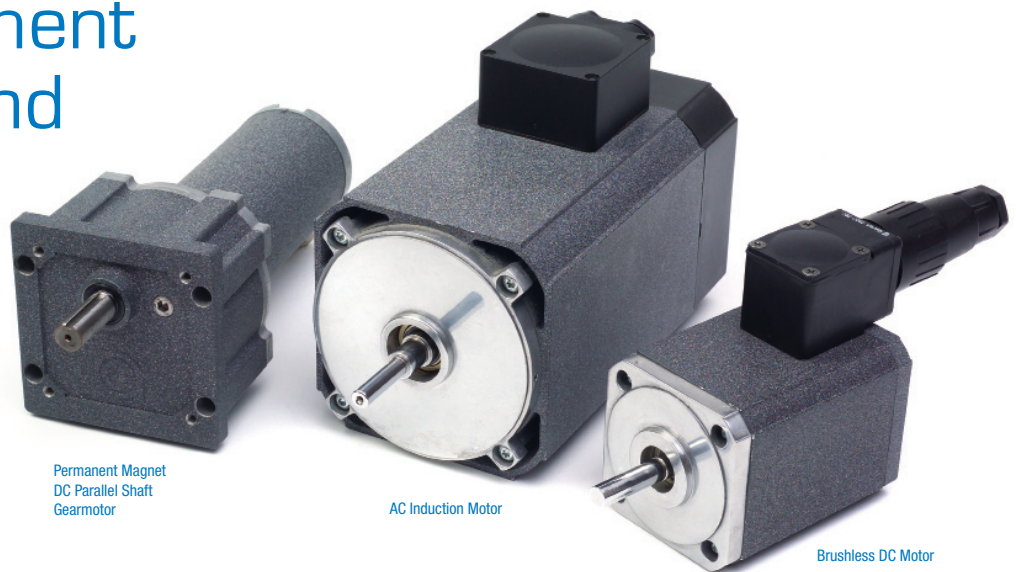




Total protection against dust, and protected against strong jets of water

Harsh Environment IP66 Motors and Gearmotors

- AC Induction
- Permanent Magnet DC
- Brushless DC



DESCRIPTION

The Harsh Environment IP66 motor and gearmotor product line from Groschopp is designed to provide reliable, trouble-free operation and long life in applications where dust and/or moisture intrusion are present. Designed and built with special physical and electrical protection features, the Harsh Environment products are protected against dust that may cause premature commutator, brush and bearing failures and water that may cause corrosion or electrical failures.

IP66 rated products are inherently safer since water intrusion greatly increases the risk of electrical shock. Oil intrusion in a motor is also a risk, particularly with brush-type motors. The brushes may “stick” and the motor can fail if exposed to oil.

Temperature fluctuation is frequently common in these same harsh environments. Condensation, as a result of temperature change, can also create water ingress resulting in the motor/gearmotor reduced life and premature failure of the motor/gearmotor.

Groschopp has developed and supplied motors and gearmotors for automotive applications and other rugged applications where the environmental conditions are extremely harsh for decades. These products continue to reliably perform even when splashed with salt spray, water, harmful chemicals, dirt, mud, dust, and are engineered to endure extreme hot and cold temperatures. This extensive experience and knowledge in developing motors for many different harsh environment applications has resulted in the most durable family of IP66-rated fractional horsepower motors and gearmotors in the industry.

TYPICAL APPLICATIONS

- Pulp and Paper Processing
- Fluid Pumps
- Wastewater Treatment Equipment and Facilities
- Food Processing Equipment
- Heavy Duty Automotive
- Liquid Mixers and Processors
- Commercial Grade Construction Hand Tools
- Chemical Processing
- Clean Rooms
- Printing Machines and Web Presses
- Off-Road Vehicles, Fork Lift
- Snow and Ice Removal Equipment



PROTECTION CLASSIFICATION

IP66 EXPLAINED

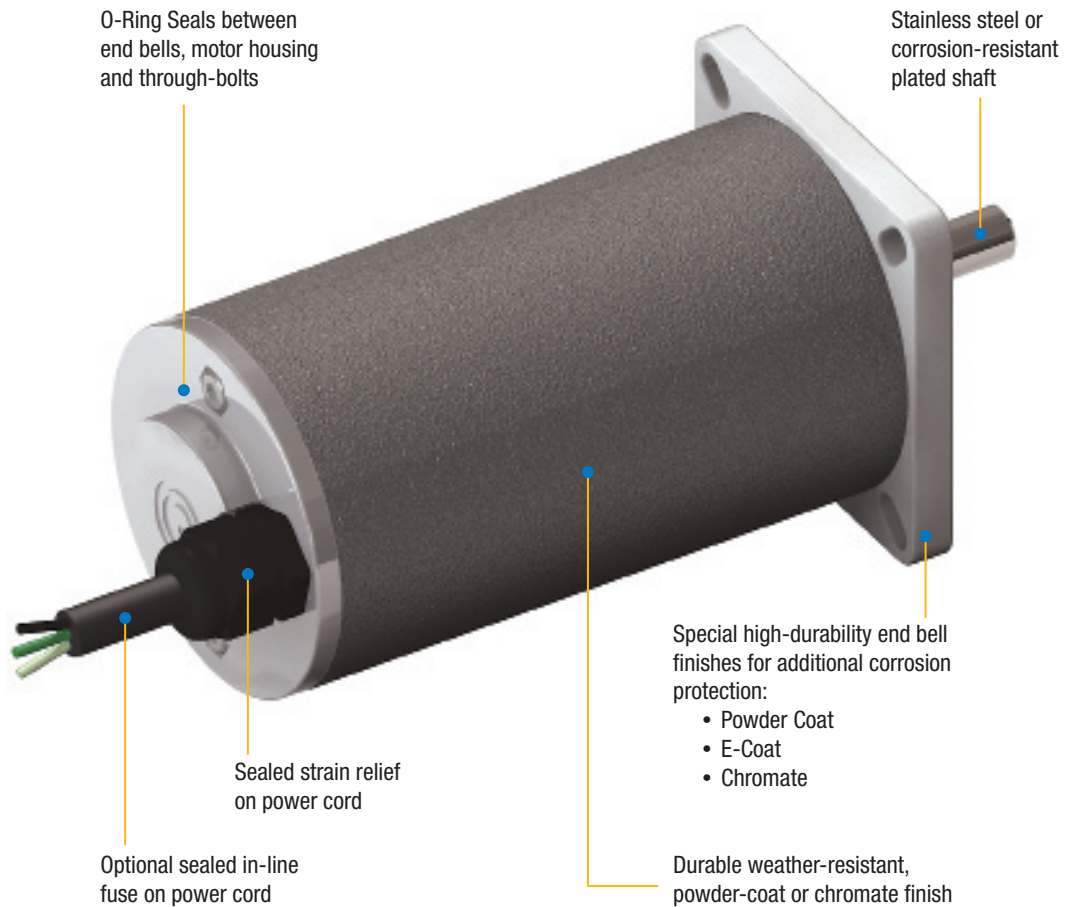
- Protected against strong jets of water
- Totally protected against dust
- Ingress Protection

INTERNATIONAL ELECTROTECHNICAL COMMISSION

Protection Features



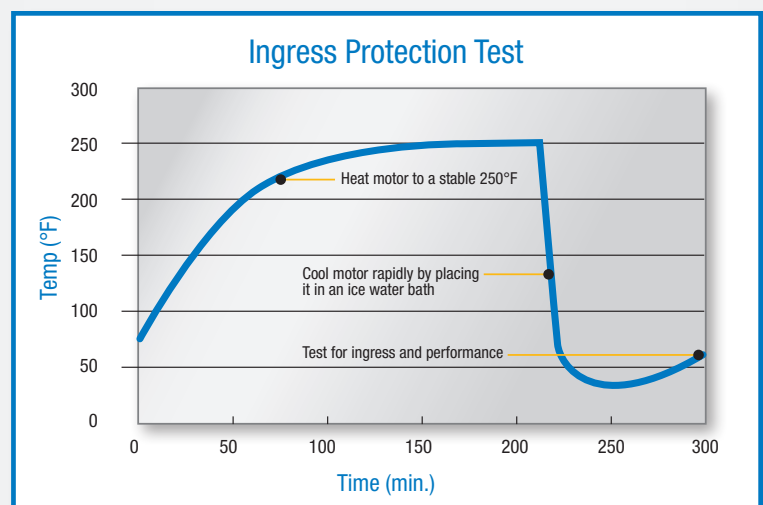
IP66 Permanent Magnet DC Motor



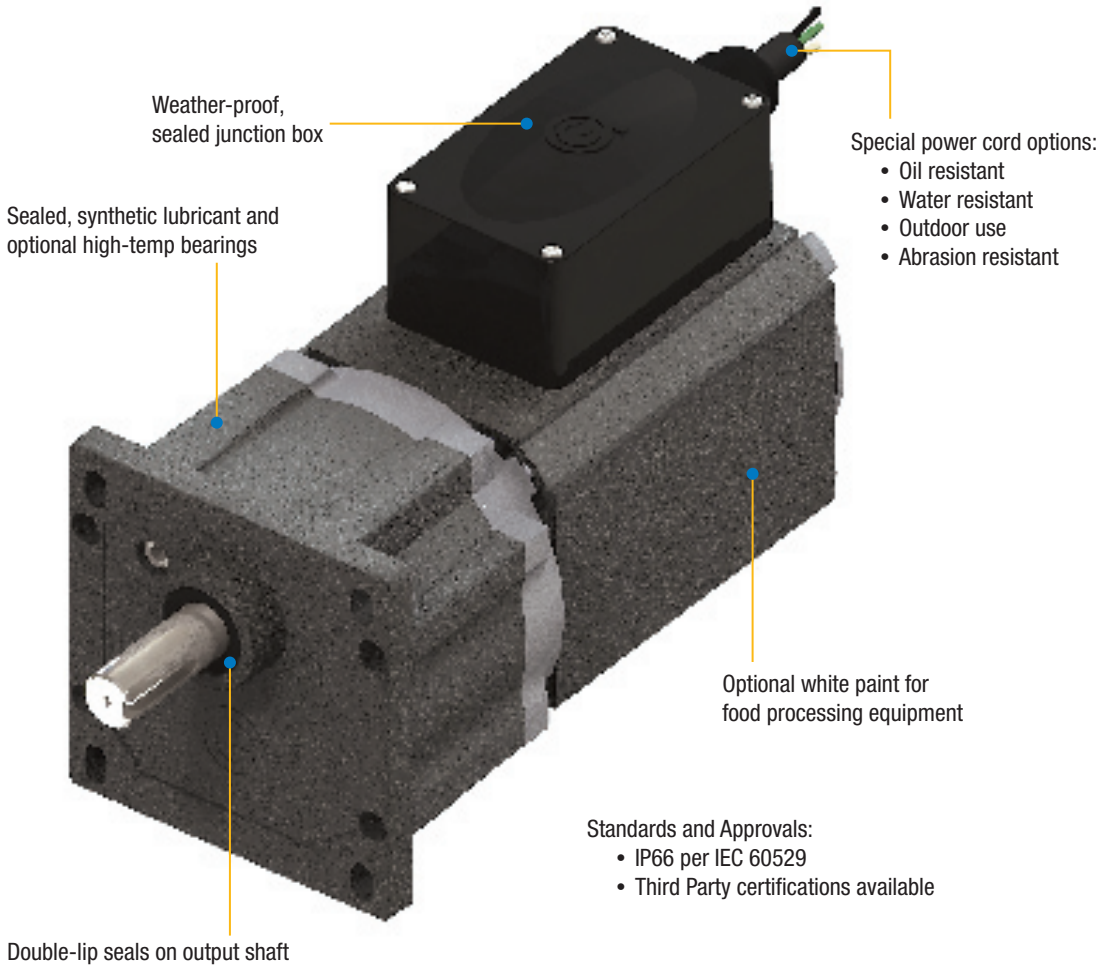
Tested & Proven

Groschopp IP66 Permanent Magnet DC series motors have been subjected to rigorous Hot/Cold tests where the motor is heated to 250°F and then immediately submerged in an iced water bath at 33°F. Even with these temperature extremes and submersion, the motor was so well sealed that post-test evaluations revealed no water ingress or performance compromise.

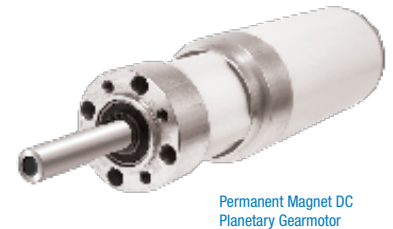
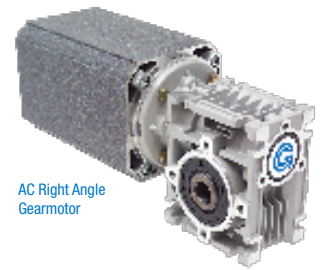
IP66 PMDC motor designs have been tested for 96 hours of continuous operation in a salt fog, per customer testing requirements. Groschopp can tailor testing protocols and provide performance results to meet specific OEM design requirements. These same environmental and performance tests can be applied to any Groschopp motor or gearmotor design.



IP66 AC Parallel Shaft Gearmotor



CUSTOMIZATION



Physical Protection

- Seals between end bells and motor housing
- Sealed bearings and bearing pockets
- Sealed strain relief on power cord
- Sealed through-bolts
- Durable, weather-resistant powder coat finish on motor housing
- Operating temperature ratings of -40 to 115°C (ambient)
- Static temperature ratings of -65 to 130°C

Electrical Protection

- Sealed strain relief on power cord
- Meets IP66 enclosure protection
- Internal brushes and brush holder completely sealed from outside elements (PMDC motors)
- Optional sealed in-line fuse on power cord
- Weatherproof, sealed junction box

Environmental Testing & Protection

Per OEM specification, testing and design for operation in:


- Water
- Salt spray
- Chemicals
- Ice
- Dirt, mud and dust



Specifications


These tables represent our range of IP66 motor and gearmotor capability. Groschopp can provide the applications engineering expertise to apply the right combination of protection and performance features for an optimized customized solution.

AC Induction




Motor Type	Frame Size	Voltage	Phase	Poles	Hz	Speed (RPM)	Power (hp)	Torque (lb-in)
	65 80 90 100	115 230	1	2	50/60	2700 - 3400	0.04 - 0.78	0.9 - 17.3
				4	50/60	1350 - 1700	0.01 - 0.40	0.7 - 18.4
		230	3	2	50/60	2800 - 3400	0.07 - 1.11	1.5 - 22.0
				4	50/60	1400 - 1700	0.02 - 0.60	1.1 - 24.2

Permanent Magnet DC



Motor Type	Frame Size	Voltage	Speed (RPM)	Power (hp)	Torque (lb-in)
	60 80 108	12	1000 - 5000	0.01 - 0.07	0.6 - 11.8
		24	1000 - 5000	0.03 - 0.13	1.0 - 12.9
		130	1000 - 5000	0.05 - 0.14	1.2 - 13.0
		180	1000 - 5000	0.06 - 0.12	1.0 - 13.1

Brushless DC



Motor Type	Frame Size	Voltage	Speed (RPM)	Power (hp)	Torque (lb-in)
	65	12	2500	0.07 - 0.18	1.8 - 4.4
		24	2500	0.07 - 0.17	1.8 - 4.3
		163	2500	0.07 - 0.20	1.8 - 5.0
	80	163	2500	0.14 - 0.43	3.6 - 10.8

For complete Customization information, request our [Customized Motor Application Guide](#) or visit www.groschopp.com.

Customized Right Angle Gearmotor for IP66, Class B harsh environment application in a heavy automotive (bus) transmission shifter. Dual commutator design for emergency backup and ultimate reliability



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