

Lubricants in the Manufacturing of Motor Housings: Ensuring Precision and Durability

Introduction

Motor housings are critical components in automotive engines, electric motors, and industrial machines. They enclose and protect internal assemblies such as stators, rotors, gears, and bearings while ensuring heat dissipation, structural integrity, and alignment. Manufacturing motor housings involves processes like casting, machining, drilling, milling, honing, and assembly — each generating significant friction and heat. To achieve high-quality, durable housings, the choice of lubricants plays a decisive role.

1. Why Lubricants Matter in Motor Housing Manufacturing

During production, different stages involve cutting, forming, and assembly of aluminum, cast iron, or alloy housings. Proper lubrication helps to:

Reduce Tool Wear: Protects cutting tools, drills, and dies from premature failure.

Improve Surface Finish: Ensures smooth bores, precise tolerances, and defect-free machining.

Support Heat Management: Lubricants dissipate heat during high-speed machining.

Prevent Corrosion: Temporary rust inhibitors protect housings before coating or assembly.

Simplify Cleaning: Low-residue fluids reduce degreasing and cleaning time before surface treatment.

2. Types of Lubricants Used in Motor Housing Production

Process Stage

Typical Lubricant

Benefits

Casting & Die Release

Graphite-based or water-based die lubricants

Prevent sticking, improve mold life, ensure clean release of aluminum or alloy cast housings

Machining (Drilling, Milling, Turning, Boring)

Water-soluble coolants, synthetic cutting fluids, or neat oils

Excellent cooling, chip removal, tool life extension, smooth surface finish

Honing & Grinding

Low-viscosity honing oils or emulsions

Precise dimensional accuracy, minimized friction, fine surface quality

Assembly & Fitment

Light greases with anti-wear additives

Reduce friction during press-fitting of bearings, bushings, and seals

Rust Protection

Solvent-cutback or oil-based rust preventives

Protect unfinished housings during storage or shipment

Welding/Joining Prep (if applicable)

Low-residue lubricants

Minimize weld contamination, ensure strong joints

3. Benefits to Manufacturers

Extended Tool Life: Lubricants reduce wear on high-cost cutting tools and dies.

Higher Accuracy: Controlled lubrication ensures precise tolerances and bore roundness in housings.

Lower Cleaning Costs: Low-residue fluids reduce washing and degreasing requirements.

Improved Productivity: Smooth machining and forming minimize downtime.

Corrosion Protection: Prevents damage to semi-finished and finished housings before coating or shipping.

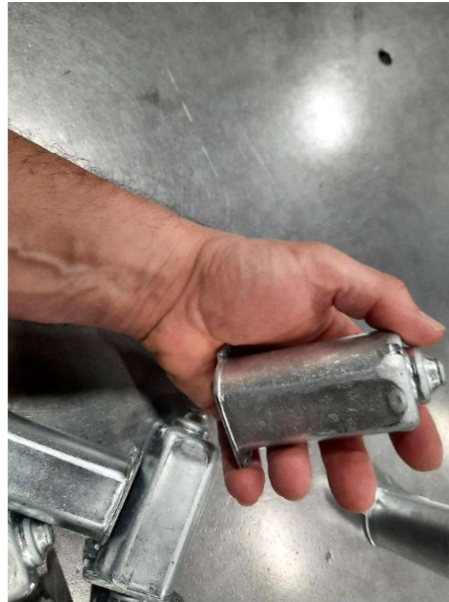
4. Current Industry Trends

Dry Film Lubricants: Pre-applied on casting dies or machining areas to reduce oil use and simplify cleaning.

Bio-Based Lubricants: Environmentally friendly alternatives made from vegetable oils or esters.



PRESS TYPE	: 600-ton VERNON mechanical press.
PART DESCRIPTION	: MOTOR HOUSING.
MATERIAL	: GV12GEDDS M63553000 – 2.46mm thickness.
DIES	: 13 stage progressive die.
PRESS SPEED	: 14 SPM by stopwatch.
IRMCO FLUIDS®	: IRMCO FLUIDS 980 109 or EV1@20%
METHOD OF APPLICATION	: UNIST spray applicator nozzles positioned at/near stages 1,4, 6, 8 & 9.



BENEFIT

REPLACING A VERY HEAVY CHLORINATED OIL
PRICE PER PART REDUCED OF 17 TIMES
PARTS NOT WASHED AND PACKED IMMEDIATELY, COMPLETELY DRY
FULL COMPATIBILITY ABOUT ELECTRICAL ENVIRONMENTAL
CALIBRATION BEARING LOCATION GOTTEN WITH REAPPLICATION ON SITE