

Lubricants in the Manufacturing of LH / RH Pillar Main Body -

Introduction

The LH (Left-Hand) and RH (Right-Hand) pillar main body are essential structural components of a vehicle's body-in-white (BIW). These pillars provide rigidity, crash protection, and support for roof, doors, and side structures. Manufacturing these pillars involves blanking, deep drawing, stamping, piercing, welding, and assembly of high-strength steel or aluminum sheets. Throughout these processes, lubricants play a critical role in ensuring part accuracy, protecting tooling, and delivering consistent surface quality.

1. Why Lubricants Are Critical in Pillar Manufacturing

The pillar main body is a safety-critical part that undergoes complex forming and joining. Proper lubrication ensures:

Reduced Friction & Die Wear: Protects stamping dies and cutting tools from early failure.

Smooth Metal Flow: Prevents cracking, wrinkling, or tearing during deep drawing.

Enhanced Surface Finish: Maintains scratch-free, defect-free visible surfaces.

Simplified Cleaning: Low-residue lubricants reduce degreasing before e-coat or paint.

Corrosion Protection: Temporary rust preventives safeguard pillars during handling, storage, and transport.

2. Types of Lubricants Used in Pillar Main Body Production

Process Stage

Typical Lubricant

Key Benefits

Blanking & Stamping

Water-soluble or semi-synthetic stamping emulsions, sometimes with EP additives

Reduces die wear, improves forming accuracy, easy wash-off

Deep Drawing/Forming

Heavy-duty drawing lubricants (water-based, semi-synthetic, or dry-film coatings)

Prevents galling, enables forming of AHSS/UHSS pillars

Trimming & Piercing

Light cutting oils or water-miscible coolants

Clean edges, fewer burrs, extended tool life

Welding Prep

Low-residue lubricants

Prevents weld spatter and porosity, ensures strong joints

Corrosion Protection

Solvent-based or oil-based rust preventives

Protects unpainted pillars before e-coating or assembly

Assembly Fitment

Specialty greases for bushings, fasteners, or brackets

Reduces friction and squeaks during vehicle life

3. Benefits for Manufacturers

Extended Die & Tool Life: Reduced maintenance costs and downtime.

Improved Forming Accuracy: Consistent lubrication prevents deformation and springback.

Better Weldability & Paint Adhesion: Clean, residue-free surfaces ensure downstream quality.

Lower Cleaning Costs: Easy-to-remove lubricants reduce chemical and energy use.

Enhanced Safety & Reliability: Corrosion-resistant pillars maintain structural integrity.

4. Current Trends in Pillar Manufacturing Lubrication

Dry Film Lubricants & Pre-Coated Sheets: Eliminate the need for post-process degreasing.

Eco-Friendly Lubricants: Biodegradable, non-chlorinated, and low-VOC formulations align with sustainability goals.

Automated Application Systems: Precision spray and roller systems optimize lubricant use, cut waste, and ensure uniform coverage.



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| PRESS TYPE | : AIDA 1650-US ton mechanical, transfer press. |
| PART DESCRIPTION | : LH/RH PILLAR MAIN BODY. |
| MATERIAL | : CR DP 340Y590T HD (coating weight covered by sticker) – minimum spangle galvanized coil. |
| MATERIAL THICKNESS | : 0.762mm-0.8382mm thickness |
| PROCESS | : 8-stage transfer die. |
| PRESS SPEED | : 11 SPM |
| IRMCO LUBRICANT USED | : IRMCO FLUIDS® 980 109 or EV1@15% |
| METHOD OF APPLICATION | : Lubricant applied via spray applicators with nozzles at approximately stages 1, 6-8 via two sets of nozzles (4 in front & 4 in back) at those points. 8 spray nozzles total |



BENEFIT
EVAPORATIVE SOLVENT REPLACED
PARTS NOT WASHED COMPLETELY DRY
NO WHITE RUST WAS DETECTED FOR THE YEAR
NO TOOL BUILD-UP AND SPECIAL MAINTENANCE NEEDED