Lubricants in the Manufacturing of BH-FILLER-BODY-SI-OTR-PNL-LWR

Introduction

The BH-FILLER-BODY-SI-OTR-PNL-LWR is a lower filler component integrated into the body side outer panel structure of vehicles. It provides structural reinforcement, crash safety, and rigidity, while also contributing to dimensional alignment and noise-vibration-harshness (NVH) control. Manufacturing this filler panel involves blanking, deep drawing, stamping, trimming, piercing, welding, and corrosion protection processes. At every step, the right lubricants are essential to ensure efficiency, high-quality surfaces, and strong weldability.

1. Importance of Lubricants in Filler Panel Production

Protects Stamping Dies & Tools → Reduces wear, galling, and heat generation.

Supports Deep Drawing & Forming → Enables smooth metal flow in complex panel geometries.

Preserves Surface Finish → Prevents scratches, galling, and defects on Class-A and visible areas.

Improves Weldability → Low-residue lubricants ensure clean weld zones for structural integrity.

Corrosion Resistance → Temporary protection during storage, handling, and transport.

2. Types of Lubricants Used

Process Stage
Lubricant Type
Key Benefits
Blanking & Stamping
Water-soluble emulsions / semi-synthetic stamping fluids
Smooth forming, extended die life, easy cleaning
Deep Drawing/Forming
Polymer-based heavy-duty drawing lubricants or dry-film coatings
Prevents tearing and wrinkling, ensures accurate shapes
Trimming & Piercing
Light cutting oils or water-miscible coolants
Clean edges, burr control, longer punch/die life
Welding & Joining
Low-residue weld-friendly lubricants / anti-spatter fluids
Strong welds, defect-free joints
Storage & Handling
Solvent-cutback rust preventives or thin-oil coatings
Protects from oxidation before e-coating/painting

3. Benefits for Manufacturers

Extended Tool Life → Less downtime from die refurbishing.

Accurate Forming → Controlled lubricant behavior ensures filler fits precisely within the body side assembly.

Better Surface Quality → Clean, scratch-free panels ready for coating/painting.

Improved Weld Strength → Cleaner weld seams with no porosity or contamination.

Lower Cleaning Costs → Water-soluble lubricants reduce degreasing effort.

4. Current Trends in Lubrication
Dry-Film Lubricants & Pre-Coated Sheets → Eliminate post-lube cleaning, simplify BIW processing.

Eco-Friendly Lubricants → Biodegradable, non-chlorinated formulations reduce VOCs and environmental impact.

Automated Application Systems → Spray/roller systems optimize lubricant quantity, minimize waste.

Dual-Function Lubricants → Formulations that combine forming performance with temporary rust protection.

PRESS TYPE	**: VERSON 1000-ton mechanical press.**
PART DESCRIPTION	**: BH FILLER BODY SI OTR PNL LWR.**
MATERIAL	**: CR HSLA 340LA HD60G/60GU steel coil.**
MATERIAL THICKNESS	**: 0.787 – 0.813mm thick.**
PROCESS	**: 8-stage progressive die – "2 off".**
IRMCO LUBRICANT USED	**: IRMCO FLUIDS® 980 109 @20 or EV1@25%**
LUBRICANT APPLICATION	**: Spray applied to top of coil entering & at 1st forming stage – every stroke.**
PROCESS SPEED	**: 18 SPM.**

BENEFIT

REPLACING EVAPORATIVE
PARTS NOT WASHED AND PACKED IMMEDIATELY, COMPLETELY DRY
TOOL MAINTENANCE ELIMINATED