Lubricants in the Manufacturing of BASE-PAN-MEDIUM

Introduction

The BASE-PAN-MEDIUM is a medium-size floor pan component of the vehicle underbody. It serves as a structural foundation by supporting seating, floor assemblies, and providing rigidity to the chassis. Since this part is exposed to high stress, vibration, and potential corrosion, the manufacturing process requires precise forming, welding, and finishing operations. Throughout these processes, specialized lubricants play a critical role in ensuring dimensional accuracy, long tool life, and durability of the component.

1. Role of Lubricants in Base Pan Manufacturing

Enhances Formability → Prevents cracks and wrinkles during deep draw forming.

Protects Tooling → Reduces galling, scoring, and thermal wear on dies and punches.

Surface Protection → Maintains clean surface finish suitable for underbody coating.

Weld Compatibility → Low-residue lubricants ensure defect-free MIG/spot welds.

Corrosion Resistance → Prevents rusting before e-coating or painting.

2. Types of Lubricants Used

Process Stage
Lubricant Type
Benefits
Blanking & Stamping
Semi-synthetic stamping oils / water-based emulsions
Smooth forming, reduced friction, tool life improvement
Deep Drawing/Forming
Polymer-based drawing lubricants / dry-film coatings
Prevents tearing and thinning in large-area panels
Trimming & Piercing
Light cutting oils / water-miscible coolants
Burr-free cuts, extended punch & die life
Welding & Assembly
Weld-compatible low-residue lubricants / anti-spatter sprays
Strong, defect-free welds
Storage & Handling
Rust preventive oils / solvent-based thin film coatings
Protects base pan before coating

3. Benefits to Manufacturers

Efficient Forming of Large Panels → Reduces rework on big-area base pans.

Tool Life Extension → Less die maintenance and downtime.

Superior Weld Strength → Consistent spot weld quality.

Reduced Cleaning Needs → Water-soluble lubes lower degreasing costs.

Corrosion-Free Handling → Protects floor pan until e-coat/paint application.

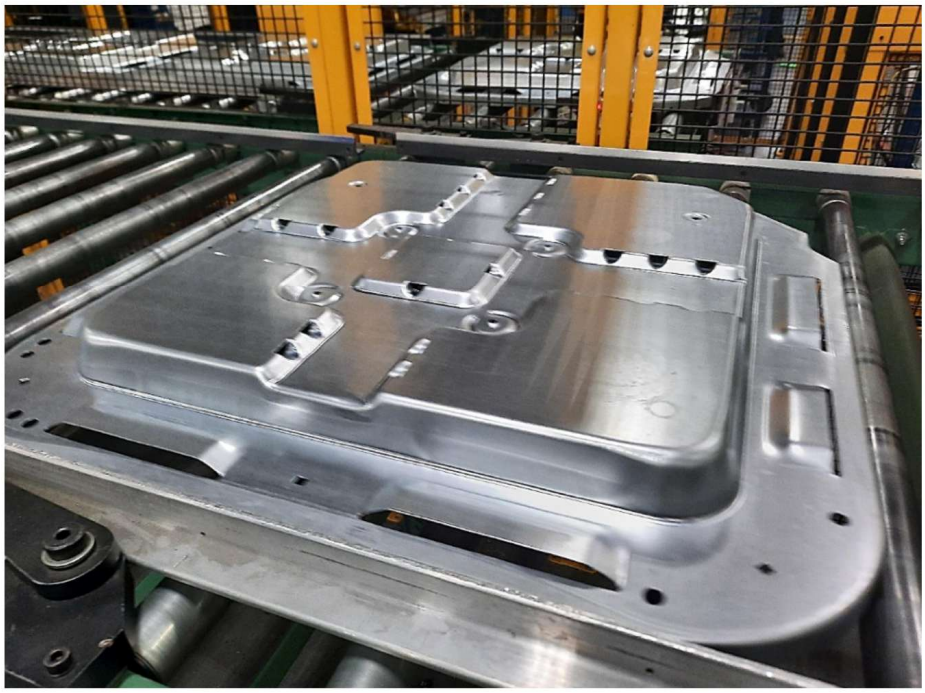
4. Latest Industry Trends
Dry-Film & Pre-Coated Lubricants → Eliminates wet lubricants, reduces post-cleaning.

Eco-Friendly Solutions → Chlorine-free and biodegradable stamping fluids.

Precision Application → Automated spray/roller systems optimize usage, cut waste.

Hybrid Lubricants → Combine forming lubrication + temporary rust protection in one step.

MINSTER PRESS	**:– 600-ton hydraulic press.**
PROCESS	**: 4-station transfer press line w/ robotic/suction transfers.**
PART DESCIPTION	**: Base Pan (Medium).**
MATERIAL	**: Galvanized sheet DDS G40U XS steel blanks 1.14mm thickness.**
IRMCO LUBRICANT TESTED	**: IRMCO FLUIDS® 980 109 or EV1@25%**
METHOD OF APPLICATION	**: UNIST Spray Bar Application.**



BENEFIT

REPLACING A SOLVENT PRODUCT
PRICE PER PART REDUCED OF 8 TIMES
PARTS NOT WASHED AND PACKED IMMEDIATELY, COMPLETELY DRY
NO TOOL BUILD UP AND SPECIAL MAINTENANCE NEEDED