

Lubricants in the Manufacturing of STFNR RR FLR PAN REINF Components -

Introduction

The **stiffener rear floor panel reinforcement (STFNR RR FLR PAN REINF)** is a structural underbody component designed to improve rigidity, crash performance, and NVH (noise, vibration, harshness) in modern vehicles. Manufacturing this part typically involves forming high-strength or advanced high-strength steel (AHSS) sheets, trimming, welding, and corrosion-protection operations. At every stage, the choice of **lubricants** directly influences quality, productivity, and cost.

1. Why Lubricants Matter in Rear Floor Panel Reinforcement Manufacturing

Operations such as blanking, deep drawing, stamping, piercing, and welding generate friction, heat, and tool wear. Correct lubrication:

- **Reduces Friction and Tool Wear:** Extends the life of expensive dies and cutting tools.
- **Improves Metal Flow:** Prevents tearing, wrinkling, or springback when forming AHSS parts.
- **Protects Surface Integrity:** Ensures a clean, defect-free surface for downstream e-coating or painting.
- **Cuts Cleaning Time:** Low-residue lubricants shorten or eliminate degreasing before welding or coating.
- **Prevents Corrosion:** Temporary rust inhibitors protect parts during storage and transport.

2. Types of Lubricants Used

Process	Typical Lubricant	Key Benefits
Blanking & Stamping	Water-soluble or synthetic emulsions; sometimes pre-applied coil coatings	Excellent cooling, low residue, good metal flow
Deep Drawing/Forming	Heavy-duty water-based or semi-synthetic drawing lubricants	Reduces galling and die wear on AHSS

Trimming & Piercing	Light oils or water-miscible coolants	Clean edges, extended tool life
Welding Prep	Low-residue or easily removable lubricants	Minimizes contamination of weld zones
Corrosion Protection	Solvent-cutback or oil-based temporary rust preventives	Safeguards unpainted parts before e-coat
Assembly/Bracket Fitment	Specialty greases with anti-wear additives	Low friction and squeak prevention at joints

3. Benefits to Manufacturers

- **Lower Tooling Costs:** Reduced wear means fewer die refurbishments.
 - **Better Dimensional Accuracy:** Consistent lubrication prevents part deformation.
 - **Improved Downstream Quality:** Cleaner panels lead to stronger welds and better paint adhesion.
 - **Enhanced Safety and Sustainability:** Modern, low-VOC lubricants improve workplace conditions and reduce environmental impact.
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4. Emerging Trends

- **Dry Film Lubricants:** Pre-coated sheets eliminate the need for liquid oils and simplify cleaning.
- **Biodegradable Formulations:** Vegetable-oil or synthetic-ester bases meet stricter environmental standards.

Automated Lubricant Application: Roller or spray systems ensure the correct amount in exactly the right place.



PRESS TYPE	: 1000-ton VERNON mechanical press.
PART DESCRIPTION	: Stiff R/L FR Side Frame
PROCESS	: 5-stage – “2-off” (R/L) progressive die.
MATERIAL	: JAC980YL 45/45 - 1.83mm thickness.
IRMCO LUBRICANT USED	: IRMCO FLUIDS® 980 109@15% or EV1@20%
METHOD OF APPLICATION	: Spray application (SPRA-RITE) –applied from top to coil prior to entering stage 1 - every stroke.
PRESS SPEED	: 18 SPM (stopwatch).



BENEFIT

REPLACING ANOTHER POLYMER OILY PRODUCT

PRICE PER PART REDUCED OF 74%

PARTS NOT WASHED AND PACKED IMMEDIATELY, COMPLETELY DRY