

Lubricants in Manufacturing of Suspension Components: Enhancing Efficiency and Quality

Suspension components such as control arms, coil springs, stabilizer bars, and brackets are critical to vehicle performance and safety. They endure high stress, exposure to dirt, and varying temperatures, making their manufacturing process highly specialized. One often overlooked but crucial factor in producing high-quality suspension components is **the choice of lubricants**. Proper lubrication not only extends the life of manufacturing equipment but also improves part quality, reduces cleaning needs, and ensures smoother production.

1. Role of Lubricants in Suspension Component Manufacturing

During the manufacturing of suspension components, operations such as forging, stamping, machining, and assembly generate high friction and heat. Lubricants serve to:

- **Reduce friction and wear:** Protect dies, molds, and cutting tools from premature failure.
 - **Enhance part finish:** Minimize scratches, scoring, or surface defects on components.
 - **Improve forming accuracy:** Ensure smooth metal flow during progressive stamping, forging, and bending.
 - **Simplify cleaning:** Specialized lubricants reduce sticky residues, cutting down on post-process cleaning of parts like brackets or arms.
 - **Protect against corrosion:** Temporary rust-preventive lubricants shield raw and semi-finished parts before coating or assembly.
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2. Types of Lubricants Used

Different stages of suspension component production call for different lubrication solutions:

- **Forming & Stamping Lubricants:**
Emulsion- or synthetic-based lubricants designed for progressive stamping of high-strength steels and alloys. They improve die life, allow tighter tolerances, and reduce lubricant buildup on tools.
- **Forging Lubricants:**
Graphite-based or semi-synthetic lubricants used at high temperatures in hot forging of

control arms or brackets. They prevent sticking and enable clean part release.

- **Cutting & Machining Fluids:**

Water-soluble coolants or neat oils for precision drilling, milling, or turning of suspension pins or bush housings. These provide superior cooling and chip removal.

- **Assembly & Anti-Friction Greases:**

Greases with anti-wear and corrosion inhibitors are applied during press-fitting of bushings, bearings, or joints to reduce initial friction.

Rust Preventive Oils:

Light, solvent-based or oil-based coatings protect suspension components from corrosion during

storage and transport before painting or assembly.



PRESS TYPE	: AIDA – 1500 Ton Mechanical Press.
PART DESCRIPTION	: SUSPENSION COMPONENT
PROCESS	: 13-stage progressive die – “2-off”.
MATERIAL	: HJAH590B-45/45 coil steel – 2.9mm thickness
IRMCO LUBRICANT USED	: IRMCO FLUIDS® 980 109@20% or EV1@25%
METHOD OF APPLICATION	: Spray application on top of the coil before entering die & at 2 nd , 3 rd , 4 th & 7 th stages & at burr punch – every stroke.
PRESS SPEED	: 20 SPM



BENEFIT
REPLACING FUCHS OIL PRODUCT
PRICE PER PART REDUCED OF 42%
PARTS NOT WASHED AND PACKED IMMEDIATELY.
FULL RUST PROTECTION