CASTOOL™
TOOLING SYSTEMS

BILLET LUBRICATION

PURPOSE

► To help instantly and cleanly separate the dummy block from the billet at the end of each extrusion cycle, without pulling extruded section from the die.

► Aluminium alloy sticks to steel at or above 400°C, and becomes more of a problem the larger the billet diameter, because of the increased surface area.

FUNCTION

► A carefully measured amount of lubricant is applied on the billet face

► Excess lubricant is an unnecessary cost, and a workplace pollutant

► Every effort must be made to eliminate the possibility of any non-metallic substance getting into the extruded product

► Lubricant can be purchased as a liquid, tablet or solid soap bar

HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARD	0
STABILITY	0

HMIS® RATINGS

At the end of each extrusion cycle, the dummy block must separate cleanly from the butt, without removing the section from the die, and without breaking the mandrel cone in the dummy block.

Aluminium sticking can be a serious problem, especially when using the softer alloys, and with larger billets. It is absolutely essential, therefore, to lubricate both the billet and the dummy block to make separation easier.

LIQUID BILLET LUBRICANT SYSTEM

ALU-JECT is a soluble lubricant made up of a blend of acids and salts to form a soap. The lubricant dries onto the billet forming a lubricant barrier protecting the dummy block from the aluminum billet and allowing the dummy block to easily retract without any adhesion to the billet.

ALU-JECT is a non-pigmented, water based lubricant designed for billet and coating. It is formulated using organometallic compounds which apply a boundary film to prevent welding of the billet to the dummy block; providing excellent release characteristics. ALU-JECT is capable of wetting temperature as high as 112 °F (600 °C).

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BENEFITS OF THE CASTOOL LUBRICATION SYSTEM

- Improved safety, as there is no fire risk
- No graphite or oil contamination
- No health risks
- Product quality extruded profile is enhanced
- Costly downtime reduced
- Tooling life increased

With The lubrication system, Castool again sets a new standard of excellence in the extrusion industry.

Results may vary depending on individual press characteristics and setup.

ACETYLENE

AEC ALUMINUM EXTRUDERS COUNCIL
MEMBER

ISO 9001:2015 CERTIFICATION™ QUALITY
ISO 45001:2018 CERTIFICATION™ SAFETY
ISO 14001:2015 CERTIFICATION™ ENVIRONMENT

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RELEASE AGENTS

LIQUID BORON NITRIDE

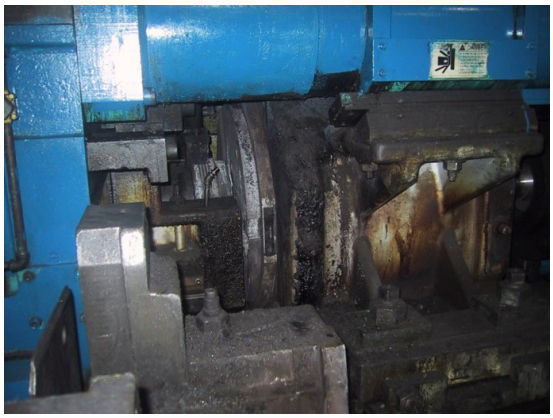
Greases and oil-based graphite suspensions can only be applied by hand. They are cheap and require a worker to be present at all times. These materials are flammable at high temperature. This can cause problems with electrical equipment. Also explosions create blisters in the billet, which can lead to small holes in the extruded profile. This cannot be tolerated by most markets today. Handling is also messy, and the material is environmentally problematic.

Acetylene is ignited in front of the billet, generating black carbon black. Acetylene was the first technology to operate automatically, since the flame is lit as the billet passes the burner on its way out of the preheating furnace. Carbon is a good release agent, but due to its small size, carbon black is a carcinogenic. Workers must be protected against breathing in any powder that does not stick to the billet. This also causes problems with the quality of the extruded profile. It can create black marks on the profile that cannot be removed and interfere with anodizing.

The application of electrostatic Boron Nitride (BN) is a good alternative. Its release and lubrication characteristics outperform carbon back. It is also simple to automate the coating of the billet when using BN. BN is not carcinogenic, is nontoxic and chemically inert. There will be no white marks, even inside the die, therefore there are no marks on the profile surfaces.

Castool Tooling Systems has developed a unique process of application of a liquid soluble lubricant to a preheated extrusion billet prior to loading into the press. The obstacle to their use was the Leidenfrost affect, which makes it difficult to coat a surface greater than 600°C with a water based product. New binders have been developed whick makes it possible to now apply water based lubricant to the billet.

The process enables improved coverage compared to boron nitride powder application with much less overspray and lower consumable costs.



GRAPHITE GREASE

Swiss Steel International
HOT WORK TOOL STEELS