

## Lubricant Metal LAM'LCOAT® coating for Beading, Forming, Drawing, Stamping

The sub-micron lamellar crystalline structure creates a complex capillary surface environment aiding in fluid lubrication retention providing significant reduction in wear characteristics. The LAM'LCOAT® prevents spalling, reduces friction and noise and is compatible with fluid lubrication.



The low coefficient of friction (0.030 dynamic) reduces drag and wear, and improves significantly lubrication on most engine parts, translating to an increase in performance in most environments. The thickness of LAM'LCOAT® (1 micron, +/- 0.5) gives a completely uniform structure with virtually no dimensional change and is an excellent lubrication coating for tight tolerance components.

LAM'LCOAT® can be applied to all PVD and CVD coatings in addition to all Ferrous and non-ferrous substrates, composites, alloys or plastics. It is compatible with most solvents or fuel/oil agents and doesn't migrate. The extremely low coefficient of friction improves chip evacuation on cutting tooling and significantly reduces galling, material adhesion and residual pickup. It has been used successfully on end mills, saw blades and drill bits. It is also an excellent addition to chucks, tooling holders and die components.



❖ Examples of parts coated with LAM'LCOAT®:

- ❖ Example of a drawing die: a deep drawn pot (wall thickness: 2mm, height: 70mm, Ø75mm)

Without coating, 10 000 parts were manufactured and the tool had to be overhauled. The maximum endurance of the tool was 40 000 parts.

Due to the coating of LAM'LCOAT® the tool has manufactured 200 000 parts to date. No wear on the tool was noticed. The use of drawing compounds was reduced to zero.

- ❖ Example of a drawing die for processing stainless steel: a metal sheet of 3mm

The problem was the short endurance of the tool. After approximately 100 parts (6 parts/min) the tool was dismantled and polished because the part could no longer be ejected.

After polished and coated with LAM'LCOAT®, no further problems occurred and the tool works without lubricants for 10 months.

- ❖ Example of a drawing die, drawing punch and holding down device: a 3.5 mm metal sheet and 40 mm deep

Without coating, the tool was dismantled after approximately 30 000 parts and completely overhauled (resink die and polish drawing die).

With LAM'LCOAT® coating approximately 130 000 parts were manufactured without using drawing compounds.

- ❖ Example of punching dies to break down profiles

With TiN coating, the die produced approximately 1 000 punches.

With CrN coating, the die produced approximately 3 000 punches.

After coating with LAM'LCOAT®, it was not necessary to clean weekly the tool, due to a considerable smaller film build-up.

→ The LAM'LCOAT not only reduces the tool cost, but also lubricants and cleaning cost.



- Its main advantages:

- Is anti-seize and possesses non-stick properties
- Maintains the dimensional integrity of tools and blades as well as the surface treatments made
- Facilitates the sliding of the tool during beading operations
- Reduces the beading efforts and the induced deformations of the parts
- Permanently lubricates tools
- The cutting edge remains sharp (ex: razor blades to produce plastic film)
- Eliminates the hysteresis phenomenon for short movements and improves precision
- Limits the need for maintenance
- Enables to reduce shavings
- Improves the tools' capacity and the quality in general
- Reduces pressure and wear, thus extending the life of tools and accessories
- Enables to increase speeds and production rates, and thus to improve productivity

