

**Preparation of Injection Moulding
Cores and Inserts for Coating**

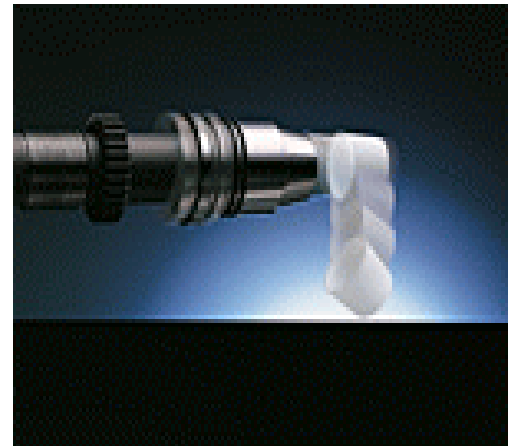


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Hard, thin film ceramic coatings can be very effectively used in injection moulding to minimise wear and pick-up - particularly on rotating or sliding parts. As ceramic coatings are smooth and of low friction, parts ejection is also much easier.

The TD Coating Centre recommends the PVD- NANO coating for injection moulding cores and other parts requiring very high tolerances. The TD coating should be used when parts can either be finished off after coating, or are not of very high dimensional tolerance. TD or NANO coatings are a very effective substitute for chrome plating and nitriding.



Some basic preparation steps must be followed though to ensure that the optimum life is achieved from the surface coating and the part.

The following steels and heat treatments are recommended :

Steel ¹	Heat Treatment ²	Tempers	Comments
Bohler K340 (or equiv)	Austenitise 1020-1060 °C	2 - 3 x 535 - 550 °C	Good polish-ability, 60-61 HRc after heat treatment, very good support for coating, poor corrosion resistance
Bohler M300	Austenitise 1020-1060 °C	2 - 3 x 500 °C	Good polish-ability, 46-47 HRc after heat treatment, reasonable support for coating, high corrosion resistant base
Bohler M340	Austenitise 1020-1060 °C	2 - 3 x 500-535 °C	Very good polish-ability, 56-52 HRc after heat treatment, good support for coating, good corrosion resistant base

- 1. Other steels may be used but enquire with the TD Coating Centre**
- 2. Vacuum hardening is the preferred heat treatment**

Surface finishing the steel to a very high polish is essential. Please polish the steel to the required finish, or, if required, the TD Coating Centre can complete the polishing.

As the NANO coating process is a line-of-sight process, coating internal bores may not be possible. However, please consider that if one surface has a smooth, hard surface coating on, it will prevent wear on the opposing, uncoated surface. Hence coating an internal core will prevent wear on the inner bore of an outer core.

Recommended Preparation Process



* It is **critical** to select the correct base metal and specify the correct heat treatment material when using NANO. Consult with the TD Coating Centre if in any doubt.