速切王 行业新标准
SPEEDCORE ///
The new industry standard

www.lmt-tools.com.cn
提高效率及适应性始终是齿轮行业的需求，仍然有许多用户没有充分发挥机床本身的潜能。因为，现在的齿轮加工机床条件可以使切削速度再提升30%，但是传统的粉末冶金高速钢不能满足要求，只能应用硬质合金用于干切。而LMT在其原有系列的切削材料的基础上最新开发出的材质SpeedCore速切王，能为客户的利益颠覆传统。

使切削速度提高50%
高的切削速度提高了刀具的机械性及耐热性。HSS高速钢由于自身的局限性，限制了其切削速度。蓝织菲特的新材质速切王滚刀具有高的红热性，又具有足够的韧性，其切削速度可以提高30%或更多。这带给客户的利益是：更少的加工时间，机床的潜能得到充分的发挥，而且新材质速切王可以使您在不增加投入的情况下提高效率。

Increased efficiency and flexibility are requirements of the gear industry. Still many users do not take advantage of their full machining potential. The reason: State of the art gear cutting machines allow higher cutting speeds up to 30% which can not be utilized with conventional PM-HSS hobs. Most of the machines are already designed to use carbide hobs and work under dry conditions. With the newly developed material SpeedCore, a cutting material as a class of its own, LMT now turns realities upside down—for the benefit of the customer.

Up to 50% higher cutting speeds
Higher cutting speeds increase the mechanical and thermal load on the tool. The HSS materials are limited to a range of cutting speeds due to their lower high temperature hardness. LMT Fette’s new SpeedCore hobs are manufactured from a new cutting material with significantly increased high temperature hardness; at the same time offering sufficient toughness. With the new SpeedCore hobs the cutting speed can be increased by 30% and more. The customer’s benefit is significantly more parts in less time. The machines will be utilized more efficiently.

No additional investment is necessary to increase the productivity, just the new SpeedCore.

Example: For gears of 20MnCr5S with module 1.49, a face width of 16.5 millimeters and 47 teeth, the process has been adjusted to the performance of the new material.

The result:
- Cutting speed +50 %
- Output +50 %
- Processing time -30 %
- Cost per part -26 %

例如：对于20MnCr5S的齿轮，
模数1.49，齿宽16.5mm，47齿的齿轮。
由于新材质的特性整个工艺得到改善。

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- Cutting speed +50 %
- Output +50 %
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New cutting materials: the core of the new cutting material
The core of the new material SpeedCore is made of iron, cobalt and molybdenum. This new composition as well as the powder metallurgy manufacturing method allow an increase in high temperature hardness of the material compared to the conventional PM-HSS materials. The hardness of this material is generated by special nanostructures, which are in an intermetallic state.

Nanosphere 2.0 – the key to a longer tool life
Building on the excellent properties of the SpeedCore material, the improvement of the first nanostructured coating for hobs worldwide offers ideal protection against wear. Tool life has been increased by 35–40%, and in combination with the excellent temperature resistance it provides long and reliable tool life. The increased efficiency is a big step for a modern and successful gear production.

The microstructure of the LMT SpeedCore material:
Tempered martensite; secondary hardening via intermetallic phases

This multi-layer construction provides improved thermal insulation and its elasticity prevents the layers flaking off the hob.
益处：
- 增加了现有设备的利用率
- 降低单位成本
- 维护简单
- 无需改变现有程序
- 无需改变现有磨削方式
- 独创的

Benefits:
- Increased output on existing machines
- Lower costs per part
- Easy handling
- No significant process changes
- Noncritical reconditioning
- The original

SpeedCore – reaches the performance ranges of carbide with the process reliability of PM-HSS
As SpeedCore hobs have performed very successfully in the automotive sector, the range has been extended to larger sizes. By this development hobs up to module 16 are now available.

They have already passed field tests on several occasions. This includes the manufacture of a module 9 gear for a planetary gear set for the mining industry. The new SpeedCore hob with a Nanosphere 2.0 coating was competing against a TiN coated tool in EMoSCo5.

The impressive result: Processing time was reduced by approx. 50% (76.2 min vs. 50.9 min).

This means that SpeedCore is now utilizing performance ranges which were previously limited to multi-part tools with carbide cutting edges. Compared to such tools the solid type design provides additional benefits such as increased accuracy, lower cost and a higher effective number of teeth.