

LKM S7 MOD

高性能高韌性高耐磨模具鋼

High Performance Mould Steel with High Toughness and Wear Resistance

- 高韌性 High Toughness
- 高耐磨性 High Wear Resistance
- 中小型注塑模具 Small to Medium Size of Plastic Injection Mould

LKM S7 MOD 简介 Introduction

LKM S7 MOD是龍記集團最新开发的高性能模具钢，参照美国AISI S7标准，在淬透性、韧性、耐磨性、抛光性等不同方面作出改良，使用硬度可达 56-58 HRC（视乎模具设计、尺寸及要求而定），适合制作长寿命、添加玻纤、形状较为复杂之中小型注塑模具。

LKM S7 MOD is a newly developed high performance mould steel by LKM. With reference to the US AISI steel standard S7, LKMS7MOD possesses different improvement in quenchability, toughness, wear resistance and polishability. The working hardness can be up to 56-58 HRC, depending on the mould design, size and requirement of the mould. It is suitable for small to medium size of plastic mould with the requirement of long production run, addition of glass fiber reinforcement, relatively complicated mould design.

供货状态 (原材表面硬度) Delivered Hardness From Steel Mill (Measured at Surface)

LKM S7 MOD

退火至 ≤ 229 HB

参照标准

🔍 AISI S7 改良型，电渣重熔

Comparable Standard

🔍 AISI S7 Modified ESR

化学成分(%) Chemical Composition (Percentage by Mass)

C碳	硅 Si	锰 Mn	铬 Cr	钼 Mo	特殊合金 Special Alloy
0.5	< 0.3	< 0.7	5.0	2.2	添加 Added

特性

- ✓ 经过ESR重熔精炼处理，钢质纯度高，显微组织均匀细小
- ✓ 优良的抗磨损性
- ✓ 良好的韧性与塑性
- ✓ 优良的淬透性
- ✓ 良好的高温强度，抗回火软化性良好
- ✓ 良好的表面处理特性（氮化及PVD）
- ✓ 优良的镜面抛光性和蚀纹性

Characteristics

- ✓ High purity, homogeneous microstructure thanks to ESR process
- ✓ Good wear resistance
- ✓ Good toughness and ductility
- ✓ Good quenchability
- ✓ Good resistance to tempering back and hot strength
- ✓ Good for surface treatment (Nitriding/PVD)
- ✓ Good polishability and texturability

应用

- ✓ 适用于长期生产的添加30%或以上玻璃纤维、碳纤维等增强塑料的注塑模具
- ✓ 热固性塑胶压实模

Application

- ✓ Suitable for plastic mould with long production run for resin with reinforced additives such as glass fiber and carbon fiber
- ✓ Compression mould for thermosetting plastics

物理性能 Physical Properties

淬回火至56-58 HRC之数值 Quenched/Tempered to 56-58 HRC

温度(°C) Temperature	20	200	400
热膨胀系数 [10 ⁻⁶ m/(m x K)] Coefficient of Thermal Expansion	-	11.5	12.3

温度(°C) Temperature	20	200	400
热传导率 [W/(m x K)] Thermal Conductivity	-	25	28

纯度 Purity

A (硫化物类) Sulfide Type	B (氧化铝类) Alumina Type	C (硅酸盐类) Silicate Type	D (球状氧化物类) Globular Oxide Type
≤0.5	≤1.0	≤1.0	≤1.0

超声波检测

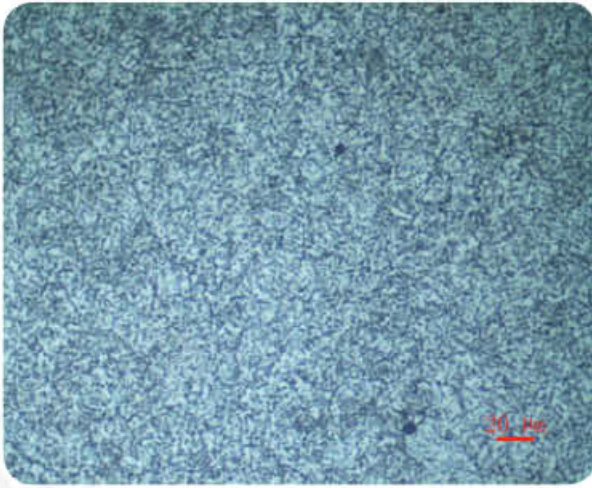
☞ SEP 1921-Test Group 3, Class E/e

Ultrasonic Testing

☞ SEP 1921- Test Group 3, Class E/e



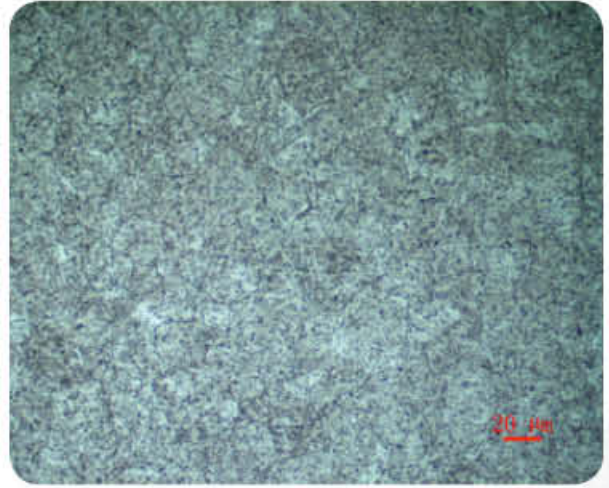
金相组织



退火态组织：均匀的球粒状珠光体

Annealed Condition: Homogenous Spheroidal Pearlite

Microstructure



调质硬化态组织：回火索氏体+粒状碳化物

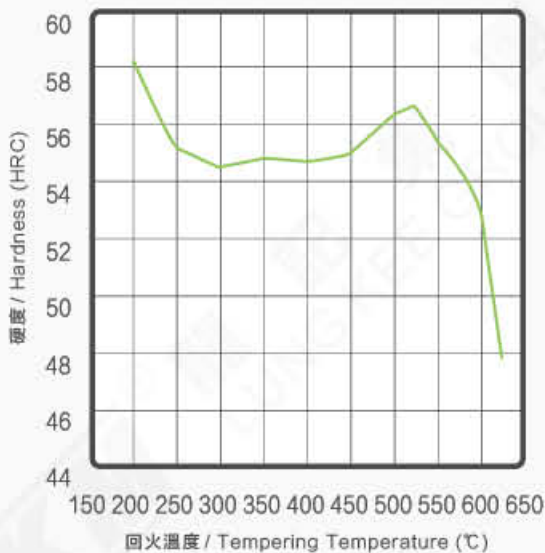
Hardened Condition: Tempered Sorbite+Granular Carbide

热处理工艺 Heat Treatment

软性退火 Annealing	淬硬 Quenching	回火 Tempering
850°C	1000-1025°C (建议1025°C) 1000-1025°C (1025°C recommended)	500-620°C

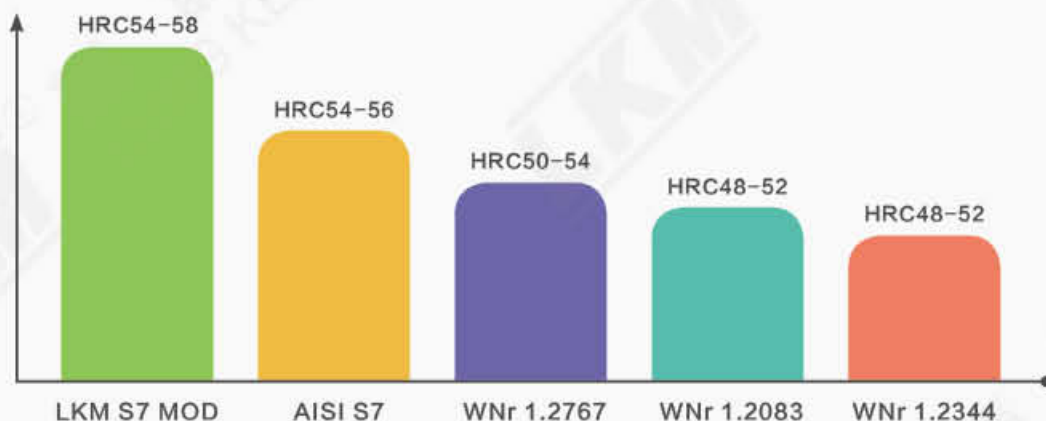
回火图 (试样尺寸: 25 x 30 x 50mm; 淬火温度: 1025°C)

Tempering Curve (Sample Dimension: 25x30x50mm; Quenched at 1025°C)

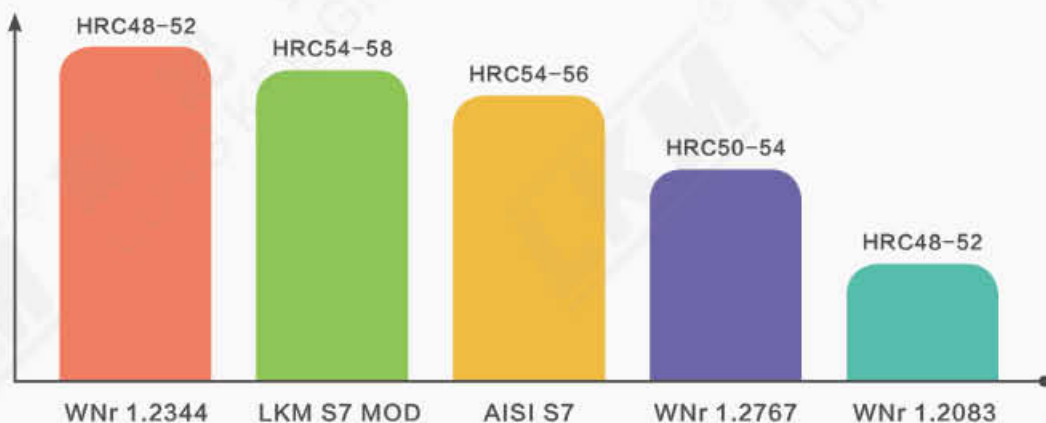


不同材料性能对比 Properties Comparison between different Steels

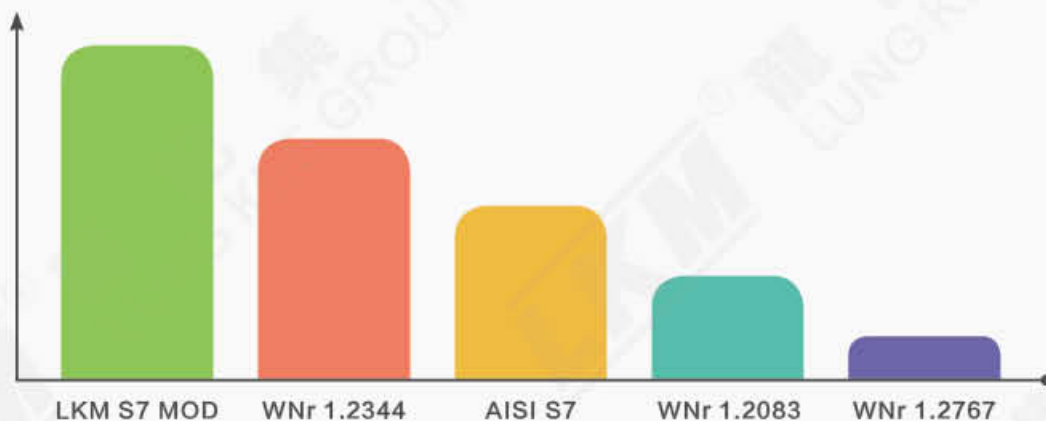
耐磨性 Wear Resistance



韧性 Toughness



抗回火软化性 Temper Resistance



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