

LKM S136 ESR

高纯度高镜面防锈塑料模具钢

Stainless Plastic Mould Steel with High Purity and Mirror Finish

- 高抛光性 High Polishability
- 高耐磨性 High Wear Resistance
- 高耐腐蚀性 High Corrosion Resistance



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

LKM S136 ESR

退火至约HB 250 Annealed to HB 250

参照标准

- Q AISI 420 改良型
- Q W.Nr 1.2083 改良型

Comparable Standard

- Q AISI 420 Modified
- Q W.Nr 1.2083 Modified

应用

- ✓ 需长期生产之塑胶模具
- ✓ 耐高酸性塑胶的中小型精密模具 (如医疗、食品包装等)

Application

- ✓ Plastic injection mould with long production run
- ✓ Small and medium-sized precision molds for high acid-resistant plastics, applied in medical and food packaging industries

物理性能 Physical Properties

温度 (°C) Temperature	20-100	20-200	20-300
热膨胀系数 [10 ⁻⁶ m/(m x K)] Coefficient of Thermal Expansion	11	11.3	11.6

温度 (°C) Temperature	20	200	300
热传导率 [W/(m x K)] Thermal Conductivity	21.0	23.0	25

高纯洁度

⚠ LKM S136 ESR 经过电渣重熔处理, 使钢材杂质含量降低、偏析少、组织更致密。

High Purity

⚠ Through the Electro-Slag Remelting (ESR) process, LKM S136 ESR has lower inclusion level, less segregation and more homogeneous microstructure.

超声波检测

(☉) SEP 1921 - Test Group 3, Class E/e

Ultrasonic Testing

(☉) SEP 1921 - Test Group 3, Class E/e

焊接处理

- ✦ 焊前预热温度：200-250°C
- ✦ 采用专用焊枝
- ✦ 焊后热处理工序：
 - ▶ 如在退火态焊接，焊后在780°C去应力退火
 - ▶ 如在淬硬态焊接，焊后以低于先前回火温度20-30°C作去应力处理

表面处理

- ✦ 可以通过离子氮化、镀铬或PVD等表面处理提高模具表面的硬度，延长模具的使用寿命

高抛光性

- ✦ 以 LKM S136 ESR 拥有高纯洁度，可以抛光至镜面级 SPI A1

Welding

- ✦ Preheating temperature: 200-250°C
- ✦ Welding rod
- ✦ Heat Treatment after Welding:
 - ▶ Annealed condition: Soft-anneal at 780°C
 - ▶ Hardened condition: Temper at 20-30°C below the last tempering temperature

Surface Treatment

- ✦ Suitable for plasma/ion nitriding processes, hard chromium plating and PVD coating to increase surface hardness and improve mould life.

High Polishability

- ✦ With high purity, LKM S136 ESR could attain the mould finish to SPI A1.

建议抛光工艺次序 Recommended Polishing Process

1	机械加工/放电加工 CNC Machining/EDMing	—
2	油石研磨 Rough Grinding by Oil Stone	120#-180#-240#-280#-320#
3	砂纸研磨 Fine Grinding by Sand Paper	320#-400#-500#-600#-800#-1000#-1200#-1500#-2000#-2500#-3000#
4	金刚石研磨膏研磨 Polishing by diamond Paste	7#-5#-3#-1#

高耐磨性

- ✦ LKM S136 ESR可通过热处理提高硬度及耐磨性，建议使用硬度为 HRC46-52 (如模具尺寸增加或形状复杂，建议进一步降低硬度)

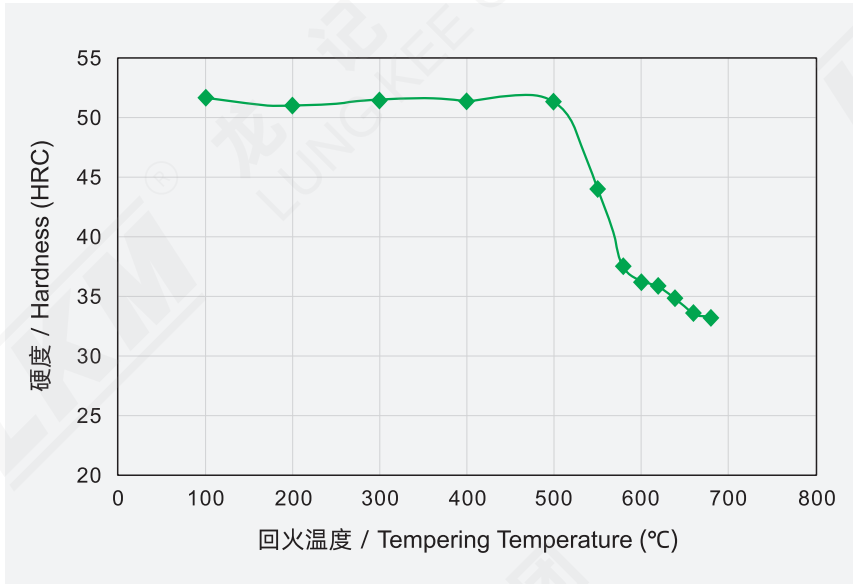
High Wear Resistance

- ✦ The recommended working hardness of LKM S136 ESR is HRC46-52 through heat treatment, it is suggested to reduce the hardness of the mould with bigger size and/or complicated structure.

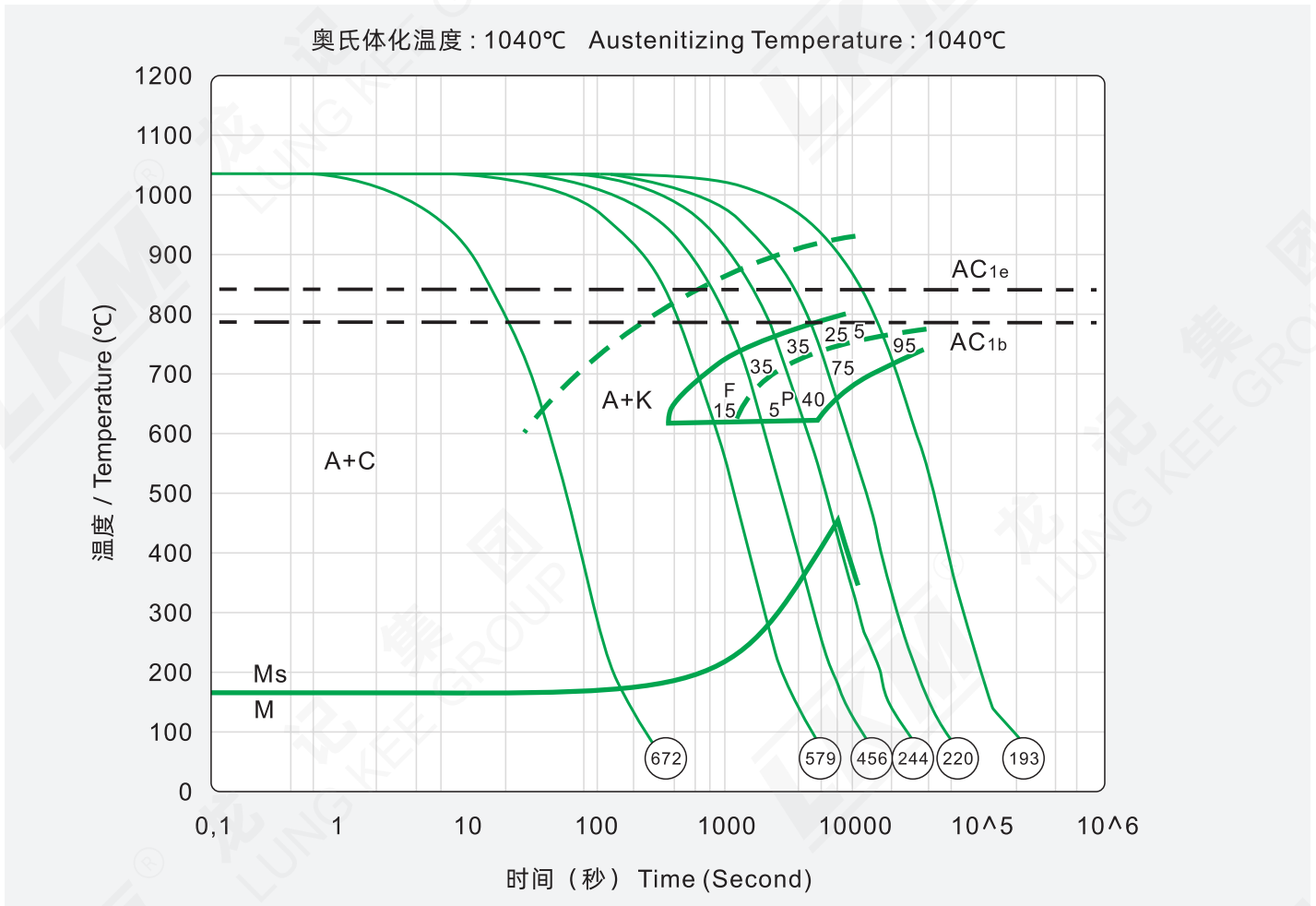
热处理工艺 Heat Treatment

锻造 Forging	软性退火 Annealing	淬硬 Quenching	回火 Tempering
1050 ~ 1050°C	760 ~ 800°C	1000 ~ 1040°C	250 ~ 570°C

回火图 (试样尺寸: Ø25 × 50mm; 油淬温度: 1020°C)
 Tempering Curve (Sample dimension: Ø25x50mm; Quenched at 1020°C by Oil)



CCT图 (连续冷却转变曲线图)
 CCT Diagram (Continuous Cooling Transformation Diagram)



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