



LKM808ESR

高抛光塑胶模具钢

Plastic Mould Steel with High Polishability

- ▶▶ 良好抛光性 Good Polishability
- ▶▶ 高強度 High Strength
- ▶▶ 预硬材料 Prehardened Steel
- ▶▶ 细型非复杂模具 Plastic Injection Mould with Small Size and Non-Complicated Structure

LKM808ESR 简介 Introduction

LKM808ESR是属于龙记特殊钢系列中之预加硬塑胶模具钢，拥有高硬度、高抛光性，参照美国AISI P21标准而开发。采用ESR（电渣重熔）冶炼技术，并通过时效硬化处理，材质组织均匀，机加工性能优秀，尺寸稳定性佳。适用于表面加工性能（抛光性和蚀纹性）和尺寸稳定性要求较高之普通塑胶模具。

为确保品质，LKM808ESR经过龍記集團严格的品质检测系统，包括硬度、化学成分、超声波检测、金相分析等多项指标的严密监控。

LKM808ESR is a high hardness and polishability pre-hardened plastic mould steel from the LKM Special Steel series. It is developed with reference to the US standard AISI P21. Thanks to the Electro-Slag Remelting (ESR) and age hardening treatment, LKM808ESR is a homogeneous material with excellent machinability and high dimensional stability, therefore it is particularly suitable for plastic injection mould requiring polishing, texturing or demanding for higher dimensional stability.

LKM808ESR is subject to the strict LKM's quality system, including requirements on hardness, chemical composition, ultrasonic testing, metallographical analysis and etc, to ensure the quality of the material.

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

LKM808ESR

时效硬化至HB360-415 Age Hardened to HB360-415

参照标准

Q AISI P21 改良型 ESR

Comparable Standard

Q AISI P21 Modified ESR

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

碳 C	锰 Mn	镍 Ni	钼 Mo
0.1	1.5	3.0	0.25

应用

- ✓ 塑胶模具
- ✓ 橡胶模具
- ✓ 机械零件

Application

- ✓ Plastic Injection Mould
- ✓ Rubber Mould
- ✓ Machinery Part

物理性能 Physical Properties

温度(°C) Temperature	20-100	20-200	20-300
热膨胀系数 [$10^{-6}m/(m \times K)$] Coefficient of Thermal Expansion	11.3	12.5	13.4

温度(°C) Temperature	20	100	200	300
热传导率 [W/(m × K)] Thermal Conductivity	38.9	39.4	41.9	42.7

高纯洁度

LKM808ESR经过ESR(电渣重熔)处理，夹杂物含量较低，材质纯洁。

High Purity

High purity with fine microstructure benefited from ESR process

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

- ✱ LKM808ESR采用氩弧焊堆焊方法，通过严格的焊接工艺，可以达到较佳之烧焊效果
- ✱ 模具事先清洗，去除油脂、污物等；任何缺陷必须完全清除
- ✱ 所有拐角半径在3mm以上
- ✱ 焊前预热温度300-400℃
- ✱ 采用专用焊枝（LKM牌号Z04-P06-XX）
- ✱ 焊后在450-500℃时效处理

Welding

- ✱ TIG welding with strict control is recommended to get the better welding effect
- ✱ Clean the mould carefully to remove the oil and dirt before welding; the defects must be completely removed
- ✱ The corner radius of the mould should be larger than 3mm
- ✱ Preheating temperature: 300-400℃
- ✱ Welding rod: LKMZ04-P06-XX
- ✱ Stress relieving temperature after welding: 450-500℃

表面处理

✱ LKM808ESR可以通过表面处理如氮化、PVD、镀铬等提高模具表面硬度，从而延长模具使用寿命。如采取氮化处理，其氮化温度应以低于520℃的温度进行。

Surface Treatment

✱ Suitable for soft/ion nitriding processes, hard chromium plating and PVD coating to increase surface hardness and improve mould life. If nitriding process is adopted, the nitriding temperature should not be higher than 520℃.



良好抛光性 Good Polishability

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	#220-#320-#400
3	砂纸研磨 Fine Grinding by Sand Paper	#320-#400-#600-#800-#1000-#1200-#1500
4	金刚石研磨膏研磨 Polishing by diamond Paste	#1200-#1800-#3000-#8000

良好蚀纹性

LKM808ESR经过电渣重溶（ESR）精炼处理，显微组织均匀，非金属夹杂物含量低，蚀刻纹理细致均匀，具备优良蚀纹性。

Good Texturing Property

LKM808ESR is very suitable for texturing by photo etching, thanks to the ESR process. The high purity and homogenous structure delivers fine and consistent pattern.

热处理工艺 Heat Treatment

锻造 Forging	软性退火 Annealing	固溶处理 Solution	时效硬化 Age Hardening
1100-850 °C	640-660 °C	850-920 °C	450 - 550 °C

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