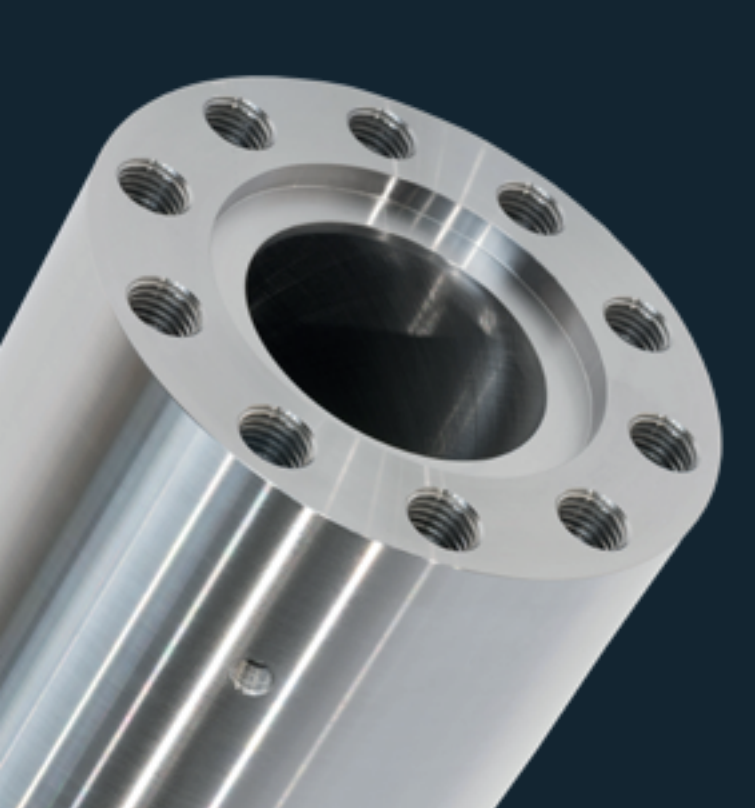




RM10Co

Developed for Semi-Solid Magnesium Processing

RM10Co is a premium hot-work steel developed specifically for tooling components and barrel housings in thixomolding applications.

The grade combines:

- high hot wear resistance,
- excellent tempering resistance,
- high-temperature strength,
- and stable hardness up to 50 HRC.

This contributes to:

- longer service life,
- stable tooling performance,
- reduced maintenance requirements,
- and improved process economics.

Why RM10Co

Engineered for stable tooling performance in thixomolding applications.

HIGH HOT WEAR RESISTANCE

RM10Co provides high resistance against abrasive wear caused by magnesium particles in the semi-solid state. This helps maintain bore geometry and tooling precision over extended production cycles.

HIGH-TEMPERATURE STRENGTH

The combination of elevated temperature and dynamic process pressure creates demanding mechanical conditions inside the barrel housing.

RM10Co maintains strength under these conditions and helps reduce:

- erosion,
- wash-out,
- and thermal fatigue.

Integrated process capability helps reduce interfaces, simplify coordination and support reliable long-term tooling stability.

EXCELLENT TEMPERING RESISTANCE

Sustained thermal exposure inside the plastification unit can gradually reduce hardness in conventional steels. RM10Co maintains hardness and dimensional stability under continuous thermal loading.

HARDNESS UP TO 50 HRC

Higher working hardness contributes to improved wear resistance and increased service life while maintaining the toughness required for demanding process conditions.

ESR REMELTED FOR CONSISTENT MATERIAL PROPERTIES

RM10Co is supplied ESR-remelted for:

- high cleanliness,
- excellent homogeneity,
- fine grain structure,
- and consistent material properties across large cross-sections.

This supports reliable tooling performance in finish dimensions up to 380 mm.



THIXOMOLDING

Premium tool steel for tooling components and barrel housings in semi-solid magnesium processing.

Edelstahlwerk Kind & Co. GmbH & Co. KG
Bielsteiner Str. 124-130
51674 Wiehl - Bielstein | Germany
www.gmh-gruppe.de

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Thixomolding

and the Demands on Tooling Systems

Thixomolding is a semi-solid casting process for magnesium alloys combining the precision of injection moulding with the material properties of high-performance lightweight components.

Semi-solid magnesium is processed in a thixotropic state, combining controlled flow behaviour with high component precision.

- The process supports:
- thin-walled geometries,
 - high dimensional precision,
 - near-net-shape production,
 - reduced machining,
 - and efficient lightweight component manufacturing.

Increasing machine capacities and larger component dimensions are expanding the use of thixomolding for:

- urban mobility,
- data processing systems,
- portable power applications,
- and structural lightweight components.

As process requirements increase, tooling systems are exposed to sustained thermal and abrasive loading conditions throughout the plastification unit.

THE TOOLING CHALLENGE

Sustained thermal loading
Barrel housings and tooling components are exposed continuously to elevated process temperatures.

Conventional hot-work steels may gradually lose hardness under these conditions, resulting in reduced dimensional stability and shorter service life.

Abrasive wear from magnesium particles
Semi-solid magnesium contains solid particles in suspension which create abrasive contact along tooling surfaces and barrel bores during every production cycle.

High wear resistance is essential for maintaining geometry and process reliability.

Thermal fatigue in complex tooling systems
Thermal cycling combined with elevated temperature creates fatigue stresses throughout the plastification unit.

Tooling components must resist:

- erosion,
- wash-out,
- and dimensional distortion

while maintaining reliable performance over long production cycles.



APPLICATION PERFORMANCE IN THIXOMOLDING

Barrel housings for semi-solid magnesium processing systems.

Main challenge:
Sustained thermal loading and abrasive wear inside the plastification unit.

RM10Co contribution:
High hot wear resistance, tempering resistance and stable hardness help maintain bore geometry over extended production cycles.

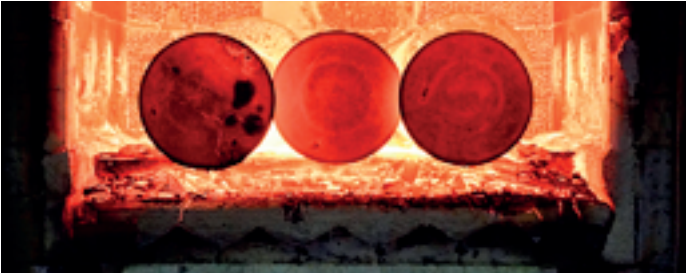
Operational benefit:
Improved service life and reduced maintenance requirements in continuous production environments.



Melting | ESR-Remelting



Forging



Hardening | Annealing



Stocking and sawing



Machining



Vacuum hardening | Nitriding/annealing

INTEGRATED MANUFACTURING AND PROCESSING CAPABILITY

Kind & Co. supplies RM10Co as:

- forged material,
- heat-treated components,
- or fully machined barrel housings according to customer drawings.

Steel production, heat treatment and precision machining are carried out at a single site under one technical responsibility.

This supports:

- consistent quality,
- short communication paths,
- and application-specific process control.

THE FULL VALUE CHAIN UNDER ONE ROOF

- Melting
- ESR remelting
- Forging
- Annealing and stress relief
- Rough machining
- Vacuum hardening
- Nitriding or annealing if required
- Precision machining to final dimensions

APPLICATION SUPPORT BEYOND THE DATASHEET

RM10Co was developed in close cooperation with customers and tooling specialists in semi-solid magnesium processing.

Kind & Co. supports customers with:

- material selection,
- heat-treatment recommendations,
- tooling design support,
- and application-specific engineering expertise.



ABOUT KIND & CO.

Since 1888, Kind & Co. has produced premium tool steel exclusively at its Bielstein site in Germany.

We stand for sophisticated material solutions, high product quality and application-specific engineering expertise tailored to demanding industrial processes.

Kind & Co. combines metallurgical expertise, reliable service and close customer support with strong application experience in:

- die casting,
- low-pressure casting,
- extrusion,
- and die forging.

As part of GMH Gruppe, we develop premium tool steel solutions designed to support stable production processes, long tool life and reliable operational performance.