



SoluMag® ND43 Magnesium Alloy

Luxfer MEL Technologies SoluMag® alloy

Luxfer MEL Technologies is the world leader in the development and supply of highly functional magnesium alloys. SoluMag ND43 is a premium lightweight, high strength non-dissolving, corrosion resistant magnesium alloy. Component designs in SoluMag ND43 can be 20% to 30% lighter than a corresponding aluminium design. The properties of SoluMag ND43 are well suited for its use as feedstock material from which to machine downhole components, particularly those associated with elevated temperature performance. This lightweight alloy is available as extruded rods, bars, tubes and profiles to produce components that have strength and ductility in demanding downhole environments.

Product forms

- Seamless tubes and round bars
- Balls/spheres
- Solid profiles

Mechanical properties

Extruded Bar – Imperial units					
Longitudinal			Transverse		
0.2% proof stress (MPa)	Tensile strength (MPa)	Elong %	0.2% proof stress (MPa)	Tensile strength (MPa)	Elong %
243	352	11.5	183	305	11.3

Extruded Bar – Metric units					
Longitudinal			Transverse		
0.2% proof stress (ksi)	Tensile strength (ksi)	Elong %	0.2% proof stress (ksi)	Tensile strength (ksi)	Elong %
34.8	51.0	11.5	26.5	44.2	11.3

Elevated temperature properties – Imperial units			
Temperature (°C)	0.2% proof stress (MPa)	Tensile strength (MPa)	Elong %
20	240	350	11
250	200	268	12

Elevated temperature properties – Metric units			
Temperature (°F)	0.2% proof stress (ksi)	Tensile strength (ksi)	Elong %
68	34.8	50.8	11
482	29	38.9	22

Component sizes

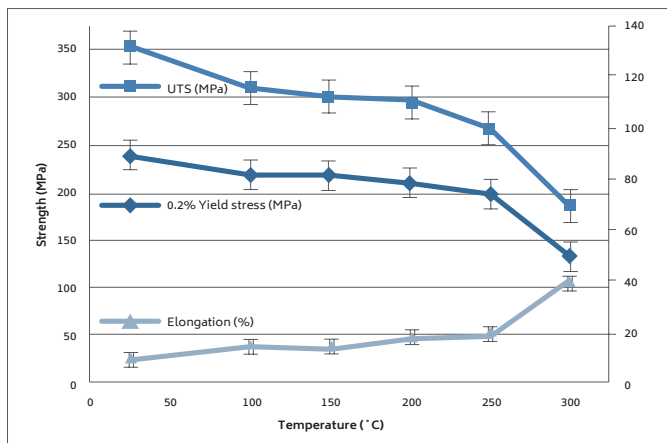
- Tube and bar sizes available upon request
- Machined balls from 1/2 inch to 5 inches diameter
- Extruded round rod from 1/2 inch to 5 inches diameter

Typical applications

- Machined components for downhole completion tools in oil and gas applications

Specifications

- AMS 4485 – Extrusion
- ASTM B107 and B107M – Extrusion
- Corrosion rate according to agreed testing protocol
- Corrosion rate less than 30 MPY

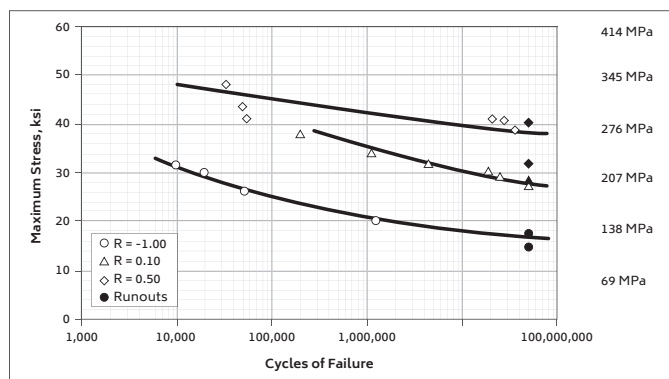


Extruded bar – Fatigue properties

ASTM E466 axial fatigue

R=0.1 at 50 million cycles = 195 MPa

Other R ratios are shown in the graph below.



Product details [LINK](#)

Discover more at

www.luxfermeltechnologies.com



SoluMag®, UK Patent No 2529062B. July 2015.

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