

# MIM-2700 Low Alloy Steel

Low Alloy Steel Injection Molding

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## Technical Data: MIM-2700

### Product Description

MIM-2700 Low Alloy Steel is a specialized low alloy steel renowned for its outstanding mechanical properties and adaptability in metal injection molding (MIM). This material comprises various alloying elements, including iron as the base element and small percentages of other components to achieve its unique properties.

The precise composition of MIM-2700 may vary depending on the application's specific requirements, but it typically includes elements such as carbon, silicon, manganese, chromium, nickel, molybdenum, and copper.

MIM-2700 exhibits remarkable tensile strength, making it suitable for applications that demand structural integrity and load-bearing capabilities. This material's adaptability to the MIM process allows for intricate and precise shapes to be manufactured efficiently, expanding its usability in various industries, including aerospace, automotive, medical, and more.



### Chemical Composition

Element	Carbon (C)	Silicon (Si)	Manganese (Mn)	Phosphorus (P)	Sulfur (S)	Chromium (Cr)	Nickel (Ni)	Molybdenum (Mo)	Iron (Fe)
Weight Percentage	0.02	0.2	0.6	0.015	0.01	16	3	1	Balance

### Physical and Mechanical

Alloys	Status	Tensile Strength	Yield Strength	Impact Strength	Hardness	Young's Modulus	Poisson's Ratio	Elongation	Density
		Mpa	Mpa	J	HRC	Gpa	Ratio	% in 25.4 mm	g/cm <sup>3</sup>
Value	Annealed	750	600	20	45	190	0.29	12	7.8

### Typical Properties

#### Corrosion Resistance



MIM-2700 low alloy steel parts exhibit good corrosion resistance, particularly in mildly corrosive environments. This corrosion resistance stems from the alloy's composition, which includes elements like chromium and molybdenum that enhance its ability to withstand chemical reactions with moisture and specific corrosive agents. While it may not match the corrosion resistance of stainless steels, MIM-2700 is a suitable choice for applications where exposure to moisture or occasional exposure to mild chemicals is expected.

Applications that benefit from the corrosion resistance properties of MIM-2700 parts include components used in the automotive industry, such as transmission and brake components, which are exposed to environmental moisture and road salt.

### Note

The above data are reference material science data. This data reference is not binding and is not considered as authoritative test data. If your material requirements are extremely precise, please contact our material engineers. Tel | +86 18926788217 | Web | [www.newayprecision.com](http://www.newayprecision.com) | Contact Neway



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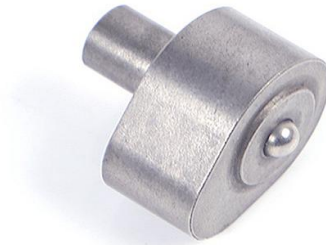
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## Typical Properties

### Machinability

MIM-2700 low alloy steel parts offer impressive wear resistance, making them suitable for applications subjected to abrasive forces and wear-related stresses. This enhanced wear resistance results from the material's microstructure and alloying elements. MIM-2700's martensitic structure, combined with elements like chromium and molybdenum, contributes to its ability to withstand abrasion, friction, and surface wear.

Applications requiring excellent wear resistance properties for MIM-2700 parts include industrial machinery components like gears, bearings, and bushings. These parts operate under high loads and friction, where wear resistance is crucial to prevent premature failure.



### Machinability



MIM-2700 low alloy steel exhibits favorable machinability, making it suitable for applications where post-processing machining is required. This machinability arises from its controlled microstructure and chemical composition. The material's martensitic structure and alloying elements facilitate efficient cutting, drilling, and milling operations, reducing tool wear and extending tool life.

Applications demanding good machinability for MIM-2700 parts include industries where intricate or customized components are essential. Automotive and aerospace sectors often require precise machining for parts like shafts, fasteners, and connectors. Additionally, manufacturing specialized tools and instruments benefits from MIM-2700's machinability, allowing for intricate designs and fine-tuned details during machining processes.

### Cost-Effective

MIM-2700 parts are known for their cost-effectiveness in manufacturing. This is primarily due to the metal injection molding process, which allows for producing complex and intricate components in large quantities with minimal material waste. The high automation and repeatability in MIM production further contribute to cost savings.

Applications that require cost-effective solutions benefit from MIM-2700 parts. Industries such as automotive, consumer electronics, and healthcare often demand high-volume production of intricate components while keeping costs in check. MIM-2700's cost-effective properties make it an ideal choice for producing items like connectors, fasteners, and small mechanical parts used in these industries.



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