MIM S7 Injection Molding

Tool Steel Injection Molding

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Technical Data: MIM S7 Tool Steel

Product Description

S7 Tool Steel MIM (Metal Injection Molding) Sintering Parts exhibit remarkable properties ideal for demanding applications. These components boast exceptional hardness, with a Rockwell C hardness of approximately 50-54 HRC, ensuring long-lasting durability. This hardness and high wear resistance make S7 Tool Steel MIM parts preferred for industries like Consumer Electronics and Power Tools.
Moreover, the fine-grain structure of S7 Tool Steel MIM parts enhances their toughness, enabling them to withstand heavy loads and shocks without compromising performance. This unique blend of hardness, wear resistance, and toughness makes S7 Tool Steel MIM Sintering Parts well-suited for telecommunications, Lighting Solutions, and Locking systems applications, where reliability and precision are crucial.
Applications Like:
- Wearable device components
- Headphones Speaker components
- Power tool gearbox components
- Power tool motor housings
- Satellite communication components

Chemical Composition

Element	Carbon (C)	Chromium (Cr)	Manganese (Mn)	Phosphorus (P)	Silicon (Si)	Sulfur (S)
Composition %	0.44	3.25	0.6	0.025	0.55	0.025

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/cm³
MIM-S7 Tool Steel	Heat Treated	950	800	15	50	190	0.27	10	7.83

Typical Properties

S7 Tool Steel MIM Sintering Wearable Device Components

S7 Tool Steel MIM Sintering Parts offer a compelling solution for wearable device components due to their unique characteristics. Firstly, their exceptional hardness, typically around 50-54 HRC, ensures resistance to wear and abrasion. In the context of wearable devices, which often undergo constant friction and contact, this hardness is invaluable in maintaining the longevity and reliability of components like hinges, clasps, or moving parts.

Secondly, the fine-grain structure of S7 Tool Steel MIM Sintering Parts contributes to their outstanding toughness. This toughness allows these parts to withstand daily stresses, shocks, and impacts, making them suitable for wearable devices that must endure real-world conditions. Whether it's in the Consumer Electronics or Medical Devices industry, S7 Tool Steel MIM Sintering Parts offer a durable and robust solution.

Note

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Typical Properties

S7 Tool Steel MIM Sintering Headphones Speaker components

S7 tool steel fabricated through Metal Injection Molding (MIM) sintering exhibits exceptional properties that make it a top choice for headphone speaker components within the Consumer Electronics industry. Its high carbon content, typically around 0.45%, imparts remarkable hardness and wear resistance, crucial for the long-term durability of speaker components. Moreover, the fine particle size achieved through MIM results in a high-density structure, enhancing the material's acoustic performance.

In headphone speaker diaphragms, precision is paramount, and S7 tool steel's low distortion and high rigidity significantly contribute to accurate sound reproduction. The ability to achieve tolerances as tight as ±0.005 mm through MIM ensures consistency and high precision in manufacturing, enabling speakers to deliver precise audio across a wide frequency range.

S7 Tool Steel MIM Sintering Power Tool Gearbox Components

S7 tool steel components manufactured using Metal Injection Molding (MIM) sintering technology offer exceptional advantages when applied to power tool gearbox components. In the Power Tools industry, durability and strength are paramount, and S7 tool steel is renowned for its high toughness and impact resistance. With a hardness of approximately 54-58 HRC, S7 tool steel can withstand the rigorous demands of power tool applications, ensuring a longer lifespan for gearbox components.

Additionally, the precision achievable through MIM processes is crucial for power tool gearbox components' performance. S7 tool steel components can be manufactured with tight tolerances, ensuring precise gear meshing and reduced friction within the gearbox. This precision results in efficient power transfer and quieter operation, enhancing the user experience.

S7 Tool Steel MIM Sintering Power Tool Motor Housings

S7 tool steel parts produced through Metal Injection Molding (MIM) sintering technology are an excellent choice for power tool motor housings within the Power Tools industry. These motor housings require a combination of strength, heat resistance, and precision, all of which are inherent characteristics of S7 tool steel. With a hardness of approximately 54-58 HRC, S7 tool steel can withstand the mechanical stresses and vibrations associated with power tool operation, ensuring the longevity of motor housings in demanding environments.

Furthermore, S7 tool steel's exceptional thermal properties make it an ideal material for motor housings. It can efficiently dissipate heat generated during the operation of power tools, preventing overheating and maintaining the motor's performance. The precision attainable through MIM ensures tight tolerances, facilitating a snug fit for internal motor components. This precision enhances overall motor efficiency and reliability.

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