

MIM-304H

Stainless Steel 304 High Carbon Content
NEWAY PRECISION WORKS

NewayPrecision

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Technical Data: 304H as sintered

Product Description

MIM-304H is an alloy of stainless steel used in metal injection molding (MIM) technology. It offers high strength, hardness, and excellent corrosion resistance, making it ideal for use in demanding applications.

Physical

	Nominal Value Unit	Test Method
Density	7.9 g/cm ³	ASTM B311
Melting Point Range	1390-1440 °C	-
Coefficient of Thermal Expansion	17.3 µm/m°C	ASTM E228
Thermal Conductivity	16.2 W/mK	-
Electrical Resistivity	72 µΩ-cm	ASTM B193
Magnetic Permeability	1.02	ASTM A342
	1.162	Min.
Oversize factor	1.165	Average
	1.168	Max.
	800	Min.
MFI g/10min	1200	Average
	1600	Max.

Mechanical

Ultimate Tensile Strength	655 MPa	ASTM E8M
Yield Strength (0.2% Offset)	380 MPa	ASTM E8M
Elongation at Break	30%	ASTM E8M
Modulus of Elasticity	190 GPa	ASTM E111
Poisson's Ratio	0.27	ASTM E132
Impact Strength	50 J	ASTM E23
Compressive Strength	310 MPa	ASTM E9
Shear Strength	285 MPa	ASTM B769
Hardness	HRB 88	ASTM E18

Chemical

Chromium	17-19 wt%	ASTM E1019
Nickel	8 - 10 wt%	ASTM E1019
Carbon	≤ 0.08 wt%	ASTM E1019
Manganese	≤ 2 wt%	ASTM E1019
Silicon	≤ 1 wt%	ASTM E1019
Phosphorus	≤ 0.045 wt%	ASTM E1019
Molybdenum	-	ASTM E1019
Salt spray test	36 h	

Injection process

	Zone 1	185°C
	Zone 2	185°C
Recommended injection temperature	Zone 3	175°C
	Zone 4	150°C
	Nozzle	190°C
Recommended injection temperature	90- 125°C	
Reference density interval	5.35-5.41 g/cm ³	

Other injection molding process parameters are greatly affected by product shape and requirements, so they are not written out.

It should be noted that the setting of injection molding process has a great influence on the green density of the product, which may also cause the final size of the product and other requirements do not meet the user's expectations.

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 | Contact Neway



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Debinding Process

Debinding acid	98% HNO ₃
Debinding temperature	100- 150 °C
Debinding time	Depending on part thickness (e.g. 3mm part approx. 3h)
Debinding rate	When the minimum debinding rate of green part reaches

Sintering

Sintering atmosphere	100% dry argon
Sintering substrate	Non-metallic base (e.g. Al ₂ O ₃)
Negative pressure debinding	From room temperature to 600 °C, vacuum debinding with multi-stage holding temperature ensures that the remaining binder can be obliterated, and the total time is around 450 min.
Vacuum sintering	From 600 °C to 850 °C at 3 °C / min and holding for a period of time, the vacuum internal sintering is carried out to ensure that the carbon content of the product is in a reasonable range.
Partial pressure sintering	From 850 °C to 1050 °C at 3 °C/ min, holding for a short time, and then it was raised to 1380 °C at the same heating rate for material densify and finally cooled with the furnace.

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