

Technical Data:

Product Description

Metal Injection Molding low-alloy steels are iron-based alloys containing small amounts of alloying elements like chromium, nickel, and molybdenum. MIM processing allows complex net-shape parts to be made with tight tolerances. Common grades are 4140, 4340, 52100, and 8620. MIM low alloy steels offer excellent strength, wear resistance, hardenability, and corrosion resistance compared to plain carbon steels.

Features and Applications

Grade	Features	Applications
MIM 4605	High tensile & yield strengths	Automotive components, machinery parts
MIM 4140	Balanced strength & toughness	Tools, gears, industrial machinery components
MIM 4340	Elevated mechanical performanc	Aerospace components, heavy machinery parts
MIM 2700	Excellent elongation, moderate impact	Medical instruments, consumer electronics
MIM 2200	Malleability, intricate components	Electronics, jewelry
MIM 52100	Wear resistance, reliable	Bearings, precision instruments, automotive
MIM 8620	Strength, impact resistance	Gears, shafts, structural components
MIM 9310	Enhanced mechanical performance	High-stress gears, pinions, crankshafts
MIM 430L	Corrosion resistance	Medical implants, marine hardware

Chemical Composition

Element	MIM 4605	MIM 4140	MIM 4340	MIM 2700 (FN08)	MIM 2200 (Fe-2Ni)	MIM 52100	MIM 8620	MIM 9310	MIM 430L
C	.4-.6	.3-.5	.3-.5	.1max	.1max	.8-1.2	.15-.23	.2max	.05(max)
Si	1.0max	.6max	.5max	1.0max	1.0max	-	1.0max	-	1.0max
Cr	-	.8-1.2	.6-1.2	-	-	1.3-1.6	.4-.6	.3-.8	16-18
Mo	.2-.5	.2-.3	.5max	.5max	.5max	-	.15-.25	.1-.25	-
Mn	-	1.0max	.8max	-	-	.25-.45	.7-.9	-	1.0max
Fe	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.	Bal.
Ni	1.5-2.5	-	1.25-2.0	6.5-8.5	1.5-2.5	-	.4-.7	2.5-3.5	-
Cu	-	-	-	-	-	.025max	.035max	.025max	-
Nb	-	-	-	-	-	.025max	.040max	.025max	-

Physical and Mechanical

Alloys	Status	Tensile Strength	Yield Strength	Impact Strength	Hardness	Young's Modulus	Poisson's Ratio	Elongation	Density
		Mpa	Mpa	J	HRB	Gpa	Ratio	% in 25.4 mm	g/cm ³
MIM 4605	As Sintered	> 700	450-500	12	40-50	180-200	0.28-0.30	5	7.5-7.8
MIM 4140	As Sintered	700-800	550-650	15	45-55	190-210	0.27-0.29	4	7.8-8.0
MIM 4340	As Sintered	800-900	650-750	18	50-60	200-220	0.26-0.28	4	7.8-8.1
MIM 2700	As Sintered	400-500	250-350	6	30-40	150-170	0.30-0.32	15	6.5-7.0
MIM 2200	As Sintered	300-400	150-250	7	25-35	130-150	0.31-0.33	20	6.2-6.7
MIM 52100	As Sintered	800-900	600-700	62	55-65	200-220	0.26-0.28	4	7.8-8.2
MIM 8620	As Sintered	600-700	400-500	13	40-50	180-200	0.28-0.30	8	7.4-7.8
MIM 9310	As Sintered	700-800	500-600	14	45-55	190-210	0.27-0.29	6	7.7-8.1
MIM 430L	As Sintered	300-400	150-250	-	25-35	130-150	0.31-0.33	20	7.0-7.3

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

