



TG Steels

TFM 18Ni 300

MARTENSITIC AGING STEEL
FOR ADDITIVE MANUFACTURING



Die-casting molds often operate continuously in environments with impact loads, alternating hot and cold temperatures, or corrosion. This places high demands on the mold's overall mechanical properties, requiring not only high tensile strength but also a certain degree of toughness and ductility, especially impact toughness.

18Ni 300 maraging steel is a low-carbon, high-strength steel with high hardness (> 50 HRC), toughness, and strength.

It exhibits high dimensional stability and low deformation. It also possesses excellent machinability and maintains its properties even at temperatures reaching $\sim 400^{\circ}\text{C}$, making it widely used in the manufacture of high-performance die-casting molds.

Range of chemical composition

C	Ni	Co	Mo	Ti	Al
≤ 0.01	≤ 18.0	≤ 9.0	≤ 5.0	≤ 0.7	≤ 0.1

Physical properties

Granularity range	15-53 μm
Hardness after heat treatment	50-56 HRC
Hallflow rate	$\leq 18\text{s} / 50\text{ g}$
Loose packing density	4.82 g/cm^3
Heat conductivity	20 $\text{W/m}\cdot\text{K}$
Impact energy ($920^{\circ}\text{C} + 490^{\circ}\text{C} \times 2$)	11 J
Ensile strength ($920^{\circ}\text{C} + 490^{\circ}\text{C} \times 2$)	1930 MPa