

GATEWAY 4140 PH HOLDER BLOCK

Prehardened Alloy Tool Steel

Gateway 4140 PH Holder Block is a prehardened, high-quality alloy steel intended for all mechanical uses where improved machinability is critical. Primarily used in holder applications for both plastic molds and die casting dies. A controlled sulfur process during production provides Gateway Holder Block its unique machinability and inclusion shape control throughout each block produced. Product hardness range is 269-321 Brinell (28-32 HRC). This general chemistry has limited hardenability and the interior hardness would be lower than the surface hardness levels.

Typical Chemistry

Carbon	.38/.43		Nickel	.25
Manganese	.75/1.00		Chromium	.90/1.10
Silicon	.15/.35		Molybdenum	.15/.25
Sulfur	.020/.040		Phosphorus	.035 max

Applications

Primarily used in holder applications for both plastic molds and die casting dies.

Stress Relief

Heat slowly and uniformly to 1000 F and soak one hour per inch of section thickness. Air cool or furnace cool to room temperature.

Annealing

It is recommended that Gateway Holder Block be annealed prior to rehardening. Heat slowly and uniformly to 1500/1600 F for four hours. Cool slowly (50 F per hour max) to 1200 F, and air cool.

Heat Treating

Gateway Holder Block may be heat treated to higher levels of hardness for higher strength. Preheat to 1250 F and hold for one hour. Heat to 1550/1600 F and soak one half hour when material is up to temperature. Oil quench or air cool to hand warm (approximately 150 F) and temper immediately.

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Tempering

Temper one hour per inch of section thickness to desired hardness. Representative hardness levels after tempering are tabulated below.

Oil quenched from 1600 F - Tempered 4 hours		
(Section Size - 4" X 4")		
Tempering Temperature (F)		Hardness (HRC)
400		42
500		41
600		40
700		39
800		37
900		36
1000		34
1100		29
1200		25

Note: Variations in section size, heating rate, soak time, quench rate and tempering will cause deviations from the above values. Gateway Metals should be consulted for specific applications.

EDM

Electro-discharge machining is widely used in the production of many tooling components. However, this operation produces recast, rehardened, and retempered layers on the die surface. It is recommended that Gateway Holder Block be stress relieved after electro-discharge machining to temper the rehardened layer produced by EDM.

Nitriding

Gateway Holder Block may be nitrided to a surface hardness in excess of RC 60 for improved wear resistance.