



## GATEWAY 4140 PH - ROUNDS

### Prehardened Alloy Tool Steel

Gateway 4140 PH is a prehardened, high-quality alloy steel intended for all mechanical uses where improved machinability and uniform hardness are required. Product hardness range is 269-321 Brinell (28-32 HRC).

### Typical Chemistry

Carbon	.40		Silicon	.25
Manganese	1.0		Chromium	.90
Phosphorus	.035 max		Vanadium	.01
Sulfur	.040 max		Molybdenum	.15

### Applications

Suitable for use in many applications including shafts, machinery spindles, gears, and machinery parts. Heat treating information is provided below for material requested in the annealed condition.

### Stress Relief

Heat slowly and uniformly to 900/1000 F and soak for two hours. Air cool to furnace cool to room temperature.

### Annealing

It is recommended that Gateway 4140 PH be annealed prior to rehardening. Heat slowly and uniformly to 1550 F for two hours. Cool slowly (50 F per hour max) to 1200 F, and air cool.

### Heat Treating

Gateway 4140 PH may be heat treated to higher levels of hardness for higher strength. Pre-heat to 1300/1350 F and hold for one hour. Heat to 1550/1575 F and soak one half hour when material is up to temperature. Oil quench below 200 F and temper immediately.

### Tempering

Temper one hour per inch of section thickness with a minimum of two hours to desired hardness. Representative hardness levels after tempering are tabulated below.

(Section Size - 1" diameter)		
Tempering Temperature (F)		Hardness (HRC)
900		36
1000		34
1100		29
1200		26
1300		23

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.

**Gateway Metals**

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