

# WATERCRAT W1



## Water Hardening Tool Steel

Precision Marshall's WATERCRAT is a water hardening tool steel that is easy to machine, has a high carbon content and a moderate wear resistance. Meets ASTM A-686-92

### Typical Analysis

Carbon	.90/1.05
Manganese	.30/.40
Phosphorus	.025 max
Sulfur	.025 max

Chromium	.30 max
Vanadium	.10 max
Molybdenum	.10 max
Silicon	.10/.20
Tungsten	.15 max

### Applications

WATERCRAT typical applications are shafts, pins, drills, punches, arbors, taps, forming rolls, dies.

### Heat Treating

WATERCRAT with large items or intricate shapes must be preheated slowly to 1100°F, and then temp should increase slowly to 1500°F. The temperature should be maintained at the same temperature for 30 minutes. Quench in water or brine.

### Tempering

Temperature may vary according to the desired hardness. If max hardness is needed, tempering range should be 300-400°F. Representative hardness levels after tempering are tabulated below.

Tempering Temperature (°F)	Rockwell Hardness (RC)
300	64/65
400	62/64
500	58/59
600	54/56
700	50/51
800	46/47

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

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## Condition

WATERCRAT W1 is provided completely decarb free or in the cold drawn state and stress relieved.

The following additional products are available through our authorized distributors.

### DELUXE PLATES

MARSHALLOY MQ®/FM  
 MARSHALLOY™ STD 4142  
 MARSHALLOY™ 4140  
 (Annealed)  
 PRESCO O-1  
 AIRTRUE A-2  
 SUPER 7 MQ® S-7  
 ARISTOCRAT D-2  
 FIRECHROME H-13  
 SUPER 7 S-7

### GROUND FLAT STOCK

PRESCO O-1  
 AIRTRUE A-2  
 ARISTOCRAT D-2  
 SUPER 7 S-7  
 NUTEC 42® 4142  
 FIRECHROME H-13  
 PREMAR 410  
 RUETOM SPECIAL 420  
 PREMAR 440 C  
 MARSHALLCRAT LC

### DRILL ROD

WATERCRAT W-1  
 OILCRAT O-1  
 AIRTRUE A-2  
 SUPER 7 S-7  
 ARISTOCRAT D-2  
 FIRECHROME H-13PH  
 TRM-2 M-2  
 WATERCRAT W-1 (Cold-drawn)



### ***The Deluxe Company's Guarantee of Quality***

*Precision Marshall's conformance to specifications is the highest in the industry. Precision Marshall assumes complete liability for any costs directly relating to a deviation from our published specifications. Any such costs, properly documented, will be reimbursed. For more information, visit us at [www.pmsteel.com](http://www.pmsteel.com).*

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