PRESCO O-1

PRECISION MARSHALL
The Deluxe Company

Oil Hardening Tool Steel

Precision Marshall's PRESCO is a general purpose, non-deforming oil hardening tool steel for applications where maximum accuracy is required during the hardening of the end product. PRESCO has deep hardening properties and fine grain structure with unusual toughness. Meets ASTM A-681 and W 2510.

Typical Analysis

Carbon	.95
Manganese	1.20
Phosphorus	0.3 max
Sulfur	0.3 max

Chromium	.50
Vanadium	.50
Molybdenum	.40

Applications

Applications for PRESCO include gauges, stamps, jigs, cutters, templates, cams, guides, levers, saws, knives, straight edges, fixtures, machine parts, punches, blanking dies, molding dies, swaging dies, screw dies and trim dies.

Annealing

Heat uniformly to 1400/1450°F and hold at the annealing temperature for two hours per inch of cross section. Cool in the furnace at a rate not exceeding 50°F per hour down to a temperature of 1000°F, after which a faster rate can be allowed.

Heat Treating

Preheat thoroughly to 1200/1250°F, then heat to 1450/1500°F depending on the section size. Hold until uniformly heated through. Use high side of hardening range for thicker sections.
Quench in warm thin quenching oil to about 125°F. To prevent soft spots, the tools should be rapidly agitated in oil when a circulating oil bath is not available. The material should be tempered as soon as it has cooled to 125°F.

Tempering

Temper immediately to desired hardness. For most applications a tempering temperature of 400/450°F is employed. However, for cutting tools requiring high hardness, low temperatures of 300/375°F are suitable. Temper a minimum of two hours for sections under two inches and a minimum of one hour per inch of thickness over two inches.
The following table shows the hardness value obtained at various tempering temperatures on a two-inch cube of PRESCO hardened from 1475°F and tempered two hours.

Tempering Temperature ((°F)	Rockwell Hardness (RC)
As quenched	63/65
300	62/64
400	60/62
500	57/59
600	55/57

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.

PRESCO 0-1

EDM

Electro-discharge machining is used in the production of various tooling. This process produces recast, rehardened and retempered layers on the EDM surface. It is recommended that PRESCO O-1 be stress relieved at 50°F below the final tool tempering temperature, after the EDM process, to temper the rehardened layer produced by EDM.

Condition

PRESCO O-1 is provided completely decarb free 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)

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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.

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