NUTEC 42®

PRECISION MARSHALL
The Deluxe Company

Prehardened Alloy Steel

Precision Marshall's NUTEC 42® is a prehardened, high-quality, 4140/4142 modified, alloy steel intended for all mechanical uses where improved machinability, uniform hardness and excellent flatness are required. Product hardness range is 262-321 Brinell.

Typical Analysis

Carbon	.40	Chromium	.95
Manganese	.85	Molybdenum	.20
Phosphorus	0.35 max	Silicon	.25
Sulfur	0.40 max		

Applications

NUTEC 42® is a high quality prehardened alloy steel intended for use in a variety of mechanical applications where the combination of good machinability and medium hardness is required. Specific applications include short run tools and dies, prototype dies, guide rails, back up plates and support tooling, jigs and fixtures and holder blocks. NUTEC 42® can also be used for molds with less critical cleanliness and polishability requirements.

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 NUTEC 42® be annealed prior to rehardening. Heat slowly and uniformly to 1500/1600° for four hours. Cool slowly (50°F per hour max.) to 1200°F and air cool.

Heat Treating

NUTEC 42® 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. After preheating to 1500°F for one half to one hour, heat to 1750/1800°F and soak one half hour when material is up to temperature. Air cool to hand warm (approximately 150°F) and temper immediately.

Tempering

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

Oil quenched cooled from 1600°F • Tempered 4 hours (Section Size — 4" x 4")

Tempering Temperature (°F)	Rockwell Hardness (RC)	Tempering Temperature (°F)	Rockwell Hardness (RC)
400	42	900	36
500	41	1000	34
600	40	1100	29
700	39	1200	25
800	37		

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.

NUTEC 42®

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 NUTEC 42® 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

NUTEC 42® 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)

PRECISION MARSHALL
The Deluxe Company

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.

HEADQUARTERS
99 Berry Road
Washington, PA 15301
T: 800 537 7528
F: 800 350 1353

NATIONAL DISTRIBUTION CENTER
1 Northpoint Court
Bolingbrook, IL 60440
T: 800 537 7528
E: sales@pmsteel.com