

Chemical Compositions (%) (Typical)

Grade	A.I.S.I. S.A.E. Type	Carbon	Maganese	Silicon	Phosphorus (max)	Sulphur (max)	Chromium	Vanadium	Tungsten	Molybdenum
WATERCRAT	W-1	.95/1.05	.30/.40	.10/.25	.025	.025	.15 Max	.10 Max	.15 Max	.10 Max
OILCRAT	O-1	.85/1.00	1.00/1.40	.50 Max	.030	.030	.40/.60	.30 Max	.40/.60	-
AIR-TRUE	A-2	.95/1.05	1.00 Max	.50 Max	.030	.030	4.75/5.50	.15/.50	-	.90/1.40
SUPER-7	S-7	.45/.55	.20/.80	.20/1.00	.030	.030	3.00/3.50	.20/.30	-	1.30/1.80
ARISTOCRAT	D-2	1.40/1.60	.60 Max	.60 Max	.030	.030	11.00/13.00	1.10 Max	-	.70/1.20
TRM-2	M-2	.85 Max	.30 Max	.30 Max	-	-	4.00 Max	2.00 Max	6.00 Max	5.00 Max
FIRECHROME 44	H-13	.40	-	1.00	-	.100	5.25	1.00	-	1.35

Specifications

Grade	A.I.S.I. S.A.E. Type	UNS* Designation	S.A.E.	A.S.T.M.	Federal
WATERCRAT	W-1	T72301	J-437	A-686-79	QQT-580 Rev. C.
OILCRAT	O-1	T31501	J-437	A-681-94	QQT-570 Rev. C.
AIR-TRUE	A-2	T30102	J-437	A-681-94	QQT-570 Rev. C
SUPER-7	S-7	T41907	J-437	A-681-94	QQT-570 Rev. C
ARISTOCRAT	D-2	T30402	J-437	A-681-94	QQT-570 Rev. C
TRM-2	M-2	T11302	J-438-b	A-600-92	QQT-570 Rev. C
FIRECHROME 44	H-13	--	--	--	--

*New designation in accordance with ASTM E 527 and SAE J1086. Recommended for numbering metals and alloys (UNS).

Dimensional Tolerances

Round Drill Rod			
Diameter	Standard Tolerance* (section)	Straightness (max T.I.R. in 12")	Standard Tolerance (length)
3.000" to 0.500"	+/- .0010"	.005"	+1/8", -.0"
0.499" to 0.125"	+/- .0005"	.005"	+1/8", -.0"
0.124" and smaller	+/- .0003"	.005"	+1/8", -.0"

*Closer tolerances than standard can be produced upon inquiry.

Flat Square Drill Rod		
Size	Standard Tolerance (section)	Standard Tolerance (length)
1.000" through 0.750" (largest dim.)	+/- .0015"	+1/8", -.0"
0.749" through 0.250" (largest dim.)	+/- .0010"	+1/8", -.0"
0.124" and smaller	+/- .0005"	+1/8", -.0"

Physical Properties

Size	Hardness		Machinability
	Brinell	Rockwell	
to .125" dia.	341	Rb110	WATERCRAT = 100
1.25" to 0.250"	275	Rb104	OILCRAT = 95
0.250" to 0.876"	241	Rb101	AIR-TRUE = 65
0.876" and larger	207	Rb96	SUPER-7 = 95
			ARISTOCRAT = 50
			TRM-2 = 65
			FIRECHROME 44

Surfaces Finish and Quality

Size	Surface Finish (Max)	Surface Quality (max allowable depth of defect)
3.000" to 0.875" diameter	30 RMS	.000"
0.875" to 0.5000" diameter	20 RMS	.000"
0.500" to 0.125" diameter	15 RMS	.000"
0.125" and smaller	10 RMS	.000"
Cold drawn squares and flats	50 RMS	.008"/side

Precision Marshall Steel Company

GFS/DR Telephone: 1-800-258-2558 Fax: 1-888-258-5312

PLATE Telephone: 1-800-537-7528 Fax: 1-800-350-1353