

AMS6490 - M50

### Additional Information

M50 has similarities to the following standard designations and specification

AMS 6491 VIM-VAR	Snecma - DMD 119.20
AMS 6490 VAR	RHP / AEB - 14-06
G.E B50TF103 & C50TF56	FAG - FL-LA 2372.2 SX, PL 1.801A
Pratt & Whitney - PWA 793, PWA 725 & CPW 378	Barden Corp - SA-2947
Rolls Royce - MSRR 6083	Bell Helicopter - 299-947-087
MRC-SKF - MS-45, MS-171, MS-187	NHBB -PES 1.105
Timken Aerospace - EMS 5.1, EMS 5.4, EMS 5.7, EMS 88	NHBB -PES 1.105
SNFA - CFR 5200	RBC - MP-19
McGill Mfg - 10-42	Winsted - MS115

### Chemical Properties

Element	Chemical Composition %
Carbon (C)	0.85
Silicon (Si)	0.20
Manganese (Mn)	0.30
Chromium (Cr)	4.10
Molybdenum (Mo)	4.25
Vanadium (V)	1.00
Iron (Fe)	Balance

### Heat Treatment

Annealing	Heat uniformly to 899 °C and soak 8-10 hours. Cool 14-28 °C per hour to 538 °C. Air Cool.
	Typical annealed hardness: 235 HBW
Hardening	Harden in a properly rectified salt bath or controlled atmosphere furnace. Preheat at 815-871 °C
	and equalise. Raise uniformly to 1093-1107 °C. Quench into salt maintained at 566-621 °C or warm
	oil. Complete the quench in still air to at least 66 °C prior to beginning the tempering
	temperature for 2-4 hours
Tempering	Temper between 524-552 °C for most applications. Parts should always be double tempered and, in
	some instances, it may be advantageous to use a third tempering cycle. Hold at tempering temperature
	for 2-4 hours.

### Machinability Rating

In the annealed condition M50 has a machinability rating of 65% of a 1% carbon tool steel and 50% of

AISI B1112 screw stock

### Physical Properties

Density	7.87 g/cm <sup>3</sup>
Coefficient of Thermal Expansion	

Temp Range (°C)	10.06mm / mm / °C (x 10 <sup>-6</sup> )
-73 - 21	10.06
21 - 93	11.21
21 - 149	11.50
21 - 204	11.84
21 - 260	12.10
21 - 316	12.29
21 - 371	12.51
21 - 427	12.69
21 - 482	12.96
21 - 538	13.28

  

Modulus of Elasticity	
Test Temperature (°C)	Modulus (GPa)
21	203.4
93	189.6
204	168.9
316	148.2
427	127.6
538	106.9
649	86.2

## Disclaimer

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