BÖHLER

BÖHLER W460 VMR®

HOT WORK TOOL STEELS

Available Product Variants

Long Products

Product Description

BÖHLER W460 VMR is a double vacuum arc remelted (VAR) material that has been specially adapted for use in the motorsport sector. The steel purity achieved by this special manufacturing technology, combined with the high strength, ensures that a very high fatigue strength can be guaranteed. The high purity also results in very good polishability, which makes the steel a good choice as a tool material for minting coins.

Process Melting

Airmelted + VAR + VAR

Properties

- Super-high strength to avoid plastic deformation and ensure an optimized fatigue strength
- High dtiffness: relation between density and strength
- High tempering temperatures allow for a comprehensive range of surface treatments

Applications

- Automotive Racing
- Coining
- General Components for Mechanical Engineering

Technical data

Material designation	
BÖHLER patent	Market grade

Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	V
0.50	0.20	0.45	4.60	3.00	0.75

Delivery condition

Annealed	
Hardness (HB)	max. 205

Heat treatment

Annealing

Temperature	750 to 800 °C | 1,382 to 1,472 °F	Holding time 6 to 8 hours. Slow, controlled furnace cooling at 10 to 20°C/h (50 to 68 °F/hr) to approx. 600°C (1112°F), further cooling in air.

Stress relieving

Temperature	650 to 700 °C | 1,202 to 1,292 °F	For stress relief after extensive machining or for complicated tools. Holding time depending on tool size after complete heating 2 - 6 hours in neutral atmosphere. Slow furnace cooling.

Hardening and Tempering

Temperature	1,050 to 1,070 °C | 1,922 to 1,958 °F	Holding time after temperature equalization: 15 to 30 minutes; Quenching: Oil, salt bath (500 - 550°C [932-1022°F]), air, vacuum; After hardening, tempering to the desired working hardness (see tempering chart).

Thermal Expansions between 20°C | 68°F and ...

Temperature (°C | °F)	100 | 212	200 | 392	300 | 572	400 | 752	500 | 932	600 | 1,112	700 | 1,292
Thermal expansion (10^{-6} m/(m.K) | 10^{-6} inch/inch.°F)	11.1 | 6.2	11.5 | 6.4	11.9 | 6.6	12.3 | 6.8	12.8 | 7.1	13.2 | 7.3	13.6 | 7.6

The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazeller Straße 25
8605 Kapfenberg, AT
T. +43/50304/20-0
E. info@bohler-edelstahl.at
https://www.voestalpine.com/bohler-edelstahl/de/

voestalpine
ONE STEP AHEAD.