

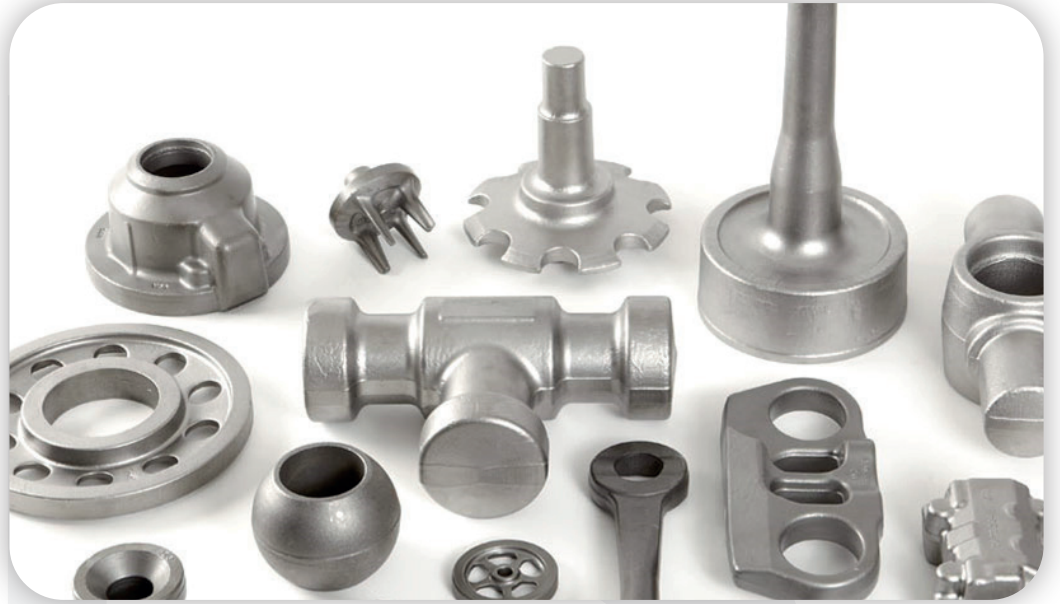
Tenax-V®

COLD WORK TOOL STEEL

Tenax-V is a special cold work tool steel with excellent toughness values. Thanks to its high nickel content, it has high impact strength, hardenability and polishability. The chromium, molybdenum and vanadium content improves impact strength as well as wear strength.

APPLICATION AREAS OF TENAX-V

- Cold forging dies
- Thick sheet metal cutting blades
- Thick sheet forming dies
- Cutlery molds
- Staples where toughness is desired
- Coin molds
- Scrap chopper knives
- Plastic dies



Chemical Composition

C%	Cr%	Ni%	Mo%	V	Others
0,45	1,35	4,00	0,25	0,50	+

ADVANTAGES OF TENAX-V

• High toughness and impact resistance

Tenax-V has high toughness and impact resistance due to its high nickel content.

• High hardenability

Tenax-V, high depth of hardness even in large cross-sectional dimension provides

• High dimensional stability during heat treatment.

Due to its high dimensional stability during heat treatment, Tenax-V greatly reduces post-heat treatment labor.

• High polishability

Tenax-V has high polishability due to its high nickel content. For this reason, it is also preferred in special plastic die steels with large cross-sections.



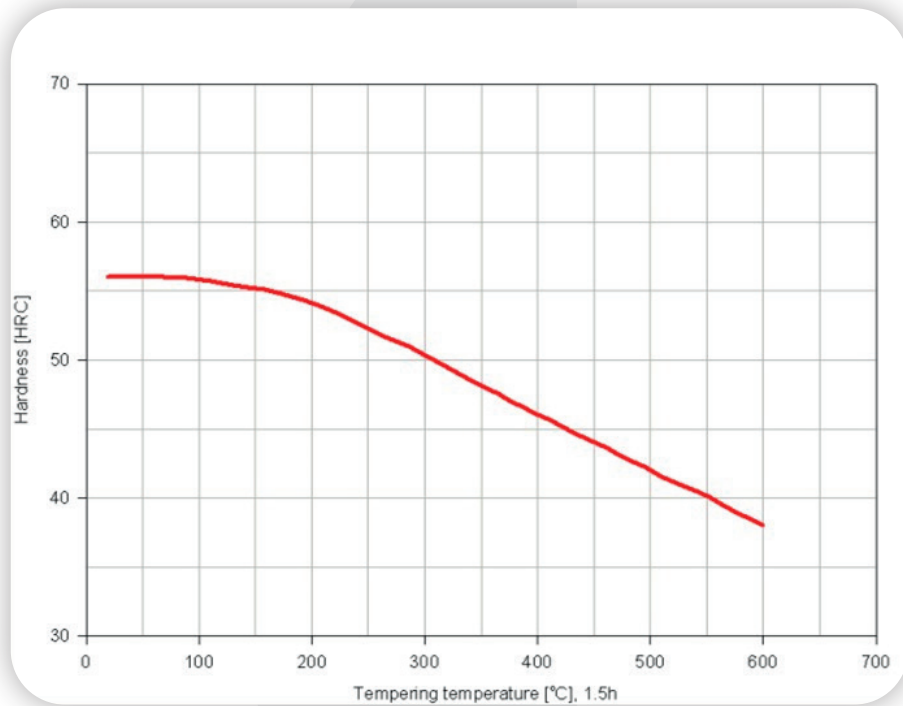
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HEAT TREATMENT PROCESS OF TENAX-V

	Temperature (°C)	Cooling
Annealing	610 - 650	Cool slowly in furnace
Hardening	850 - 890	Oil, Air, Warm Bath (180-220 °C)
Tempering	See tempering diagram	Air

Tempering Diagram



PHYSICAL PROPERTIES OF TENAX-V

Thermal Expansion

Temperature	100°C	200°C	300°C	400°C	500°C	600°C
$\times 10^{-6} / K$	11,8	12,6	13,1	13,5	13,7	13,9

Young's Modulus

Temperature	20°C
GPa	210

Specific Heat

Temperature	20°C
j/kg.K	460

Thermal Conductivity

Temperature	20°C
W/m.K	29

