

UDDEHOLM VIDAR™ 1

General

Uddeholm Vidar 1 is a chromium-molybdenum-vanadium-alloyed steel which is characterized by:

- good high-temperature strength
- good toughness and ductility
- good machinability and polishability
- good through-hardening properties
- good size stability during hardening

Typical analysis %	C	Si	Mn	Cr	Mo	V
	0,38	1,0	0,4	5,0	1,3	0,4
Standard specification	AISI H11, B H11, W.-Nr. 1.2343, AFNOR Z38 CDV 5, UNI X37 CrMoV 51 KU, UNE X37 CrMoV 5					
Delivery condition	Soft annealed to approx.185 HB					
Colour code	Orange/light blue					

Properties

Mechanical properties

Tensile strength at room temperature.

Hardness	44 HRC	48 HRC
Tensile strength, R _m	1 400	1 620
Yield point, R _{p0,2}	1 150	1 380

HIGH-TEMPERATURE STRENGTH AT ELEVATED TEMPERATURES

Hardness 48 HRC.

Testing temperature	R _m MPa	R _{p0,2} MPa
200°C (390°F)	1 490	1 250
400°C (750°F)	1 370	1 120
500°C (930°C)	1 190	910
550°C (1020°F)	1 170	790
600°C (1110°F)	880	600

Heat treatment

Soft annealing

Protect the steel and heat through to 850°C (1562°F). Then cool in furnace at 10°C (20°F) per hour to 650°C (1202°F), then freely in air.

Stress relieving

After rough machining the tool should be heated through to 650°C (1202°F), holding time 2 hours. Cool slowly to 500°C (932°F), then freely in air.

Hardening

Preheating temperature: 600–850°C (1112–1562°F) (normally two preheating steps).

Austenitizing temperature: 990–1010°C (1814–1850°F), normally 990–1000°C (1814–1832°F).

Soaking time: 30–45 minutes. Soaking time = time at austenitizing temperature after the tool is fully heated through.

Protect the tool against decarburization and oxidation during austenitizing.

Quenching media

- High speed gas/circulating atmosphere
- Vacuum (high speed gas with sufficient positive pressure)
- Martempering bath (salt or fluidized bed) at 500–550°C (932–1022°F)
- Martempering bath (salt or fluidized bed) at 180–220°C (356–428°F)
- Warm oil

Note 1: Temper the tool as soon as its temperature reaches 50–70°C (122–158°F).

Note 2: In order to obtain the optimum properties for the tool, the cooling rate should be fast, but not at a level that gives excessive distortion or cracks.

This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as a warranty of specific properties of the products described or a warranty of fitness for a particular purpose.

Classified according to EU Directive 1999/45/EC For further information see our "Material Safety Data Sheets".

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