

<b>General Information</b>	Very good retentively of hardness and toughness at elevated temperatures. Compression strength is very good and it is insensitive to thermal shocks. Wear resistance is better than 2343. Good mechanical property in the annealed condition.							
<b>Comparable standards</b>	<b>AISI/SAE</b>	<b>DIN</b>	<b>W.N</b>	<b>AFNOR</b>	<b>BS</b>	<b>SIAU</b>		
	H13	X40CrMoV51	1.2344	/	BH13	MTV		
<b>Chemical analysis (%)</b>	<b>C</b>	<b>Mn</b>	<b>Si</b>	<b>Cr</b>	<b>Mo</b>	<b>V</b>	<b>P</b>	<b>S</b>
	0.37-0.42	0.30-0.50	0.90-1.20	4.80-5.50	1.20-1.50	0.90-1.10	≤0.03	≤0.03

### Heat Treatment

#### Isothermal annealing:

- Heat to 880°C, hold at temperature for 1/2 h to 1 h;
- Furnace cooling to 780°C and hold at temperature for at least 5 hours;
- Cool by 10°C/h to 750°C;
- Cooling in air.

Maximum hardness: 230 HB

#### Stress relieving:

To be carried out after machining and before the final heat treatment.

- Heat to 650÷700°C, hold for 4÷6 hours;
- Furnace cooling to 300÷350°C;
- Cooling in air.

#### Hardening:

- Initial preheating to 350÷450°C;
- Second preheating to 750÷850°C;
- Heat to hardening temperature in the range 1000÷1050°C and hold at temperature;
- Cooling in air.

Quenched hardness: 52÷56 HRC

#### Tempering:

In the range 550÷630°C for at least 3 hours according to hardness requirements and conditions of use.

Tempering must be repeated a second time at a temperature to or 20°C lower than the previous.

Before tempering, preheat the parts to 200÷300°C.

#### Tempering Curve (only for reference):

