



**H D Z**

**H10**

**HOT WORK TOOL STEEL**

**Nominal Chemical Analysis %**

<b>C</b>	<b>.32</b>
<b>Si</b>	<b>.30</b>
<b>Mn</b>	<b>.30</b>
<b>Cr</b>	<b>3.00</b>
<b>Mo</b>	<b>2.80</b>
<b>V</b>	<b>.50</b>

**Heat Treatment**

**Annealing**

750 / 780°C for 4 hours approx.  
Cool slowly in the furnace at 20°C maximum per hour.

**Stress Relieving**

600 / 650°C for 2 hours approx.  
Cool in still air. Always stress relieve before hardening.

**Hardening**

**Pre-Heating**

- (i) 400°C Holding time at temperature:  
1 min / mm effective section approx.
- (ii) 650°C Holding time at temperature:  
30 sec / mm effective section approx.
- (iii) 850°C Holding time at temperature:  
30 sec / mm effective section approx.

**Austenitizing**

1010 / 1050°C Holding time at temperature:  
30 sec / mm effective section approx.  
H10 is suitable for Vacuum Hardening

**Quenching:-**

- (i) Quench in Oil or,
- (ii) Quench into Neutral Salts (Martempering) at 450 / 550°C then cool slowly in still air.

Temper immediately after quenching whilst tools are still hand warm.

**Corresponding Specifications**

<b>AIISI</b>	<b>H10</b>
<b>BS EN ISO 4957:2000</b>	<b>32CrMoV12-28</b>
Supersedes BS4659	BH10
<b>WKSTOFF</b>	<b>1.2365</b>

**Colour Code:** Brown/Yellow

**Delivery Condition**  
Annealed 229 BHN Max

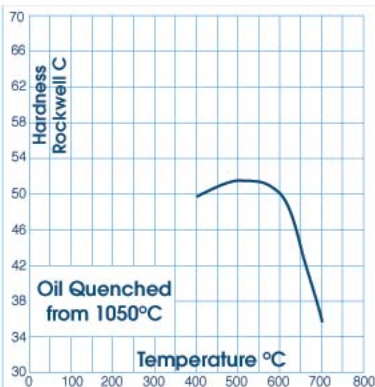
**Characteristics**

H10 is Cr Mov hot work tool steel giving good toughness, good thermal conductivity, excellent compressive strength and retention of hardness at high temperatures. It is not susceptible to thermal cracking and can be water cooled in service.

**Applications**

H10 is suitable for forging die inserts, extrusion tools for processing copper alloys, die casting tools and piercing mandrels.

**Tempering**



Consult the tempering diagram and temper according to requirements.

Temper for 1 hour / 25mm effective section for a minimum of 2 hours then cool in still air.

For guidance, temper at:

500 / 550°C for maximum hardness,

580 / 620°C for hardness with toughness.

Triple tempering is recommended, cooling to room temperature between tempers.

NB. Lower hardness values will tend to result when hardening larger sections.