



**BP30**

# BENUM

**PLASTIC MOULD STEEL**

**Nominal Chemical Analysis %**

C	.30
Cr	1.25
Mo	.30
Ni	4.25

## Heat Treatment

### **Annealing**

650 / 670°C for 4 hours approx.

Cool slowly in the furnace at 20°C maximum per hour.

### **Stress Relieving**

610 / 630°C Allow to equalise and 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.

#### **Austenitizing**

810 / 830°C Holding time at temperature:

1 min / mm effective section approx.

Benum is suitable for Vacuum Hardening.

#### **Quenching:-**

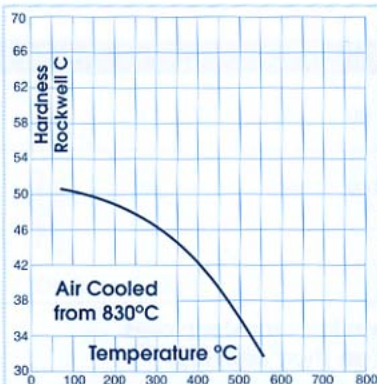
(i) Quench in Oil or,

(ii) Quench in Still Air or,

(iii) Quench into Neutral Salts (Martempering) at 180 / 220°C then cool slowly in still air.

Temper immediately after quenching whilst tools are still hand warm.

## **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 optimum results, temper at: 150 / 200°C

Tempering between 250 / 450°C is NOT recommended as this can lead to temper embrittlement.

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

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

## **Corresponding Specifications**

**BS4659 BP30**

**Colour Code:** Pink

**Delivery Condition**  
Annealed 277 BHN Max

## **Characteristics**

Benum is a versatile air hardening tool steel suitable for tools where high strength and toughness are required combined with a highly polishable and wear resistant surface. It is suitable for hard chrome plating and nitriding.

## **Applications**

Benum is suitable for injection and compression mould tools, die casting tools and for heavy duty coining and embossing tools. It is suitable for engineering applications where high strength is required: shafts, gears, arbors, etc.