**PROPERTIES AND USES**

High CrMo-alloyed special steel for plastic molds with best corrosion resistance, generally used for plastic-press and injection molds or parts of them, for production of chemically aggressive plastics (PVC). BP 42 is supplied in hardened and tempered condition with a tensile strength of approx. 1000 N/mm² (approx. 100 kp/mm²). It can be polished to a smooth mirror-like finish and is therefore suitable for the manufacture of molds with superior surface quality.

ESR- or VAR-grade BP 42 (HQ) guarantees an extremely clean and homogeneous microstructure leading to the best polishability and very uniform mechanical and physical properties.

BP 42 is supplied in heat-treated bars or forged blocks. The finish mold can be nitrided in gas or salt bath to improve the surface, no further heat treatment by the customer is necessary, no problems with regard to change in dimension or distortion during hardening. In exceptional cases when higher tensile properties than in a.m. supply condition are required, BP 42 can also be delivered in annealed condition. In this case machinability is better because of lower hardness and heat treatment has to be done by the customer in accordance with the figures mentioned below.

**HOT WORKING AND HEAT TREATMENT**

- **Forging**: 1100–750 °C (2010–1380 °F)
- **Soft annealing**: 750–800 °C (1380–1470 °F) 4 hrs/furnace cooling
- **Brinell Hardness in the annealed condition**: Max. 235 HB
- **Stress relieving**: 650 °C (1200 °F)
- **Preheating for hardening**: 650 °C (1200 °F)
- **Hardening temperature**: 980–1030 °C (1800–1885 °F)
- **Quenching**: Oil
- **Tempering temperature**: 600–700 °C (1100–1290 °F)
- **Time**: 1 hr/25 mm (1 hr/in.)

**HIGH-TEMPERATURE STRENGTH DIAGRAM (APPROX. VALUES)**

![Graph showing high-temperature strength diagram](image)