

Short name	X36CrMo17
No.	1.2316 (ESR)
AISI	420mod

Typical chemical composition, %	C	0.40
	Si	0.30
	Mn	0.60
	Cr	16.00
	Mo	1.10
	Ni	0.45

## 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/mm<sup>2</sup> (approx. 100kp/mm<sup>2</sup>). 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)

