



## Steels with vanadium nitride hardening for dies

The technology provide for the use of nitride-containing cast alloying elements obtained by the metallurgical method. Under production conditions, this predetermines the high stability of the level of physico-mechanical properties of steels with nitride hardening.

The greatest effect in the production of castings and rolled products from carbon steels is achieved by the use of vanadium nitride hardening: the crack resistance, fatigue strength and cold resistance of steels are considerably increased.

As far as their service properties are concerned, carbon chromium steels with vanadium nitride hardening are competitive with structural steels alloyed with chromium, nickel and molybdenum at both normal and elevated temperatures.

The vanadium nitride hardening of die steels may help to solve the problems of considerably increasing the durability of dies made from economically alloyed steels or diminishing the content of molybdenum and tungsten in high-alloys steels without reducing their durability.



The increased heat stability and thermal fatigue strength of low-alloy steels with nitride hardening ensure their effective use for hot pressing and hammer dies.

Insert of pressin die fro (5XHAΦ) steel instead of (5XHM) steel

Increase of durability 2.5 times.

Economy : Mo—2,5 kg/t;

Ni—4,0 kg/t.