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CONCRETE AND TUBE STEELS MICROALLOYED BY VANADIUM AND NITROGEN

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The quality of microalloyed concrete reinforcing steels for building purposes is chiefly determined by precipitation hardening of vanadium carbide and vanadium carbonitride on the interphase boundary. Their precipitation effect depends first of all upon their dispersity. Optimal results of rolling these steels for concrete reinforcement are achieved by high rolling speed with relatively high finishing mill train temperatures.

1. Introduction

Improvement of the strength properties of the reinforcing steels for concrete is a permanent subject matter in the field of metallurgy and building industry. The moving force of that interest is the need for ever more effective utilization of metal that would be otherwise got lost for ever from the circulation of raw materials in our national economy. In the ČSSR some 600 000 tons of reinforcing steels are produced per year; this aspect is the main impetus for the steel producers to develop new steel grades that would be able to meet the demands laid on the concrete reinforcement with simultaneous reduced consumption of steel.

In the CSSR the concrete steels are produced in the majority of cases in form of ribbed sections of 6 to 40 mm in dia. in the quality grades up to 410 MPa by the yield limit, see Table 1. The produced proportion of ribbed steel with yield limit above 430 MPa is negligible. To achieve the desirable material savings there is indispensable to pass over to the concrete steels with higher strength properties /with yield limit above 450 MPa/ that would be simultaneously competitive for the common grades in view of the technico-economical parameters associated with manufacture and