

DEVOTING MAJOR EFFORTS TO APPLICATION & DISSEMINATION OF 400 MPa III GRADE REBAR

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1 Research & Production of 400 MPa III Grade Rebar

Concrete structural components are widely used in the field of civil building while the rebar concrete is predominant in the domestic household construction. It is imperative to research & produce one kind of high – strength rebar with good comprehensive property. As for 260 MPa II Grade rebar, the advanced countries have no longer produced nowadays. Our country is mainly adopting II Grade and a small amount of 370 MPa III Grade rebar. The countries in Europe and America, etc are mainly making advantage of the micro – alloying technology to produce high – strength 400 MPa, 500 MPa Grade rebar with good comprehensive property (especially the weldability, including joint and its HAZ). The countries of U.K, Germany, Japan, Russia, etc. have applied tremendously 400 ~ 460 MPa Grade rebar.

From 1972 ~ 1976, in view of the problem that the intensity index of 16 Mn II Grade rebar is not able to satisfy the requirement and the performance is not insured, we adjusted its chemical component to increase the element content of C, Si, and changed the steel grade as 20MnSi. More than 400 tons of the product have been used for project trial purpose with which the reaction of usage is not bad at all, and they have been contin-

ued to use all the time so far. Rebar of 370 MPa III Grade with steel grade 25 MnSi is the original steel grade of the former Soviet Union which the intensity level was originally 40/60 level (YB171 – 69). Because of difficulty to reach the requirement of intensity level of rebar, it was decreased to the level of 38/58 (GB1499 – 79), and it is permissible to be supplied in 2 kg inferior to the standard. In 1983 when the subject of problem tackling of rebar was expounded, the gentlemen of Chinese Construction Scientific Research Institute pointed out that the performance of 25MnSi III Grade rebar is not stable, and the intensity difference of II, III Grade is not varied. The weldability is not good, and also the pressure, tensile strength imposed are not in conformity as result of which rebar of 20MnSi II Grade is applied remarkably in the household construction.

During the “Sixth – Five Year Plan” period, the national technology research on low – alloy steel aiming at the fact that the technological process for production of rebar was backward and the technical property could not reach the requirement, the research team had listed the subject of “Post – Rolling Waste Heat Treatment & Research of 410 MPa (42 kg grade) rebar for weldable rebar concrete by way of micro – alloying technique” into the objective of problem tackling. Under the coordination of the General Construction Research