

# Fire-Resistant Steel for Building Structures\*

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## 1 Introduction

The existing construction standard law stipulates a protection of steel-structured buildings from the heat of fire by installing specified fireproofing protection, because steel materials under the heat of fire reduce their resistance. However, in addition to the poor looks of fireproofing protection, and the inadequacy of work-

tees 2/3 of its specified values at room temperature up to 600°C.

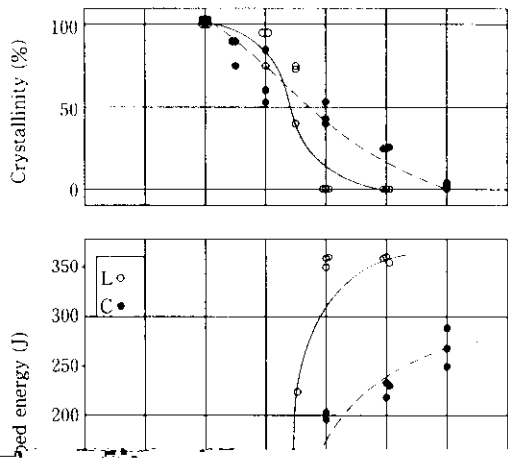
- (2) Its mechanical properties at room temperature are the same as those of conventional steel for building structure use.
- (3) Its ductility is high because of a low yield ratio.
- (4) Its workability and weldability are the same as those of conventional steel.

App. equipment, the present situation of steel-structured buildings

nical test methods, etc. conform to JIS G 3101 or JIS G 3106. The tolerances for shapes, dimensions and

columns. Besides the types shown in Table 1, KSFR steel for SMA400, SMA490 and SMA520 (atmospheric

however, that the plate thickness of KSFR steel is



the specified values at room temperature even at 600°C. In addition the tensile strength (TS) of KSFR steel is higher at elevated temperatures than that of conventional steels.

#### 2.3.4 Jointing materials

Along with the development of KSFR steel, high strength bolting and welding materials having excellent elevated temperature properties compatible with KSFR steel were developed. An outline of the high-strength bolt is shown in **Table 4**, and the tensile properties at elevated temperatures of the bolt are shown in **Fig. 4**. The tensile properties of the deposited metal of the welded joint and the joint itself at elevated temperatures

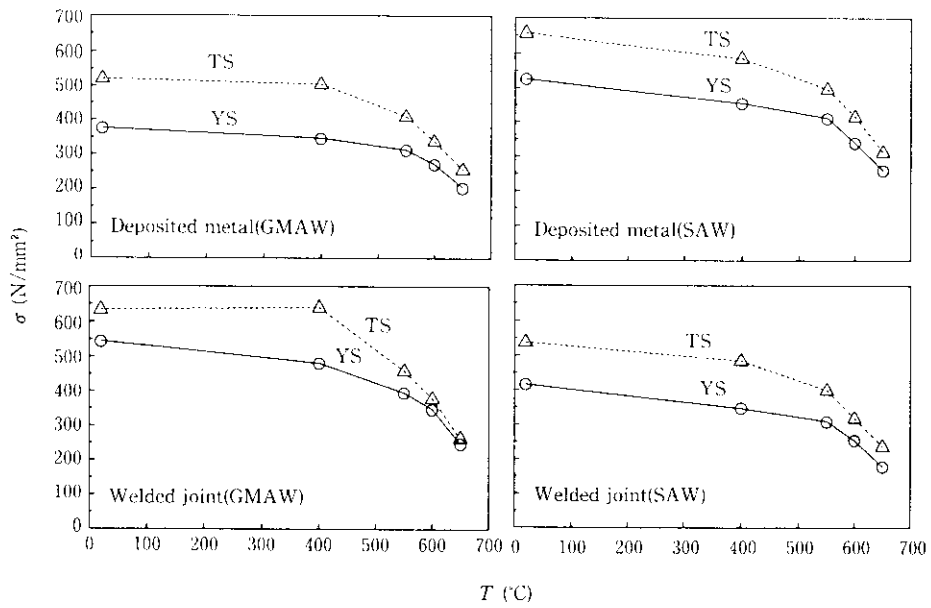


Fig. 5 Results of tension test of deposit metal and welded joint at elevated temperature

ducts and manufacturing and processing of pack-  
~~ing materials made of steel. The factory owns,~~

