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JAPANESE INDUSTRIAL STANDARD

Alloy Steel Forgings for Pressure Vessels for High-Temperature Service

JIS G 3203—1988

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Alloy Steel Forgings for Pressure Vessels
for High-Temperature Service

G 3203-1988

1. Scope

This Japanese Industrial Standard specifies the alloy steel forgings, hereinafter referred to as the "forgings", for pressure vessels and components thereof for high temperature service, in which especially weldability is taken into consideration.

Remark: The units and numerical values given in { } in this Standard are based on the International System of Units (SI) and are appended for informative reference.

Further, the traditional units accompanied by numerical values in this Standard shall be converted to the SI units and numerical values on Jan. 1, 1991.

2. Designation of Grade

Designation of grade of the forgings shall be as shown in Table 1.

Table 1. Designation of Grade

Designation of grade
SFVA F 1
SFVA F 2
SFVA F 12
SFVA F 11 A
SFVA F 11 B
SFVA F 22 A
SFVA F 22 B
SFVA F 21 A
SFVA F 21 B
SFVA F 5 A
SFVA F 5 B
SFVA F 5 C
SFVA F 5 D
SFVA F 9

3. Chemical Composition

The forgings shall be subjected to the test of 9.2, and the chemical composition thereof shall be as follows:

- (1) The chemical composition of the forgings shall be determined by the ladle analysis, and the values obtained shall conform to Table 2.
- (2) In the case where the product analysis on the forging is performed according to the request by the purchaser, the tolerance thereof shall conform to Table 3 in JIS G 0321.

Table 2. Chemical Composition

Unit: %

Designation of grade	C	Si	Mn	P	S	Cr	Mo
SFVA F 1	0.30 max.	0.35 max.	0.60 to 0.90	0.030 max.	0.030 max.	—	0.45 to 0.65
SFVA F 2	0.20 max.	0.60 max.	0.30 to 0.80	0.030 max.	0.030 max.	0.50 to 0.80	0.45 to 0.65
SFVA F 12	0.20 max.	0.60 max.	0.30 to 0.80	0.030 max.	0.030 max.	0.80 to 1.25	0.45 to 0.65
SFVA F 11 A SFVA F 11 B	0.20 max.	0.50 to 1.00	0.30 to 0.80	0.030 max.	0.030 max.	1.00 to 1.50	0.45 to 0.65
SFVA F 22 A SFVA F 22 B	0.15 max.	0.50 max.	0.30 to 0.60	0.030 max.	0.030 max.	2.00 to 2.50	0.90 to 1.10
SFVA F 21 A SFVA F 21 B	0.15 max.	0.50 max.	0.30 to 0.60	0.030 max.	0.030 max.	2.65 to 3.35	0.80 to 1.00
SFVA F 5 A SFVA F 5 B	0.15 max.	0.50 max.	0.30 to 0.60	0.030 max.	0.030 max.	4.00 to 6.00	0.45 to 0.65
SFVA F 5 C SFVA F 5 D	0.25 max.	0.50 max.	0.30 to 0.60	0.030 max.	0.030 max.	4.00 to 6.00	0.45 to 0.65
SFVA F 9	0.15 max.	0.50 to 1.00	0.30 to 0.60	0.030 max.	0.030 max.	8.00 to 10.0	0.90 to 1.10

4. Mechanical Properties

The forgings shall be subjected to the test of 9.3, and the yield point or proof stress, tensile strength, elongation, and reduction of area thereof shall be as given in Table 3-1 or Table 3-2.