

## AUSTENITIC STAINLESS STEEL

### ABSTRACT

An austenitic stainless steel, which comprises by mass%,  $C < 0.04\%$ ,  $Si \leq 1.5\%$ ,  $Mn \leq 2\%$ ,  $Cr: 15 \text{ to } 25\%$ ,  $Ni: 6 \text{ to } 30\%$ ,  $N: 0.02 \text{ to } 0.35\%$ , sol.  $Al \leq 0.03\%$  and further contains one or more elements selected from  $Nb \leq 0.5\%$ ,  $Ti \leq 0.4\%$ ,  $V \leq 0.4\%$ ,  $Ta \leq 0.2\%$ ,  $Hf \leq 0.2\%$  and  $Zr \leq 0.2\%$ , with the balance being Fe and impurities, and among the impurities  $P \leq 0.04\%$ ,  $S \leq 0.03\%$ ,  $Sn \leq 0.1\%$ ,  $As \leq 0.01\%$ ,  $Zn \leq 0.01\%$ ,  $Pb \leq 0.01\%$  and  $Sb \leq 0.01\%$ , and satisfy the conditions  $F1 = S + \{(P + Sn)/2\} + \{(As + Zn + Pb + Sb)/5\} \leq 0.0075$  and  $0.05 \leq F2 = Nb + Ta + Zr + Hf + 2Ti + (V/10) \leq 1.7 - 9 \times F1$  has not only excellent liquation cracking resistance in the HAZ on the occasion of welding and excellent embrittling cracking resistance in the HAZ during a long period of use at high temperatures but also excellent polythionic acid SCC resistance and high temperature strength.