

[Document Name] Abstract

A duplex stainless steel containing, by mass%: C: not more than 0.03%, Si: not more than 0.3%, Mn: not more than 3.0%, P: not more than 0.040%, S: not more than 0.008%, Cu: 0.2 to 2.0%, Ni: 5.0 to 6.5%, Cr: 23.0 to 27.0%, Mo: 2.5 to 3.5%, W: 1.5 to 4.0%, and N: 0.24 to 0.40%, the balance being Fe and impurities, wherein a σ phase susceptibility index $X (= 2.2Si + 0.5Cu + 2.0Ni + Cr + 4.2Mo + 0.2W)$ is not more than 52.0; a strength index $Y (= Cr + 1.5Mo + 10N + 3.5W)$ is not less than 40.5; and a pitting resistance equivalent PREW $(= Cr + 3.3(Mo + 0.5W) + 16N)$ is not less than 40. This duplex stainless steel is excellent in corrosion resistance and embrittlement cracking resistance.