



162162

ABSTRACT

A SOFT STAINLESS STEEL SHEET EXCELLENT IN WORKABILITY

A new soft stainless steel sheet has an austenite stability index Md_{30} controlled in a range of -120 to -10 and a stacking fault formability index SFI controlled not less than 30, and involves precipitates whose Cu concentration is controlled not more than 1.0%, so as to maintain concentration of dissolved Cu at 1.5%. The stainless steel sheet preferably contains up to 0.06%(C+N), up to 2.0% Si, up to 5% Mn, 15-20% Cr, 5-9% Ni, 1.0-4.0% Cu, up to 0.003% Al, up to 0.005% S, and optionally one or more of up to 0.5% Y, up to 0.5% Nb, up to 0.5% Zr, up to 0.5% V, up to 3.0% Mo, up to 0.03% B, up to 0.02% REM (rare earth metals) and up to 0.03% Ca. The stainless steel sheet can be plastically deformed to an objective shape without any cracks even at a part heavily worked part by multi-stage deep drawing or compression deforming.

$$Md_{30}(^{\circ}C) = 551 - 462(C+N) - 9.2Si - 8.1Mn - 29(Ni+Cu) - 13.7Cr - 18.5Mo$$

$$SFI (mJ/m^2) = 2.2Ni + 6Cu - 1.1Cr - 13Si - 1.2Mn + 32$$

Figure 6



G00002