Abstract:

H a a JFE443CT a a SUS304. I a a a SUS304, a N a M a a N M . JFE443CT a a a a - a , a a , a a a , a , a a a SUS304. T a JFE443CT a a a .

1. Introduction

Stainless steel used for general applications is austenitic stainless steel (also called nickel-based stainless steels typified by SUS304 (18mass%Cr-8mass%Ni (hereafter, “mass%” is abbreviated to “%”)) or ferritic stainless steel such as SUS430 (16% Cr).

In the field of household utensils and electrical appliances, SUS430 is frequently used for its economic efficiency. Steel of many new types suitable for applications for automobiles has been developed and the majority used is ferrite-based stainless steel. By contrast, for construction materials, industrial machines and so forth, mainly SUS304 has been used for its excellent corrosion resistance, workability, weld

ensured by raising the Cr content to 21%, and besides, an addition of 0.4% Cu.

By adding 0.3% Ti as a stabilizing element, the C and N remaining in the steel are changed into harmless

tions (e.g., SUS304) by tungsten inert gas welding (TIG welding). It is therefore better, in butt welding, to use SUS304L (18%Cr-9%Ni, C ≦ 0.030%) instead of SUS304 (C ≦ 0.08%, in general, 0.05 to 0.06%).

Photo 1(b) shows the results of a corrosion test conducted on the TIG butt-weld zones of JFE443CT with different kinds of stainless steels. The weld zone of JFE443CT with SUS304 is sensitized and shows a decrease in corrosion resistance. In contrast to this, the weld zones formed with SUS304L and SUS316L (0.02%C-18%Cr-12%Ni-2%Mo) with low C concentrations show good corrosion resistance. When JFE443CT and different stainless steel of high C content are welded together by TIG welding, the corrosion resistance of the weld zones will decrease if the cooling stage after the welding is slow. This decrease in corrosion resistance is less apt to occur in electric resistance welding (spot welding and seam welding), as the cooling after wenes os olwel10 0 0 10 (i)-1fiin urtage afa/T11 1 Tf2( )-121(t)-12c c le/T11 1 Tf2(c12(t)-12( )8 Tm

Figure 1 compares the whiteness and luster of each of the 2B and 2BW finishes for JFE443CT, and the BA and 2B finishes for SUS304. **Photo 3** shows the 2B and 2BW finishes for JFE443CT and the 2B finish for SUS304. The luster and whiteness of the JFE443CT with the 2BW finish are equivalent to those of the SUS304 finished with 2B: both finishes are white, with low luster. When JFE443CT-2BW, and the 2B finish for SUS304 are used in combination, a 2BW finish can be used to reduce the difference in color tone.

2.4 Ridging Resistance

When ferritic stainless steels are press formed, linear asperities along the rolling direction, so-called "ridging," may sometimes appear. Ridging impairs the beauty of the appearance and increases polishing loads. This possess problems when the steels are used to make products that require polishing finishes after working, such as kitchen utensils. Because ridging never appears on

Photo 8 Application of JFE443CT for indoor use ((a) Cooking pan (by courtesy of Futaba Industry Co., Ltd.), (b) Temperature keeping box (by courtesy of Isuzu Seisakusho Co., Ltd.), (c)

Fig. 2 Comparison of heating rate between pans made of JFE443CT and SUS304 (The amount of water in a pot was 2 *l*)

materials and fittings, electrical equipment, industrial machines, automobiles, and the like. This steel grade is expected be widely used in as a resource-saving stainless steel.

References

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