

Title (en)  
STAINLESS STEEL MATERIAL FOR DIFFUSION BONDING

Title (de)  
EDELSTAHL MATERIAL ZUM DIFFUSIONSSCHWEISSEN

Title (fr)  
MATÉRIAU EN ACIER INOXYDABLE DESTINÉ À LA LIAISON PAR DIFFUSION

Publication  
**EP 3216888 A4 20180530 (EN)**

Application  
**EP 15857850 A 20151016**

Priority  
• JP 2014225576 A 20141105  
• JP 2015079342 W 20151016

Abstract (en)  
[origin: EP3216888A1] Provided is a stainless steel material suitable for diffusion bonded moldings in which diffusion bondability has been further improved without being affected by the extent of surface roughness. The present invention is a stainless steel material for diffusion bonding in which the metal structure before diffusion bonding has a multi-phase structure obtained from two or more of a ferrite phase, a martensite phase and an austenite phase, wherein: the mean crystal grain diameter in the multi-phase structure is not more than 20  $\mu\text{m}$ ;  $\alpha_{\text{max}}$  represented by formula (a) is 10-90; and creep elongation when a 1.0 MPa load is applied at 1000°C for 0.5 h is at least 0.2%.  $\alpha_{\text{max}} = 420 \text{ C} \text{ \#} \text{ 11.5 Si} + 7 \text{ Mn} + 23 \text{ Ni} \text{ \#} \text{ 11.5 Cr} \text{ \#} \text{ 12 Mo} + 9 \text{ Cu} \text{ \#} \text{ 49 Ti} \text{ \#} \text{ 47 Nb} \text{ \#} \text{ 52 Al} + 470 \text{ N} + 189$  The element notations in formula (a) represent the contents (mass%) of the respective elements.

IPC 8 full level  
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**C21D 2211/008** (2013.01 - EP US)

Citation (search report)  
• [X] EP 1396552 A1 20040310 - NISSHIN STEEL CO LTD [JP]  
• [X] JP 2003089851 A 20030328 - NISSHIN STEEL CO LTD  
• [X] JP 2004131743 A 20040430 - NISSHIN STEEL CO LTD  
• See references of WO 2016072244A1

Cited by  
US11566301B2

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