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10-0400356
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(21) 10-2000-0073926
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(65)
(43)

2002-0044751
2002 06 19

(73) 2 39-1

(72) 1 3 108-804

104-1501

637

(74)
:

(54) -

Cu-Cr
Cu-Cr

가

-

(Cu) ,

(Cr)

; , ,가

1

, , , , , , ,가

1

Cu-Cr

2
-5%Mo

Cu-25%Cr-10%W
4 Cu-25%Cr

3

Cu-25%Cr

가 , Cu-Cr
Cu-Cr 가

가 , / / , 가

가 (Paul G. Slade: The Vacuum Interrupter Contact, IEEE Transaction on Components, Hybrids, and Manufacturing Technology, Vol. CHMT-7 (1984) pp. 25).

가 (1) , (2) , (3) , (4) , (5) () , (6) , (7) 가 , (8) 가 (Furushawa et al. US Patent 5,853,083 (1998); T. Seki, T. Okutomo, A. Yamamoto, T. Kusano, Contact Materials for Vacuum Valve and Method of Manufacturing the Same, United State patent 5,882,488 (1999); E. Naya, M. Okumura, Contact for Vacuum Interrupter, United State patent 4,870,231 (1989); F. Heitzinger, H. Kippenberg, Karl E. Saeger, and Karl-Heinz Schröder, Contact Materials for Vacuum Switching Devices, IEEE Transactions on Plasma Science, Vol. 21, No. 5, (1993) pp. 447).

Cu-Cr 1970 가 Westinghouse, English Electric, Siemens, Mitsubishi 4 C
80 , 1980 u-Cr 1980 Cu-Cr 1990 / Cu-Cr 가
(Paul E. Slade, IEEE Transactions on Components, Packaging, and Manufacturing Technology—Part A, Vol 17, No 1 (1994) pp. 96).

가 , 가 Cr-Cu
가 가 (inrush current)가 2 가
Cu-Cr Mo, W, Nb, Ta, V, Zr 가
Cr 가 Cu-Cr 가 40μm
(Cr) (T. Seki, T. Okutomo, A. Yamamoto, T. Kusano: Contact Materials for Vacuum Valve and Method of Manufacturing the Same, United State patent 5,882,488 (1999)).
Cr Cu-Cr 가 가 Cr Cu
Cr 가 Cr Cu-Cr 가
, Cu-Cr Mo, W, Ta, Nb, V, Zr 가 가 가
μm 가 Cr Cu-Cr 가 40
Cr Cr Cu-Cr

Cu-Cr

Zr 가 (W, Mo, Ta, Nb, V, Zr) W, Mo, Ta, Pt, Nb, V, 가 Cr-X(W, Mo, Ta, Nb , V, Zr 가 (X)) Cu-Cr W, Mo, Ta, Nb, V, Zr 가 Cu-Cr Cu-Cr 가 Cu-Cr 가 Cu-Cr 가 Mo, W, Ta, Nb, V, Zr 가 Cu Cr 40 60μm Cr Cu-Cr Cr 200 300μm, Mo 4μm, W 4μm, Ta 45μm, Nb 45μm, V 50μm Cu-Cr () Cu 20 80%, Cr 10 80%, Mo 0.001 80%, W 0.001 80%, Ta 0.001 80%, Nb 0.001 80%, V 0.001 80%. 1. : Cr (ball mill) Cr Cu V (V-mixer) 600 1070 1 Cr-1100 1800 Cr-가 -Cu Cu가 Cu Cu (1083) 가 가 가 (Cr 가) 2. : Cu, Cr, 88MPa 가 V Cu-Cr- 1 2 Cr / 2 Cr 3. 가 (): Cu, Cr, 가 V 가 4. 600 1070 , 1 500MPa 가 Cr 가 Cr-가 Cu-Cr- 가 () Cu-Cr- 1083 1800 , 1100 20 , 1800 1 가 가 Cr Cr Cu Cr 가 Cr- () 1. 1 Cu, Cr, (Mo, W, Ta, Nb, V, Zr) 1.75ton/cm² 가 25mm Cu-(15 75)%Cr-10%

2 75% Cu-Cr- [(900 1075) (1100 1250)] /
 0.5 20 Cr , Cu-Cr- , 1100 20 , 1
 800 1 5x10⁻⁵ torr , 가
 99.9% 4 1 Cu-Cr- 가 Cu-Cr- C
 u-Cr 가 4 Cu-Cr
 2. Cu, Cr, (Mo, W, Ta, Nb, V, Zr) 0.2 4ton/cm²
 가 25mm Cu-(15 75)%Cr-(1 50)% , 1
 600 1050 Cu 0.5 10 가 Cu
 (1100 1800) 0.5 20 Cu Cu-(15 75)%Cr-(1 50)%
 Cu-Cr- 20 1800 가 1 , Cr 1100
 5x10⁻⁵torr ,
 99.9% 1
 3. Cu, Cr, (Mo, W, Ta, Nb, V, Zr) 25mm
 600 1050 1 500MPa 가 Cu-Cr-
 . Cr 1
 Cu-Cr- (=Mo, W, Ta, Nb, V, Zr) , Cr
 가 200 300μm 20 60μm , Cr M
 . Cu-Cr Cr ,
 Cu-Cr ,
 o, W, Ta, Nb, V, Zr 가 가
 가 가

- (57)
1. (Cu), (Cr), (X) ;
 900 1075 ;
 0.5 20 1100 1850 가 ;
 2. 200 300μm
 3. Mo, W, Ta, Nb, V, Zr 1
 4. 가 Cu 20 80%, Cr 10 80%, Mo 0
 .001 80%, W 0.001 80%, Ta 0.001 80%, Nb 0.001 80%, V 0.001 80%
 5. (Cu)

(Cu)

6.

1

Cu 가 Cu

7.

1

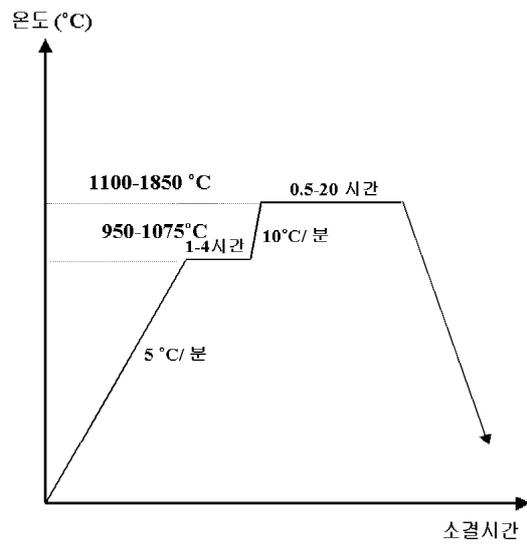
1 500MPa 가 가

8.

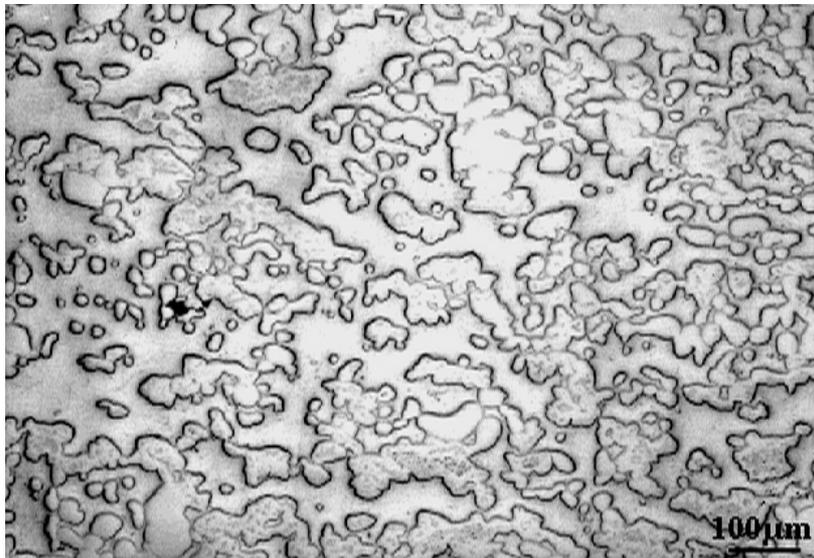
9.

10.

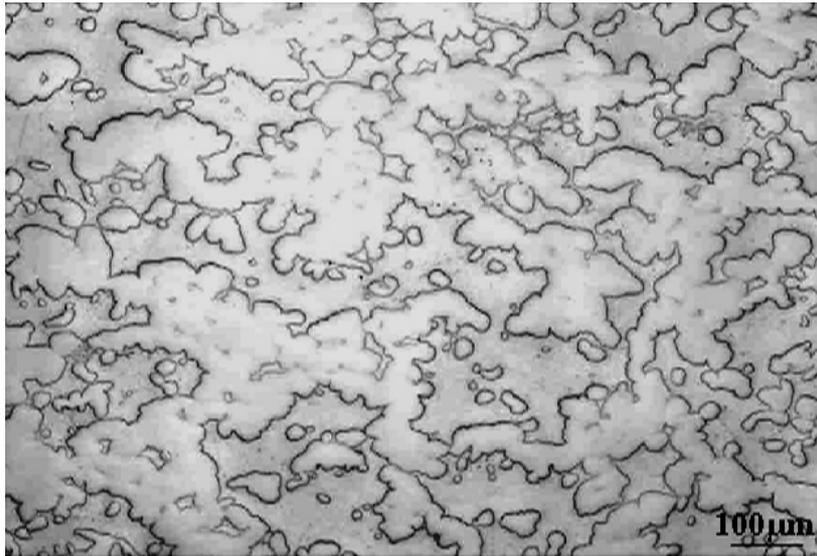
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