

Title (en)  
CUTTING TOOL MADE OF WC-BASED CEMENTED CARBIDE

Title (de)  
SCHNEIDWERKZEUG AUS ZEMENTIERTEM CARBID AUF WC-BASIS

Title (fr)  
OUTIL DE COUPE RÉALISÉ EN CARBURE CÉMENTÉ À BASE DE CW

Publication  
**EP 4129540 A1 20230208 (EN)**

Application  
**EP 21776329 A 20210312**

Priority

- JP 2020056624 A 20200326
- JP 2021010161 W 20210312

Abstract (en)

A cutting tool made of WC-based cemented carbide and having a cutting edge comprises 8.0 to 14.0 mass% Co; 0.1 to 1.4 mass% Cr<sub>3</sub>/sub>C<sub>2</sub>/sub>; and 0.6 to 4.0 mass% at least one selected from the group consisting of TaC, NbC, TiC, and ZrC; the balance being WC and incidental impurities, wherein the following expressions hold:  $R=L1/L1+L2$ ;  $R\geq 0.76-0.059\times D\times 10/V-V\gamma\times 0.06$ ; and  $1.0\leq D\leq 4.0$ , where L1 is a total interfacial length between WC grains, L2 is a total interfacial length between the WC grains and binder phases and between the WC grains and  $\gamma$  phases, V is an area rate (%) of the binder phases; D is a mean diameter ( $\mu\text{m}$ ) of the WC grains;  $V\gamma$  is a theoretical volume rate of the  $\gamma$  phases; and R is a WC-WC interfacial length ratio.

IPC 8 full level  
**B23B 27/14** (2006.01); **B22F 3/24** (2006.01); **C22C 1/05** (2006.01); **C22C 29/08** (2006.01)

CPC (source: EP)  
**C22C 29/08** (2013.01); **B22F 2005/001** (2013.01); **B22F 2998/10** (2013.01); **C22C 1/051** (2013.01)

C-Set (source: EP)  
**B22F 2998/10** + **C22C 1/05** + **B22F 2009/043** + **B22F 3/02** + **B22F 3/1017** + **B22F 3/1028** + **B22F 2201/20** + **B22F 2003/247** + **B22F 2003/242**

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**EP 4129540 A1 20230208**; **EP 4129540 A4 20240403**; JP WO2021193159 A1 20210930; WO 2021193159 A1 20210930

DOCDB simple family (application)  
**EP 21776329 A 20210312**; JP 2021010161 W 20210312; JP 2022509932 A 20210312