Title (en)

IMPROVEMENTS IN AND RELATING TO THE GRINDING OF CYLINDRICAL SURFACES AND ADJOINING SIDE-WALLS

Title (de)

VERBESSERUNGEN BETREFFEND DAS SCHLEIFEN VON ZYLINDRISCHEN FLÄCHEN UND DARAN ANGRENZENDEN SEITENFLÄCHEN

Title (fr)

AMELIORATIONS RELATIVES AU MEULAGE DE SURFACES CYLINDRIQUES ET DE PAROIS LATERALES ADJACENTES

Publication

EP 1635989 B2 20191225 (EN)

Application

EP 05740437 A 20050506

Priority

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- GB 0410944 A 20040515
- GB 0413783 A 20040621

Abstract (en)

[origin: WO2005110676A1] A method is described for grinding a cylindrical surface bounded at one or both ends with a radial flange or side wall which also has to be ground to size, which comprises the steps of selecting the angle of wheel advance so that the side-wall grind will be completed ahead of the cylindrical grind. After the side-wall grind has been completed the wheel is stood off from the side-wall, so that only the external cylindrical circumferential surface (the face) of the wheel will make grinding engagement at least at the start of the final part of the grind. Thereafter the grind is completed by plunge grinding to the cylindrical surface to achieve the final diameter required of the cylindrical surface. The stand-off is created by stopping and reversing relative axial movement of wheel and workpiece. The subsequent trajectory of the wheel may be normal to the cylindrical surface or during its final movement to complete the grind, the wheel is advanced angled path similar to that employed during the previous part of the grind, the stand-off being such as to prevent contact with the side-wall during the wheel movement after the stand-off, and thereby preventing further metal removal from the side-wall during the final angled approach of the grinding wheel. During the final part of the plunge the workspeed and/or the coolant flow rate is reduced from the speed at which it is rotated during the previous part of the plunge prior to the stand-off to assist in achieving a desired grind quality. The method is applicable to grinding an internal combustion engine crankshaft, especially the cylindrical and side wall regions for a main bearing of the crankshaft and/or the side wall regions of a crankpin.

IPC 8 full level

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