Claims

1. A method for cutting a multiplicity of slices by means of a wire saw from workpieces during a sequence of cut-off operations divided into initial cuts and follow-on cuts, wherein the wire saw comprises a wire array of moving wire sections of a saw wire and an actuating device, and the wire array is tensioned in a plane between two wire guide rollers, wherein each of the two wire guide rollers is supported between a fixed bearing and a floating bearing, the method comprising during each of the cut-off operations, feeding the respective workpiece at a feed rate by means of the actuating device through the wire array along a feed direction perpendicular to a workpiece axis and perpendicular to the plane of the wire array in the presence of a working fluid and hard materials, which act abrasively on the workpiece, which comprises during each of the cut-off operations, feeding the workpiece through the wire array with simultaneous axial movement of the floating bearings by adjusting the temperature of the fixed bearings with a cooling fluid in accordance with the specification of a temperature profile, which specifies the temperature of the cooling fluid in dependence on a depth of cut and correlates with a correction profile, which specifies the travel of the floating bearings in dependence on the depth of cut and is opposed to a shape deviation;
determining the shape deviation during each of the cut-off operations by comparing the position of a line through the center of at least one kerf with the position of a reference trajectory and/or before each of the cut-off operations by comparing an average shape profile of separated slices with a reference shape profile; and in dependence on the depth of cut, setting operating parameters such as the feed rate, the amount of working fluid fed to the wire array per unit time, the temperature of the working fluid, the wire speed, the wire consumption per cut-off operation and the wire tension.

2. A method for cutting a multiplicity of slices by means of a wire saw from workpieces during a sequence of cut-off operations divided into initial cuts and follow-on cuts, wherein the wire saw comprises a wire array of moving wire sections of a saw wire and an actuating device, and the wire array is tensioned in a plane between two wire guide rollers, wherein each of the two wire guide rollers is supported between a fixed

bearing and a floating bearing, the method comprising during each of the cut-off operations, feeding the respective workpiece at a feed rate by means of the actuating device through the wire array along a feed direction perpendicular to a workpiece axis and perpendicular to the plane of the wire array in the presence of a working fluid and hard materials, which act abrasively on the workpiece, which comprises feeding the workpiece through the wire array while simultaneously moving the workpiece along the workpiece axis by means of an actuating element in accordance with the specification of a correction profile, which specifies the travel of the workpiece, wherein the correction profile is opposed to a shape deviation; determining the shape deviation during each of the cut-off operations by comparing the position of a line through the center of at least one kerf with the position of a reference trajectory ; and in dependence on the depth of cut, setting operating parameters such as the feed rate, the amount of working fluid fed to the wire array per unit time, the temperature of the working fluid, the wire speed, the wire consumption per cut-off operation and the wire tension.

3. A method for cutting a multiplicity of slices by means of a wire saw from workpieces during a sequence of cut-off operations divided into initial cuts and follow-on cuts, wherein the wire saw comprises a wire array of moving wire sections of a saw wire and an actuating device, and the wire array is tensioned in a plane between two wire guide rollers, wherein each of the two wire guide rollers is supported between a fixed bearing and a floating bearing, the method comprising during each of the cut-off operations, feeding the respective workpiece at a feed rate by means of the actuating device through the wire array along a feed direction perpendicular to a workpiece axis and perpendicular to the plane of the wire array in the presence of a working fluid and hard materials, which act abrasively on the workpiece, which comprises during each of the cut-off operations, feeding the workpiece through the wire array with simultaneous axial movement of the floating bearings by adjusting the temperature of the fixed bearings with a cooling fluid in accordance with the specification of a first temperature profile, which specifies the temperature of the cooling fluid in dependence on a depth of cut and correlates with a first correction profile, which specifies the travel of the floating bearings in dependence on the depth of cut;

feeding the workpiece through the wire array while simultaneously moving the workpiece along the workpiece axis by means of an actuating element in accordance with the specification of a second correction profile, which specifies the travel of the workpiece, wherein the first and second correction profiles are opposed to a shape deviation; determining the shape deviation during each of the cut-off operations and/or before each of the cut-off operations; and in dependence on the depth of cut, setting operating parameters such as the feed rate, the amount of working fluid fed to the wire array per unit time, the temperature of the working fluid, the wire speed, the wire consumption per cut-off operation and the wire tension.

4. The method as claimed in any one of claims 1 to 3, comprising, during each of the cut-off operations, feeding the workpiece through the wire array while controlling the temperature of the workpiece by wetting the workpiece with a cooling medium.

5. The method as claimed in any one of claims 1 to 4, wherein the feed rate is no less than 2.6 mm/min and no more than 4.25 mm/min.

6. The method as claimed in any one of claims 1 to 4, wherein the amount of working fluid supplied to the wire array per unit time is no less than 15 kg/min and no more than 42 kg/min.

7. The method as claimed in any one of claims 1 to 4, wherein the temperature of the working fluid is no less than 20°C and no more than 34°C.

8. The method as claimed in any one of claims 1 to 4, wherein the wire speed is no less than 6 m/s and no more than 14 m/s.

9. The method as claimed in any one of claims 1 to 4, wherein the wire consumption per cut-off operation is no less than 50 km and no more than 72 km.

10. The method as claimed in any one of claims 1 to 4, wherein the wire tension is no less than 25 N and no more than 35 N.

11. The method as claimed in any one of claims 1 to 10, wherein a maintenance measure is initiated instead of the respective cut-off operation if the shape deviation determined before the respective cut-off operation reaches or exceeds a defined threshold.