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INNOVATIVE TECHNOLOGIES FOR THE FUTURE

Medical Technology

16562 Apparatus and method for intraoperative temperature monitoring and control of drilling processes in biological hard tissue

Introduction / Abstract

Die Erfindung liegt auf dem Gebiet der Medizin- und Messtechnik im Bereich intraoperative Sensorik, Instrumentierung, Chirurgie und Zerspanungstechnik. Erfindungsgemäß werden ein Verfahren und eine Vorrichtung vorgestellt, welche sowohl das Aufnehmen und Untersuchen von Prozessdaten als auch den Entwurf einer Regelung für den praktischen Anwendungsfall vorsehen.

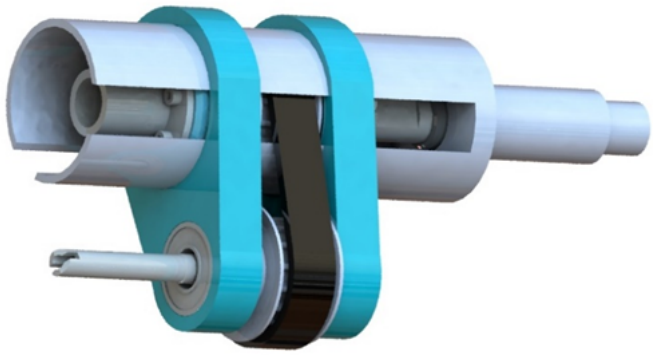

Fig. 1: Device according to the invention

Background

The state of the art includes systems that examine the drilling process and the process parameter.

Motivation

However, the measurement of the temperature at the tip of a drilling tool during the drilling process and the immediate return to the process control is not possible yet.

Innovation / Solution

The invention relates to medical and measuring technology in the field of intraoperative sensor technology, instrumentation, surgery

Technology Readiness Level

TRL 4

Patent situation

Country: DE
Code: 10 2017 124 584 A1
Status: pending

Angebot

License for the commercial utilization;
Research & Development cooperation

Keywords

cannulated, control, drill bit, drilling process, eccentric drive unit, Gottfried Wilhelm Leibniz University Hanover, hollow drill, infrared thermography, milling process, minimally inva-sive cochlear implant surgery, sensor monitoring, temperature

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and machining technology. The inventive method and device provide both the recording and examination of process data and also the design of a control for the practical application.

Benefits

- Direct measurement of the temperature at the tip of the drill bit during drilling processes in tissue
- All components can be integrated in one handpiece / Compact design
- Enables a direct intervention into the active process control in contrast to previous procedures in the minimally invasive cochlear implant surgery

Fields of application

Application examples include the bone surgery in general, as well as the processing of plastics and other synthetic materials, the production of printed circuit boards and the industrial deep hole drilling.