

Title (en)
Device for cooling a workpiece

Title (de)
Vorrichtung zur Abkuehlung eines Werkstueckes

Title (fr)
Dispositif destiné au refroidissement d'une pièce usinée

Publication
EP 2103695 A1 20090923 (DE)

Application
EP 09001433 A 20090203

Priority
DE 102008008648 A 20080211

Abstract (en)

The cooling device comprises a cooling chamber (2) with workpiece-inlet, workpiece-outlet and/or a cooling line between the inlet and outlet. The cooling chamber has tubes flow-throughable by a coolant arranged at topside in the cooling chamber. Over the length of the cooling chamber, temperature detection devices are arranged by which the workpiece temperature is indirectly or directly detected at different positions in the cooling chamber. Between the workpiece and the tubes, adjusting flaps are arranged that are adjustable in a first position in which it forms barrier or separating wall. The cooling device comprises a cooling chamber (2) with a workpiece-inlet, workpiece-outlet and/or a cooling line between the inlet and outlet. The cooling chamber has tubes flow-throughable by a coolant arranged at topside in the cooling chamber. Over the length of the cooling chamber, temperature detection devices are arranged by which the workpiece temperature is indirectly or directly detected at different positions in the cooling chamber. Between the workpiece and the tubes, adjusting flaps are arranged that are adjustable in a first position in which it forms a barrier or separating wall between the workpiece and the tube, and in a second position in which the area is partially opened between the workpiece and the tube. The adjusting flaps are adjustable by actuators that are actuated dependent upon the measured workpiece temperature. The walls of the cooling chamber are heat insulated and are cooled. The tubes are arranged on inner side at the upper chamber wall of the cooling chamber. Two adjusting flaps forming an adjusting flap couple are revolvably arranged opposite with one another at the side walls of the cooling chamber. The side walls of the cooling chamber in the closed position of the area of the cooling chamber in which the workpiece is arranged, separate from the upper area of the cooling chamber equipped with the tube. The adjustable flaps are revolvable around axes parallel to carrier direction (3) of the workpiece. The adjusting flaps are sequentially arranged in pairs over the length of the cooling chamber. The width of the adjusting flaps in longitudinal direction of the cooling chamber is 0.80-1.20 m. Each adjusting flaps pair is assigned a temperature detection device. The adjusting flaps consist of a heat insulation layer or heat insulation material. The cooling chamber has a length of 4.5 m.

Abstract (de)

Um eine Vorrichtung zur Abkühlung eines in einem Durchlaufofen (1) erhitzten werkstückes, bestehend aus einer Kühlkammer (2) mit einem Werkstück-Einlauf, einem Werkstück-Auslauf, sowie einer Kühlstrecke zwischen Einlauf und Auslauf, die oberseitig in der Kühlkammer (2) angeordnete, von Kühlmittel durchströmte Rohre (4) aufweist, zu schaffen, mit der eine langsame gezielte Abkühlung von Werkstücken in einem ausgewählten Temperaturbereich möglich ist, wird vorgeschlagen, dass über die Länge der Kühlkammer (2) verteilt Temperaturerfassungsgeräte vorgesehen sind, mittels derer die Werkstücktemperatur an unterschiedlichen Positionen in der Kühlkammer (2) erfasst wird, dass zwischen dem Werkstück und den von Kühlmittel durchströmten Rohren (4) Stellklappen (6) angeordnet sind, die in eine erste Stellung verstellbar sind, in der sie eine Sperre zwischen dem Werkstück und den Rohren (4) bilden, und in eine zweite Stellung, in der der Raum zwischen Werkstück und Rohren (4) offen ist, wobei die Stellklappen (6) mittels Stellgliedern verstellbar sind, die in Abhängigkeit von der gemessenen Werkstücktemperatur betätigt sind.

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