

Title (en)
Cooling control

Title (de)
Steuerung einer Kühlung

Title (fr)
Commande de refroidissement

Publication
EP 2644719 A1 20131002 (DE)

Application
EP 12161804 A 20120328

Priority
EP 12161804 A 20120328

Abstract (en)
Controlling a cooling of a material (4) using a coolant, comprises controlling a supply (13) of the coolant to the material by at least one actuator (6) which can be set to at least two different positions, where an actuator curve set is assigned to the actuator, which specifies a relationship between a coolant stream, a pressure of the coolant, and a position of the actuator; adjusting a coolant stream; determining a corresponding position of the target coolant stream and adjusting the actuator in the determined position. Controlling a cooling of a material (4) using a coolant, comprises controlling a supply (13) of the coolant to the material by at least one actuator (6) which can be set to at least two different positions, where an actuator curve set is assigned to the actuator, which specifies a relationship between a coolant stream, a pressure of the coolant, and a position of the actuator; adjusting a coolant stream, where the pressure of the coolant upstream of at least one actuator, when seen in the flow direction of the coolant, is determined from pressure value of the actuator curves to the determined; determining a corresponding position of the target coolant stream and adjusting the actuator in the determined position. Independent claims are also included for: (1) a computer program product for controlling the cooling process of the material using the coolant, where the computer program product, when executed by a computer unit, performs the steps comprising determining the pressure of the coolant upstream of at least one actuator, and a coolant stream corresponding position of the actuator curve, and generating a signal which triggers adjustment of the actuator and sets actuator in the determined position; (2) a control device (7) for controlling a cooling system of a material, comprising a storage unit which is designed for the storage of actuator curves, a processor unit which is adapted to determine position of the actuator, and a signal unit, which is adapted to transmit a signal to adjust at least one actuator in the determined position to a control unit; and (3) a cooling section (2) of a metal processing line, preferably a rolling line, comprising a control device for controlling the cooling of a material in the cooling section.

Abstract (de)
Die Erfindung betrifft ein Verfahren zur Steuerung einer Kühlung eines Werkstoffs (4) mit einem Kühlmittel, wobei eine Zufuhr (13) des Kühlmittels zu dem Werkstoff (4) durch mindestens ein Stellglied (6) gesteuert wird, welches in zwei oder mehr unterschiedliche Stellungen (k) einstellbar ist, wobei dem Stellglied (6) ein Stellglied-Kennlinienfeld (11k) zugeordnet wird, welches eine Beziehung zwischen einem Kühlmittelstrom (w), einem Druck (p) des Kühlmittels und einer Stellung (k) des Stellglieds (6) angibt, und wobei ein Kühlmittelstrom (w i) eingestellt wird, indem der Druck (p i) des Kühlmittels in Flussrichtung des Kühlmittels gesehen vor dem mindestens einen Stellglied (6) ermittelt wird, aus dem Stellglied-Kennlinienfeld (11k) die zu dem ermittelten Druckwert (p i) und einem Soll-Kühlmittelstrom korrespondierende Stellung (k i) ermittelt wird, und das Stellglied (6) in die ermittelte Stellung (k i) eingestellt wird.

IPC 8 full level
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CPC (source: EP)
B21B 37/76 (2013.01); **C21D 9/5735** (2013.01); **C21D 11/005** (2013.01); **C21D 1/667** (2013.01)

Citation (applicant)
• DD 213853 A1 19840926 - THAELMANN SCHWERMASCHBAU VEB [DD]
• DE 10137596 A1 20030213 - SMS DEMAG AG [DE]

Citation (search report)
• [X] DE 102007046279 A1 20090409 - SIEMENS AG [DE], et al
• [X] JP 2007203362 A 20070816 - SUMITOMO METAL IND
• [E] KR 20120060078 A 20120611 - POSCO [KR]
• [A] EP 2108465 A1 20091014 - SIEMENS VAI METALS TECH LTD [GB]
• [A] JP H04167916 A 19920616 - SUMITOMO METAL IND
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• [A] EP 1046436 A2 20001025 - SCHLOEMANN SIEMAG AG [DE]

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Designated contracting state (EPC)
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