Title (en)

Spray nozzle adjustment device

Title (de)

Spritzdüsen-Verstelleinrichtung

Title (fr)

Dispositif de réglage de buses de pulvérisation

Publication

EP 2412459 A1 20120201 (DE)

Application

EP 10171200 A 20100729

Priority

EP 10171200 A 20100729

Abstract (en)

The spray nozzle-adjusting device comprises a displacement device comprising a drive body and an actuating piston (5) for shifting the actuating piston relative to the fixed drive body, and a spray nozzle holder (4) for holding the spray nozzle (2). The spray nozzle is formed on the strand for spraying of coolant, and the spray nozzle holder is connected to the actuating piston. A telescopable telescopic tube is provided for conducting the coolant from the drive body to the spray nozzle holder so that the spray nozzle is torsionally connected to the drive body. The spray nozzle-adjusting device comprises a displacement device comprising a drive body and an actuating piston (5) for shifting the actuating piston relative to the fixed drive body, and a spray nozzle holder (4) for holding the spray nozzle (2). The spray nozzle is formed on the strand for spraying of coolant, and the spray nozzle holder is connected to the actuating piston. A telescopable telescopic tube is provided for conducting the coolant from the drive body to the spray nozzle holder so that the spray nozzle is torsionally connected to the drive body. A longitudinal axis (8) of the actuating piston and the telescopic tubes are parallely aligned. A first telescopic tube is provided for conducting water, and a second telescopic tube is provided for conducting air. Bellows are connected to the drive body and the spray nozzle holder, where penetration is prevented by dirt. An air supply of the second telescopic tube is assigned to the bellows, which are held under a pressure increasing against an atmosphere. The displacement device comprises a hydraulic, pneumatic or electric linear drive. The hydraulic or pneumatic linear drive is constructed as a pressure medium cylinder (11). The drive body and a fixed part of the telescopic tubes comprise a common housing. The pressure medium cylinders are assigned to a hydraulic or pneumatic flow divider so that a position of spray nozzles is synchronously controlled. The spray nozzle holder and the displacement device are assigned to the spray nozzle, which is independently positionable. A distance measuring device and a control device are assigned to the spray nozzle, which is regularly positionable. An independent claim is included for a strand guide segment for guiding, supporting and cooling of a strand in a strand guide of a continuous casting machine.

Abstract (de)

Die Erfindung betrifft eine Spritzdüsen-Verstelleinrichtung (1) zur Positionierung zumindest einer Spritzdüse (2) gegenüber einem Strang (3) in einer Strangführung einer Brammen-Stranggießmaschine, aufweisend eine Verschiebeeinrichtung (6), umfassend einen Antriebskörper (21) und einen Stellkolben (5), zum Verschieben des Stellkolbens (5) gegenüber des feststehenden Antriebskörpers (21); und einen Spritzdüsenhalter (4) zum Haltern von zumindest einer Spritzdüse (2), wobei die Spritzdüse (2) zum Aufspritzen von Kühlmittel auf den Strang (3) ausgebildet und der Spritzdüsenhalter (4) mit dem Stellkolben (5) verbunden ist. Die Aufgabe der Erfindung ist es, eine kompakte Spritzdüsen-Verstelleinrichtung (1) anzugeben, bei der das Kühlmittel betriebssicher, insbesondere ohne den Einsatz von Schlauchleitungen, von der Verschiebeeinrichtung (6) zur Spritzdüse (2) geleitet werden kann. Diese Aufgabe wird durch eine Vorrichtung gelöst, bei der - zumindest ein teleskopierbares Teleskoprohr (7a, 7b) zur Leitung des Kühlmittels vom Antriebskörper (21) zum Spritzdüsenhalter (4) vorgesehen ist, sodass die Spritzdüse (2) drehsteif mit dem Antriebskörper (21) verbunden ist; und - die Längsachsen (8) des Stellkolbens (5) und des Teleskoprohrs (7a, 7b) parallel ausgerichtet sind.

IPC 8 full level

B22D 11/124 (2006.01)

CPC (source: EP KR)

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Citation (applicant)

EP 2010347 B1 20100407 - SIEMENS VAI METALS TECH GMBH [AT]

Citation (search report)

- [I] US 4700894 A 19871020 - GRZYCH LEO J [US]
- [I] JP 2002143724 A 20020521 - SEGAWA KAZUHITO
- [I] DE 202008010333 U1 20081009 - FUERBETH AGNES [DE]
- [A] DE 102009012334 A1 20091126 - SIEMENS VAI METALS TECH GMBH [AT]
- [AD] EP 2010347 B1 20100407 - SIEMENS VAI METALS TECH GMBH [AT]

Cited by

AT520006A1; CN110678278A; AT520006B1; US11123793B2

Designated contracting state (EPC)

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BA ME RS

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