Title (en)

Method and assembly for energy-efficient production of hot rolled steel strips

Title (de)

Verfahren und Anlage zur energieeffizienten Erzeugung von Stahlwarmband

Title (fr)

Procédé et installation de production à efficience énergétique d'une bande chaude en acier

Publication

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Application

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Priority

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Abstract (en)

Continuously or semi-continuously producing hot steel strip starting from a strand, which is guided into a pre-rolling mill through a strand guiding device to form an intermediate strip, and is subsequently rolled in a finishing rolling mill to form an end strip, comprises casting the strand in a casting die of a casting plant, where the strand is reduced to a strand thickness of 60-95 mm, preferably 70-85 mm at a liquid cross-sectional core of the strand, in a liquid core reduction process using the adjoining strand guiding device. The strand exhibits a casting speed of 3.8-7 m/minute. Continuously or semi-continuously producing hot steel strip starting from a strand, which is guided into a pre-rolling mill through a strand guiding device to form an intermediate strip, and is subsequently rolled in a finishing rolling mill to form an end strip, comprises casting the strand in a casting die of a casting plant, where the strand is reduced to a strand thickness of 60-95 mm, preferably 70-85 mm at a liquid cross-sectional core of the strand, in a liquid core reduction process using the adjoining strand guiding device. The strand exhibits a strand support length measured between the meniscus, which is the bath level of the casting die and an end of the strand guiding device facing the pre-rolling mill, of 12-16.5 m, preferably 14.2-16.5 m, and a casting speed of 3.8-7 m/minute. An independent claim is also included for a plant for carrying out the above method, comprising a casting die, a strand guiding device downstream to the casting die, exhibiting a series of lower guide elements and a series of upper guide elements that are parallel to the lower guide elements or arranged in a convergent manner, where a receiving channel provided for receiving the strand discharged from the casting die, is formed between the two guide elements series, which is tapered at least sectionally in the transport direction of the strand, by forming guide elements that are opposite to each other at different distances and thus its the strand thickness is reducible, and the receiving channel at its end referring the pre-rolling mill exhibits a receptive width corresponding to the strand thickness, of 60-95 mm, preferably 70-85 mm, a pre-rolling mill downstream to the strand guiding device, an inductive heating device downstream to the pre-rolling mill, a finishing rolling mill downstream to the inductive heating device, and a control device for adjusting the casting speed of the strand to 3.8-7 m/minute, where a support strand length measured between the meniscus, which is the bath level of the casting die and the end of the receiving channel of the strand guiding device facing the pre-rolling mill, is 12-16.5 m.

Abstract (de)

Verfahren und Anlage zur energieeffizienten Erzeugung von Stahlwarmband Ein erfindungsgemäßes Verfahren zur kontinuierlichen oder semikontinuierlichen Herstellung von Stahlwarmband, welches ausgehend von einem durch eine Strangführungsvorrichtung (6) geführten Strang (3) in einer vorzugsweise mindestens viergerüstigen Vorwalzstraße (4) gewalzt wird, umfasst folgende Verfahrensschritte: - Gießen eines Stranges (3) in einer Kokille (2), wobei der Strang (3) im Liquid-Core-Reduction-Verfahren mittels der anschließenden Strangführungsvorrichtung auf eine Strangdicke zwischen 60 und 95 mm, vorzugsweise auf eine Strangdicke zwischen 70 und 85 mm reduziert wird, - wobei eine zwischen dem Meniskus (13), d.i. der Badspiegel der Kokille und einem der Vorwalzstraße (4) zugewandten Ende (14) der Strangführungsvorrichtung (6) gemessene Strangstützlänge (L) zwischen 12 m und 16,5 m, bevorzugt zwischen 14,2 und 16,5 m ist, - und wobei eine Gießgeschwindigkeit (v c) in einem Bereich von 3,8 - 7 m/min liegt. Durch eine Kombination der erfindungsgemäßen Gießparameter wird gewährleistet, dass die Sumpfspitze des Stranges unabhängig von jeweiligen materialgüteabhängigen Maximalgießgeschwindigkeiten immer bis nahe an das Ende (14) der Strangführungsvorrichtung (6) heranreicht.

IPC 8 full level

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CPC (source: EP KR US)

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