Title (en)

Process for pressure casting, and pressure casting machine for carrying out this process.

Title (de)

Verfahren zum Druckgiessen und Druckgiessmaschine zur Ausführung dieses Verfahrens.

Title (fr)

Procédé de coulée sous pression et machine de coulée sous pression pour l'exécution de ce procédé.

Publication

EP 0114934 A1 19840808 (DE)

Application

EP 83109981 A 19831005

Priority

DE 3248423 A 19821228

Abstract (en)

1. A method of pressure diecasting metallic melts aggressive relative to iron alloys with the aid of a pressure diecasting machine of the hot chamber type of construction comprising an upright casting chamber (11) in a pump block (30) which consists of an iron metal, in particular of cast iron, and which is immersed into the metallic melt (35), with the casting chamber (11) being closed at the bottom and provided with a protective liner, wherein, in the lower region of the pump block at the casting chamber (11), there are provided an inlet opening (21) connected via a supply channel (31) to an inlet valve (42) and an outlet opening (22) for the metallic melt leading via a casting channel (32) to a casting die ; a casting piston (16) which is displaceably arranged in a guide cylinder (27) which adjoins the casting chamber (11) from above and is introducable into the casting chamber (11), via a casting drive, with a front piston (14) having a substantially smaller diameter than that of the casting chamber (11), being mounted at the pressure face of the casting piston (16), and wherein a constant mass of gas (47) is enclosed during the die filling process in the space bounded by the exposed surfaces of the casting piston (16) and front piston (14), of the guide cylinder (27), of the casting chamber (11) and also of the metallic melt present in the latter, and is compressed by the casting piston (16) and front piston (14) which are advanced relative to the casting chamber (11) in order to press the metallic melt (35) through the casting channel (32) into the casting die, characterized in that by appropriate adjustment of the quantity of the enclosed gas (47) prior to the downward movement of the piston (14, 16) the front piston (14) is immersed into the metallic melt (35) before termination of the downward movement of the casting piston, and before complete filling of the casting die, so that the metallic melt (35) is simultaneously pressure loaded both by the front piston (14) which is being immersed therein and also by the gas (47) which is highly compressed as a result of the rapid shrinkage of the gas filled ring space around the front piston (14) occurring from the start of immersion of the front piston onwards.

Abstract (de)

Das Verfahren wird mittels einer druckgasbetriebenen Warmkammer-Druckgiessmaschine ausgeführt. Diese weist in einem gusseisernen, in das Metallbad (35) getauchten Pumpenblock (30) eine Giesskammer (11) auf, an die ein aufsteigender Giesskanal (32) und über ein Einlassventil (42) ein Metallzufuhrkanal (31) anschliessen. Mit der Giesskammer (11) wirkt der Vorkolben (14) eines in einem koaxialen Führungszylinder (27) angeordneten Giesskolbens (16) zusammen. Der Vorkolbendurchmesser ist deutlich kleiner als der Innendurchmesser der Giesskammer (11). Erfindungsgemäss erfolgt der Formfüllvorgang unter gleichzeitiger Druckbeaufschlagung der Metallschmelze (35) durch den in diese eintauchenden Vorkolben (14) und das Druckgas (17), das infolge der beim Eintauchen des Vorkolbens (14) bewirkten raschen Verringerung des gasgefüllten Raumes über dem Schmelzespiegel hochkomprimiert wird. Hierzu ist die eingeschlossene Gasmenge (17) so bemessen, dass der gegen die aggressive Schmelze (35) beständige Vorkolben (14) beim Einpresshub in die Schmelze (35) eintaucht. In der Giesskammer (11) ist eine gelochte Keramikhülse (13) eingesetzt, deren Aussendurchmesser geringfügig kleiner als der Giesskammerdurchmesser ist.

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Citation (search report)

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