

Lightme

Pilot Lines



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High Pressure Die Cast Pilot Line (HPDC)



High pressure die cast makes it possible for continuous casting of suitable components for various applications. Due to the high pressure used when casting, detailed, thin walled components are produced. The high clamping pressure - up to 1,200 bars - holds the two halves of the die together.

The method has short casting cycles and is suitable for thin-walled components with smooth surfaces. The method is also fully automated. Due to the high investment and operation costs and the complicated and expensive dies, the method is





used for production of large volume components.



The pilot line at Brunel University (BCAST) consists of two FRECH HPDC machines, a robotic arm, a rotary degassing unit and an ultrasonication device. Through stirring and cavitation provided by the rotary units and ultrasonication device respectively a homogenous distribution of nanoparticles can be achieved.



The main goal of this pilot line is to get a uniform distribution of nanoparticles ($n\text{SiC}$, $n\text{Al}_2\text{O}_3$ and $n\text{AlN}$) in aluminium and magnesium castings. Nanoparticle reinforcement leads to an increase of mechanical properties, thus broadening the application field for lightweight metal components.



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