Plate saws continue to offer advantages for heavy duties

Robert Tilley, Plate Saw Operations Manager of Alu-Cut International, LLC, sets out some of the advantages of today’s latest generation of moving bridge-type saws in cutting large aluminium sheets and plates.

Sawing Technology

Master-alloy grain refiner can bring substantial savings

Michael Bryant of MQP, Limited demonstrates that grain refining costs for aluminium alloys can be reduced with high-performance OptiFine master alloy

MQP, Limited, who specialise in introducing innovative technology for the casthouse production of aluminium alloys, have recently entered into an exclusive agreement with London and Scandinavian Metallurgical Company (LSM) for the manufacture and supply of a high performance titanium boron aluminium master alloy grain refiner. The newly developed product, known as OptiFine, is a special type of 3% titanium 1% boron grain-refining rod which, for the first time, in a low titanium grain refiner, combines potent grain refining effectiveness, with good metal cleanliness. The enhanced grain refining efficiency of OptiFine is explained by a uniquely narrow range of boride particle sizes in the master alloy which allows simultaneous nucleation on a large number of aluminium crystals during the solidification process.

If OptiFine is used in combination with the Opticast system, to optimise the growth restriction in the aluminium crystals during the solidification process, it will produce the same grain size as much larger additions of other commercial grain refiners. In the worst case, commercial master alloy number 1, at least six times more master alloy is required to obtain the same target grain size in this alloy.

About 0.3 kg per ton of the Optfine grain refiners (OF1 and OF2) will create a grain size of 150 μm. At least twice that much is needed of the other grain refiners. In the worst case, commercial master alloy number 1, at least six times more master alloy is required to obtain the same target grain size in this alloy.

The validity of these results have now been confirmed in numerous trials carried out in European casthouses and it has been established that OptiFine can be used at addition rates at least 50% lower than other grain refiners. Savings of up to 35% of grain refining costs are readily achievable.

OptiFine grain refiner is marketed worldwide by MQP. A detailed technical paper will be presented at TMS 2009.

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