

Metal Fibre Burner Technology to preheat casting dies

Summary

Die casting is an old technique with reduced material scrap. This technique has gained renewed interest due to higher precision and productivity and inherent low material scrap and flexibility. Eratec offers a revolutionary burner that helps this revival.

The process

With die casting, the die has a cavity that corresponds to the desired shape. It is filled with liquid metal that is then cooled down. After opening the formed piece is taken out, the die is cleaned and the process can start again.

The problem

The die comes into contact with hot metal. The tool loses its precision due to thermal and mechanical impact and is exposed to a cyclic thermal load. To reduce wear and scrap cost, the die must be preheated before production start. This is often done with electrical resistances or open flame gas burners with very poor results.

Problems of the current situation

- Inefficient preheating
- Hot spots in the tool when preheated with cup burners
- High wear due to poor preheating with electrical resistances
- High gas consumption and poor preheating with open flame gas burners

A leading company introduces Metal Fibre Burner Technology

Eratec now introduces Metal Fibre Burner Technology. A flat Metal Fibre Burner, fired at two sides, preheats the dies before start-up. The Metal Fibre Burner operating in radiant infrared, enables an efficient heat-up. The radiating surface of the burner covers the whole tool, heating it uniformly, eliminating hot spots.



Picture no. 1: Cup burners or open flames preheating the casting die, leading to unequal preheating of the two parts of the die and creating hot spots.

The Metal Fibre Burner

The Metal Fibre Burner as shown in the pictures is adapted in both shape and dimensions to the die. The burner is 100 mm thick with two firing surfaces. The Metal Fibre Burner is atmospherically fired. Depending on the gas pressure, the power output can be modulated between a wide power range. As shown in picture no. 4 the combustion is homogeneously distributed over the surfaces of the burner.

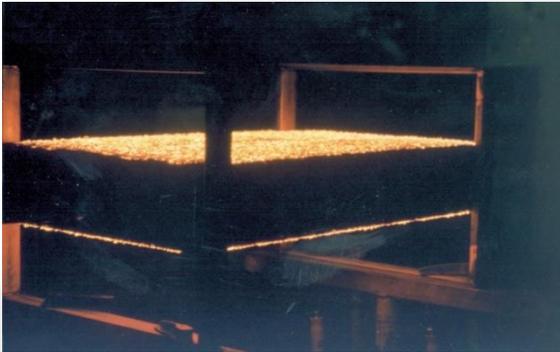


Picture no. 2: The Metal Fibre Burner with two firing sides, atmospherically fired.



Main advantages

With the radiating Metal Fibre Burners, energy consumption is significantly reduced. Due to the homogeneous distributed preheating, hot spots in the tool are eliminated, tool rework costs and scrap costs are drastically reduced. Finally, productivity is significantly increased while preheating is much faster.



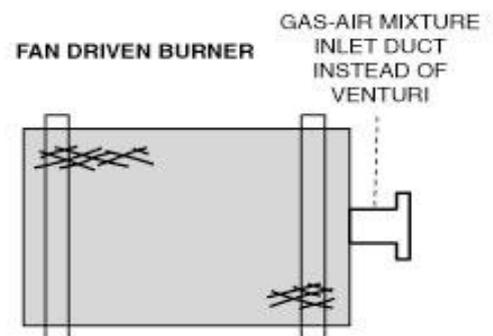
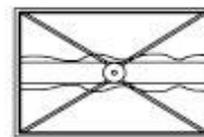
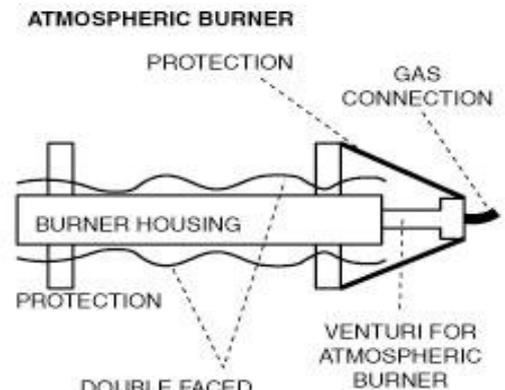
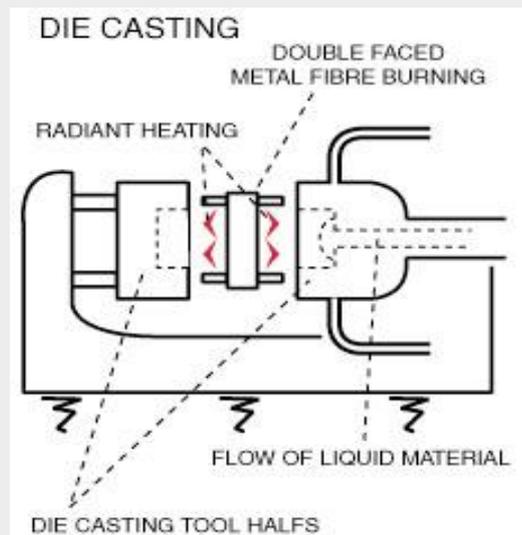
Picture no. 3: The double faced Metal Fibre Burner, 300 mm wide and 500 mm long, with an output of 25 up to 100 kW with gas pressures of 0,05 up to 0,4 bar. Combustion homogeneously distributed over the surfaces.

Advantages of the Metal Fibre Burner Technology

- Efficient preheating process
- Homogeneously preheated forging tool
- Reduced tool wear
- Reduced tool rework costs
- Drastically reduced scrap costs
- Significant productivity increase



Picture no. 4: A double faced Metal Fibre Burner for the preheating of a casting die with a particular shape. The burner is over 1000 mm wide with a power output of 80 up to 250 kW with gas pressures up to 400 mbar. The burner is mounted in a box to automate insertion within the casting die.



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