PORCERAX II

Self Venting Mould Steel

Unique Characteristics

- Porcerax II is a sintered, porous steel with porosity in the range of 20-30% by volume. A system of interconnecting pores with average diameters of 7 or 20µm are dispersed through the material.
- Pre hardened to 35-38 HRc
- Suitable for polishing and texturing

Key Benefits

- Eliminates gas entrapment
- Minimises flow/knit lines
- Eliminates material burning
- Lowers scrap/reject rate
- Eliminates short shots
- Lowers gloss levels and improves product appearance
- Reduces clamping pressure and cycle time by reducing back-pressure

Stock

Stock is held in a comprehensive range of sizes including machined bar and vent plugs. Please enquire.

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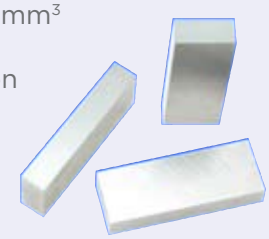
Rectangular sections from 25mm^3 up to 430 X 430 X 150mm can be delivered fine milled on all six faces to -0+0.1mm and with squareness guaranteed to 0.1mm/m.



Applications

- Suitable for most polymers with a hardness greater than 60 Shore A
- Use as a self-venting insert or for the production of whole mould cores

Important Note

Porcerax II represents an important advance in materials available to the moulder. However, machining, polishing, texturising and heat treatment (not reccomended) all require different techniques to those employed on standard tool steels. Failure to take these factors into account will almost certainly result in failure. Please always request additional information covering the intended machining and post machining treatment.

Machining

Porcerax may be machined by cutting, grinding, milling and EDM but it is important to avoid crushing and blocking the pore structure. Grinding will close the pores as will milling to a lesser extent. The best permeability is achieved using EDM which will also open the crushed pores as will correctly applied stoning.

Heat Treatment

Porcerax II is pre-hardened and further heat treatment is not recommended due to its propensity to in-process distortion. However it is possible to achieve a hardness of 50-52 HRc in a vacuum furnace. In the event that this is required, it is essential that the heat treater obtains guidelines from Carrs Toolsteel Technologies. Rockwell and Brinell hardness testers will crush the porous material giving false readings. For this reason, use of a Vickers micro hardness tester with a 30 or 50g load is reccomended.

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Texturing

In order to prevent the destruction of the pore structure, it is vital that the chosen texturing company is aware that it is working with Porcerax. The pores of the material must be thoroughly cleaned and then sealed prior to texturing. The perfect venting achieved by Porcerax will result in greater resolutionof any texture (or polish) in the moulding and therefore Porcerax should not be used as an insert in areas requiring consistent appearance.

Water Cooling

Although not reccomended, water cooling can be achieved by treating water lines with an appropriate sealant.

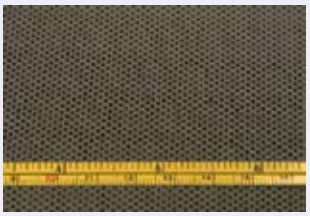
Cleaning

Adequate cleaning before and during use is essential and cleaning methods should be designed into the tooling concept from the outset

CASE STUDIES (Further examples on request)

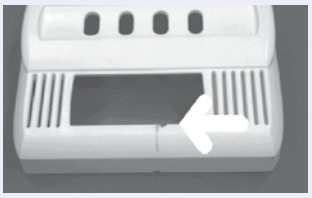
Loud Speaker Grille

This is a good example of what can be achieved using a Porcerax core. The efficient venting allows the reproduction of the very fine detail even though the cavity is fed by only a single gate. The illustrations show the grille (left) the detail (middle) and the single gate feed point at the core pin (right).


Thermostat Housing

This example shows how burn problems can be cured using a Porcerax insert in the core side of the cavity at the point where the problems are occurring. The illustrations show the defect (left arrowed), the problem cured (middle) and the insert position (right).

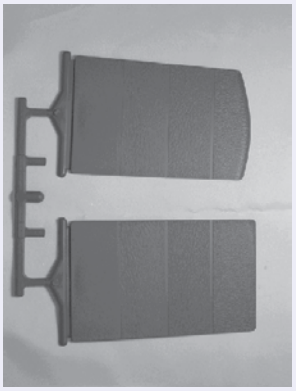


Gloss Reduction

The shot to the right shows how the use of Porcerax can reduce gloss and provide a greatly improved finish with more accurate rendering of texture. Standard mould steel at the top, Porcerax at the bottom

Short Shot

The illustration to the right (top) shows how high pressure and air entrapment can result in a partially filled cavity. The lower illustration shows what can be achieved using Porcerax.



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