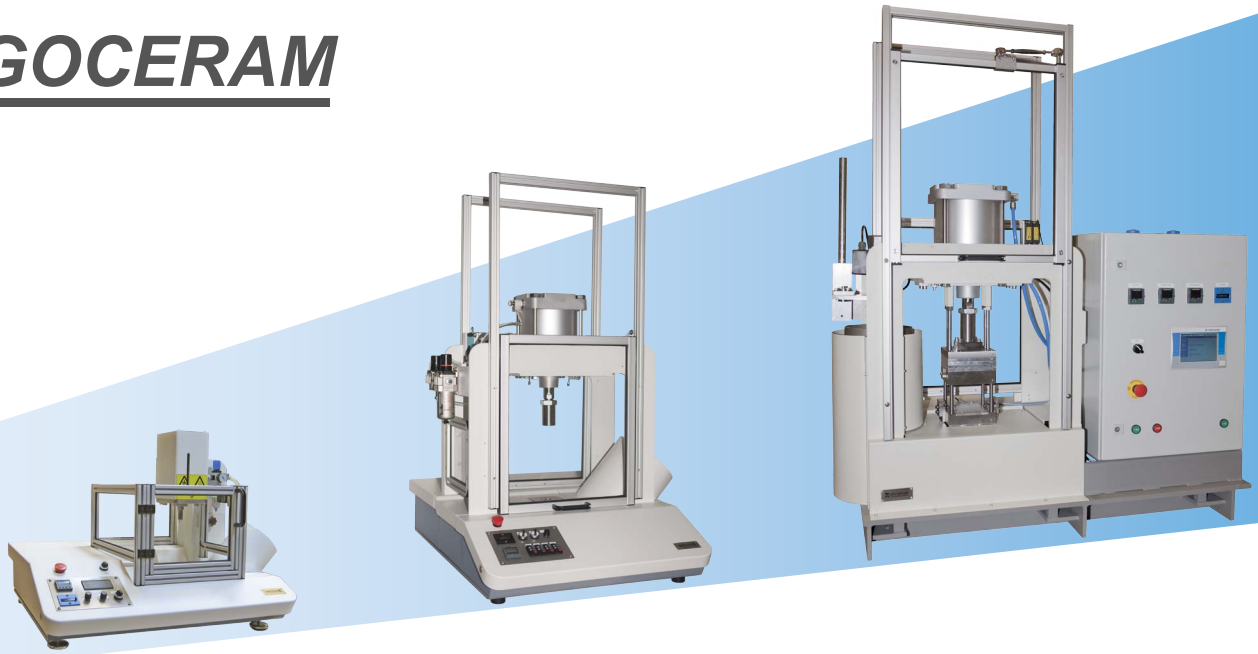
GOCERAM



Injection moulding machines

built for cost-effective production of complex ceramic and metal parts

GOCERAM powder injection moulding machines are designed for moulding of complex-shaped components of ceramics, metals and intermetallics.

The broad range of machines satisfies all kinds of manufacturing needs, from small-scale prototyping to large-scale production. The latest addition to the program are the 4-M units. It starts with GC-MPIM-4-M, a robust machine with pneumatic injection piston, and ends with the top model GC-MPIM-4-MAP-X, a fully automatic machine including electrical servo-motor and offering full control of mould filling profile.

Technology

A high-solid content mixture (feedstock) of ceramic or metal powder and a wax-based binder is melted and injected under pressure into a tempered one- or multi-cavity mold tool. The solidified molded part is ejected from the tool, and the organic binder is removed thermally in a debinding furnace or, alternatively, by supercritical extraction. The remaining powder body is sintered (fired) in a furnace at high temperature to a dense, high-strength component.

Features

Medium pressure

The machines are developed specifically for powder injection moulding. This focused approach has made it possible to limit the maximum pressure to approximately 50 bar, which is fully sufficient to obtain superior tool cavity-filling operation.

Flexible

Designed for moulding of a large variety of powder based materials covering ceramics, metals and intermetallics, and difficult to process material systems including diamond powder. Built for durable largescale, fully automatic production, as well as for short series in semi-automatic or manual mode.

CIModule

The Compact Injection Module – the heart of the machine – is designed to be easy to clean and to be rapidly interchangeable.

Ergonomical and safe

For easy accessibility and handling in daily operation, the machines are designed with ergonomical aspects in mind.

Simple usage

All functions of the machines are intuitive and the operator panel with smart features is user friendly. The machines are compact, flexible and easy to service.

All these features offer advantages to the manufacturer who can fully focus on monitoring particular production of components of various materials such as those shown in the image below.

Offer

In order to convince our customers of the usefulness of the GOCERAM powder injection moulding technology, we are always ready to perform test trials with powder materials and components as requested. Such a trial is carried out as a technical service at a shared low net cost. The prototyping test will help you to decide whether the GOCERAM technology is the right choice for the production of your ceramic or metal parts.

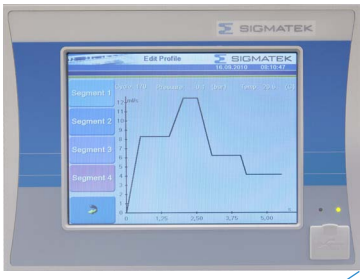
Highlights

Protective shields automatically operated

Hopper equipped with optional stirrer for continuous mixing of the feedstock

Optional pick-up device removing the parts during automatic operation

Electrical servo-motor system for precise control of tool-filling cycle



Operator panel with an interface developed for simple and intuitive usage

Tabletop model with a neat design and attractive look with limited space requirement

Technical data

Model	GC-MPIM-4-MA-X
Feedstock system	Wax-based binder with polymers and processing agents
Injection presssure	1 - 50 bar
Operation temperature	20° - 120°C
Hopper volume	8 litres
Injection driver	High precision electrical servo-motor
Control unit	Operator panel with integrated digital motion controller
Programmable segments	Eight segments for desired injection profile

CIModule model	Injection volume	Flow rate	Absolute resolution during injection
35	0 - 35 cm³	0 - 70 cm³/s	0.05 mm³
80	0 - 80 cm³	0 - 120 cm³/s	0.10 mm³
200	0 - 200 cm³	0 - 180 cm³/s	0.15 mm³
300	0 - 300 cm³	0 - 260 cm³/s	0.20 mm³

Dimensions (w × d × h)	1400 × 1000 × 1550 mm³
Optional	Pneumatic injection driver instead of electrical servo-motor; pick-up device

About Goceram

GOCERAM was founded in 1987 and has since delivered a large number of powder injection moulding equipment to satisfied clients all over the world.

A continuous development of the machines and the moulding system positions GOCERAM in the forefront of net shape forming of ceramic and metal powder based components.

GOCERAM offers complete production lines for injection moulding including mixers, injection moulding machines, automatic mould tools, debinding furnaces, with or without weightloss rate control, supercritical CO_2 extractors as well as sintering furnaces. A comprehensive know-how package is also offered for rapid start up of the production.

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