PRESS RELEASE

SAMA Maschinenbau GmbH (Weissenstadt), SACMI Whiteware Division,
presents at Ceramitec 2003:

1.)
Large Flatware Isostatic Production Plant with Robot Fettling Technology Type
LPP 1-45/UPR, for Articles with extremely varied geometry.

The plant consists of a large horizontal flatware isostatic-press type LPP 1-45, which permits articles with
a projected surface area up to ca. 1,600 cm² in the green state to be pressed isostatically (diameter 45
cm, alternatively the corresponding geometry within the known unit of square measure, e.g. rectangular
50x30 cm).

An integral part of the plant is a position recognition system, whereby via a video camera the information
is collated and transferred to the 3 integrated fettling robots to enable an optimal fettling result. Each robot
station is self-sufficient and completely finishes the respective article. The need to transfer from station to station is, therefore, eliminated, and a degree of precision of
+/-. 0.05 mm is achieved. A foot wiping and polishing device completes the production unit which
(dependent on the size and geometry of the article) has an output of approx. 250-450 large flatware
articles per hour. The main features of this well-proven technology which have been sold already 6 times are:

- short set-up times
- high flexibility
- the tried and tested, and further developed tooling system of SAMA/Netzsch
- universal usage with round and oval, rectangular, square and all other non-round geometries
- the ability to use for oval pieces with differing shoulder heights
  (undulatory shoulders)
- six axis robot working in each position, also vertically, in order to avoid particle contamination
- easy, quick programming of the working robots by means of a new type
  of software (recording of CAD data from the tooling)

In addition SAMA presents a further innovation for the Ceramic Industry:

2.)
The newly developed modular designed cup pressure casting plant TDA 50 for the
production of complex cup shapes.

The cup pressure casting plant TDA 50 consists of a closing device for a four partite mould suitable for the
production of cup bodies including the handle.

The plant is suitable for cup shapes with a relatively solid handle such as those used in hotel ware. As a
result, the gap has been filled since the existing SAMA systems involve the separate production of the cup
bodies and handles, and, in particular, for delicate cup bodies and handles as already supplied to Royal
Doulton in England for the production of a very complicated cup body with a foot and non-rotational
symmetry.

Therefore, SAMA is now able to supply the appropriate plant for every requirement, e.g.:

- Handle pressure casting and automatic application of the handles to jiggered and leather hard
dried cup bodies.
- Handle pressure casting and automatic application of the handles to pressure cast cup bodies
  especially where the cups are very delicate with a non-round shape and even having a foot.
- Pressure casting of the cup body, inclusive of the handle, in modular, small units for the
  production of cups with solid handles, hotel ware, mugs etc.