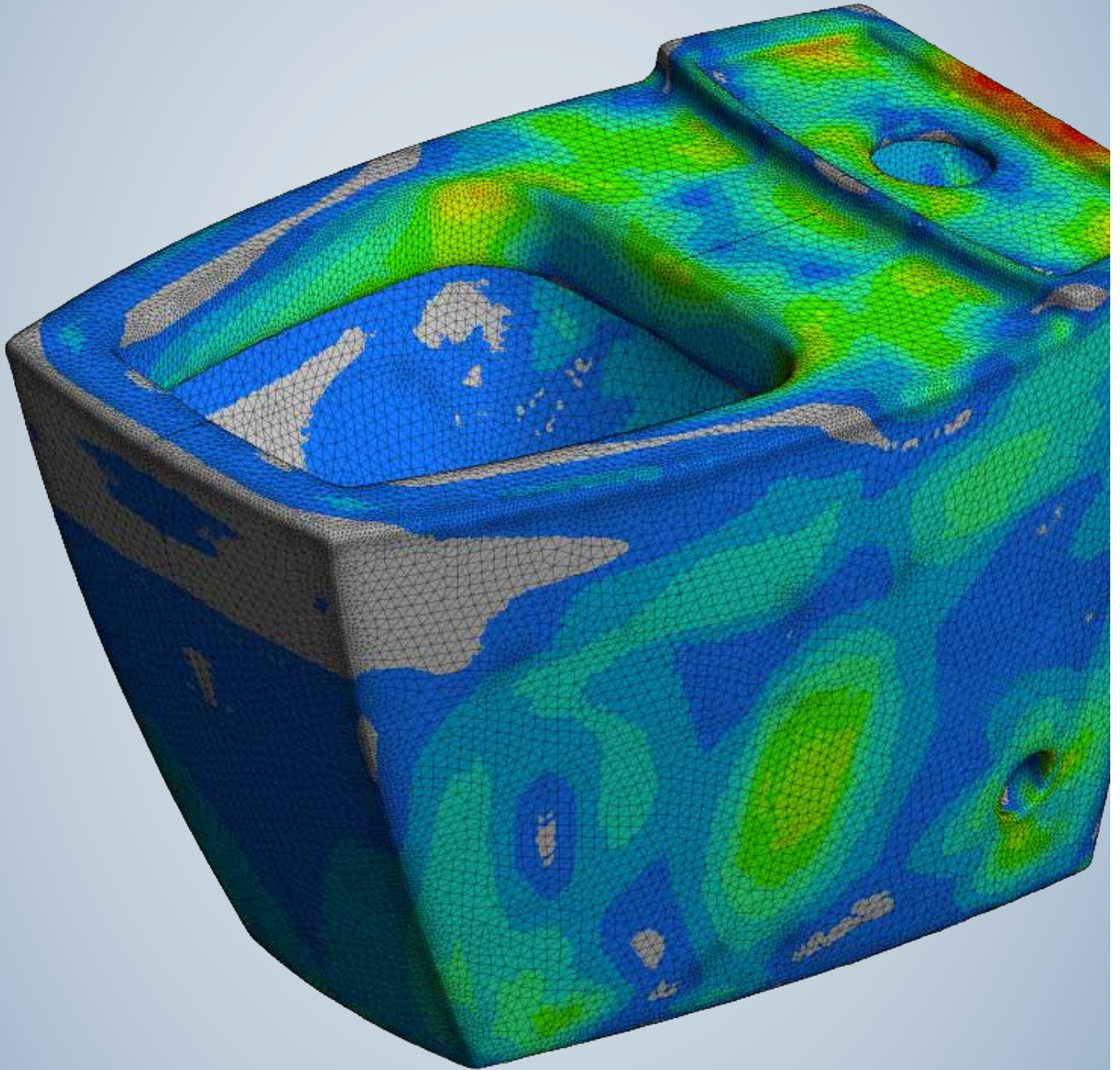


*Sanitaryware 4.0  
New product genesis*





# Sanitaryware 4.0

## DEVELOP IT TOGETHER

### PROJECT DESIGN VALIDATION

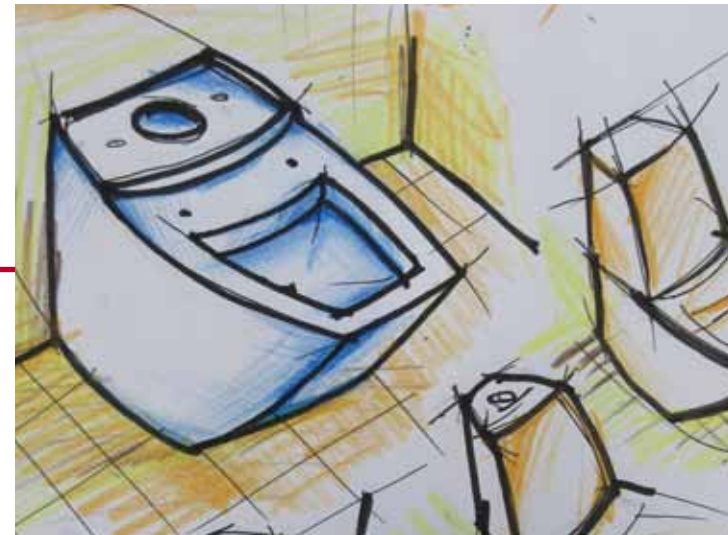
- The article is designed according to current trends in lines and styles.
- Sacmi's technicians create a 3D file which results in a virtual reproduction of the size and shape of the piece according to the designers' sketch. This is then used to carry out photo rendering.
- The manufacturer can send this virtual simulation of the piece to key customers so they can voice their opinion and suggest any design modifications.
- Sacmi's technicians make the final 3D prototype whereby, in addition to the outward appearance, the functional parts of the piece are also created.
- This 3D file is then used to create physical prototypes by means of polyurethane drilling or 3D printing. For WCs the polyurethane prototype is tested at the Sacmi laboratory to optimize hydraulic performance according to the standards requested by the manufacturer.
- Prototypes can be assessed by the market via exhibition at trade fairs or in manufacturer-selected showrooms.

### MOULD DEVELOPMENT

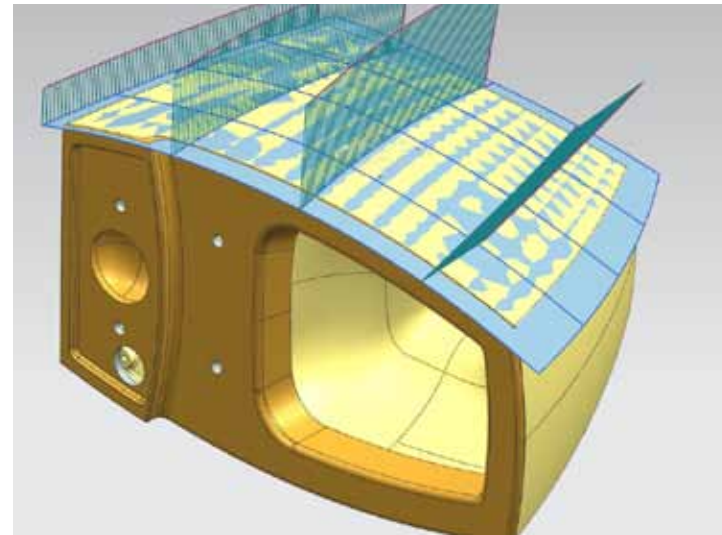
- Sacmi has invested for many years in research projects to predict stress and deformation on sanitaryware articles. At the moment we are completing software which is already assisting Sacmi's technicians in the final definition of the 3D model.
- The file of the model is used to make the case-mould by means of cam drilling and the case-mould is then used to make the first resin casting mould.
- Alternatively it is possible to make the first resin mould by means of direct drilling of resin blocks which Sacmi has developed for pieces cast with two-part moulds.
- The first resin mould is tested at Sacmi's pilot plant with the manufacturer's bodies and glazes. All necessary checks regarding appearance, dimensions, functions and structure are carried out and, on the basis of the results obtained, it is then possible to make any modifications to the mould and case mould, necessary to ensure the product conforms to the manufacturer's requirements.
- On completion of modelling development, the resin mould is scanned and compared to the 3D file of the original mould. This analysis is required to precisely update the case-mould accordingly so that any future additional resin moulds can be manufactured correctly.

# SACMI 4.0 NEW PRODUCT GENESIS

Project design  
validation



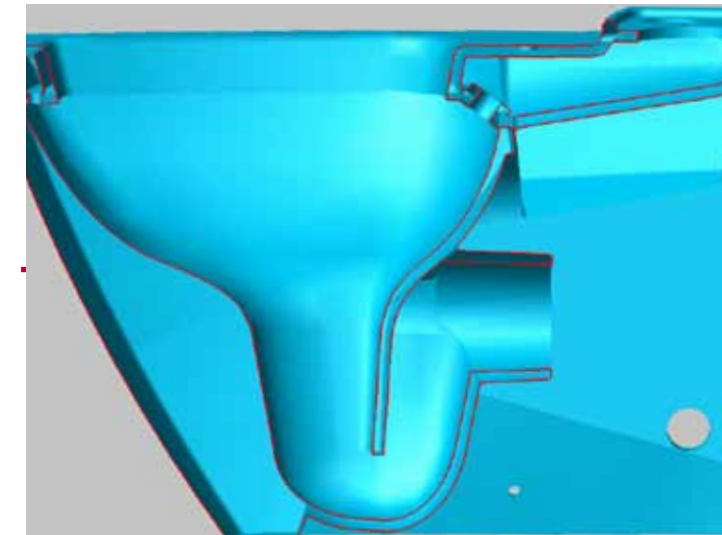
DESIGN STUDIO



3D DESIGN



PHOTOGRAPHIC RENDERING /  
CUSTOMER SATISFACTION SURVEY



3D PROTOTYPE

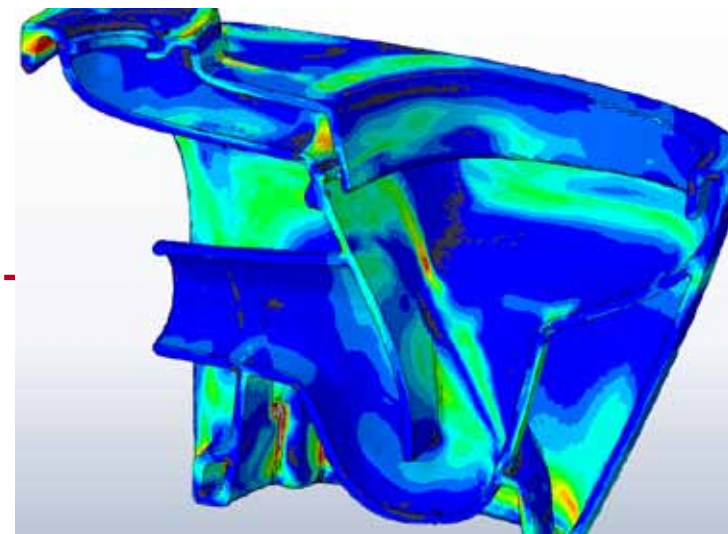


PROTOTYPE CAM DRILLING - 3D PRINTING /  
HYDRAULIC FUNCTIONALITY VALIDATION

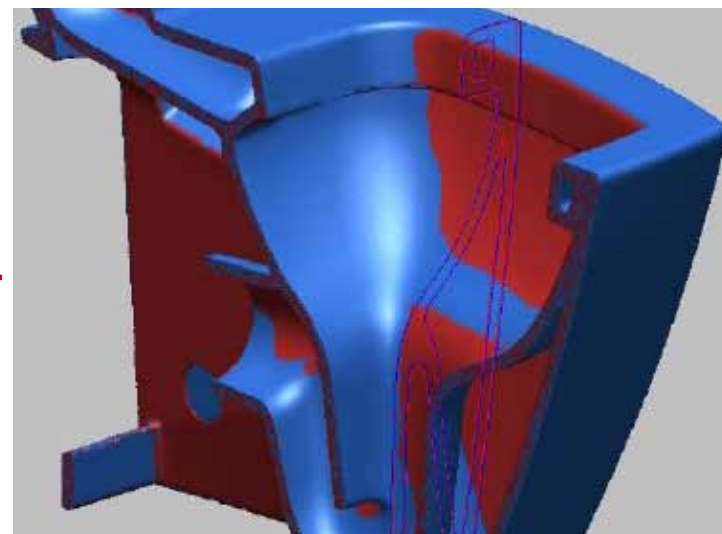


EXHIBITION IN SANITARYWARE EXPO / MARKET RATING VALIDATION

Mould  
development



STRUCTURAL STRESSES AND DEFORMATIONS  
FEM PREDICTION



3D MODEL



PLASTER MOULD CAM  
DRILLING



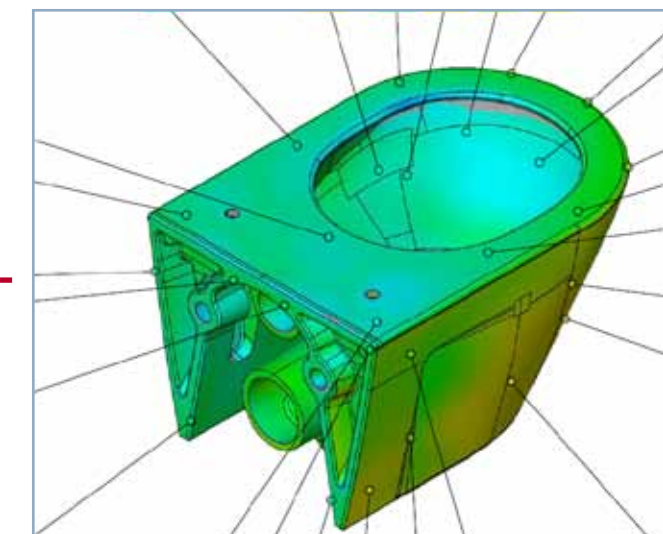
CASE MOULD PRODUCTION



FIRST RESIN MOULD  
PRODUCTION



DIRECT FIRST  
RESIN MOULD  
CAM DRILLING



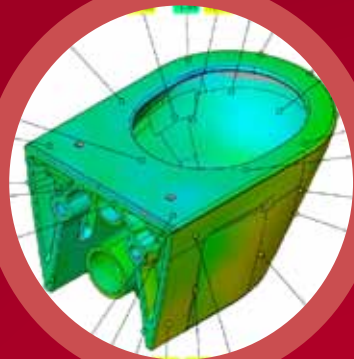
MOULD VALIDATION



3D MODEL UPDATING  
(MOULD DIGITALIZATION)



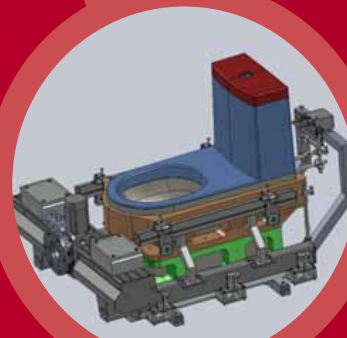
CASE MOULD UPDATING /  
ADDITIONAL MOULDS PRODUCTION



**AUTOMATIC PRODUCT SORTING**



**KILN CAR LOADING ANALYSIS**



**TOOLS ENGINEERING**

# 3D DESIGN POTENTIAL IN SANITARYWARE PRODUCTION



**KILN CAR LOADING AND UNLOADING PROGRAMMING**



**OFF-LINE GLAZING PROGRAMMING**

*Sacmi reserves the right to introduce changes without notice*

