

CASE STUDY

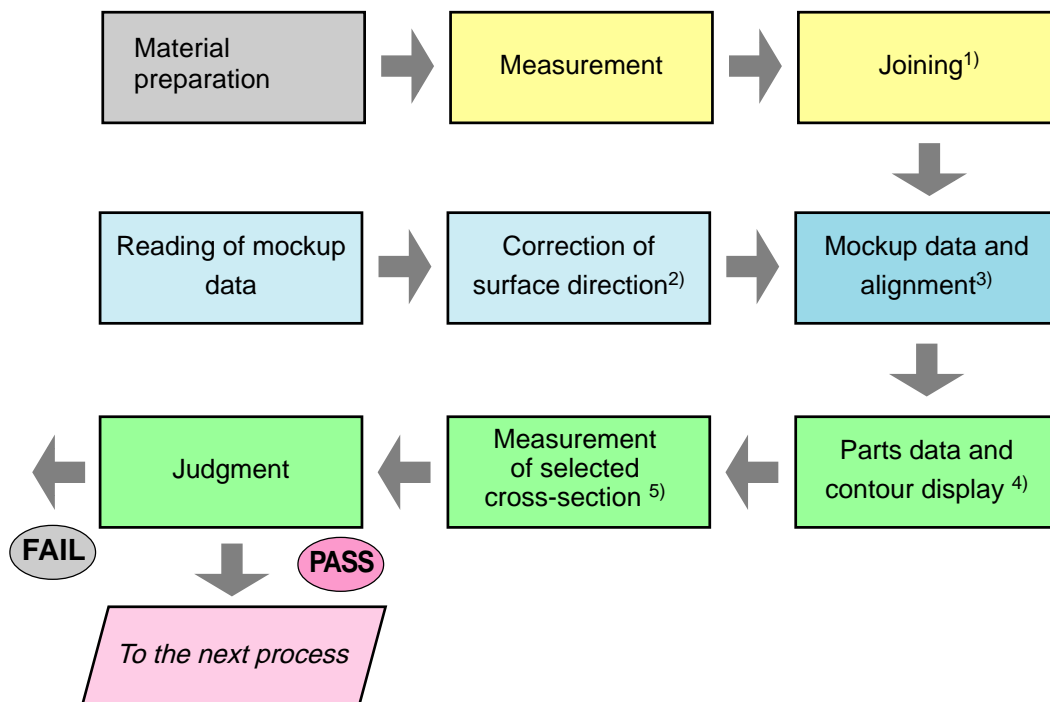
Underfill testing of cast parts

VIVID-018

1.Objective

To avoid wasted work in the next process by verifying that parts taken out of sand molds have sufficient machining allowance.

2.Workflow and working time



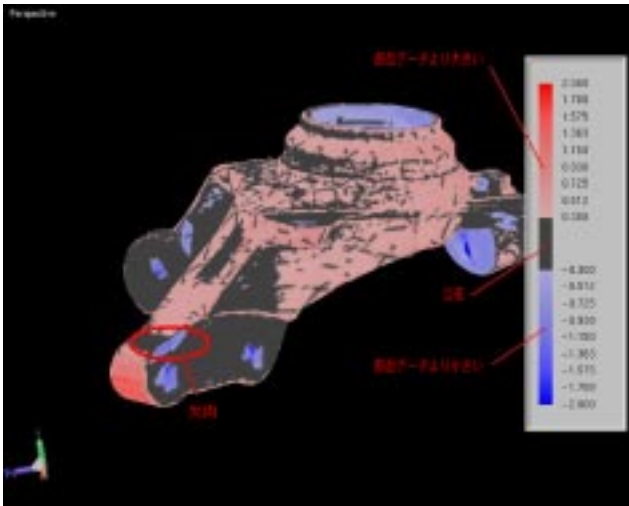
Process	Working time (Example: Steering knuckle)
From measurement to joint	10-minutes
From reading of mockup data to correcting of surface direction	5-minutes
Mockup data and alignment	3-minutes
From parts data and contour display to evaluation	10-minutes

<Notes>

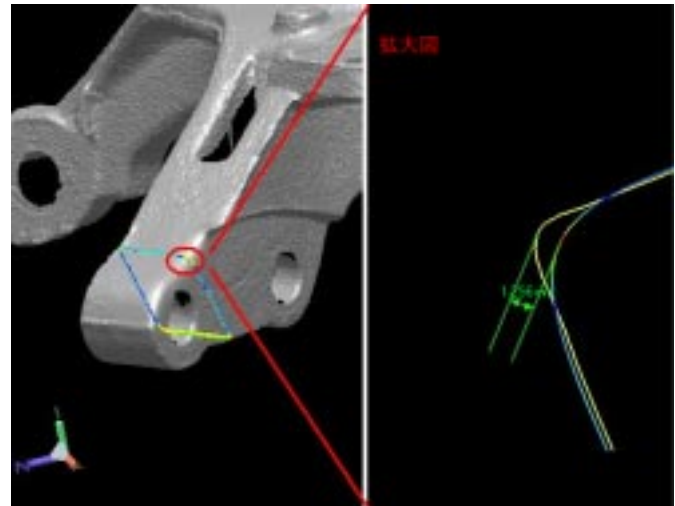
- 1) In principle, multidirectional measurement is required, and the measurement data must be joined.
- 2) Generally, CAD and CAM can design and process without considering the face and back of a surface. Therefore, the data are a mixture of data for the face and back of a surface (adjacent surfaces are reversed). But in the inspection and comparison, the face and back of a surface will be important to determine for which surface measurement data exist. Therefore, some correction is required.

- 3) In actual examinations, part positioning as well as positioning for machining is carried out in accordance with inspection drawings. In the same way, points, axes and planes using measured data for planes, circular holes, etc. must be defined to carry out alignment.
- 4) For alignment, wooden-mold data (larger than finished part shapes taking the shrinkage allowance into consideration) are used and compared with the part data (of finished part shapes) to evaluate the underfill.
- 5) In a contour display, only overall tendencies can be determined. To make a final decision, a cross section must be displayed and checked at each axis (XYZ) or at a given angle. If the defective position can be specified for each part, displaying only a cross section rather than a contour can save time.

<Display example>



Contour display



Cross section display example

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