CLAIMS

1. An apparatus for processing a component, the apparatus comprising:

a support frame with a rotatably mounted first support for supporting a first part;

a robotic arm with a rotatably mounted mounting portion for supporting a second part;

at least one frame locator provided in a fixed spatial relationship with the support frame;

at least one first support locator provided on the first support;

at least one mounting portion locator provided in a fixed spatial relationship with the mounting portion; and

a detector for detecting the position of the at least one frame locator, the at least one first support locator and the at least one mounting portion locator such that, in use, the detector determines the relative positions and the orientations of the support frame, the first support and the mounting portion,

wherein one of the first part and the second part is the component and the other is at least one processing tool.

2. An apparatus according to claim 1 where the first support comprises a plurality of first support locators equally spaced about the rotational axis of the first support.

3. An apparatus according to claim 1 or 2 wherein the or each first support locator is an optically detectable locator.

4. An apparatus according to claim 3 wherein the or each optically detectable locator is an LED.

5. An apparatus according to claim 1 or 2 wherein the or each first support locator is a projection or indentation.

6. An apparatus according to any one of the preceding claims wherein the or each frame locator is an optically detectable locator.

7. An apparatus according to claim 6 wherein the or each optically detectable locator is an LED.

8. An apparatus according to any one of the preceding claims wherein the apparatus comprises a plurality of mounting portion locators equally spaced about the rotational axis of the mounting portion.

9. An apparatus according to any one of the preceding claims wherein the or each mounting portion locator is an optically detectable locator.

10. An apparatus according to claim 9 wherein the or each optically detectable locator is an LED.

11. An apparatus according to any one of the preceding claims further comprising at least one processing tool for mounting on the mounting portion of the robotic arm.

12. An apparatus according to claim 11 wherein the apparatus comprises a plurality of processing tools.

13. An apparatus according to claim 11 or 12 wherein the at least one processing tool or the plurality of processing tools comprises a laser scanning head, an ultrasound probe, a tool comprising an abrasive belt and/or a tool comprising a polishing belt.

14. An apparatus according to any one of the preceding claims wherein the or each mounting portion locator is affixed to the mounting portion of the robotic arm.

15. An apparatus according to any one of claims 1 to 13 wherein the or each mounting portion locator is affixed to the at least one processing tool.

16. An apparatus according to any one of the preceding claims wherein the apparatus further comprises a computer system comprising an image processing system for viewing a 3D profile of the component and generating a toolpath.

17. An apparatus according to any one of the preceding claims wherein the detector is a camera.

18. A method of processing a component, said method comprising:
providing an apparatus according to any one of claims 1 to 17,
providing a scanning head as a first processing tool;
mounting the first part on the first support;
mounting the second part on the mounting portion of the robotic arm;

using the detector or the scanning head to detect the position of the at least one support and thus the first part by detecting/scanning the at least one support locator; and

scanning the component using the scanning head whilst using the detector to detect the position and orientation of the mounting portion and thus the second part by detecting the position of the at least one mounting portion locator.

19. A method according to claim 18 further comprising a calibration step comprising using the detector to detect the position of the at least one frame locator and the at least one mounting portion locator to establish the relative positions of the support frame and the robotic arm.

20. A method according to claim 18 or 19 further comprising a second calibration step comprising using the detector to detect the position and orientation of the first support by detecting the position of the at least one first support locator.

21. A method according to any one of claims 18 to 20 comprising using an image processing system to generate a 3D profile of the component using the data obtained by the scanning head and generating a toolpath.

22. A method according to any one of claims 18 to 21 further comprising replacing the scanning head with one or more further processing tools and processing the component whilst using the detector to detect the position and orientation of the mounting portion and thus the second part by detecting the position of the at least one mounting portion locator.

23. A method according to claim 22 wherein the one or more further processing tool comprises an ultrasound probe and the method comprises measuring wall thickness in the vicinity of an internal cavity whilst detecting the positions/orientations of the at least one mounting portion locator.

24. A method according to claim 23 comprising incrementally adjusting the angle of the ultrasound probe relative to the component during said measuring.

25. A method according to any one of claims 22 to 24 wherein the one or more further processing tools comprises comprising a tool having an abrasive belt and the method comprises abrading the component whilst detecting the positions/orientations of the at least one mounting portion locator.

26. A method according to any one of claims 22 to 25 wherein the one or more further processing tools comprises a tool having a polishing belt and the method comprises polishing the component whilst detecting the positions/orientations of the at least one mounting portion locator.