

ABSTRACT

A computer vision inspection system disclosed for use in inspecting of rotary parts like pulley gear or bearing product with internal slots or rails to determine the fabrication quality of the functional dimension of the slots or rails with the help of inspection balls (11) and ball followers (43). The apparatus includes a vision system with camera(30), lens(32), lighting (35), control computer, the image capturing and imaging processing computer program, and the fixture (40) and jig system for the rotary parts and inspection balls (11) and ball followers (43) to ensure the inspection balls are well engaged into the ball slots (12) or ball rail of the part during inspection. When the checking balls and followers are well engaged to the ball slot or rail of the rotary part, vision image of the inspecting field covering the rotary part and the checking ball or probe, and the fiducial mark (22) on the ball follower (43) or probe head, is captured and transferred to computer program, and then doing the image processing of the captured image to calculate out the functional dimension for the part inspected. The calculated functional dimension value for each part is further recorded into a computer database or factory information system and present into a graph and comparing to the top and bottom limit for easy product quality control.

Fig 7