Grasping devices and methods in automated production processes

In automated production processes grasping devices and methods play a crucial role in the handling of many parts, components, and products. This keynote paper starts with a classification of grasping phases, describes how different principles are adopted at different scales in different applications and continues explaining different releasing strategies and principles. Then the paper classifies the numerous sensors used to monitor the effectiveness of grasping (part presence, exchanged force, stick-slip transitions, etc.). Later the grasping and releasing problems in different fields (from mechanical assembly to disassembly, from aerospace to food industry, from textile to logistics) are discussed. Finally, the most recent research is reviewed in order to introduce the new trends in grasping. They provide an outlook on the future of both grippers and robotic hands in automated production processes. (C) 2014 CIRP.

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