



Machine design

## Robot Polishing Machine / RAP

The industrial acknowledgement of functional surfaces has never been higher, and this includes surface polishing. STRECON A/S has developed a new type of machine system, which is designed for semi-automatic precision polishing of tools and molds that require consistent, repetitive, and high-quality surface finishing. Examples of such tools could be for different metal forming applications, molds for plastic injection and compounds.

The technology is marketed as RAP®, which is an acronym for Robot Assisted Polishing. Instead of doing the polishing work by hand, the operator is setting and controlling the polishing equipment of the machine system. The machine programming is based on CAD files, which is used for programming the polishing process of the selected geometrical surfaces.

The robotic polishing machine system (RAP) is offered with classic polishing methods including oscillation (pulsation), rotation (rotating spindles), and steady sticks controlled by the robot itself. STRECON has also developed a new oscillation process with a nodding ball-shaped movement for 3D surface polishing, and in short can be termed “ball polishing”. The positioning of the polishing tool - that is mounted directly at the robot arm - is set and controlled by CAM, while the contact pressure between the workpiece and the polishing tool is servo-pneumatically controlled. This design principle compensates for the generic nature of the industrial robot.

### Use in Industry

The RAP machine can principally polish all kinds of pre-machined surfaces, all kind of materials and hardness levels, and it can polish tool surfaces as fine as Ra 0,02-0,04  $\mu\text{m}$ , and Rz below 0,1  $\mu\text{m}$ . In short, the RAP equipment can fulfill the needs for high-quality surface polishing of a broad range of industrial parts. Furthermore, the RAP machine can offer a controlled, traceable, and quality consistent surface polishing process, and by that minimize the impact of human variations.

The RAP machine has been developed for precision polishing of tools and molds with 2D rotations-symmetric geometry, plane surfaces, and 3D curved and free-form surfaces.

For information and specific inquiries, please contact STRECON by email at [info@strecon.com](mailto:info@strecon.com).



Tool change



Machine control / HMI



Robot tool polishing