T H I N K

C R E A T E

A U T O M A T E

CATALOGUE

SURFACE AND BEVELS GRINDING I FOG200

MAIN FUNCTION

Perform grinding of friction surfaces, parallel and radial chamfers of brake pads.

DESCRIPTION

The **FOG200** robotic grinding machine possesses an innovative concept for friction surface grinding, in that, in this operation, the gripper attached to the robot's wrist with the pad to be machined attached is clamped in the work station and the tool i.e., the grinding wheel sliding on special precision guides under the pad performs the flattening of the friction surface.

This system allows for greater precision of parallelism and flatness of the ground surface.

The **FOG200** is a machine placed inside an safety cabin equipped with dust extraction hoods. It consists essentially of an electro-welded steel base on which the following are fixed:

- a Yaskawa 6-axis robot for gripping and processing brake pads
- a group composed of an electric head on which the grinding wheel is inserted to carry out planing and chamfering
- a group composed of an electric head on which the grinding wheel is inserted to perform "J" bevels and cuts
- an automatic jig changing unit

• an automatic gripper changing unit

• a brake pad dosing unit.

The brake pads that feed the machine all arrive at the same location through a conveyor, which feeds the robot via an automatic dosing unit.

A single pad is released from the dosing unit, transported by the conveyor and landed on a jig.

The robot picks up and clamps the brake pad by a suction cups system and by a pneumatic gripper, moves to the plane grinding position, then subsequently to the stations dedicated to chamfers and cutting.

Based on the recipe previously set by the operator on the pannel, the robot performs the necessary machining operations.

SPECIFICATIONS

CYCLE / SEQUENCE OF OPERATIONS

• Release the pad by the dosing unit

• Locking the pad into the robot gripper using suction cups and gripper fingers

• Moving the robot gripper and clamping into the unit for grinding the plane

• X-axis working stroke with the grinding wheel on board for plane grinding

• Moving the X-axis to the defined position to enable the execution of radial, tangential bevels

• Parallel movement of the robot to the working area dedicated to bevels

• Bevel execution (bevel on one side)

• Possible 180° rotation of the robot wrist for chamfer execution on the other side

• Possible movement of the robot toward the unit for execution of J-bevels and cuts

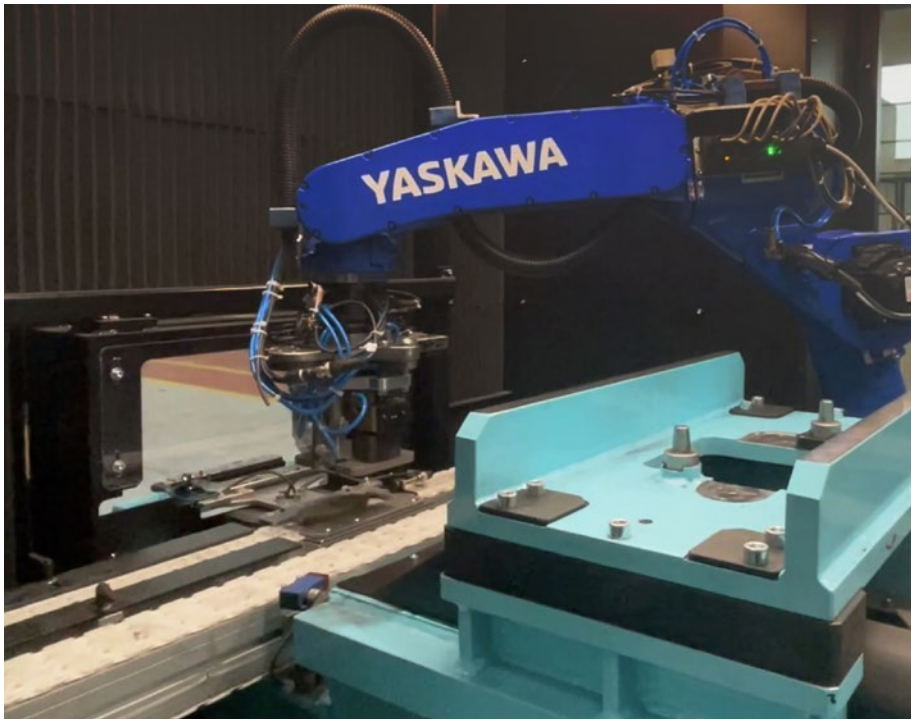
• Movement of the robot toward the conveyor

• Drop the pad onto the conveyor.

PRODUCTIVITY

Varies according to brake pad characteristics.

Work sequence

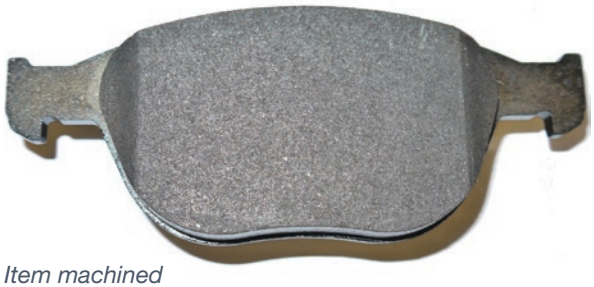


Gripper that pick up the pad

Smoothing of the pad surface

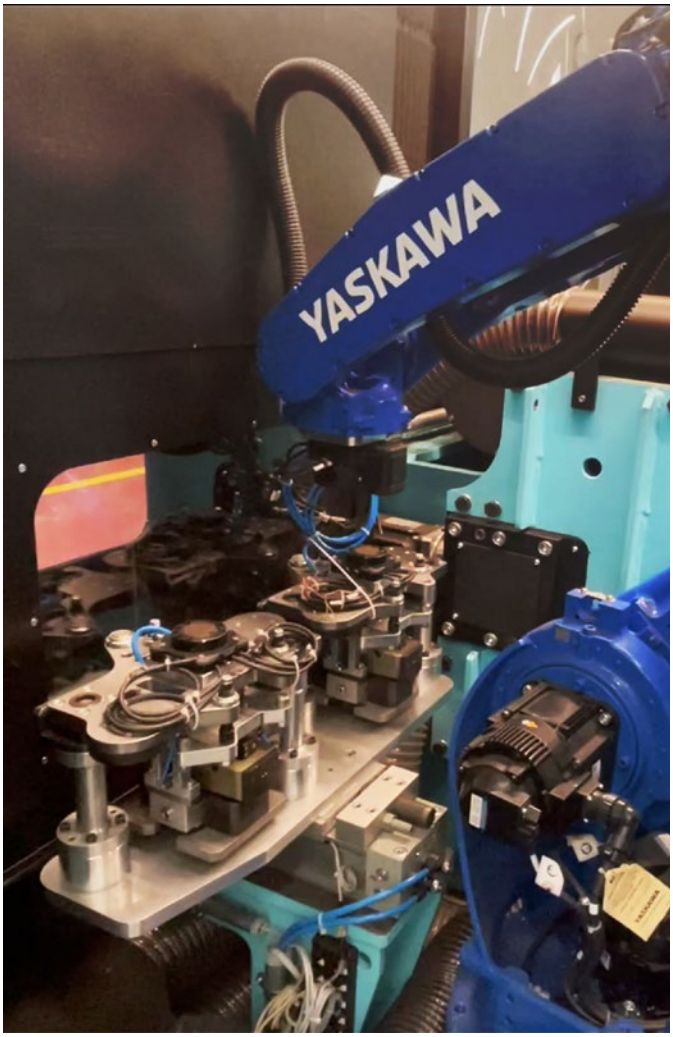
Chamfering of the edges

Item to be machined

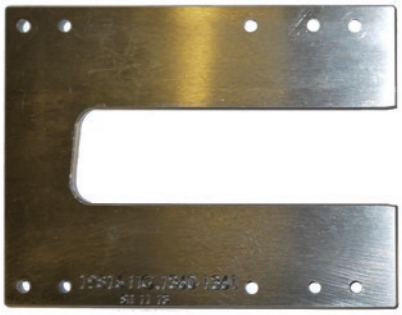


Item machined

Gripper - jig change



Gripper change



Type change kit

OPTIONAL

The pad type change involves changing the pick-up jig and robot gripper. The latter operation is done automatically by processing robots.

The gripper and jig are previously loaded manually in special locations outside the booth safely with the machine being processed, and it is the robot that, via a quick coupler deposits the gripper and jig of the previous type and picks up the gripper and jig of the type of pad to be made.

The gripper pick-up assembly (type change) , for each type of tablet is composed of the following parts:

- Stop jig on conveyor
- Suction cup holder block
- Right and left jaw

In the working areas of the grinding wheel there are a system of hoods so that dust can be extracted.

ASEO S.r.l.
Via Bologna 2
12084 Mondovì CN, Italia
T. +39 0174 551555
info@aseo.srl
www.aseo.srl