Induction

Heating of titanium pucks

The best answer to meet the most stringent requirements

- Non-contamination of pucks, work under controlled atmosphere
- Alternative or simultaneous work on several working stations
- Wide selection of puck types
- Homogeneous and precise heating temperature.
Induction heating of titanium pucks is frequently adopted by the aerospace and medical sectors, as it perfectly meets their most stringent requirements in term of non-contamination and temperature accuracy.

Advantages of the Fives solution

This semi automatic installation, feeding a stamping station with up to 12 different puck types, heats pucks at a 80 products/hour rate, enabling to genuinely control the heating temperature (around 900 ° C).

Description

The puck induction heating equipment is composed of:

One power source unit including:
- One main isolating transformer
- Two low frequency generators CELES MP 25
- Two low frequency capacitor banks
- Two cooled inductors

One refrigerating unit

One positioning unit including:
- One supporting frame, c/w wheels
- Two heating nests made of insulating material.
- One temperature control with two pyrometers per puck
- One complete control board equipped with a MMI terminal, controlling all functions and displaying all parameters and failures.

Cycle description

- The operator puts a puck to heat on a heating nest
- Automatic puck lowering, controlled by sensor
- Heating start, monitoring of puck temperature by power adjustment
- Puck temperature control by pyrometer, when set point temperature is reached, the puck is automatically lifted
- A time out can be set before lifting
- The operator takes the hot puck and puts it on stamping press and reloacs the heating nest.

Heating management by PLC and MMI terminal, enabling:

- Alternate operation from one station to the other during the working cycle (one in preparation, one in heating)
- Continuous operation on one of the stations
- Selection of one among twelve recipes, containing:
  - Reference of the pucks
  - Heating time
  - Heating temperature
  - Minimum current threshold (defective heating detection)
  - Counting of the parts
  - Display of the working parameters of the MMI terminal
  - Display and log of the failures by order of occurrence
  - Modification of the working parameters after introduction of a password.

Technical Characteristics

<table>
<thead>
<tr>
<th>Titanium pucks</th>
<th>Induction heating equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>from 45 mm to 75 mm</td>
</tr>
<tr>
<td>Thickness</td>
<td>from 14 mm to 25 mm</td>
</tr>
<tr>
<td>Treatment</td>
<td>Working Station</td>
</tr>
<tr>
<td>Temperature</td>
<td>880 à 900°C</td>
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<tr>
<td>Heating time</td>
<td>45 s</td>
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</tbody>
</table>

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