Production Test Run (Run at Rate)

Contents

<table>
<thead>
<tr>
<th></th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1 Application</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Verification</td>
<td>2</td>
</tr>
<tr>
<td>1.2 Quality</td>
<td>2</td>
</tr>
<tr>
<td>1.3 Production rate</td>
<td>2</td>
</tr>
<tr>
<td>2 Documentation</td>
<td>2</td>
</tr>
</tbody>
</table>

Introduction

This standard describes the procedures for Production Test Run, which is included in Supplier requirement manual 2.6.1. The purpose of Production Test Run is to verify that the approved production process continuously produces parts that meet the Haldex quality requirements when the process is run at the full agreed rate.

As Haldex shall have the possibility to attend, the date for the Production Test Run shall always be agreed with Haldex Commodity Manager/SQA.

1 Application

The Production Test Run is done as a complement to the Initial Process Studies (PPAP requirement 11) of the PPAP. During the Initial Process Studies the capability of the various machines and other operations are tested. It is accepted to do this for each operation separately.

During the Production Test Run the complete production process is tested for production of conforming parts at the promised production rate. The Production Test Run shall thus normally be performed after the PPAP approval but before the production rate is ramped up to meet the agreed level. The number of parts produced during the Production Test Run shall be sufficient to confirm the process capability.

The duration of the test shall be sufficient to allow for the study of material supply, packing, transports, tool changes etc. and planned maintenance during the work shift.

Product specifications, drawings, flow chart, control plan, work and inspection instructions, process FMEA, appearance masters (when applicable) and master part shall be available at the Production Test Run.
1.1 Verification

The following shall be verified:

- That the actual production conforms to flow chart and control plan.
- That production equipment, machine settings, tools and measuring systems are those specified.
- That all operator instructions are being followed at each workstation and any specified performance documentation is properly done in accordance with instructions.

1.2 Quality

It shall be checked:

- That the parts conform to specifications, drawings, master parts and, if applicable, appearance masters.
- That the production process is in control and that the process capability at continuous production is at least 1.67 for Special Characteristics.
- That all occurring deviations will be identified by use of the Control Plan for series production.
- That all potential, identified mistakes are covered by the process FMEA.
- That procedures for packing and labelling eliminate all risks for errors in these operations.
- That packing and transport procedures prevent from damage in transit.

1.3 Production Rate

It shall be proved:

- That the produced quantity of approved parts is as has been agreed.
- That the planned produced quantity is available throughout the process.
- That the intervals between tool changes, maintenance, cleaning etc, when performed as planned, will allow for full production rate.
- That the material flow to and from the production process constitutes no hindrance to full delivery capacity.

2 Documentation

All deviations shall be documented and corrective action shall be taken. A full report on the result of the Production Test Run shall be sent to Haldex within two weeks after the completion of the test. Haldex will decide if the test can be approved or if a new Production Test Run must be performed.