Protocol of the gage capability R&R study

Variation B - Evaluation is based on total variation TV (variability of production process)

Gage user: MOJE FIRMA, s.r.o.
Gage title: Posuvné měřidlo digitální 0-150 mm
Gage registration number: 2025

Upper tolerance limit: 1.2 USL
Lower tolerance limit: 0.2 LSL
Workers count: 3
Repetition count: 2
Parts count: 10

<table>
<thead>
<tr>
<th>Pcs</th>
<th>Worker 1 Measure 1</th>
<th>Worker 1 Measure 2</th>
<th>Worker 2 Measure 1</th>
<th>Worker 2 Measure 2</th>
<th>Worker 3 Measure 1</th>
<th>Worker 3 Measure 2</th>
</tr>
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</tr>
<tr>
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<td>0.7</td>
<td>0.55</td>
<td>0.5</td>
<td>0.85</td>
<td>0.8</td>
</tr>
</tbody>
</table>

| K1   | 0.8862 |
| K2   | 0.5231 |
| K3   | 0.3146 |
| Rbar | 0.03833 |
| XbarDiff | 0.060000 |
| Rp   | 0.55833 |

Equipment Variation EV: 0.03397
Appraiser Variation AV: 0.03045
Repeatability and Reproducibility R&R: 0.04562
Part Variation PV: 0.17565
Total Variation TV: 0.18148

Equipment Variation EV[%]: 18.72
Appraiser Variation AV[%]: 16.78
Repeatability and Reproducibility R&R[%]: 25.14
Part Variation PV[%]: 96.79
Number of distinct categories: 5.43

Final evaluation: Gage is conditionally suitable (R&R[%] value is inside (10 - 30) interval)! Gage system may be acceptable based on importance of application and costs.

Comment: Ověřeno na výrobku: PCW20251/CEP/D1
Pracovníci: 1 - Jaroslav Novák, 2 - Petr Votruba, 3 - Jindřich Nekola

Produced: Jan Novák
Day: 10.04.2008
Protocol of the gage capability R&R study

Xbar Chart by Operator

USL = 1.2000
UCL = 0.8795
LCL = 0.7354
Xq = 0.8075

Worker 1  Worker 2  Worker 3

R Chart by Operator

UCL = 0.1253
LCL = 0.0000

Worker 1  Worker 2  Worker 3

Measurement by Operator

USL = 1.2
LSL = 0.2

Worker 1  Worker 2  Worker 3
Protocol of the gage capability R&R study

Measurement by Part

Operator * Part Interaktion

Histogramm

Produced by online software on www.trestik.cz/rar.php according to methodology MSA release 3