Gage R&R Study - ANOVA Method

**\* NOTE \* There are no operator values, or they are all the same. The operator factor will be  
omitted from the analysis.**

Gage R&R for Line1Angle

|  |  |
| --- | --- |
| Gage name: | Wedge |
| Date of study: | 06/23/2022 |
| Reported by: | AIS Technologies Group |
| Tolerance: | 70-110 |
| Misc: |  |

One-Way ANOVA Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | DF | SS | MS | F | P |
| Part No | 9 | 88.7153 | 9.85726 | 113.224 | 0.000 |
| Repeatability | 20 | 1.7412 | 0.08706 |  |  |
| Total | 29 | 90.4565 |  |  |  |

*α to remove interaction term = 0.05*

Gage R&R

Variance Components

|  |  |  |
| --- | --- | --- |
| Source | VarComp | %Contribution (of VarComp) |
| Total Gage R&R | 0.08706 | 2.60 |
| Repeatability | 0.08706 | 2.60 |
| Part-To-Part | 3.25673 | 97.40 |
| Total Variation | 3.34379 | 100.00 |

Process tolerance = 40

Gage Evaluation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source | StdDev (SD) | Study Var (6 × SD) | %Study Var (%SV) | %Tolerance (SV/Toler) |
| Total Gage R&R | 0.29506 | 1.7704 | 16.14 | 4.43 |
| Repeatability | 0.29506 | 1.7704 | 16.14 | 4.43 |
| Part-To-Part | 1.80464 | 10.8279 | 98.69 | 27.07 |
| Total Variation | 1.82860 | 10.9716 | 100.00 | 27.43 |

Number of Distinct Categories = 8

Probabilities of Misclassification

Joint Probability

|  |  |
| --- | --- |
| Description | Probability |
| A randomly selected part is bad but accepted | 0.000 |
| A randomly selected part is good but rejected | 0.000 |

Conditional Probability

|  |  |
| --- | --- |
| Description | Probability |
| A part from a group of bad products is accepted | \* |
| A part from a group of good products is rejected | 0.000 |

*Probability of part within spec limits = 1.*

Gage R&R for Line1Angle

Gage R&R Study - ANOVA Method

**\* NOTE \* There are no operator values, or they are all the same. The operator factor will be  
omitted from the analysis.**

Gage R&R for Line2Angle

|  |  |
| --- | --- |
| Gage name: | Wedge |
| Date of study: | 06/23/2022 |
| Reported by: | AIS Technologies Group |
| Tolerance: | 70-110 |
| Misc: |  |

One-Way ANOVA Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source | DF | SS | MS | F | P |
| Part No | 9 | 225.335 | 25.0372 | 182.780 | 0.000 |
| Repeatability | 20 | 2.740 | 0.1370 |  |  |
| Total | 29 | 228.074 |  |  |  |

*α to remove interaction term = 0.05*

Gage R&R

Variance Components

|  |  |  |
| --- | --- | --- |
| Source | VarComp | %Contribution (of VarComp) |
| Total Gage R&R | 0.13698 | 1.62 |
| Repeatability | 0.13698 | 1.62 |
| Part-To-Part | 8.30006 | 98.38 |
| Total Variation | 8.43704 | 100.00 |

Process tolerance = 40

Gage Evaluation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source | StdDev (SD) | Study Var (6 × SD) | %Study Var (%SV) | %Tolerance (SV/Toler) |
| Total Gage R&R | 0.37011 | 2.2206 | 12.74 | 5.55 |
| Repeatability | 0.37011 | 2.2206 | 12.74 | 5.55 |
| Part-To-Part | 2.88098 | 17.2859 | 99.18 | 43.21 |
| Total Variation | 2.90466 | 17.4280 | 100.00 | 43.57 |

Number of Distinct Categories = 10

Probabilities of Misclassification

Joint Probability

|  |  |
| --- | --- |
| Description | Probability |
| A randomly selected part is bad but accepted | 0.000 |
| A randomly selected part is good but rejected | 0.000 |

Conditional Probability

|  |  |
| --- | --- |
| Description | Probability |
| A part from a group of bad products is accepted | 0.206 |
| A part from a group of good products is rejected | 0.000 |

Gage R&R for Line2Angle