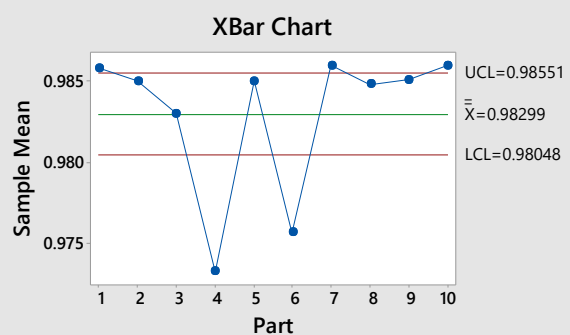
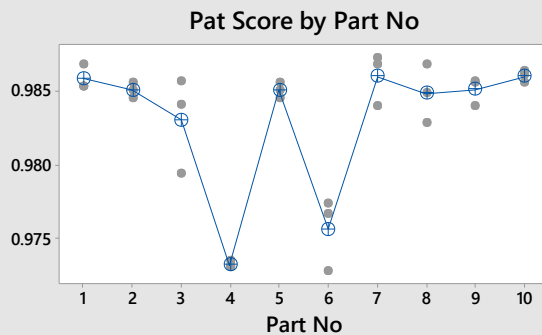
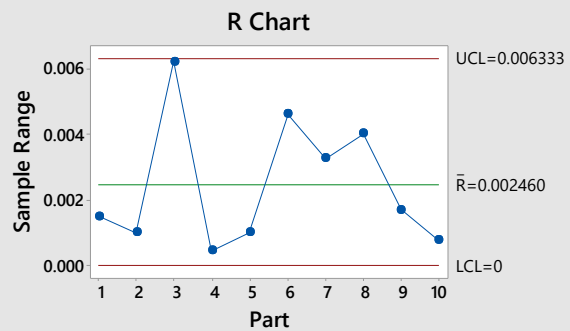
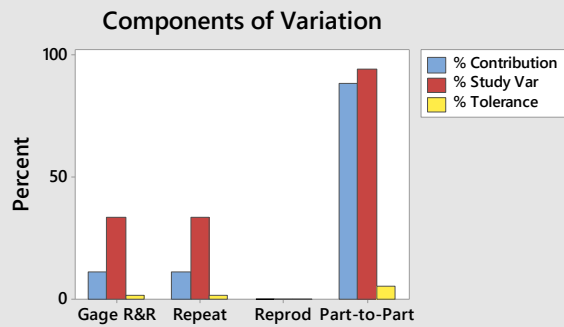


Gage R&R (ANOVA) Report for Pat Score

Gage name: Snap Ring Verify
Date of study: 06/24/2022

Reported by: AIS Technologies Group
Tolerance:
Misc:



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 Pat Score

Gage name: Snap Ring Verify

Date of study: 06/24/2022

Reported by: AIS Technologies Group

Tolerance:

Misc:

One-Way ANOVA Table

Source	DF	SS	MS	F	P
Part No	9	0.0005774	0.0000642	24.3360	0.000
Repeatability	20	0.0000527	0.0000026		
Total	29	0.0006301			

α to remove interaction term = 0.05

Gage R&R

Variance Components

Source	VarComp	%Contribution (of VarComp)
Total Gage R&R	0.0000026	11.39
Repeatability	0.0000026	11.39
Part-To-Part	0.0000205	88.61
Total Variation	0.0000231	100.00

Process tolerance = 0.5

Gage Evaluation

Source	StdDev (SD)	Study Var (6 × SD)	%Study Var (%SV)	%Tolerance (SV/Toler)
Total Gage R&R	0.0016236	0.0097418	33.75	1.95
Repeatability	0.0016236	0.0097418	33.75	1.95
Part-To-Part	0.0045284	0.0271702	94.13	5.43
Total Variation	0.0048106	0.0288639	100.00	5.77

Number of Distinct Categories = 3

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

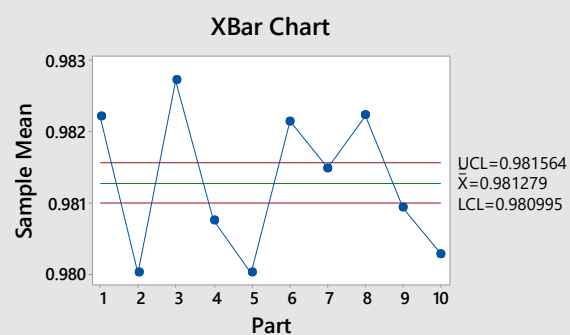
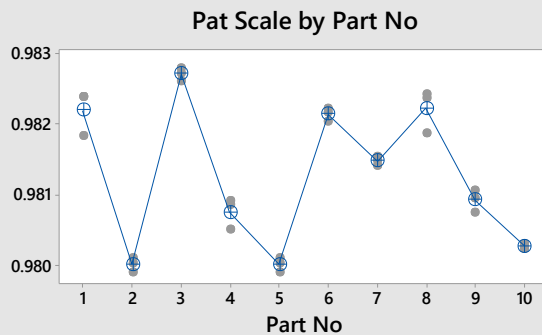
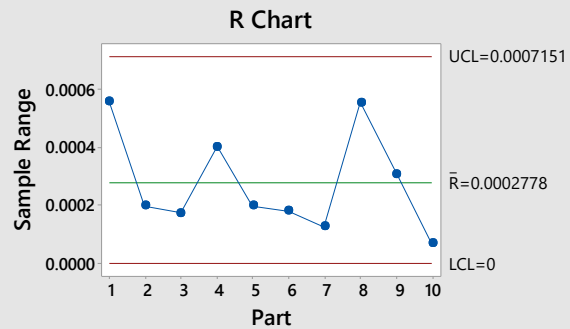
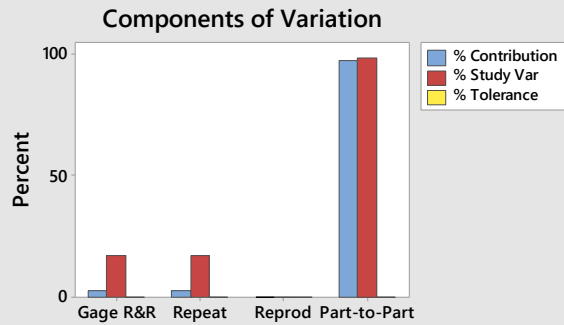
Description	Probability
A part from a group of bad products is accepted	0.292
A part from a group of good products is rejected	0.000

Gage R&R for Pat Score

Gage R&R (ANOVA) Report for Pat Scale

Gage name: Snap Ring Verify
Date of study: 06/24/2022

Reported by: AIS Technologies Group
Tolerance:
Misc:



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 Pat Scale

Gage name: Snap Ring Verify

Date of study: 06/24/2022

Reported by: AIS Technologies Group

Tolerance:

Misc:

One-Way ANOVA Table

Source	DF	SS	MS	F	P
Part No	9	0.0000276	0.0000031	98.4325	0.000
Repeatability	20	0.0000006	0.0000000		
Total	29	0.0000282			

α to remove interaction term = 0.05

Gage R&R

Variance Components

Source	VarComp	%Contribution (of VarComp)
Total Gage R&R	0.0000000	2.99
Repeatability	0.0000000	2.99
Part-To-Part	0.0000010	97.01
Total Variation	0.0000010	100.00

Process tolerance = 2

Gage Evaluation

Source	StdDev (SD)	Study Var (6 × SD)	%Study Var (%SV)	%Tolerance (SV/Toler)
Total Gage R&R	0.0001765	0.0010593	17.28	0.05
Repeatability	0.0001765	0.0010593	17.28	0.05
Part-To-Part	0.0010061	0.0060367	98.50	0.30
Total Variation	0.0010215	0.0061289	100.00	0.31

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

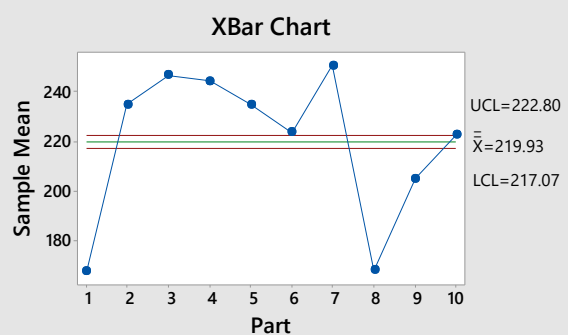
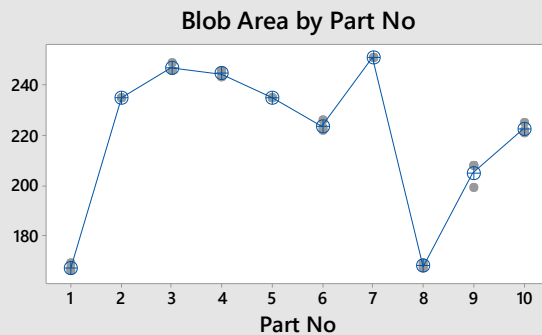
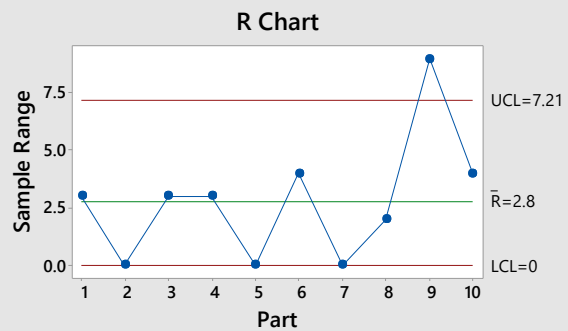
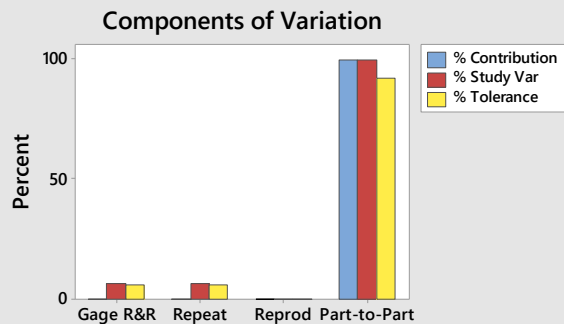
Probability of part within spec limits = 1.

Gage R&R for Pat Scale

Gage R&R (ANOVA) Report for Blob Area

Gage name: Snap Ring Verify
Date of study: 06/24/2022

Reported by: AIS Technologies Group
Tolerance:
Misc:



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 Blob Area

Gage name: Snap Ring Verify

Date of study: 06/24/2022

Reported by: AIS Technologies Group

Tolerance:

Misc:

One-Way ANOVA Table

Source	DF	SS	MS	F	P
Part No	9	25415.2	2823.91	636.972	0.000
Repeatability	20	88.7	4.43		
Total	29	25503.9			

α to remove interaction term = 0.05

Gage R&R

Variance Components

Source	VarComp	%Contribution (of VarComp)
Total Gage R&R	4.433	0.47
Repeatability	4.433	0.47
Part-To-Part	939.826	99.53
Total Variation	944.259	100.00

Process tolerance = 200

Gage Evaluation

Source	StdDev (SD)	Study Var (6 × SD)	%Study Var (%SV)	%Tolerance (SV/Toler)
Total Gage R&R	2.1055	12.633	6.85	6.32
Repeatability	2.1055	12.633	6.85	6.32
Part-To-Part	30.6566	183.939	99.76	91.97
Total Variation	30.7288	184.373	100.00	92.19

Number of Distinct Categories = 20

Probabilities of Misclassification

Joint Probability

Description	Probability
A randomly selected part is bad but accepted	0.001
A randomly selected part is good but rejected	0.001

Conditional Probability

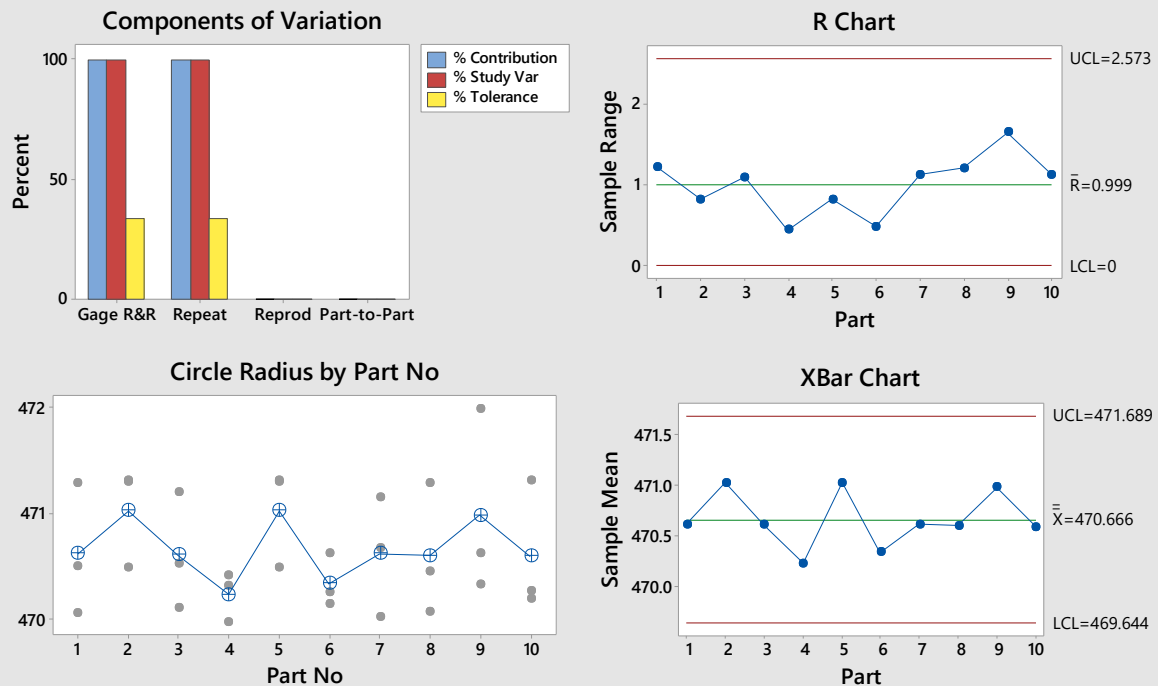
Description	Probability
A part from a group of bad products is accepted	0.065
A part from a group of good products is rejected	0.001

Gage R&R for Blob Area

Gage R&R (ANOVA) Report for Circle Radius

Gage name: Snap Ring Verify
Date of study: 06/24/2022

Reported by: AIS Technologies Group
Tolerance:
Misc:



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 Circle Radius

Gage name: Snap Ring Verify

Date of study: 06/24/2022

Reported by: AIS Technologies Group

Tolerance:

Misc:

One-Way ANOVA Table

Source	DF	SS	MS	F	P
Part No	9	2.02068	0.224520	0.718183	0.687
Repeatability	20	6.25245	0.312622		
Total	29	8.27313			

α to remove interaction term = 0.05

Gage R&R

Variance Components

Source	VarComp	%Contribution (of VarComp)
Total Gage R&R	0.312622	100.00
Repeatability	0.312622	100.00
Part-To-Part	0.000000	0.00
Total Variation	0.312622	100.00

Process tolerance = 10

Gage Evaluation

Source	StdDev (SD)	Study Var (6 × SD)	%Study Var (%SV)	%Tolerance (SV/Toler)
Total Gage R&R	0.559126	3.35476	100.00	33.55
Repeatability	0.559126	3.35476	100.00	33.55
Part-To-Part	0.000000	0.00000	0.00	0.00
Total Variation	0.559126	3.35476	100.00	33.55

Number of Distinct Categories = 1

Probabilities of Misclassification

*** WARNING * Degenerate bivariate detected: The variance-covariance matrix has determinant = 0. Unable to proceed.**

Gage R&R for Circle Radius