


		Statistical Process Control							Doc. No. - F/09/04 Issue No. - 01, 01.04.2023 Rev. no. - 00				
Component		4475_480_053_DES001		Characterisitc	PR-2	Operator	Anil	For Sub-group size n = 5		Sample Size - 125			
Specifications		71.800-71.830		LSL	71.800	USL	71.83	A ₂	0.577	D ₃	0		
Total Tolerance (T)		0.030		Section	BORE	Machine No.	52	d ₂	2.326	D ₄	2.114		
Measuring Instrument		APG		Least Count	0.001	Date	07.09.2023	X	71.816	R-Bar	0.006		
Sr.No. / Set No.	1	2	3	4	5	Range (R)	Average (X-Bar)	= UCL X + A2* R-Bar	= LCL X - A2* R-Bar	= X	UCL : D4 * R-Bar	LCL D3 * R-Bar	R-Bar
1	71.819	71.821	71.815	71.817	71.815	0.006	71.817	71.820	71.813	71.816	0.013	0	0.006
2	71.818	71.816	71.814	71.817	71.820	0.006	71.817	71.820	71.813	71.816	0.013	0	0.006
3	71.821	71.815	71.818	71.813	71.818	0.008	71.817	71.820	71.813	71.816	0.013	0	0.006
4	71.820	71.818	71.815	71.821	71.818	0.006	71.818	71.820	71.813	71.816	0.013	0	0.006
5	71.815	71.820	71.821	71.815	71.816	0.006	71.818	71.820	71.813	71.816	0.013	0	0.006
6	71.816	71.815	71.819	71.815	71.818	0.004	71.817	71.820	71.813	71.816	0.013	0	0.006
7	71.819	71.815	71.814	71.812	71.815	0.007	71.815	71.820	71.813	71.816	0.013	0	0.006
8	71.810	71.816	71.815	71.816	71.815	0.005	71.814	71.820	71.813	71.816	0.013	0	0.006
9	71.815	71.815	71.815	71.815	71.821	0.006	71.816	71.820	71.813	71.816	0.013	0	0.006
10	71.812	71.815	71.815	71.818	71.815	0.006	71.815	71.820	71.813	71.816	0.013	0	0.006
11	71.815	71.813	71.818	71.815	71.815	0.005	71.815	71.820	71.813	71.816	0.013	0	0.006
12	71.815	71.812	71.818	71.813	71.815	0.006	71.815	71.820	71.813	71.816	0.013	0	0.006
13	71.815	71.815	71.820	71.815	71.815	0.005	71.816	71.820	71.813	71.816	0.013	0	0.006
14	71.816	71.815	71.819	71.815	71.818	0.004	71.817	71.820	71.813	71.816	0.013	0	0.006
15	71.818	71.820	71.815	71.811	71.817	0.009	71.816	71.820	71.813	71.816	0.013	0	0.006
16	71.815	71.818	71.815	71.815	71.814	0.004	71.815	71.820	71.813	71.816	0.013	0	0.006
17	71.815	71.818	71.815	71.815	71.822	0.007	71.817	71.820	71.813	71.816	0.013	0	0.006
18	71.816	71.815	71.821	71.815	71.818	0.006	71.817	71.820	71.813	71.816	0.013	0	0.006
19	71.815	71.820	71.815	71.815	71.813	0.007	71.816	71.820	71.813	71.816	0.013	0	0.006
20	71.811	71.819	71.818	71.817	71.816	0.008	71.816	71.820	71.813	71.816	0.013	0	0.006
21	71.815	71.819	71.816	71.815	71.817	0.004	71.817	71.820	71.813	71.816	0.013	0	0.006
22	71.816	71.815	71.819	71.815	71.818	0.004	71.817	71.820	71.813	71.816	0.013	0	0.006
23	71.819	71.812	71.815	71.816	71.817	0.007	71.816	71.820	71.813	71.816	0.013	0	0.006
24	71.811	71.816	71.815	71.819	71.815	0.008	71.815	71.820	71.813	71.816	0.013	0	0.006
25	71.816	71.815	71.821	71.815	71.818	0.006	71.817	71.820	71.813	71.816	0.013	0	0.006

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Component		4475_480_053_DES001		Characterisitc	PR-1	Operator	RAJU	For Sub-group size n = 5		Sample Size - 125			
Specifications		0.00-0.020		LSL	0.000	USL	0.02	A ₂	0.577	D ₃	0		
Total Tolerance (T)		0.020		Section	RUNOUT	Machine No.	52	d ₂	2.326	D ₄	2.114		
Measuring Instrument		T.M+B.C		Least Count	0.001	Date	07.09.2023	X	0.011	R-Bar	0.004		
Sr.No. / Set No.	1	2	3	4	5	Range (R)	Average (X-Bar)	= UCL X + A2* R-Bar	= LCL X - A2* R-Bar	= X	UCL : D4 * R-Bar	LCL D3 * R-Bar	R-Bar
1	0.013	0.011	0.011	0.013	0.013	0.002	0.012	0.013	0.009	0.011	0.008	0	0.004
2	0.010	0.012	0.011	0.010	0.009	0.003	0.010	0.013	0.009	0.011	0.008	0	0.004
3	0.011	0.010	0.012	0.011	0.010	0.002	0.011	0.013	0.009	0.011	0.008	0	0.004
4	0.009	0.012	0.010	0.009	0.013	0.004	0.011	0.013	0.009	0.011	0.008	0	0.004
5	0.011	0.007	0.010	0.012	0.011	0.005	0.010	0.013	0.009	0.011	0.008	0	0.004
6	0.011	0.013	0.012	0.011	0.010	0.003	0.011	0.013	0.009	0.011	0.008	0	0.004
7	0.012	0.011	0.010	0.012	0.013	0.003	0.012	0.013	0.009	0.011	0.008	0	0.004
8	0.015	0.014	0.010	0.012	0.011	0.005	0.012	0.013	0.009	0.011	0.008	0	0.004
9	0.011	0.010	0.008	0.011	0.005	0.006	0.009	0.013	0.009	0.011	0.008	0	0.004
10	0.008	0.010	0.011	0.008	0.011	0.003	0.010	0.013	0.009	0.011	0.008	0	0.004
11	0.013	0.012	0.008	0.013	0.013	0.005	0.012	0.013	0.009	0.011	0.008	0	0.004
12	0.009	0.013	0.013	0.009	0.009	0.004	0.011	0.013	0.009	0.011	0.008	0	0.004
13	0.010	0.011	0.015	0.010	0.011	0.005	0.011	0.013	0.009	0.011	0.008	0	0.004
14	0.013	0.011	0.011	0.013	0.015	0.004	0.013	0.013	0.009	0.011	0.008	0	0.004
15	0.011	0.013	0.010	0.011	0.010	0.003	0.011	0.013	0.009	0.011	0.008	0	0.004
16	0.010	0.008	0.011	0.010	0.009	0.003	0.010	0.013	0.009	0.011	0.008	0	0.004
17	0.012	0.008	0.011	0.012	0.009	0.004	0.010	0.013	0.009	0.011	0.008	0	0.004
18	0.012	0.011	0.012	0.012	0.014	0.003	0.012	0.013	0.009	0.011	0.008	0	0.004
19	0.011	0.013	0.011	0.011	0.011	0.002	0.011	0.013	0.009	0.011	0.008	0	0.004
20	0.011	0.012	0.013	0.011	0.012	0.002	0.012	0.013	0.009	0.011	0.008	0	0.004
21	0.010	0.011	0.015	0.010	0.011	0.005	0.011	0.013	0.009	0.011	0.008	0	0.004
22	0.013	0.011	0.011	0.013	0.015	0.004	0.013	0.013	0.009	0.011	0.008	0	0.004
23	0.011	0.013	0.010	0.011	0.010	0.003	0.011	0.013	0.009	0.011	0.008	0	0.004
24	0.010	0.008	0.011	0.010	0.009	0.003	0.010	0.013	0.009	0.011	0.008	0	0.004
25	0.012	0.008	0.011	0.012	0.009	0.004	0.010	0.013	0.009	0.011	0.008	0	0.004

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Component		4475_480_053_DES001		Characterisitc	AIC-2	Operator	RAJU	For Sub-group size n = 5		Sample Size - 125			
Specifications		0.00-0.030		LSL	0.000	USL	0.03	A ₂	0.577	D ₃	0		
Total Tolerance (T)		0.030		Section	RUNOUT	Machine No.	52	d ₂	2.326	D ₄	2.114		
Measuring Instrument		T.M+B.C		Least Count	0.001	Date	02.04.2024	X̄	0.015	R-Bar	0.005		
Sr.No. / Set No.	1	2	3	4	5	Range (R)	Average (X-Bar)	= UCL X + A2* R-Bar	= LCL X - A2* R-Bar	= X	UCL : D4 * R-Bar	LCL D3 * R-Bar	R-Bar
1	0.017	0.015	0.013	0.017	0.019	0.006	0.016	0.018	0.012	0.015	0.010	0	0.005
2	0.014	0.016	0.015	0.014	0.013	0.003	0.014	0.018	0.012	0.015	0.010	0	0.005
3	0.015	0.010	0.017	0.015	0.014	0.007	0.014	0.018	0.012	0.015	0.010	0	0.005
4	0.013	0.016	0.014	0.013	0.017	0.004	0.015	0.018	0.012	0.015	0.010	0	0.005
5	0.015	0.011	0.014	0.016	0.015	0.005	0.014	0.018	0.012	0.015	0.010	0	0.005
6	0.015	0.017	0.016	0.015	0.013	0.004	0.015	0.018	0.012	0.015	0.010	0	0.005
7	0.016	0.015	0.013	0.016	0.017	0.004	0.015	0.018	0.012	0.015	0.010	0	0.005
8	0.019	0.018	0.014	0.016	0.015	0.005	0.016	0.018	0.012	0.015	0.010	0	0.005
9	0.015	0.014	0.012	0.015	0.009	0.006	0.013	0.018	0.012	0.015	0.010	0	0.005
10	0.012	0.014	0.015	0.012	0.015	0.003	0.014	0.018	0.012	0.015	0.010	0	0.005
11	0.017	0.016	0.012	0.017	0.017	0.005	0.016	0.018	0.012	0.015	0.010	0	0.005
12	0.013	0.017	0.017	0.013	0.013	0.004	0.015	0.018	0.012	0.015	0.010	0	0.005
13	0.014	0.015	0.019	0.014	0.015	0.005	0.015	0.018	0.012	0.015	0.010	0	0.005
14	0.017	0.015	0.015	0.017	0.019	0.004	0.017	0.018	0.012	0.015	0.010	0	0.005
15	0.015	0.017	0.014	0.015	0.012	0.005	0.015	0.018	0.012	0.015	0.010	0	0.005
16	0.014	0.012	0.015	0.014	0.013	0.003	0.014	0.018	0.012	0.015	0.010	0	0.005
17	0.016	0.012	0.015	0.016	0.013	0.004	0.014	0.018	0.012	0.015	0.010	0	0.005
18	0.016	0.011	0.016	0.016	0.018	0.007	0.015	0.018	0.012	0.015	0.010	0	0.005
19	0.015	0.017	0.015	0.015	0.009	0.008	0.014	0.018	0.012	0.015	0.010	0	0.005
20	0.012	0.016	0.020	0.015	0.016	0.008	0.016	0.018	0.012	0.015	0.010	0	0.005
21	0.014	0.015	0.019	0.013	0.015	0.006	0.015	0.018	0.012	0.015	0.010	0	0.005
22	0.017	0.015	0.015	0.017	0.019	0.004	0.017	0.018	0.012	0.015	0.010	0	0.005
23	0.015	0.017	0.014	0.015	0.014	0.003	0.015	0.018	0.012	0.015	0.010	0	0.005
24	0.014	0.009	0.015	0.014	0.013	0.006	0.013	0.018	0.012	0.015	0.010	0	0.005
25	0.016	0.012	0.015	0.016	0.013	0.004	0.014	0.018	0.012	0.015	0.010	0	0.005

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Component		4475_480_053_DES001		Characterisitic	AIC-3	Operator	RAJU	For Sub-group size n = 5		Sample Size - 125			
Specifications		0.00-0.04		LSL	0.000	USL	0.04	A ₂	0.577		D ₃	0	
Total Tolerance (T)		0.040		Section	RUNOUT	Machine No.	52	d ₂	2.326		D ₄	2.114	
Measuring Instrument		T.M+B.C		Least Count	0.001	Date	02.04.2024	X	0.017		R-Bar	0.005	
Sr.No. / Set No.	1	2	3	4	5	Range (R)	Average (X-Bar)	= UCL X + A ₂ * R-Bar	= LCL X - A ₂ * R-Bar	= X	UCL : D ₄ * R-Bar	LCL D ₃ * R-Bar	R-Bar
1	0.019	0.017	0.012	0.019	0.019	0.007	0.017	0.020	0.014	0.017	0.012	0	0.005
2	0.016	0.018	0.017	0.016	0.015	0.003	0.016	0.020	0.014	0.017	0.012	0	0.005
3	0.017	0.011	0.018	0.017	0.016	0.007	0.016	0.020	0.014	0.017	0.012	0	0.005
4	0.015	0.018	0.010	0.015	0.019	0.009	0.015	0.020	0.014	0.017	0.012	0	0.005
5	0.017	0.013	0.016	0.020	0.017	0.007	0.017	0.020	0.014	0.017	0.012	0	0.005
6	0.017	0.019	0.018	0.017	0.016	0.003	0.017	0.020	0.014	0.017	0.012	0	0.005
7	0.018	0.017	0.014	0.018	0.019	0.005	0.017	0.020	0.014	0.017	0.012	0	0.005
8	0.021	0.020	0.013	0.018	0.017	0.008	0.018	0.020	0.014	0.017	0.012	0	0.005
9	0.017	0.016	0.014	0.017	0.011	0.006	0.015	0.020	0.014	0.017	0.012	0	0.005
10	0.011	0.016	0.017	0.014	0.017	0.006	0.015	0.020	0.014	0.017	0.012	0	0.005
11	0.019	0.018	0.014	0.019	0.019	0.005	0.018	0.020	0.014	0.017	0.012	0	0.005
12	0.015	0.019	0.019	0.015	0.015	0.004	0.017	0.020	0.014	0.017	0.012	0	0.005
13	0.016	0.017	0.021	0.016	0.017	0.005	0.017	0.020	0.014	0.017	0.012	0	0.005
14	0.019	0.017	0.017	0.019	0.021	0.004	0.019	0.020	0.014	0.017	0.012	0	0.005
15	0.017	0.019	0.011	0.017	0.016	0.008	0.016	0.020	0.014	0.017	0.012	0	0.005
16	0.016	0.014	0.017	0.012	0.015	0.005	0.015	0.020	0.014	0.017	0.012	0	0.005
17	0.018	0.014	0.017	0.018	0.010	0.008	0.015	0.020	0.014	0.017	0.012	0	0.005
18	0.018	0.016	0.018	0.018	0.021	0.005	0.018	0.020	0.014	0.017	0.012	0	0.005
19	0.017	0.019	0.017	0.017	0.017	0.002	0.017	0.020	0.014	0.017	0.012	0	0.005
20	0.017	0.018	0.019	0.017	0.018	0.002	0.018	0.020	0.014	0.017	0.012	0	0.005
21	0.016	0.012	0.021	0.016	0.017	0.009	0.016	0.020	0.014	0.017	0.012	0	0.005
22	0.019	0.017	0.017	0.019	0.021	0.004	0.019	0.020	0.014	0.017	0.012	0	0.005
23	0.017	0.019	0.016	0.017	0.016	0.003	0.017	0.020	0.014	0.017	0.012	0	0.005
24	0.016	0.011	0.017	0.016	0.018	0.007	0.016	0.020	0.014	0.017	0.012	0	0.005
25	0.018	0.013	0.017	0.018	0.015	0.005	0.016	0.020	0.014	0.017	0.012	0	0.005

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