

Table 6.12**Measurement of roundness by Dial gauge deflections of 10-mm Diameter Mild Steel (MS) Round Bar After Straightening**

Mean values of Dial Gauge Deflection Readings after straightening of 10 mm Mild Steel (MS) round bar x 0.01 mm

Length in cm	Angles in Degrees																								STD DEV (mm)
	0°	15°	30°	45°	60°	75°	90°	105°	120°	135°	150°	165°	180°	195°	210°	225°	240°	255°	270°	285°	300°	315°	330°	345°	
14.5	153.0	152.5	152.0	152.0	152.0	151.8	151.5	151.3	151.0	151.3	151.5	151.8	152.0	152.3	152.5	152.8	153.0	153.0	153.0	153.3	153.5	153.3	153.0	153.0	0.0074
17	146.0	146.0	146.0	146.0	146.0	146.0	146.0	145.8	145.5	145.8	146.0	145.8	145.5	146.0	146.5	146.5	146.5	146.8	147.0	146.8	146.5	146.8	147.0	146.5	0.0045
20	144.0	144.8	145.5	145.5	145.5	145.5	145.5	145.5	145.5	146.0	146.5	146.5	146.5	146.5	146.5	146.5	146.5	146.5	146.5	146.3	146.0	146.0	146.0	146.3	0.0064
23.5	147.5	147.3	147.0	147.3	147.5	147.5	147.5	147.8	148.0	148.0	148.0	148.3	148.5	148.5	148.5	148.5	148.5	148.5	148.5	148.5	148.5	148.5	148.5	148.3	0.0051
26	146.5	147.0	147.5	147.3	147.0	147.3	147.5	147.3	147.0	146.8	146.5	146.8	147.0	147.5	148.0	148.0	148.0	147.5	147.0	147.0	147.0	147.0	147.0	147.0	0.0042
29	145.0	145.0	145.0	145.3	145.5	145.5	145.5	145.3	145.0	145.0	145.0	145.3	145.5	145.3	145.0	145.3	145.5	145.0	144.5	145.5	146.5	146.3	146.0	146.0	0.0046
31.5	145.0	145.0	145.0	145.3	145.5	145.5	145.5	144.8	144.0	144.3	144.5	144.0	143.5	144.3	145.0	145.0	145.0	145.3	145.5	145.8	146.0	146.0	146.0	146.0	0.007
34	144.0	145.0	146.0	145.5	145.0	144.8	144.5	144.8	145.0	144.5	144.0	144.0	144.0	144.5	145.0	145.0	145.0	145.3	145.5	145.8	146.0	146.3	146.5	146.5	0.0078
37	145.0	145.3	145.5	145.8	146.0	145.5	145.0	145.5	146.0	145.5	145.0	145.0	145.0	145.0	145.0	144.8	144.5	145.0	145.5	145.5	145.5	146.0	146.5	146.3	0.005
40	143.5	143.5	143.5	143.5	143.5	143.3	143.0	143.8	144.5	144.3	144.0	144.0	144.0	144.0	144.0	144.3	144.5	144.3	144.0	144.3	144.5	144.3	144.0	144.0	0.0041
43	142.0	142.0	142.0	142.3	142.5	142.0	141.5	141.8	142.0	141.8	141.5	141.0	140.5	141.3	142.0	142.0	142.0	142.0	142.0	141.8	141.5	141.8	142.0	142.3	0.0043
46	147.0	147.3	147.5	147.3	147.0	147.3	147.5	147.5	147.5	147.3	147.0	146.8	146.5	146.5	146.5	146.5	146.5	147.0	147.5	147.3	147.0	147.0	147.0	147.0	0.0035
49	143.0	143.0	143.0	142.8	142.5	143.5	144.5	143.3	142.0	142.5	143.0	142.8	142.5	142.5	142.5	142.5	142.5	142.8	143.0	143.3	143.5	143.5	143.5	143.5	0.0053
52	144.0	144.3	144.5	144.3	144.0	144.0	144.0	143.8	143.5	143.3	143.0	143.0	143.0	143.0	143.0	143.3	143.5	143.8	144.0	144.3	144.5	144.5	144.5	144.3	0.0055
55	144	144.3	144.5	144.3	144	144.0	144	144.0	144	143.8	143.5	143.5	143.5	143.5	143.5	143.8	144	144.3	144.5	144.3	144	144.3	144.5	144.5	0.0034
58	143	143.0	143	142.5	142	143.0	143.5	143.0	143	143.0	142.5	142.0	143	143.0	142.5	142.5	142.5	143.0	143	143.0	143.5	143.5	144	144.8	0.0059
61	142	142.3	142.5	142.3	142	142.3	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.8	143	142.8	142.5	142.8	143	143.0	143	143.0	0.003
64	142.5	143.0	143.5	143.0	142.5	142.5	142.5	142.3	142	142.0	142	141.5	141	141.3	141.5	141.5	141.5	141.3	141	141.3	141.5	141.8	142	142.0	0.0067
67	141.5	142.0	142.5	141.8	141	141.8	142.5	142.3	142	142.0	142	141.8	141.5	141.5	141.5	141.5	141.5	141.5	141.5	141.5	141.5	141.0	140.5	141.0	0.0047
70	140.5	140.3	140	140.0	140	140.3	140.5	140.3	140	140.0	140	140.0	140	140.0	140	140.3	140.5	140.0	139.5	140.0	140.5	140.5	140.5	140.8	0.0028
73	138.5	139.8	141	141.0	141	140.5	140	140.3	140.5	141.0	141.5	141.0	140.5	140.5	140.5	140.3	140	140.3	140.5	140.8	141	140.8	140.5	140.5	0.0059
76	141.5	141.0	140.5	141.3	142	142.0	142	141.8	141.5	141.5	141.5	141.3	141	141.0	141	141.3	141.5	141.0	140.5	141.3	142	141.8	141.5	141.5	0.0043
79	141	140.3	139.5	140.0	140.5	140.8	141	141.3	141.5	141.0	140.5	140.8	141	140.8	140.5	140.5	140.5	140.8	141	140.8	140.5	140.8	141	141.0	0.0041
82	138	137.3	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	136.5	0.0034
85	137.5	137.8	138	137.5	137	137.3	137.5	138.0	138.5	138.0	137.5	137.5	137.5	137.3	137	137.3	137.5	138.3	139	139.3	139.5	138.8	138	138.0	0.0069

88	137.5	137.8	138	138.3	138.5	138.5	138.5	138.3	138	138.3	138.5	138.5	138.5	138.5	138.5	138.5	138.5	138.5	138.5	138.3	138	138.0	138	138.0	0.0029
91	137	136.8	136.5	136.8	137	137.0	137	137.3	137.5	137.5	137.5	137.8	138	138.0	138	138.3	138.5	138.3	138	138.3	138.5	138.3	138	137.8	0.006
94	135.5	135.8	136	136.3	136.5	136.5	136.5	136.8	137	136.8	136.5	136.8	137	137.0	137	137.0	137	137.0	137	137.5	138	137.5	137	136.8	0.0055
97	136	136.0	136	136.0	136	136.0	136	136.3	136.5	136.5	136.5	136.8	137	137.0	137	137.3	137.5	137.5	137.5	137.3	137	136.8	136.5	136.3	0.0054
100	135.5	135.3	135	135.3	135.5	135.5	135.5	135.5	135.5	135.5	135.5	135.3	135	135.5	136	136.0	136	136.0	136	136.0	136	136.0	136	136.0	0.0035
104.5	134.5	134.5	134.5	134.5	134.5	134.8	135	135.0	135	135.0	135	135.0	135	135.0	135	134.8	134.5	134.8	135	135.0	135	135.0	135	135.0	0.0022
107.5	137.5	137.8	138	138.3	138.5	138.5	138.5	138.3	138	138.0	138	138.0	138	138.0	138	138.0	138	138.0	138	138.3	138.5	138.3	138	138.0	0.0024
110.5	140.5	141.0	141.5	141.5	141.5	141.5	141.5	141.3	141	141.0	141	141.0	141	140.5	140	140.3	140.5	140.3	140	140.5	141	140.8	140.5	140.8	0.0048
113.5	141.5	141.8	142	142.3	142.5	142.5	142.5	142.8	143	142.8	142.5	142.0	141.5	141.5	141.5	141.3	141	141.0	141	141.0	141	141.0	141	141.3	0.0069
116.5	142	142.5	143	143.0	143	143.0	143	143.0	143	143.0	143	142.3	141.5	141.3	141	141.0	141	141.3	141.5	141.5	141.5	141.8	142	142.0	0.0078
119.5	142.5	142.8	143	143.0	143	143.0	143	142.5	142	142.0	142	141.8	141.5	141.3	141	141.3	141.5	141.5	141.5	141.3	141	141.3	141.5	142.0	0.0071

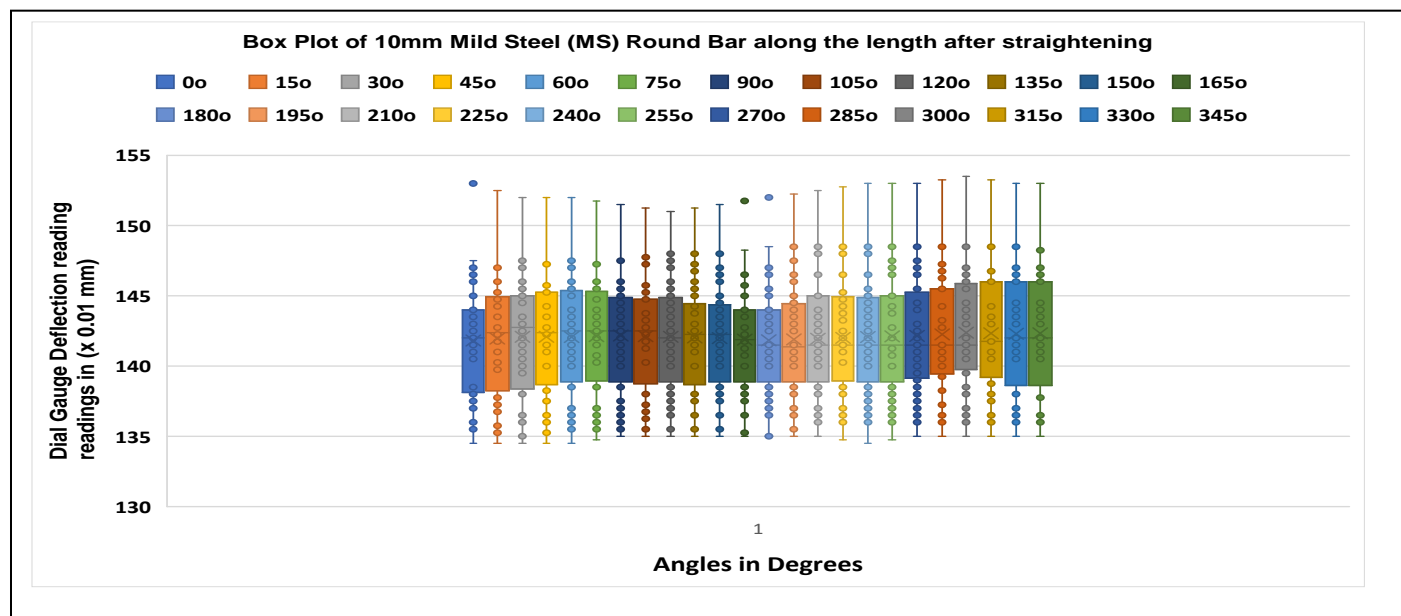


Figure 6.17(a): Box Plot of dial gauge readings dataset of mean values of 10-mm diameter Mild Steel (MS) round bar before straightening

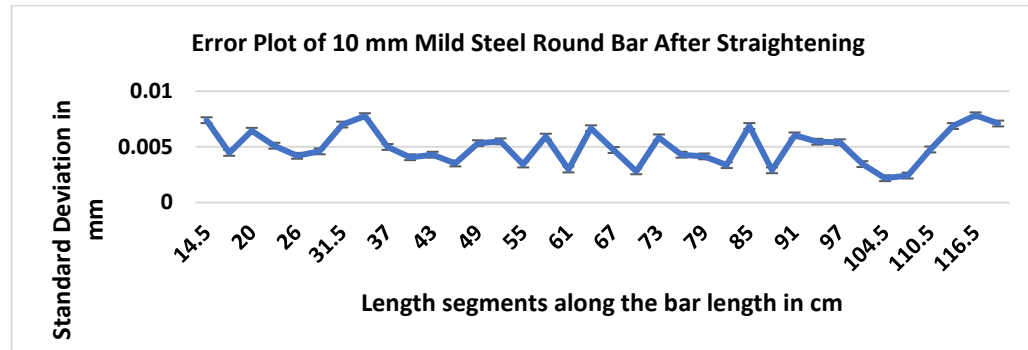


Figure 6.17(b): Error Plot of dial gauge readings on 10 mm Mild Steel Round Bar after straightening