Measurement of roundness by Dial gauge deflections of 6-mm Diameter Mild Steel (MS) Round Bar After Straightening

Mean values of Dial Gauge Deflection Readings after straightening of 6 mm MS round bar x 0.01 mm

	Angles in Degrees																							
Length in cm	0º	15º	30º	45º	60º	75º	90º	105º	120º	135º	150º	165º	180º	195º	210º	225º	240º	255º	270º	285º	300º	315º	330º	345º	STD DEV (mm)
16.3	191	191	193	194	193	194	193	192	190	189	187	184	181	179	179	178	181	182	181	183	187	189	191	190	0.0538
20.0	183	181	183	183	184	183	184	183	187	190	189	183	183	182	177	175	174	177	178	175	177	178	179	181	0.0427
25.0	182	177	179	178	181	183	180	182	183	184	185	183	184	182	178	177	178	180	178	180	182	183	182	183	0.0389
30.0	177	174	176	178	179	182	183	184	185	186	185	186	184	183	182	184	182	181	182	178	183	179	178	177	0.0378
35.0	178	180	178	177	179	182	181	183	182	184	186	183	185	183	182	181	182	180	182	182	184	180	179	177	0.0288
40.0	176	177	175	178	177	178	179	178	178	180	182	183	182	183	181	182	181	178	177	178	182	178	175	176	0.0364
45.0	177	173	177	173	176	175	178	179	177	178	179	177	182	180	182	181	182	181	180	178	183	181	178	176	0.0345
50.0	175	176	175	174	174	175	176	178	176	177	178	180	179	181	182	181	178	177	178	179	181	183	180	176	0.0411
55.0	177	174	176	174	175	175	177	176	175	173	177	176	174	178	180	181	183	183	181	179	180	179	178	175	0.0289
60.0	176	175	173	174	175	175	178	177	175	173	176	175	177	172	173	175	176	173	174	176	175	176	175	174	0.0289
65.0	174	175	176	178	176	177	179	175	176	175	174	176	174	174	172	173	174	177	175	177	179	174	175	173	0.0377
70.0	176	174	171	174	176	176	175	173	172	173	175	174	173	173	172	174	173	176	174	176	179	176	175	175	0.0311
75.0	176	175	175	174	178	176	177	175	174	172	174	175	174	173	175	176	175	176	173	176	175	178	177	175	0.0133
80.0	180	177	183	181	183	182	185	183	178	178	183	182	181	184	182	183	184	183	181	184	182	184	183	182	0.0285
85.0	182	183	189	190	185	189	190	193	192	194	193	189	185	183	185	186	189	191	192	190	188	184	184	183	0.0476
93.0	183	187	186	187	188	192	187	187	183	184	183	184	182	184	188	193	192	197	196	196	190	188	184	183	0.0573

Measurement of roundness by Dial gauge deflections of 8-mm Diameter Mild Steel (MS) Round Bar After Straightening

Mean values of Dial Gauge Deflection Readings after straightening of 8 mm Mild Steel (MS) round bar x 0.01 mm

	Angles in Degrees																							
Length in cm	**0º**	**15º**	**30º**	**45º**	**60º**	**75º**	**90º**	**105º**	**120º**	**135º**	**150º**	**165º**	**180º**	**195º**	**210º**	**225º**	**240º**	**255º**	**270º**	**285º**	**300º**	**315º**	**330º**	**345º**	**STD DEV (mm)**
12	163	166	162	158	155	153	150	148	146	147	149	155	159	167	149	149	153	158	159	160	159	158	155	152	0.0599
17	155	150	149	145	141	142	138	135	137	138	145	148	152	155	135	140	145	150	155	157	157	158	157	154	0.0771

22	153	153	150	148	146	146	142	139	142	143	138	137	140	138	135	142	136	141	145	151	154	156	156	154	0.0674
27	152	149	148	146	144	143	140	140	144	146	143	142	143	140	138	135	140	143	142	143	142	145	148	149	0.0391
32	148	143	143	143	142	142	139	142	143	145	144	143	142	144	143	140	142	140	142	140	138	134	137	140	0.0288
36	147	146	144	146	145	142	140	145	146	144	141	144	142	140	144	142	140	142	144	143	143	142	139	141	0.0221
40	150	147	143	145	144	146	142	144	144	143	140	142	144	142	141	142	139	138	140	142	140	141	142	143	0.0265
45	149	148	146	147	146	144	144	142	145	144	143	141	142	144	138	141	138	140	141	141	144	142	144	146	0.0287
50	147	149	145	145	144	146	145	144	146	145	143	141	137	138	138	134	141	138	140	142	144	141	140	143	0.0367
55	148	147	143	144	145	144	142	143	145	146	145	134	136	135	136	137	139	141	137	137	141	143	145	146	0.0421
60	146	145	144	143	146	142	144	142	143	141	142	143	143	141	137	137	137	137	137	135	135	141	143	144	0.0353
65	145	143	142	144	145	144	143	143	141	145	138	139	140	140	138	136	135	133	133	133	132	140	141	143	0.0422
70	147	146	143	142	144	143	142	144	142	144	143	139	143	144	144	139	142	139	143	141	143	144	143	145	0.0198
75	149	144	147	145	146	145	144	142	143	143	141	145	144	146	144	146	142	145	144	143	141	143	145	147	0.0195
80	145	146	145	146	145	143	141	143	144	146	145	146	145	146	143	144	146	145	147	144	147	145	144	147	0.0147
85	148	145	146	145	144	142	142	141	142	144	143	142	141	142	143	142	144	143	142	140	139	141	143	145	0.0201
90	144	143	142	144	143	140	141	144	143	145	144	143	142	141	142	144	142	144	143	142	140	142	141	143	0.0135
95	143	145	144	142	145	142	143	143	144	146	145	144	142	141	143	142	145	143	144	141	143	144	143	141	0.0139
101.3	146	144	143	143	147	145	144	142	142	145	143	142	144	143	142	144	142	145	142	144	142	143	142	144	0.0141
106.3	147	145	144	146	145	143	145	144	145	143	145	143	142	144	143	142	144	142	144	143	141	142	143	145	0.0145
111.3	144	142	143	145	143	141	144	146	143	141	140	142	141	142	140	141	130	144	143	142	144	141	142	143	0.0297
116.3	148	146	144	143	142	140	142	143	141	139	138	141	144	139	143	139	141	142	144	143	142	143	144	145	0.0237
121.3	148	145	139	141	139	137	137	139	135	136	140	138	140	136	136	137	138	140	140	139	138	140	142	144	0.0314
126.3	144	141	138	139	137	135	136	135	136	137	138	136	138	140	142	143	144	141	139	141	143	144	145	146	0.0339
131.3	141	136	137	136	135	136	132	134	134	135	135	134	134	135	134	133	133	133	135	134	135	137	139	142	0.0251
136.3	139	128	126	131	133	134	136	118	118	122	132	127	129	129	128	130	129	127	128	126	125	134	136	138	0.0556
141.3	136	116	116	115	118	120	119	120	127	128	129	129	130	130	129	128	129	128	125	122	120	117	118	113	0.062

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

	Angles in Degrees																							
Length in cm	**0º**	**15º**	**30º**	**45º**	**60º**	**75º**	**90º**	**105º**	**120º**	**135º**	**150º**	**165º**	**180º**	**195º**	**210º**	**225º**	**240º**	**255º**	**270º**	**285º**	**300º**	**315º**	**330º**	**345º**	**STD DEV (mm)**
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

Measurement of roundness by Dial gauge deflections of 12-mm Diameter Mild Steel (MS) Round Bar After Straightening

Mean values of Dial Gauge Deflection Readings after straightening of 12 mm Mild Steel (MS) round bar x 0.01 mm

	Angles in Degrees																								
Length in cm	**0º**	**15º**	**30º**	**45º**	**60º**	**75º**	**90º**	**105º**	**120º**	**135º**	**150º**	**165º**	**180º**	**195º**	**210º**	**225º**	**240º**	**255º**	**270º**	**285º**	**300º**	**315º**	**330º**	**345º**	**STD DEV (mm)**
10.5	93.0	94	95.0	97	99.0	101	102.0	104	105.0	107	108.0	109	109.0	109	108.0	107	105.0	103	101.0	99.5	98.0	96.8	95.5	94.8	0.0527
15	59.0	58.5	58.0	58.5	59.0	59	59.0	59	59.0	59	59.0	59.8	60.5	60.3	60.0	60	60.0	60	60.0	60	60.0	59.8	59.5	59.3	0.0065
20	57.0	57	57.0	57	57.0	57	57.0	56.8	56.5	57	57.5	58	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.3	58.0	58	0.0074
22	57.0	57.5	58.0	59.5	61.0	61.5	62.0	63	64.0	64.5	65.0	65.5	66.0	65.5	65.0	64	63.0	62.5	62.0	60.5	59.0	57.5	56.0	56	0.0324
24.5	56.5	56.5	56.5	56.3	56.0	55.8	55.5	55.5	55.5	55.8	56.0	56.3	56.5	57	57.5	57.3	57.0	57	57.0	57.3	57.5	58	58.5	57.8	0.0083
31	56.0	55.5	55.0	55	55.0	54.8	54.5	54.5	54.5	54.8	55.0	55.5	56.0	56.3	56.5	56.3	56.0	56.3	56.5	56.8	57.0	57	57.0	57	0.0089
32	55.0	55.5	56.0	56.5	57.0	58	59.0	59	59.0	59.5	60.0	59.5	59.0	58.5	58.0	57	56.0	55.5	55.0	54.5	54.0	54	54.0	54	0.0206
35	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.3	54.0	54.3	54.5	54.8	55.0	55.3	55.5	55.5	55.5	55.5	55.5	55.3	55.0	54.8	0.0047
40	53.0	53.5	54	54	54.0	54	54.0	54.3	54.5	54.3	54.0	54	54.0	54	54.0	54.5	55.0	55	55.0	55	55.0	55	55.0	54.8	0.0055
42	53.0	53.3	53.5	54.8	56.0	56.3	56.5	56.5	56.5	56.5	56.5	56.5	56.5	55.8	55.0	53.8	52.5	52	51.5	51.5	51.5	51.3	51.0	51	0.0218
45	54.5	54	53.5	53.5	53.5	53.8	54.0	54	54.0	53.8	53.5	53.5	53.5	53.5	53.5	53.8	54.0	54	54.0	54	54.0	54	54.0	54.3	0.0028

48	52.0	51.5	51.0	51	51.0	51.5	52.0	52	52.0	52.5	53.0	53	53.0	53	53.0	53	53.0	52.5	52.0	52	52.0	51.5	51.0	51	0.0076
52.5	51.0	51.3	51.5	52.3	53.0	53	53.0	53	53.0	52.8	52.5	52	51.5	51	50.5	50	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.8	0.0142
62	51.0	51	51.0	51.5	52.0	52.3	52.5	52.3	52.0	52	52.0	52	52.0	51.5	51.0	51	51.0	51	51.0	54	57.0	54	51.0	51	0.0138
72	51.0	51.5	52.0	51	50.0	51.5	53.0	52	54.0	52	51.0	53	54.0	51	50.0	51.5	53.0	55	56.0	54	52.0	53	54.0	53	0.0153
82	52.0	52.5	53.0	52	51.0	51.5	52.0	52	53.0	51	52.0	51.5	51.0	52	53.0	52	51.0	52	53.0	52.5	52.0	51.5	51.0	52	0.0066
92	51.0	51.5	52.0	53	54.0	52.5	51.0	51.5	52.0	52.5	53.0	52.5	52.0	51.5	51.0	51.5	52.0	52.5	53.0	52	51.0	52	53.0	52	0.0078
103	57.5	54	50.5	50.5	50.5	50.8	51.0	51	51.0	51	51.0	51	51.0	51	51.0	51	51.0	51	51.0	51	51.0	51	51.0	51	0.0147
112	51.0	51	51.0	51	51.0	51.3	51.5	51.8	52.0	52	52.0	52	52.0	52	52.0	51.8	51.5	51.3	51.0	51	51.0	51	51.0	51	0.0045
121	53.0	53	53.0	54.3	55.5	55.8	56.0	56.3	56.5	56.5	56.5	56.8	57.0	57	57.0	56.5	56.0	55	54.0	54	54.0	53.8	53.5	53.5	0.0146