|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Table 6.10 Measurement of roundness by Dial gauge deflections of 6-mm Diameter Mild Steel (MS) Round Bar** | | | | | | | | | | | | | | | | | | | | | | | |  |
|  | **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 |



**Figure 6.15(a): Box Plot of dial gauge readings dataset of mean values of 6-mm diameter Mild Steel (MS) round bar before straightening**

**Figure 6.15(b): Error Plot of dial gauge readings on 6 mm Mild Steel Round Bar after straightening**