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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Table 5.8** **Measurement of roundness by Dial gauge deflections of 6-mm Diameter Stainless Steel (SS) Round Bar** | | | | | | | | | | | | | | | | | | | | | | | |  |
|  | Mean values of Dial Gauge Deflection Readings before straightening of 6 mm Stainless Steel (SS) 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) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | 193 | 193 | 191 | 188 | 185 | 181 | 178 | 172 | 166 | 160 | 157 | 153 | 151 | 149 | 153 | 157 | 160 | 165 | 174 | 179 | 185 | 188 | 191 | 194 | 0.1571756 |
| 20 | 193 | 196 | 195 | 194 | 191 | 188 | 183 | 178 | 174 | 165 | 159 | 155 | 152 | 150 | 151 | 153 | 156 | 161 | 167 | 174 | 179 | 185 | 189 | 192 | 0.1652068 |
| 25 | 193 | 195 | 196 | 196 | 196 | 193 | 190 | 185 | 189 | 174 | 167 | 161 | 158 | 155 | 154 | 155 | 158 | 163 | 166 | 172 | 179 | 184 | 189 | 192 | 0.1569338 |
| 30 | 203 | 205 | 208 | 206 | 205 | 201 | 200 | 193 | 188 | 182 | 176 | 171 | 165 | 160 | 158 | 160 | 163 | 166 | 170 | 177 | 180 | 188 | 193 | 198 | 0.1713299 |
| 35 | 192 | 196 | 198 | 199 | 199 | 197 | 194 | 190 | 185 | 179 | 172 | 164 | 159 | 152 | 150 | 150 | 152 | 155 | 159 | 164 | 171 | 176 | 183 | 188 | 0.1789761 |
| 40 | 195 | 199 | 202 | 203 | 204 | 204 | 201 | 198 | 193 | 187 | 182 | 175 | 170 | 164 | 161 | 157 | 158 | 160 | 165 | 168 | 175 | 182 | 189 | 195 | 0.166811 |
| 45 | 193 | 197 | 201 | 203 | 202 | 201 | 199 | 194 | 188 | 182 | 174 | 167 | 162 | 156 | 152 | 153 | 153 | 156 | 160 | 164 | 169 | 176 | 180 | 186 | 0.1828295 |
| 50 | 183 | 187 | 190 | 190 | 191 | 190 | 186 | 181 | 175 | 169 | 164 | 159 | 155 | 150 | 147 | 146 | 145 | 147 | 151 | 156 | 162 | 167 | 175 | 179 | 0.1646261 |
| 54 | 189 | 188 | 184 | 179 | 173 | 168 | 162 | 155 | 149 | 146 | 142 | 144 | 145 | 149 | 153 | 160 | 166 | 173 | 180 | 184 | 189 | 192 | 192 | 193 | 0.1790312 |
| 57.5 | 190 | 188 | 184 | 178 | 172 | 164 | 159 | 153 | 147 | 143 | 141 | 142 | 144 | 148 | 152 | 158 | 164 | 169 | 176 | 180 | 184 | 188 | 190 | 190 | 0.1773246 |
| 62.5 | 189 | 187 | 183 | 177 | 170 | 164 | 157 | 161 | 145 | 144 | 144 | 145 | 146 | 150 | 157 | 163 | 168 | 174 | 179 | 184 | 187 | 188 | 189 | 190 | 0.1685938 |
| 66.5 | 177 | 172 | 169 | 163 | 157 | 151 | 146 | 144 | 141 | 142 | 143 | 146 | 150 | 158 | 164 | 169 | 175 | 179 | 183 | 186 | 188 | 189 | 188 | 187 | 0.1714039 |
| 71.5 | 184 | 180 | 176 | 171 | 165 | 158 | 153 | 148 | 146 | 145 | 148 | 149 | 151 | 155 | 161 | 165 | 172 | 177 | 181 | 184 | 187 | 188 | 189 | 188 | 0.1558879 |
| 75.3 | 178 | 177 | 174 | 168 | 160 | 155 | 152 | 147 | 147 | 147 | 150 | 152 | 155 | 160 | 165 | 172 | 178 | 184 | 187 | 189 | 190 | 191 | 188 | 187 | 0.1587746 |



Figure 5.6(a): Box Plot of dial gauge readings dataset of mean values of 6-mm diameter Stainless Steel (SS) round bar before straightening

Figure 5.6(b): Error Plot of 6 mm Stainless Steel (SS) Round Bar Before Straightening