|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Table 6.25 Measurement of roundness by Dial gauge deflections of 12-mm Diameter Copper (Cu) Round Bar** | | | | | | | | | | | | | | | | | | | | | | | |  |
|  | **Mean values of Dial Gauge Deflection Readings after straightening of 12 mm Copper (Cu) 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 | 138 | 138 | 138 | 138 | 138 | 139 | 140 | 140 | 140 | 139 | 139 | 139 | 139 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 0.0086 |
| 15 | 137 | 136 | 136 | 135 | 135 | 135 | 136 | 136 | 136 | 136 | 136 | 136 | 137 | 136 | 136 | 136 | 137 | 137 | 137 | 136 | 136 | 136 | 136 | 136 | 0.0057 |
| 19 | 133 | 133 | 134 | 133 | 132 | 133 | 134 | 134 | 134 | 133 | 133 | 134 | 135 | 134 | 134 | 133 | 133 | 133 | 134 | 134 | 134 | 133 | 133 | 133 | 0.007 |
| 24 | 133 | 134 | 134 | 133 | 133 | 133 | 133 | 133 | 133 | 134 | 134 | 135 | 135 | 135 | 134 | 134 | 135 | 135 | 135 | 135 | 134 | 134 | 134 | 134 | 0.0078 |
| 29 | 137 | 136 | 136 | 135 | 134 | 135 | 135 | 136 | 136 | 136 | 136 | 136 | 137 | 136 | 135 | 135 | 136 | 136 | 136 | 136 | 136 | 136 | 135 | 136 | 0.0061 |
| 34 | 134 | 134 | 134 | 133 | 131 | 132 | 133 | 133 | 133 | 133 | 133 | 133 | 133 | 133 | 133 | 132 | 132 | 132 | 133 | 132 | 132 | 132 | 133 | 133 | 0.0063 |
| 39 | 136 | 136 | 136 | 135 | 134 | 135 | 136 | 136 | 135 | 135 | 135 | 135 | 136 | 136 | 136 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 134 | 135 | 0.0052 |
| 43.5 | 133 | 132 | 131 | 130 | 129 | 130 | 130 | 130 | 130 | 130 | 129 | 129 | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 131 | 132 | 131 | 130 | 131 | 0.0092 |
| 49 | 131 | 130 | 130 | 129 | 129 | 129 | 129 | 129 | 129 | 128 | 128 | 129 | 129 | 129 | 129 | 128 | 127 | 127 | 128 | 129 | 130 | 129 | 129 | 129 | 0.0096 |
| 56 | 131 | 131 | 131 | 129 | 128 | 128 | 129 | 129 | 129 | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 128 | 129 | 129 | 130 | 130 | 130 | 130 | 0.0102 |
| 62 | 134 | 135 | 136 | 136 | 136 | 135 | 135 | 135 | 135 | 135 | 136 | 135 | 134 | 134 | 135 | 134 | 134 | 135 | 135 | 135 | 135 | 135 | 136 | 135 | 0.0056 |
| 67 | 133 | 134 | 135 | 135 | 135 | 134 | 133 | 134 | 134 | 134 | 134 | 133 | 132 | 133 | 134 | 134 | 135 | 134 | 134 | 134 | 134 | 134 | 135 | 134 | 0.0077 |
| 72 | 136 | 137 | 138 | 138 | 138 | 137 | 137 | 137 | 137 | 137 | 137 | 136 | 135 | 136 | 137 | 137 | 137 | 137 | 136 | 136 | 136 | 137 | 137 | 137 | 0.0082 |
| 77 | 135 | 135 | 136 | 136 | 137 | 136 | 135 | 135 | 135 | 135 | 135 | 135 | 134 | 135 | 135 | 135 | 136 | 135 | 135 | 135 | 134 | 135 | 136 | 135 | 0.0059 |
| 82 | 134 | 135 | 135 | 135 | 135 | 135 | 134 | 134 | 134 | 134 | 135 | 135 | 135 | 135 | 135 | 135 | 136 | 135 | 135 | 134 | 134 | 135 | 136 | 136 | 0.0055 |
| 87 | 139 | 139 | 139 | 139 | 140 | 139 | 138 | 138 | 138 | 138 | 138 | 137 | 137 | 137 | 138 | 139 | 139 | 139 | 138 | 138 | 138 | 139 | 140 | 139 | 0.0087 |
| 91.5 | 143 | 143 | 144 | 143 | 143 | 142 | 142 | 143 | 143 | 143 | 142 | 142 | 142 | 142 | 142 | 142 | 142 | 142 | 143 | 143 | 143 | 143 | 143 | 143 | 0.0049 |
| 96.5 | 161 | 161 | 161 | 161 | 162 | 162 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 164 | 164 | 164 | 161 | 159 | 157 | 154 | 154 | 154 | 157 | 0.033 |



**Figure 6.30(a): Box Plot of dial gauge readings dataset of mean values of 12-mm diameter Copper (Cu) round bar before straightening**

**Figure 6.30(b): Error Plot of dial gauge readings on 12 mm Copper Round Bar after straightening**