

圆弧齿同步带传动 带轮

1 主题内容与适用范围

本标准规定了圆弧齿同步带传动中带轮的型号、轮齿尺寸及极限偏差、带轮尺寸及极限偏差、带轮的形位公差和标记。

本标准适用于一般工业用圆弧齿同步带传动中的带轮。

2 引用标准

GB 11357 带轮材质、表面粗糙度及平衡

3 带轮槽型和轮齿尺寸

带轮的槽型为 3M、5M、8M、14M 和 20M 等五种。

3.1 轮齿的形状和尺寸

圆弧齿同步带传动的带轮轮齿形状、基本尺寸及极限偏差见图 1 和表 1。

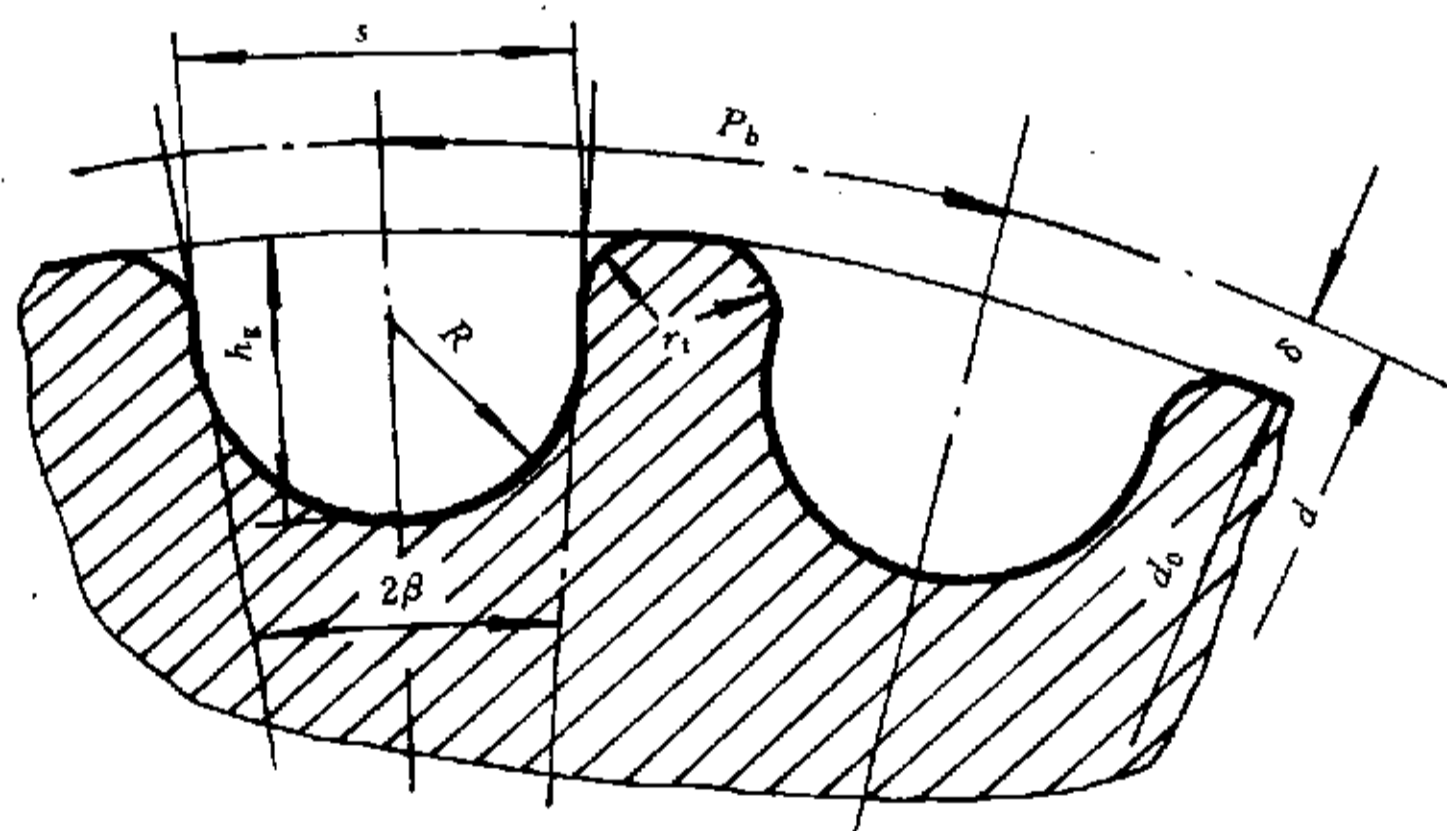


图 1

表 1 圆弧齿同步带轮轮齿

mm

| 槽型 | 节距 P_b | 齿槽深 h_g | 齿槽圆弧半径 R | 齿顶圆角半径 r_t | 齿槽宽 s | 两倍节顶距 2δ | 齿形角 2β |
|-----|-------------|--------------|---------------|-----------------|------------|--------------------|--------------------|
| 3M | 3 | 1.28 | 0.91 | 0.26~0.35 | 1.90 | 0.762 | $\approx 14^\circ$ |
| 5M | 5 | 2.16 | 1.56 | 0.48~0.52 | 3.25 | 1.144 | $\approx 14^\circ$ |
| 8M | 8 | 3.54 | 2.57 | 0.78~0.84 | 5.35 | 1.372 | $\approx 14^\circ$ |
| 14M | 14 | 6.20 | 4.65 | 1.36~1.50 | 9.80 | 2.794 | $\approx 14^\circ$ |
| 20M | 20 | 8.60 | 6.84 | 1.95~2.25 | 14.80 | 4.320 | $\approx 14^\circ$ |

3.2 节距偏差值

带轮相邻齿之间的节距偏差及在 90°弧内的累积偏差见表 2。

表 2 节距偏差

mm

| 带轮外径 d_o | 节 距 偏 差 | |
|------------------------|---------|---------|
| | 任意两相邻齿 | 90°弧内累积 |
| ≤ 25.40 | ±0.03 | ±0.05 |
| $> 25.40 \sim 50.08$ | | ±0.08 |
| $> 50.08 \sim 101.60$ | | ±0.10 |
| $> 101.60 \sim 177.80$ | | ±0.13 |
| $> 177.80 \sim 304.80$ | | ±0.15 |
| $> 304.80 \sim 508.00$ | | ±0.18 |
| > 508.00 | | ±0.20 |

4 带轮尺寸及极限偏差

4.1 带轮宽度

带轮的宽度尺寸见图 2 和表 3。

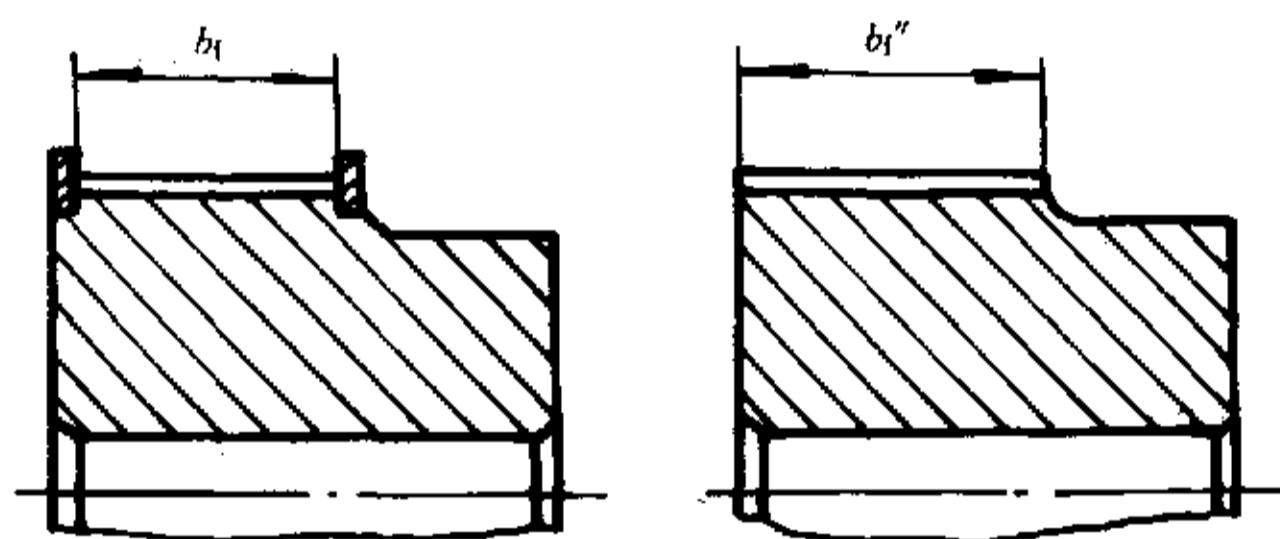


图 2

表 3 带轮宽度尺寸

mm

| 轮宽代号 | 槽 型 | | | | | | | | | |
|------|---------|---------|-------|---------|-------|---------|-------|---------|-------|---------|
| | 3M | | 5M | | 8M | | 14M | | 20M | |
| | 带 轮 宽 度 | | | | | | | | | |
| | b_1 | b_1^* | b_1 | b_1^* | b_1 | b_1^* | b_1 | b_1^* | b_1 | b_1^* |
| 6 | 7.3 | 11.0 | | | | | | | | |
| 9 | 10.3 | 14.0 | 10.3 | 14.0 | | | | | | |
| 15 | 16.3 | 20.0 | 16.3 | 20.0 | | | | | | |
| 20 | | | 21.3 | 25.0 | 21.7 | 28.0 | | | | |
| 25 | | | 26.3 | 30.0 | 26.7 | 33.0 | | | | |
| 30 | | | 31.3 | 35.0 | 31.7 | 38.0 | 32 | 40 | | |
| 40 | | | 41.3 | 45.0 | 41.7 | 48.0 | 42 | 50 | | |
| 50 | | | | | 52.7 | 59.0 | | | | |
| 55 | | | | | | | 58 | 66 | | |
| 60 | | | | | 62.7 | 69.0 | | | | |
| 70 | | | | | 72.7 | 79.0 | 73 | 81 | 78.5 | 85 |

续表 3

mm

| 轮宽代号 | 槽 型 | | | | | | | | | |
|------|---------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| | 3M | | 5M | | 8M | | 14M | | 20M | |
| | 带 轮 宽 度 | | | | | | | | | |
| | b_i | b_i' | b_i | b_i' | b_i | b_i' | b_i | b_i' | b_i | b_i' |
| 85 | | | | | 88.7 | 95.0 | 89 | 97 | 89.5 | 102 |
| 100 | | | | | | | 104 | 112 | 104.5 | 117 |
| 115 | | | | | | | 120 | 128 | 120.5 | 134 |
| 130 | | | | | | | 135 | 143 | 136 | 150 |
| 150 | | | | | | | 155 | 163 | 158 | 172 |
| 170 | | | | | | | 175 | 183 | 178 | 192 |
| 230 | | | | | | | | | 238 | 254 |
| 290 | | | | | | | | | 298 | 314 |
| 340 | | | | | | | | | 348 | 364 |

4.2 带轮的直径

4.2.1 带轮的齿数、节径和外径

带轮的齿数、节径和外径见图 3 和表 4-1~表 4-5。

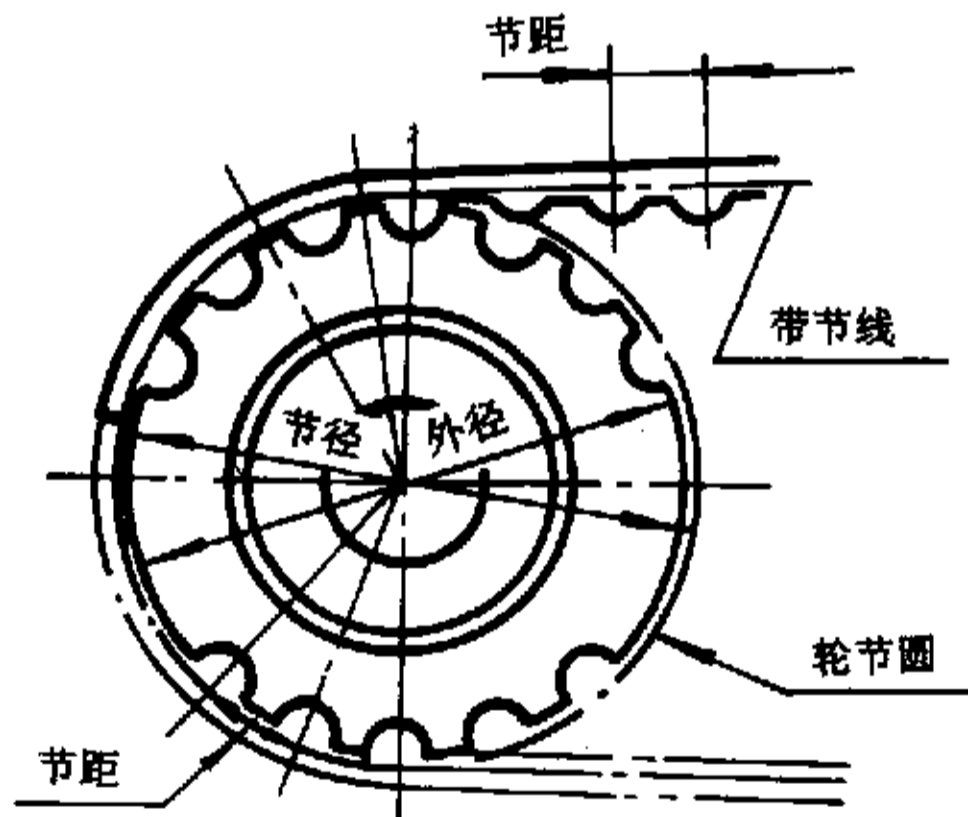


图 3

表 4-1 3M 带轮的基本尺寸

mm

| 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 |
|----|-----------|-------------|----|-----------|-------------|----|-----------|-------------|----|-----------|-------------|
| 10 | 9.55 | 8.79 | 17 | 16.23 | 15.47 | 24 | 22.92 | 22.16 | 31 | 29.60 | 28.84 |
| 11 | 10.50 | 9.74 | 18 | 17.19 | 16.43 | 25 | 23.87 | 23.11 | 32 | 30.56 | 29.80 |
| 12 | 11.46 | 10.70 | 19 | 18.14 | 17.38 | 26 | 24.83 | 24.07 | 33 | 31.51 | 30.75 |
| 13 | 12.41 | 11.65 | 20 | 19.10 | 18.34 | 27 | 25.78 | 25.02 | 34 | 32.47 | 31.71 |
| 14 | 13.37 | 12.61 | 21 | 20.05 | 19.29 | 28 | 26.74 | 25.98 | 35 | 33.42 | 32.66 |
| 15 | 14.32 | 13.56 | 22 | 21.01 | 20.25 | 29 | 27.69 | 26.93 | 36 | 34.38 | 33.62 |
| 16 | 15.28 | 14.52 | 23 | 21.96 | 21.20 | 30 | 28.65 | 27.89 | 37 | 35.33 | 34.57 |

续表 4-1

mm

| 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 |
|----|-----------|-------------|----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|
| 38 | 36.29 | 35.53 | 67 | 63.98 | 63.22 | 96 | 91.67 | 90.91 | 125 | 119.37 | 118.60 |
| 39 | 37.24 | 36.48 | 68 | 64.94 | 64.17 | 97 | 92.63 | 91.87 | 126 | 120.32 | 119.56 |
| 40 | 38.20 | 37.44 | 69 | 65.89 | 65.13 | 98 | 93.58 | 92.82 | 127 | 121.28 | 120.51 |
| 41 | 39.15 | 38.39 | 70 | 66.85 | 66.08 | 99 | 94.54 | 93.78 | 128 | 122.23 | 121.47 |
| 42 | 40.11 | 39.35 | 71 | 67.80 | 67.04 | 100 | 95.49 | 94.73 | 129 | 123.19 | 122.42 |
| 43 | 41.06 | 40.30 | 72 | 68.75 | 67.99 | 101 | 96.45 | 95.69 | 130 | 124.14 | 123.38 |
| 44 | 42.02 | 41.25 | 73 | 69.71 | 68.95 | 102 | 97.40 | 96.64 | 131 | 125.10 | 124.33 |
| 45 | 42.97 | 42.21 | 74 | 70.66 | 69.90 | 103 | 98.36 | 97.60 | 132 | 126.05 | 125.29 |
| 46 | 43.93 | 43.16 | 75 | 71.62 | 70.86 | 104 | 99.51 | 98.55 | 133 | 127.01 | 126.24 |
| 47 | 44.88 | 44.12 | 76 | 72.57 | 71.81 | 105 | 100.27 | 99.51 | 134 | 127.96 | 127.20 |
| 48 | 45.84 | 45.07 | 77 | 73.53 | 72.77 | 106 | 101.22 | 100.46 | 135 | 128.92 | 128.15 |
| 49 | 46.79 | 46.03 | 78 | 74.48 | 73.72 | 107 | 102.18 | 101.42 | 136 | 129.87 | 129.11 |
| 50 | 47.75 | 46.98 | 79 | 75.44 | 74.68 | 108 | 103.13 | 102.37 | 137 | 130.83 | 130.06 |
| 51 | 48.70 | 47.94 | 80 | 76.39 | 75.63 | 109 | 104.09 | 103.33 | 138 | 131.78 | 131.02 |
| 52 | 49.66 | 48.89 | 81 | 77.35 | 76.59 | 110 | 105.04 | 104.28 | 139 | 132.74 | 131.97 |
| 53 | 50.61 | 49.85 | 82 | 78.30 | 77.54 | 111 | 106.00 | 105.24 | 140 | 133.69 | 132.93 |
| 54 | 51.57 | 50.80 | 83 | 79.26 | 78.50 | 112 | 106.95 | 106.19 | 141 | 134.65 | 133.88 |
| 55 | 52.52 | 51.76 | 84 | 80.21 | 79.45 | 113 | 107.91 | 107.15 | 142 | 135.60 | 134.84 |
| 56 | 53.48 | 52.71 | 85 | 81.17 | 80.41 | 114 | 108.86 | 108.10 | 143 | 136.55 | 135.79 |
| 57 | 54.43 | 53.67 | 86 | 82.12 | 81.36 | 115 | 109.82 | 109.05 | 144 | 137.51 | 136.75 |
| 58 | 55.39 | 54.62 | 87 | 83.08 | 82.32 | 116 | 110.77 | 110.01 | 145 | 138.46 | 137.70 |
| 59 | 56.34 | 55.58 | 88 | 84.03 | 83.27 | 117 | 111.73 | 110.96 | 146 | 139.42 | 138.66 |
| 60 | 57.30 | 56.53 | 89 | 84.99 | 84.23 | 118 | 112.68 | 111.92 | 147 | 140.37 | 139.61 |
| 61 | 58.25 | 57.49 | 90 | 85.94 | 85.18 | 119 | 113.64 | 112.87 | 148 | 141.33 | 140.57 |
| 62 | 59.21 | 58.44 | 91 | 86.90 | 86.14 | 120 | 114.59 | 113.83 | 149 | 142.28 | 141.52 |
| 63 | 60.16 | 59.40 | 92 | 87.85 | 87.09 | 121 | 115.55 | 114.78 | 150 | 143.24 | 142.48 |
| 64 | 61.12 | 60.35 | 93 | 88.81 | 88.05 | 122 | 116.50 | 115.74 | | | |
| 65 | 62.07 | 61.31 | 94 | 89.76 | 89.00 | 123 | 117.46 | 116.69 | | | |
| 66 | 63.03 | 62.26 | 95 | 90.72 | 89.96 | 124 | 118.41 | 117.65 | | | |

表 4-2 5M 带轮的基本尺寸

mm

| 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o |
|----|-----------|-------------|----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|
| 13 | 20.69 | 19.55 | 43 | 68.44 | 67.30 | 73 | 116.18 | 115.04 | 103 | 163.93 | 162.79 | 133 | 211.68 | 210.54 |
| 14 | 22.28 | 21.14 | 44 | 70.03 | 68.89 | 74 | 117.77 | 116.63 | 104 | 165.52 | 164.38 | 134 | 213.27 | 212.13 |
| 15 | 23.87 | 22.73 | 45 | 71.62 | 70.48 | 75 | 119.37 | 118.23 | 105 | 167.11 | 165.97 | 135 | 214.86 | 213.72 |
| 16 | 25.46 | 24.32 | 46 | 73.21 | 72.07 | 76 | 120.96 | 119.82 | 106 | 168.70 | 167.56 | 136 | 216.45 | 215.31 |
| 17 | 27.06 | 25.92 | 47 | 74.80 | 73.66 | 77 | 122.55 | 121.41 | 107 | 170.30 | 169.16 | 137 | 218.04 | 216.90 |
| 18 | 28.65 | 27.51 | 48 | 76.39 | 75.25 | 78 | 124.14 | 123.00 | 108 | 171.89 | 170.75 | 138 | 219.63 | 218.49 |
| 19 | 30.24 | 29.10 | 49 | 77.99 | 76.85 | 79 | 125.73 | 124.59 | 100 | 173.49 | 172.34 | 139 | 221.23 | 220.09 |
| 20 | 31.83 | 30.69 | 50 | 79.58 | 78.94 | 80 | 127.32 | 126.18 | 110 | 175.07 | 173.93 | 140 | 222.82 | 221.66 |
| 21 | 33.42 | 32.28 | 51 | 81.17 | 80.03 | 81 | 128.92 | 127.78 | 111 | 176.66 | 175.52 | 141 | 224.41 | 223.27 |
| 22 | 35.01 | 33.87 | 52 | 82.76 | 81.62 | 82 | 130.51 | 129.37 | 112 | 178.25 | 177.11 | 142 | 226.00 | 224.86 |
| 23 | 36.61 | 35.47 | 53 | 84.35 | 83.21 | 83 | 132.10 | 130.96 | 113 | 179.85 | 178.71 | 143 | 227.59 | 226.45 |
| 24 | 38.20 | 37.06 | 54 | 85.94 | 84.80 | 84 | 133.69 | 132.55 | 114 | 181.44 | 180.30 | 144 | 229.18 | 228.04 |
| 25 | 39.79 | 38.65 | 55 | 87.54 | 86.40 | 85 | 135.28 | 134.14 | 115 | 183.03 | 181.89 | 145 | 230.77 | 229.63 |
| 26 | 41.38 | 40.24 | 56 | 89.13 | 87.99 | 86 | 136.87 | 135.73 | 116 | 184.62 | 183.48 | 146 | 232.37 | 231.23 |
| 27 | 42.97 | 41.83 | 57 | 90.72 | 89.58 | 87 | 138.46 | 137.32 | 117 | 186.21 | 185.07 | 147 | 233.96 | 232.62 |
| 28 | 44.56 | 43.42 | 58 | 92.31 | 91.17 | 88 | 140.06 | 138.92 | 118 | 187.80 | 186.66 | 148 | 235.55 | 234.41 |
| 29 | 46.15 | 45.01 | 59 | 93.90 | 92.76 | 89 | 141.65 | 140.51 | 119 | 189.39 | 188.25 | 149 | 237.14 | 236.00 |
| 30 | 47.75 | 46.61 | 60 | 95.49 | 94.35 | 90 | 143.24 | 142.10 | 120 | 190.99 | 189.85 | 150 | 238.73 | 237.59 |
| 31 | 49.34 | 48.20 | 61 | 97.08 | 95.94 | 91 | 144.83 | 143.69 | 121 | 192.58 | 191.44 | 151 | 240.32 | 239.18 |
| 32 | 50.93 | 49.79 | 62 | 98.68 | 97.54 | 92 | 146.42 | 145.28 | 122 | 194.17 | 193.03 | 152 | 241.92 | 240.78 |
| 33 | 52.52 | 51.38 | 63 | 100.27 | 99.13 | 93 | 148.01 | 146.87 | 123 | 195.76 | 194.62 | 153 | 243.51 | 242.37 |
| 34 | 54.11 | 52.97 | 64 | 101.86 | 100.72 | 94 | 149.61 | 148.47 | 124 | 197.35 | 196.21 | 154 | 245.10 | 243.96 |
| 35 | 55.70 | 54.56 | 65 | 103.45 | 102.31 | 95 | 151.20 | 150.06 | 125 | 198.94 | 197.80 | 155 | 246.69 | 245.55 |
| 36 | 57.30 | 56.16 | 66 | 105.04 | 103.90 | 96 | 152.79 | 151.65 | 126 | 200.54 | 199.40 | 156 | 248.28 | 247.14 |
| 37 | 58.89 | 57.75 | 67 | 106.63 | 105.49 | 97 | 154.38 | 153.24 | 127 | 202.13 | 200.99 | 157 | 249.87 | 248.73 |
| 38 | 60.48 | 59.34 | 68 | 108.23 | 107.09 | 98 | 155.97 | 154.83 | 128 | 203.72 | 202.58 | 158 | 251.46 | 250.32 |
| 39 | 62.07 | 60.93 | 69 | 109.82 | 108.68 | 99 | 157.56 | 156.42 | 129 | 205.31 | 204.17 | 159 | 253.06 | 251.92 |
| 40 | 63.66 | 62.52 | 70 | 111.41 | 110.27 | 100 | 159.15 | 158.01 | 130 | 206.90 | 205.76 | 160 | 254.65 | 253.51 |
| 41 | 65.25 | 64.11 | 71 | 113.00 | 111.86 | 101 | 160.75 | 159.61 | 131 | 208.49 | 207.35 | | | |
| 42 | 66.85 | 65.71 | 72 | 114.59 | 113.45 | 102 | 162.34 | 161.20 | 132 | 210.08 | 208.94 | | | |

表 4-3 8M 带轮的基本尺寸

mm

| 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o |
|----|-----------|-------------|----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|
| 22 | 56.02 | 54.65 | 57 | 145.15 | 143.78 | 92 | 234.28 | 232.90 | 127 | 323.44 | 322.03 | 162 | 412.58 | 411.18 |
| 23 | 58.57 | 57.20 | 58 | 147.70 | 146.32 | 93 | 236.82 | 235.45 | 128 | 325.95 | 324.55 | 163 | 415.08 | 413.70 |
| 24 | 61.12 | 59.74 | 59 | 150.24 | 148.87 | 94 | 239.37 | 238.00 | 129 | 328.50 | 327.12 | 164 | 417.62 | 416.25 |
| 25 | 63.66 | 62.28 | 60 | 152.79 | 151.42 | 95 | 241.92 | 240.54 | 130 | 331.04 | 329.67 | 165 | 420.17 | 418.80 |
| 26 | 66.21 | 64.85 | 61 | 155.34 | 153.96 | 96 | 244.46 | 243.09 | 131 | 333.59 | 332.22 | 166 | 422.72 | 421.34 |
| 27 | 68.75 | 67.39 | 62 | 157.88 | 156.51 | 97 | 247.01 | 245.64 | 132 | 336.14 | 334.76 | 167 | 425.26 | 423.89 |
| 28 | 71.30 | 70.08 | 63 | 160.43 | 159.06 | 98 | 249.55 | 248.18 | 133 | 338.68 | 337.31 | 168 | 427.81 | 426.44 |
| 29 | 73.85 | 72.62 | 64 | 162.97 | 161.60 | 99 | 252.10 | 250.73 | 134 | 341.23 | 339.86 | 169 | 430.35 | 428.98 |
| 30 | 76.39 | 75.13 | 65 | 165.52 | 164.15 | 100 | 254.65 | 253.28 | 135 | 343.77 | 342.40 | 170 | 432.90 | 431.53 |
| 31 | 78.94 | 77.65 | 66 | 168.07 | 166.70 | 101 | 257.19 | 255.82 | 136 | 346.32 | 344.95 | 171 | 435.45 | 434.08 |
| 32 | 81.49 | 80.16 | 67 | 170.61 | 169.24 | 102 | 259.74 | 258.37 | 137 | 348.87 | 347.50 | 172 | 437.99 | 436.62 |
| 33 | 84.03 | 82.68 | 68 | 173.16 | 171.79 | 103 | 262.29 | 260.92 | 138 | 351.41 | 350.04 | 173 | 440.54 | 439.17 |
| 34 | 86.53 | 85.22 | 69 | 175.71 | 174.34 | 104 | 264.83 | 263.46 | 139 | 353.96 | 352.59 | 174 | 443.09 | 441.72 |
| 35 | 89.13 | 87.76 | 70 | 178.25 | 176.88 | 105 | 267.38 | 266.01 | 140 | 356.51 | 355.14 | 175 | 445.63 | 444.26 |
| 36 | 91.67 | 90.30 | 71 | 180.80 | 179.43 | 106 | 269.93 | 268.56 | 141 | 359.05 | 357.68 | 176 | 448.18 | 446.81 |
| 37 | 94.22 | 92.85 | 72 | 183.35 | 181.97 | 107 | 272.47 | 271.10 | 142 | 361.60 | 360.23 | 177 | 450.73 | 449.36 |
| 38 | 96.77 | 95.39 | 73 | 185.89 | 184.52 | 108 | 275.02 | 273.65 | 143 | 364.15 | 362.77 | 178 | 453.27 | 451.90 |
| 39 | 99.31 | 97.94 | 74 | 188.44 | 187.07 | 109 | 277.57 | 276.19 | 144 | 366.69 | 365.32 | 179 | 455.82 | 454.45 |
| 40 | 101.86 | 100.49 | 75 | 190.99 | 189.61 | 110 | 280.11 | 278.74 | 145 | 369.24 | 367.87 | 180 | 458.37 | 456.99 |
| 41 | 104.41 | 103.03 | 76 | 193.53 | 192.16 | 111 | 282.66 | 281.29 | 146 | 371.79 | 370.41 | 181 | 460.91 | 459.54 |
| 42 | 106.95 | 105.58 | 77 | 196.08 | 194.71 | 112 | 285.21 | 283.83 | 147 | 374.33 | 372.96 | 182 | 463.46 | 462.09 |
| 43 | 109.50 | 108.13 | 78 | 198.63 | 197.25 | 113 | 287.75 | 286.38 | 148 | 376.88 | 375.51 | 183 | 466.01 | 464.63 |
| 44 | 112.05 | 110.07 | 79 | 201.17 | 199.01 | 114 | 290.30 | 288.94 | 149 | 379.43 | 377.05 | 184 | 468.55 | 467.18 |
| 45 | 114.59 | 113.22 | 80 | 203.72 | 202.35 | 115 | 292.85 | 291.47 | 150 | 381.97 | 380.60 | 185 | 471.10 | 469.73 |
| 46 | 117.14 | 115.77 | 81 | 206.26 | 204.89 | 116 | 295.39 | 294.02 | 151 | 384.52 | 383.45 | 186 | 473.65 | 472.27 |
| 47 | 119.68 | 118.31 | 82 | 208.81 | 207.44 | 117 | 297.94 | 296.57 | 152 | 387.06 | 385.70 | 187 | 476.19 | 474.62 |
| 48 | 122.23 | 120.86 | 83 | 211.36 | 209.99 | 118 | 300.48 | 299.11 | 153 | 389.61 | 388.24 | 188 | 478.74 | 477.37 |
| 49 | 124.78 | 123.41 | 84 | 213.90 | 212.53 | 119 | 303.03 | 301.66 | 154 | 392.16 | 390.79 | 189 | 481.28 | 479.91 |
| 50 | 127.32 | 125.95 | 85 | 216.45 | 215.08 | 120 | 305.58 | 304.21 | 155 | 394.70 | 393.33 | 190 | 483.83 | 482.46 |
| 51 | 129.87 | 128.50 | 86 | 219.00 | 217.63 | 121 | 308.12 | 306.75 | 156 | 397.25 | 395.88 | 191 | 486.38 | 485.01 |
| 52 | 132.42 | 131.05 | 87 | 221.54 | 220.17 | 122 | 310.67 | 309.30 | 157 | 399.80 | 398.43 | 192 | 488.92 | 487.55 |
| 53 | 134.96 | 133.59 | 88 | 224.09 | 222.72 | 123 | 313.22 | 311.85 | 158 | 402.34 | 400.97 | | | |
| 54 | 137.51 | 136.14 | 89 | 226.64 | 225.27 | 124 | 315.76 | 314.39 | 159 | 404.89 | 403.52 | | | |
| 55 | 140.06 | 138.68 | 90 | 229.18 | 227.81 | 125 | 318.31 | 316.94 | 160 | 407.44 | 406.07 | | | |
| 56 | 142.60 | 141.23 | 91 | 231.73 | 230.36 | 126 | 320.86 | 319.48 | 161 | 409.98 | 408.61 | | | |

表 4-4 14M 带轮的基本尺寸

mm

| 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o | 齿数 | 节径 d | 外径 d_o |
|----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|
| 28 | 124.78 | 122.12 | 66 | 294.12 | 291.32 | 104 | 463.46 | 460.66 | 142 | 632.80 | 630.01 | 180 | 802.14 | 799.35 |
| 29 | 129.23 | 126.57 | 67 | 298.57 | 295.78 | 105 | 467.92 | 465.12 | 143 | 637.26 | 634.46 | 181 | 806.60 | 803.80 |
| 30 | 133.69 | 130.99 | 68 | 303.03 | 300.24 | 106 | 472.37 | 469.58 | 144 | 641.71 | 638.92 | 182 | 811.05 | 808.26 |
| 31 | 138.15 | 135.46 | 69 | 307.49 | 304.69 | 107 | 476.83 | 474.03 | 145 | 646.17 | 643.37 | 183 | 815.51 | 812.72 |
| 32 | 142.60 | 139.88 | 70 | 311.94 | 309.15 | 108 | 481.28 | 478.49 | 146 | 650.63 | 647.83 | 184 | 819.97 | 817.17 |
| 33 | 147.06 | 144.36 | 71 | 316.40 | 313.61 | 109 | 485.74 | 482.95 | 147 | 655.08 | 652.29 | 185 | 824.42 | 821.63 |
| 34 | 151.52 | 148.79 | 72 | 320.86 | 318.06 | 110 | 490.20 | 487.40 | 148 | 659.54 | 656.74 | 186 | 828.88 | 826.08 |
| 35 | 155.98 | 153.24 | 73 | 325.31 | 322.52 | 111 | 494.65 | 491.86 | 149 | 663.99 | 661.20 | 187 | 833.33 | 830.54 |
| 36 | 160.43 | 157.68 | 74 | 329.77 | 326.97 | 112 | 499.11 | 496.32 | 150 | 668.45 | 665.66 | 188 | 837.79 | 835.00 |
| 37 | 164.88 | 162.13 | 75 | 334.22 | 331.43 | 113 | 503.57 | 500.77 | 151 | 672.91 | 670.11 | 189 | 842.25 | 839.45 |
| 38 | 169.34 | 166.60 | 76 | 338.68 | 335.89 | 114 | 508.02 | 505.23 | 152 | 677.36 | 674.57 | 190 | 846.70 | 843.91 |
| 39 | 173.80 | 171.02 | 77 | 343.14 | 340.34 | 115 | 512.48 | 509.68 | 153 | 681.82 | 679.03 | 191 | 851.16 | 848.37 |
| 40 | 178.25 | 175.49 | 78 | 347.59 | 344.80 | 116 | 516.93 | 514.14 | 154 | 686.28 | 683.48 | 192 | 855.62 | 852.82 |
| 41 | 182.71 | 179.92 | 79 | 352.05 | 349.26 | 117 | 521.39 | 518.60 | 155 | 690.73 | 687.94 | 193 | 860.07 | 857.28 |
| 42 | 187.17 | 184.37 | 80 | 356.51 | 353.71 | 118 | 525.85 | 523.05 | 156 | 695.19 | 692.39 | 194 | 864.53 | 861.75 |
| 43 | 191.62 | 188.83 | 81 | 360.96 | 358.17 | 119 | 530.30 | 527.51 | 157 | 699.64 | 696.85 | 195 | 868.98 | 866.44 |
| 44 | 196.08 | 193.28 | 82 | 365.42 | 362.63 | 120 | 534.76 | 531.97 | 158 | 704.10 | 701.31 | 196 | 873.44 | 870.64 |
| 45 | 200.53 | 197.74 | 83 | 369.88 | 367.08 | 121 | 539.22 | 536.42 | 159 | 708.56 | 705.76 | 197 | 877.90 | 875.11 |
| 46 | 204.99 | 202.20 | 84 | 374.33 | 371.54 | 122 | 543.67 | 540.88 | 160 | 713.01 | 710.22 | 198 | 882.35 | 879.55 |
| 47 | 209.45 | 206.65 | 85 | 378.79 | 375.99 | 123 | 548.13 | 545.34 | 161 | 717.47 | 714.68 | 199 | 886.81 | 884.02 |
| 48 | 213.90 | 211.11 | 86 | 383.24 | 380.45 | 124 | 552.59 | 549.79 | 162 | 721.93 | 719.13 | 200 | 891.27 | 888.47 |
| 49 | 218.36 | 215.57 | 87 | 387.70 | 384.91 | 125 | 557.04 | 554.25 | 163 | 726.38 | 723.59 | 201 | 895.72 | 892.94 |
| 50 | 222.82 | 220.02 | 88 | 392.16 | 389.36 | 126 | 561.50 | 558.70 | 164 | 730.84 | 728.05 | 202 | 900.18 | 897.38 |
| 51 | 227.27 | 224.48 | 89 | 396.61 | 393.82 | 127 | 565.95 | 563.16 | 165 | 735.30 | 732.50 | 203 | 904.64 | 901.85 |
| 52 | 231.73 | 228.94 | 90 | 401.07 | 398.28 | 128 | 570.41 | 567.62 | 166 | 739.75 | 736.96 | 204 | 909.09 | 906.30 |
| 53 | 236.19 | 233.39 | 91 | 405.53 | 402.73 | 129 | 574.87 | 572.07 | 167 | 744.21 | 741.41 | 205 | 913.55 | 910.74 |
| 54 | 240.64 | 237.85 | 92 | 409.98 | 407.19 | 130 | 579.32 | 576.53 | 168 | 748.66 | 745.87 | 206 | 918.00 | 915.21 |
| 55 | 245.10 | 242.30 | 93 | 414.44 | 411.64 | 131 | 583.78 | 580.99 | 169 | 752.12 | 750.33 | 207 | 922.46 | 919.66 |
| 56 | 249.55 | 246.76 | 94 | 418.90 | 416.10 | 132 | 588.24 | 585.44 | 170 | 757.58 | 754.78 | 208 | 926.92 | 924.13 |
| 57 | 254.01 | 251.22 | 95 | 423.35 | 420.56 | 133 | 592.09 | 589.90 | 171 | 762.03 | 759.24 | 209 | 931.37 | 928.57 |
| 58 | 258.47 | 255.67 | 96 | 427.81 | 425.01 | 134 | 597.15 | 594.35 | 172 | 766.49 | 763.70 | 210 | 935.83 | 933.04 |
| 59 | 262.92 | 260.13 | 97 | 432.26 | 429.47 | 135 | 601.61 | 598.81 | 173 | 770.95 | 768.15 | 211 | 940.29 | 937.49 |
| 60 | 267.38 | 264.59 | 98 | 436.72 | 433.93 | 136 | 606.06 | 603.27 | 174 | 775.40 | 772.61 | 212 | 944.74 | 941.96 |
| 61 | 271.84 | 269.04 | 99 | 441.18 | 438.38 | 137 | 610.52 | 607.72 | 175 | 779.86 | 777.06 | 213 | 949.20 | 946.40 |
| 62 | 276.29 | 273.50 | 100 | 445.63 | 442.84 | 138 | 614.97 | 612.18 | 176 | 784.32 | 781.52 | 214 | 953.65 | 950.85 |
| 63 | 280.75 | 277.95 | 101 | 450.09 | 447.30 | 139 | 619.43 | 616.64 | 177 | 788.77 | 785.98 | 215 | 958.11 | 955.32 |
| 64 | 285.21 | 282.41 | 102 | 454.55 | 451.75 | 140 | 623.88 | 621.09 | 178 | 793.29 | 790.43 | 216 | 962.57 | 959.76 |
| 65 | 289.66 | 286.87 | 103 | 459.00 | 456.21 | 141 | 628.34 | 625.55 | 179 | 797.68 | 794.89 | | | |

表 4-5 20M 带轮的基本尺寸

mm

| 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 | 齿数 | 节径 d | 外径 d_0 |
|----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|-----|-----------|-------------|
| 34 | 216.45 | 212.13 | 71 | 452.00 | 447.68 | 108 | 687.55 | 683.23 | 145 | 923.10 | 918.78 | 182 | 1158.65 | 1154.33 |
| 35 | 222.82 | 218.50 | 72 | 458.37 | 454.05 | 109 | 693.92 | 689.60 | 146 | 929.46 | 925.15 | 183 | 1165.01 | 1160.70 |
| 36 | 229.18 | 224.87 | 73 | 464.73 | 460.41 | 110 | 700.28 | 695.96 | 147 | 935.83 | 931.51 | 184 | 1171.38 | 1167.06 |
| 37 | 235.55 | 231.23 | 74 | 471.10 | 466.78 | 111 | 706.65 | 702.33 | 148 | 942.20 | 937.88 | 185 | 1177.75 | 1173.43 |
| 38 | 241.92 | 237.60 | 75 | 477.46 | 473.15 | 112 | 713.01 | 708.70 | 149 | 948.56 | 944.25 | 186 | 1184.11 | 1179.79 |
| 39 | 248.28 | 243.96 | 76 | 483.83 | 479.51 | 113 | 719.38 | 715.06 | 150 | 954.93 | 950.61 | 187 | 1190.48 | 1186.16 |
| 40 | 254.65 | 250.33 | 77 | 490.20 | 485.88 | 114 | 725.75 | 721.43 | 151 | 961.30 | 956.98 | 188 | 1196.85 | 1192.53 |
| 41 | 261.01 | 256.70 | 78 | 496.56 | 492.25 | 115 | 732.11 | 727.79 | 152 | 967.66 | 963.34 | 189 | 1203.21 | 1198.89 |
| 42 | 267.38 | 263.06 | 79 | 502.93 | 498.61 | 116 | 738.49 | 734.16 | 153 | 974.03 | 969.71 | 190 | 1209.58 | 1205.26 |
| 43 | 273.75 | 269.43 | 80 | 509.30 | 504.98 | 117 | 744.85 | 740.53 | 154 | 980.39 | 976.08 | 191 | 1215.94 | 1211.63 |
| 44 | 280.11 | 275.79 | 81 | 515.66 | 511.34 | 118 | 751.21 | 746.89 | 155 | 986.76 | 982.44 | 192 | 1222.31 | 1217.99 |
| 45 | 286.48 | 282.16 | 82 | 522.03 | 517.71 | 119 | 757.58 | 753.26 | 156 | 993.13 | 988.81 | 193 | 1228.68 | 1224.36 |
| 46 | 292.85 | 288.53 | 83 | 528.39 | 524.08 | 120 | 763.94 | 759.63 | 157 | 999.49 | 995.18 | 194 | 1235.04 | 1230.72 |
| 47 | 299.21 | 294.89 | 84 | 534.76 | 530.44 | 121 | 770.31 | 765.99 | 158 | 1005.86 | 1001.54 | 195 | 1241.41 | 1237.09 |
| 48 | 305.58 | 301.26 | 85 | 541.13 | 536.81 | 122 | 776.68 | 772.36 | 159 | 1012.23 | 1007.91 | 196 | 1247.77 | 1243.46 |
| 49 | 311.94 | 307.63 | 86 | 547.49 | 543.18 | 123 | 783.04 | 778.72 | 160 | 1018.59 | 1014.27 | 197 | 1254.14 | 1249.82 |
| 50 | 318.31 | 313.99 | 87 | 553.86 | 549.54 | 124 | 789.41 | 785.09 | 161 | 1024.96 | 1020.64 | 198 | 1260.51 | 1256.19 |
| 51 | 324.68 | 320.36 | 88 | 560.23 | 555.91 | 125 | 795.77 | 791.46 | 162 | 1031.32 | 1027.01 | 199 | 1266.87 | 1262.56 |
| 52 | 331.04 | 326.72 | 89 | 566.59 | 562.27 | 126 | 802.14 | 797.82 | 163 | 1037.69 | 1033.37 | 200 | 1273.24 | 1268.92 |
| 53 | 337.41 | 333.09 | 90 | 572.96 | 568.64 | 127 | 808.51 | 804.19 | 164 | 1044.06 | 1039.74 | 201 | 1279.61 | 1275.29 |
| 54 | 343.77 | 339.46 | 91 | 579.32 | 575.01 | 128 | 814.87 | 810.56 | 165 | 1050.42 | 1046.10 | 202 | 1285.97 | 1281.65 |
| 55 | 350.14 | 345.82 | 92 | 585.69 | 581.37 | 129 | 821.24 | 816.92 | 166 | 1056.79 | 1052.47 | 203 | 1292.34 | 1288.02 |
| 56 | 356.51 | 352.19 | 93 | 592.06 | 587.74 | 130 | 827.61 | 823.29 | 167 | 1063.16 | 1058.84 | 204 | 1298.70 | 1294.39 |
| 57 | 362.87 | 358.56 | 94 | 598.42 | 594.10 | 131 | 833.97 | 829.65 | 168 | 1069.52 | 1065.20 | 205 | 1305.07 | 1300.75 |
| 58 | 369.24 | 364.92 | 95 | 604.72 | 600.47 | 132 | 840.34 | 836.02 | 169 | 1075.89 | 1071.57 | 206 | 1311.44 | 1307.12 |
| 59 | 375.61 | 371.29 | 96 | 611.15 | 606.84 | 133 | 846.70 | 842.39 | 170 | 1082.25 | 1077.94 | 207 | 1317.80 | 1313.48 |
| 60 | 381.97 | 377.65 | 97 | 617.52 | 613.20 | 134 | 853.07 | 848.75 | 171 | 1088.62 | 1084.30 | 208 | 1324.17 | 1319.85 |
| 61 | 388.34 | 384.02 | 98 | 623.89 | 619.57 | 135 | 859.44 | 855.12 | 172 | 1094.99 | 1090.67 | 209 | 1330.54 | 1326.22 |
| 62 | 394.70 | 390.39 | 99 | 630.25 | 625.94 | 136 | 865.80 | 861.48 | 173 | 1101.35 | 1097.03 | 210 | 1336.90 | 1332.58 |
| 63 | 401.07 | 396.75 | 100 | 636.62 | 632.30 | 137 | 872.17 | 867.85 | 174 | 1107.72 | 1103.40 | 211 | 1343.27 | 1338.95 |
| 64 | 407.44 | 403.12 | 101 | 642.99 | 638.67 | 138 | 878.54 | 874.22 | 175 | 1114.08 | 1109.77 | 212 | 1349.63 | 1345.33 |
| 65 | 413.80 | 409.48 | 102 | 649.35 | 645.03 | 139 | 884.90 | 880.58 | 176 | 1120.45 | 1116.13 | 213 | 1356.00 | 1351.68 |
| 66 | 420.17 | 415.85 | 103 | 655.72 | 651.40 | 140 | 891.27 | 886.95 | 177 | 1126.82 | 1122.50 | 214 | 1362.37 | 1358.05 |
| 67 | 426.54 | 422.22 | 104 | 662.03 | 657.77 | 141 | 897.63 | 893.32 | 178 | 1133.18 | 1128.67 | 215 | 1368.73 | 1364.41 |
| 68 | 432.90 | 428.58 | 105 | 668.45 | 664.13 | 142 | 904.00 | 899.68 | 179 | 1139.55 | 1135.23 | 216 | 1375.10 | 1370.79 |
| 69 | 439.27 | 434.95 | 106 | 674.82 | 670.50 | 143 | 910.37 | 906.05 | 180 | 1145.92 | 1144.60 | | | |
| 70 | 445.63 | 441.32 | 107 | 681.18 | 676.87 | 144 | 916.73 | 912.41 | 181 | 1152.28 | 1147.96 | | | |

4.2.2 带轮外径的极限偏差

带轮外径的极限偏差见表 5。

表 5 带轮外径极限偏差 mm

| 外径 d_o | ≤ 25.4 | $> 25.4 \sim 50.8$ | $> 50.8 \sim 101.6$ | $> 101.6 \sim 177.8$ | $> 177.8 \sim 304.8$ | $> 304.8 \sim 508.0$ | > 508.0 |
|----------|-------------|--------------------|---------------------|----------------------|----------------------|----------------------|------------|
| 极限偏差 | +0.05 0 | +0.08 0 | +0.10 0 | +0.13 0 | +0.15 0 | +0.18 0 | +0.20 0 |

4.3 带轮的最少齿数

带轮的最少齿数 Z_{\min} 见表 6。

表 6 带轮的最少齿数

| 带轮转速 r/min | 槽 型 | | | | |
|------------------------|-----|----|----|-----|-----|
| | 3M | 5M | 8M | 14M | 20M |
| ≤ 900 | 10 | 14 | 22 | 28 | 34 |
| $> 900 \sim 1\ 200$ | 14 | 20 | 28 | 28 | 34 |
| $> 1\ 200 \sim 1\ 800$ | 16 | 24 | 32 | 32 | 38 |
| $> 1\ 800 \sim 3\ 600$ | 20 | 28 | 36 | — | — |
| $> 3\ 600 \sim 4\ 800$ | 22 | 30 | — | — | — |

4.4 带轮挡圈尺寸

带轮挡圈尺寸见图 4 和表 7。

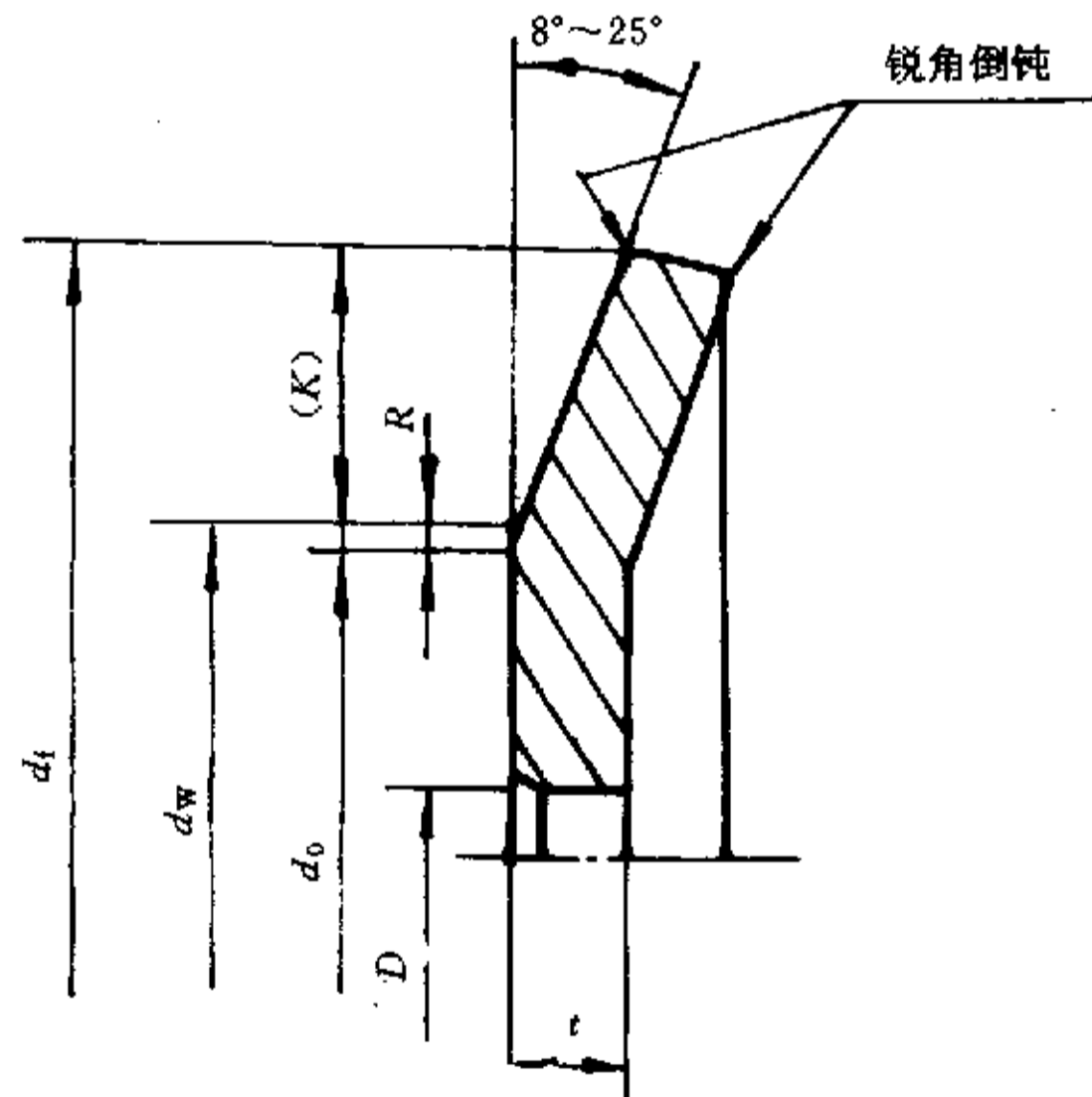


图 4

d_o —带轮外径, mm; d_w —挡圈弯曲处直径, mm; $d_w = d_o + 2R$

d_i —挡圈外径, mm; $d_i = d_w + 2K$

D —挡圈与带轮配合孔直径, mm

表 7 带轮挡圈尺寸

mm

| 槽 型 | 3M | 5M | 8M | 14M | 20M |
|-----------------|---------|---------|---------|---------|---------|
| 挡圈最小高度 K | 2.0~2.5 | 2.5~3.5 | 4.0~5.5 | 7.0~7.5 | 8.0~8.5 |
| $R=(d_w-d_0)/2$ | 1 | 1.5 | 2 | 2.5 | 3 |
| 挡圈厚度 t | 1.5~2.0 | 1.5~2.0 | 1.5~2.5 | 2.5~3.0 | 3.0~3.5 |

4.5 带轮的形位公差

4.5.1 端面圆跳动

带轮两端面对孔轴线的端面圆跳动公差见图 5 和表 8。

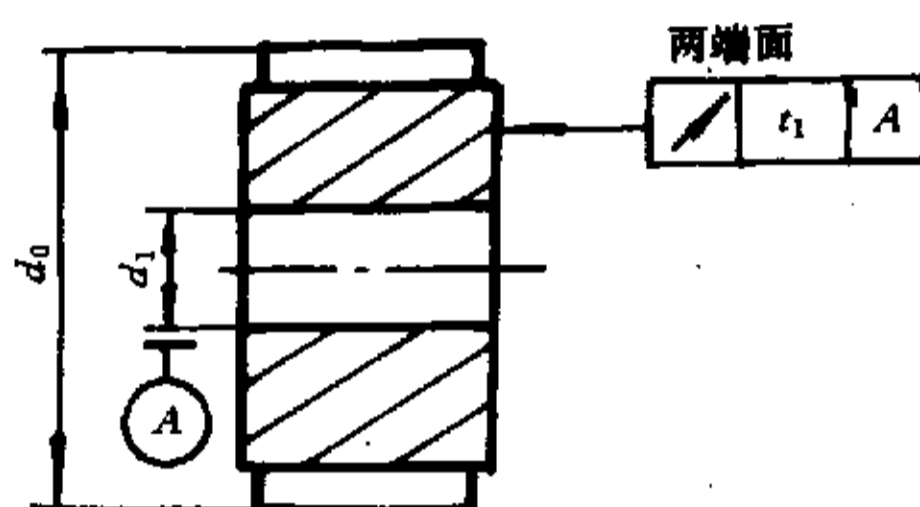


图 5

表 8 端面圆跳动公差

mm

| 外径 d_0 | ≤ 101.6 | $> 101.6 \sim 254.0$ | > 254.0 |
|---------------|--------------|----------------------|------------------------------------|
| 端面圆跳动公差 t_1 | 0.1 | $d_0 \times 0.001$ | $0.25 + (d_0 - 254) \times 0.0005$ |

4.5.2 径向圆跳动

带轮轮坯外圆对孔轴线的径向圆跳动公差见图 6 和表 9。

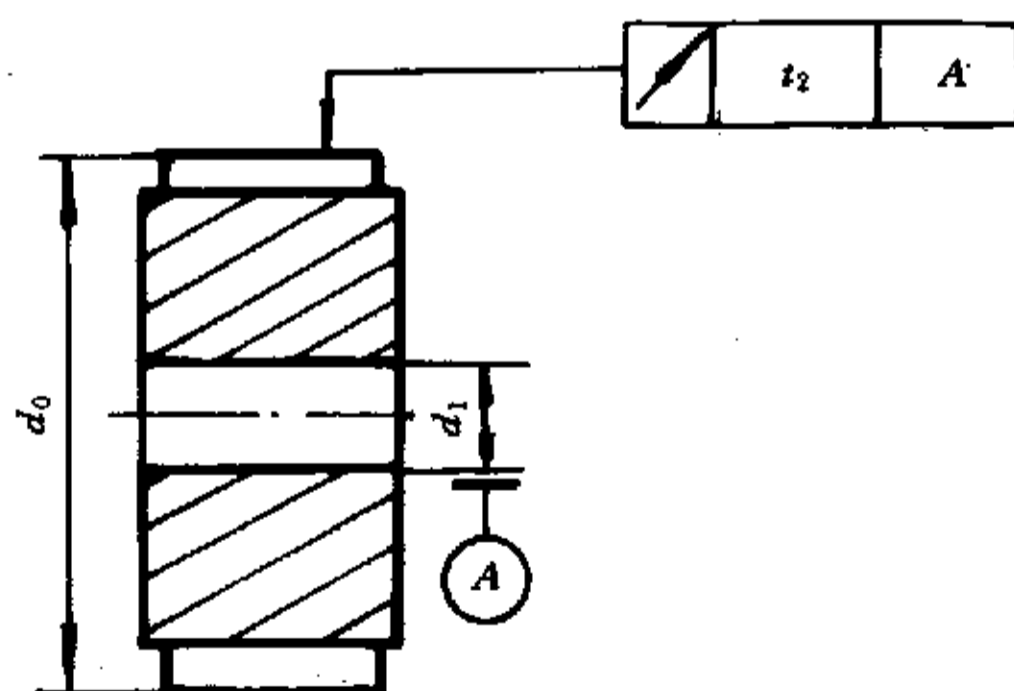


图 6

表 9 径向圆跳动公差

mm

| 外径 d_0 | | ≤ 203.20 | > 203.20 |
|---------------|--------|---------------|---------------------------------------|
| 径向圆跳动公差 t_2 | 滚切法 | 0.13 | $0.13 + (d_0 - 203.20) \times 0.0005$ |
| | 成形刀铣切法 | 0.05 | $0.05 + (d_0 - 203.20) \times 0.0005$ |

4.5.3 平行度

带轮齿对轮孔轴线的平行度公差见图 7 和表 10。

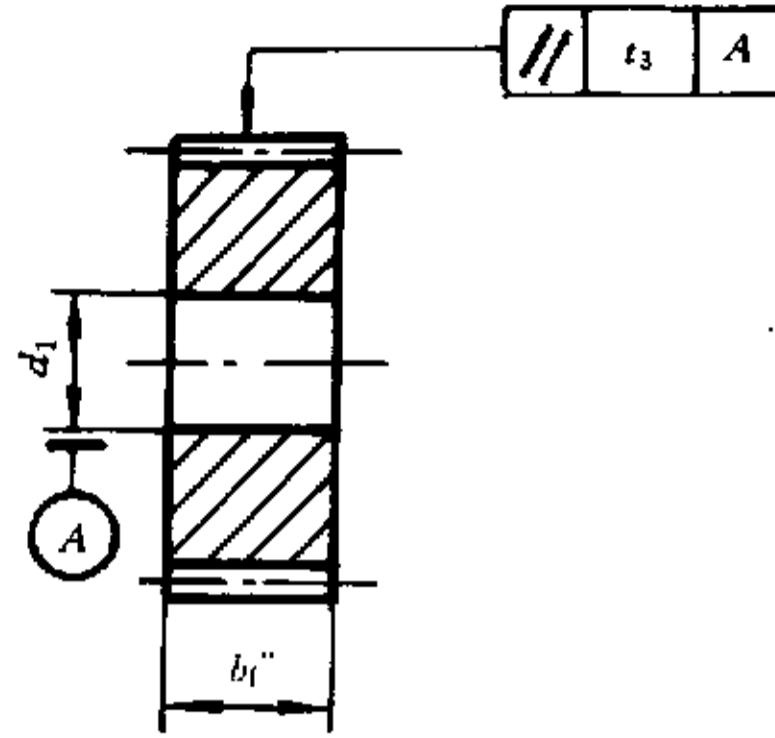


图 7

表 10 平行度公差

mm

| | | |
|------------------|-----------|----------------------------|
| 带轮宽度 $b_1(b_1')$ | ≤ 10 | > 10 |
| t_3 | < 0.01 | $< b_1(b_1') \times 0.001$ |

4.5.4 圆柱度

带轮齿顶圆柱面的圆柱度公差见图 8 和表 11。

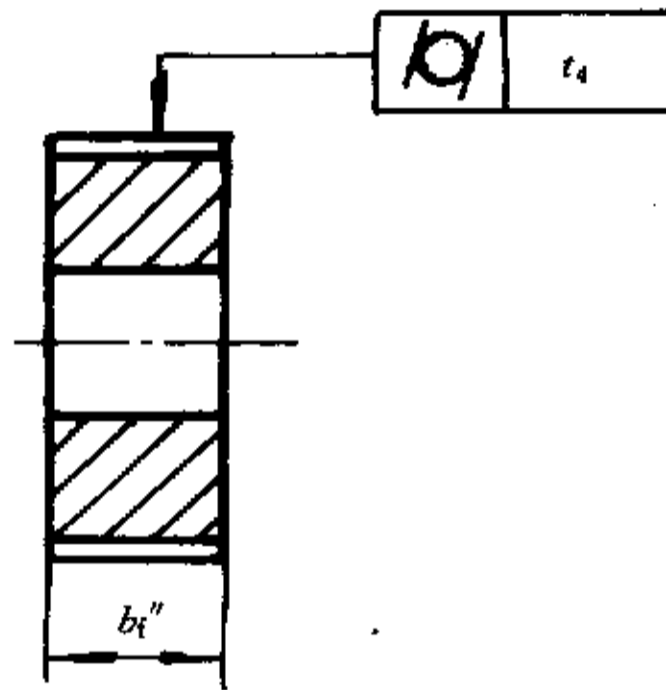


图 8

表 11 圆柱度公差

mm

| | | | | | |
|-------------|-------------|--------------------|--------------------|-------------------|---------|
| 带轮宽度 b_1' | ≤ 12.7 | $> 12.7 \sim 38.1$ | $> 38.1 \sim 76.2$ | $> 76.2 \sim 127$ | > 127 |
| t_4 | 0.01 | 0.02 | 0.04 | 0.05 | 0.06 |

5 带轮的其他质量要求

带轮材质、表面粗糙度及平衡应符合 GB 11357 的规定。

6 带轮的标记

6.1 带轮的标记由带轮代号(P)、带轮齿数、槽型、轮宽代号和标准号组成,带轮齿数和槽型之间用“-”连接。

6.2 标记示例

齿数 50、5M 型、轮宽 41.30 mm 的带轮:

P 50-5M 40 JB/T 7512.2—94

附加说明：

本标准由机械工业部提出。

本标准由机械工业部机械标准化研究所归口。

本标准由哈尔滨工业大学、无锡太湖同步带轮厂、机械部机械标准化研究所、上海工程技术大学、扬中特种胶带厂负责起草。

本标准主要起草人韩永春、冯加英、秦书安、曹助家、周纪龙。