


SIZES, TOLERANCES AND MASSES


| O.D. mm | W.T. mm | | | | | | | | | | | | | | | | | |
|------------|---------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 4,0 | 5,0 | 6,3 | 7,1 | 8,0 | 8,8 | 10,0 | 11,0 | 12,5 | 14,2 | 16,0 | 17,5 | 20,0 | 22,2 | 25,0 | 28,0 | 30,0 | 32,0 |
| 21,3 | 1,7 | 2,0 | 2,3 | | | | | | | | | | | | | | | |
| 26,9 | 2,3 | 2,7 | 3,2 | | | | | | | | | | | | | | | |
| 33,7 | 2,9 | 3,5 | 4,3 | 4,7 | 5,1 | 5,4 | 5,8 | | | | | | | | | | | |
| 38,0 | 3,4 | 4,1 | 4,9 | 5,4 | 5,9 | 6,3 | 6,9 | | | | | | | | | | | |
| 42,4 | 3,8 | 4,6 | 5,6 | 6,2 | 6,8 | 7,3 | 8,0 | | | | | | | | | | | |
| 44,5 | 4,0 | 4,9 | 5,9 | 6,5 | 7,2 | 7,7 | 8,5 | 9,0 | 9,9 | | | | | | | | | |
| 48,3 | 4,4 | 5,3 | 6,5 | 7,2 | 7,9 | 8,6 | 9,4 | 10,1 | 11,0 | | | | | | | | | |
| 51,0 | 4,6 | 5,7 | 6,9 | 7,7 | 8,4 | 9,1 | 10,1 | 10,9 | 11,9 | 12,9 | | | | | | | | |
| 54,0 | 4,9 | 6,0 | 7,4 | 8,2 | 9,0 | 9,8 | 10,9 | 11,7 | 12,9 | 13,9 | | | | | | | | |
| 57,0 | 5,2 | 6,4 | 7,9 | 8,8 | 9,6 | 10,4 | 11,6 | 12,5 | 13,8 | 15,0 | 16,2 | | | | | | | |
| 60,3 | 5,6 | 6,8 | 8,4 | 9,3 | 10,3 | 11,1 | 12,4 | 13,4 | 14,8 | 16,2 | 17,4 | 18,5 | | | | | | |
| 63,5 | 5,9 | 7,2 | 8,9 | 9,9 | 10,9 | 11,8 | 13,2 | 14,3 | 15,8 | 17,3 | 18,7 | 19,9 | | | | | | |
| 67,0 | 6,2 | 7,6 | 9,4 | 10,5 | 11,6 | 12,6 | 14,1 | 15,2 | 16,8 | 18,5 | 20,1 | 21,4 | 23,2 | | | | | |
| 70,0 | 6,5 | 8,0 | 9,9 | 11,0 | 12,2 | 13,2 | 14,8 | 16,0 | 17,8 | 19,6 | 21,2 | 22,6 | 24,7 | | | | | |
| 73,0 | 6,8 | 8,4 | 10,4 | 11,6 | 12,8 | 13,9 | 15,5 | 16,9 | 18,8 | 20,6 | 22,4 | 23,9 | 26,1 | | | | | |
| 76,1 | 7,1 | 8,8 | 10,9 | 12,1 | 13,4 | 14,6 | 16,3 | 17,7 | 19,7 | 21,7 | 23,7 | 25,3 | 27,7 | 27,7 | | | | |
| 82,5 | 7,7 | 9,6 | 11,9 | 13,2 | 14,6 | 15,9 | 17,9 | 19,5 | 21,7 | 24,0 | 26,2 | 28,0 | 30,8 | 33,0 | 35,4 | | | |
| 88,9 | 8,4 | 10,3 | 12,9 | 14,4 | 15,9 | 17,3 | 19,5 | 21,2 | 23,7 | 26,2 | 28,7 | 30,7 | 34,0 | 36,5 | 39,4 | | | |
| 95,0 | 9,0 | 11,1 | 13,8 | 15,4 | 17,2 | 18,9 | 21,0 | 23,1 | 25,4 | 28,3 | 31,2 | 33,4 | 37,0 | 39,9 | 43,0 | 46,3 | 48,1 | |
| 101,6 | 9,6 | 11,9 | 14,9 | 16,6 | 18,4 | 20,1 | 22,6 | 24,7 | 27,6 | 30,7 | 33,7 | 36,2 | 40,2 | 43,5 | 47,5 | 50,8 | 52,9 | |
| 108,0 | 10,3 | 12,7 | 15,8 | 17,7 | 19,6 | 21,4 | 24,2 | 26,4 | 29,6 | 32,9 | 36,2 | 39,0 | 43,4 | 47,0 | 51,4 | 55,2 | 57,7 | |
| 114,3 | 10,9 | 13,5 | 16,8 | 18,8 | 20,9 | 22,8 | 25,7 | 28,1 | 31,6 | 35,1 | 38,6 | 41,7 | 46,5 | 50,4 | 55,3 | 59,3 | 62,3 | 64,9 |
| 121,0 | 11,5 | 14,3 | 17,8 | 19,9 | 22,3 | 24,7 | 27,4 | 30,2 | 33,4 | 37,4 | 41,4 | 44,7 | 49,8 | 54,1 | 59,2 | 64,2 | 67,3 | 70,2 |
| 127,0 | 12,1 | 15,0 | 18,8 | 21,0 | 23,4 | 25,5 | 28,9 | 31,6 | 35,5 | 39,6 | 43,6 | 47,2 | 52,8 | 57,4 | 63,2 | 68,3 | 71,7 | 75,0 |
| 133,0 | 12,7 | 15,8 | 19,8 | 22,1 | 24,6 | 26,9 | 30,3 | 33,3 | 37,4 | 41,8 | 46,1 | 49,9 | 55,7 | 60,8 | 67,1 | 72,5 | 76,3 | 79,7 |
| 139,7 | 13,4 | 16,6 | 20,8 | 23,3 | 25,9 | 28,3 | 32,0 | 35,1 | 39,5 | 44,0 | 48,6 | 52,7 | 59,0 | 64,3 | 71,1 | 77,0 | 81,1 | 85,0 |
| 146,0 | | 17,4 | 21,7 | 24,3 | 27,2 | 29,8 | 33,5 | 36,6 | 41,2 | 46,2 | 51,3 | 55,5 | 62,1 | 67,8 | 74,6 | 81,5 | 85,8 | 90,0 |
| 152,4 | | 18,2 | 22,8 | 25,5 | 28,4 | 31,0 | 35,1 | 38,5 | 43,4 | 48,5 | 53,6 | 58,1 | 65,3 | 71,3 | 79,0 | 85,8 | 90,5 | 95,0 |
| 159,0 | | 19,0 | 23,8 | 26,6 | 29,6 | 32,4 | 36,7 | 40,3 | 45,4 | 50,8 | 56,2 | 60,9 | 68,6 | 74,8 | 83,0 | 90,3 | 95,3 | 100,2 |
| 165,1 | | 19,7 | 24,7 | 27,7 | 31,0 | 33,9 | 38,2 | 41,8 | 47,0 | 52,8 | 58,8 | 63,7 | 71,6 | 78,2 | 86,4 | 94,7 | 100,0 | 105,0 |
| 168,3 | | 20,1 | 25,3 | 28,3 | 31,5 | 34,5 | 39,0 | 42,9 | 48,4 | 54,1 | 59,9 | 65,0 | 73,1 | 80,0 | 88,9 | 96,7 | 102,0 | 107,6 |
| 171,0 | | 20,5 | 25,6 | 28,7 | 32,2 | 35,2 | 39,7 | 43,4 | 48,9 | 54,9 | 61,2 | 66,2 | 74,5 | 81,5 | 90,0 | 98,7 | 104,3 | 109,7 |
| 177,8 | | 21,3 | 26,7 | 30,0 | 33,4 | 36,5 | 41,4 | 45,4 | 51,3 | 57,4 | 63,6 | 69,1 | 77,8 | 85,2 | 94,8 | 103,0 | 109,0 | 115,1 |
| 191,0 | | | 28,7 | 32,2 | 36,1 | 39,5 | 44,6 | 48,8 | 55,0 | 61,9 | 69,1 | 74,9 | 84,3 | 92,4 | 102,3 | 112,6 | 119,1 | 125,5 |
| 193,7 | | | 29,2 | 32,8 | 36,5 | 40,0 | 45,3 | 49,8 | 56,2 | 63,0 | 69,8 | 75,9 | 85,7 | 93,9 | 105,0 | 114,0 | 121,0 | 127,6 |
| 203,0 | | | 30,6 | 34,3 | 38,5 | 42,7 | 47,6 | 52,8 | 58,7 | 66,1 | 73,8 | 80,1 | 90,3 | 99,0 | 110,0 | 121,0 | 128,0 | 134,9 |
| 216,0 | | | 32,6 | 36,6 | 41,0 | 45,0 | 50,8 | 55,6 | 62,7 | 70,7 | 78,9 | 85,7 | 96,7 | 106,1 | 117,8 | 129,8 | 137,6 | 145,2 |
| 219,1 | | | 33,2 | 37,2 | 41,5 | 45,4 | 51,6 | 56,7 | 64,1 | 71,9 | 79,8 | 86,9 | 98,2 | 108,0 | 120,0 | 132,0 | 140,0 | 147,6 |
| 229,0 | | | 34,5 | 38,8 | 43,6 | 47,7 | 54,0 | 59,1 | 66,7 | 75,2 | 84,0 | 91,2 | 103,0 | 113,0 | 125,0 | 138,0 | 140,0 | 155,5 |
| 244,5 | | | 37,1 | 41,7 | 46,5 | 50,9 | 57,8 | 63,6 | 72,0 | 80,8 | 89,8 | 97,8 | 111,0 | 122,0 | 136,0 | 149,0 | 147,0 | 167,7 |
| 254,0 | | | 38,5 | 43,2 | 48,5 | 53,9 | 60,2 | 66,8 | 74,4 | 84,0 | 93,9 | 102,0 | 115,0 | 127,0 | 141,0 | 156,0 | 159,0 | 175,2 |
| 267,0 | | | 40,6 | 45,6 | 50,9 | 55,8 | 63,4 | 69,7 | 79,0 | 88,7 | 98,6 | 107,0 | 122,0 | 134,0 | 150,0 | 165,0 | 166,0 | 185,5 |
| 273,0 | | | 41,6 | 46,7 | 52,1 | 57,1 | 64,8 | 71,4 | 80,9 | 90,9 | 101,0 | 110,0 | 125,0 | 137,0 | 154,0 | 169,0 | 175,0 | 190,2 |
| 279,0 | | | 42,4 | 47,6 | 53,4 | 58,6 | 66,3 | 72,7 | 82,1 | 92,7 | 103,8 | 112,9 | 127,7 | 140,6 | 156,6 | 173,3 | 180,0 | 194,9 |
| 292,0 | | | 44,4 | 49,9 | 56,0 | 61,5 | 69,5 | 76,2 | 86,2 | 97,3 | 108,9 | 118,5 | 134,2 | 147,7 | 164,6 | 182,3 | 184,2 | 205,2 |
| 298,5 | | | | 51,1 | 57,1 | 62,6 | 71,1 | 78,3 | 88,8 | 99,8 | 111,0 | 121,0 | 137,0 | 151,0 | 170,0 | 187,0 | 193,8 | 210,3 |
| 305,0 | | | | 52,1 | 58,5 | 64,2 | 72,7 | 79,7 | 90,1 | 101,0 | 113,0 | 124,0 | 140,0 | 154,0 | 173,0 | 191,0 | 198,0 | 215,4 |
| 318,0 | | | | 54,4 | 61,2 | 67,1 | 76,0 | 83,3 | 94,2 | 106,4 | 119,2 | 129,7 | 147,0 | 161,9 | 180,6 | 200,2 | 213,1 | 225,7 |
| 323,9 | | | | 55,6 | 62,1 | 68,1 | 77,4 | 85,3 | 96,7 | 109,0 | 121,0 | 132,0 | 150,0 | 165,0 | 186,0 | 204,0 | 217,0 | 230,4 |
| 330,0 | | | | | 63,5 | 69,6 | 78,8 | 86,5 | 97,8 | 110,0 | 123,0 | 134,0 | 152,0 | 168,0 | 187,0 | 208,0 | 221,0 | 235,2 |
| 339,7 | | | | | 65,4 | 71,8 | 81,3 | 89,2 | 100,9 | 114,0 | 127,7 | 139,1 | 157,7 | 173,8 | 194,0 | 215,2 | 229,1 | 242,8 |
| 343,0 | | | | | 66,1 | 72,5 | 82,0 | 90,0 | 102,0 | 115,0 | 128,0 | 140,0 | 159,0 | 175,0 | 195,0 | 217,0 | 231,0 | 245,4 |
| 355,6 | | | | | 68,6 | 74,9 | 85,2 | 93,9 | 107,0 | 120,0 | 133,0 | 146,0 | 166,0 | 183,0 | 205,0 | 226,0 | 241,0 | 255,4 |
| 368,0 | | | | | 71,0 | 78,0 | 88,3 | 96,8 | 109,6 | 123,9 | 138,0 | 151,0 | 171,6 | 189,0 | 211,5 | 234,8 | 250,0 | 265,2 |
| 381,0 | | | | | 73,0 | 80,7 | 91,5 | 101,0 | 114,0 | 129,0 | 144,0 | 158,0 | 178,0 | 197,0 | 220,0 | 243,8 | 259,7 | 275,4 |
| 394,0 | | | | | 76,2 | 83,5 | 96,8 | 103,0 | 117,0 | 132,0 | 149,0 | 162,0 | 184,0 | 203,0 | 227,0 | 252,0 | 269,0 | 285,7 |
| 406,4 | | | | | 78,6 | 85,9 | 97,8 | 107,3 | 122,0 | 138,0 | 153,0 | 168,0 | 191,0 | 210,0 | 237,0 | 261,0 | 278,0 | 295,5 |
| 419,0 | | | | | 81,1 | 88,7 | 101,0 | 111,0 | 126,0 | 142,0 | 158,0 | 173,0 | 197,0 | 217,0 | 245,0 | 270,0 | 288,0 | 305,4 |
| 431,8 | | | | | | | 104,0 | 114,0 | 129,0 | 146,0 | 164,0 | 179,0 | 203,0 | 224,0 | 251,0 | 279,0 | 298,0 | 315,5 |
| 445,0 | | | | | | | 107,0 | 117,0 | 133,0 | 150,0 | 169,0 | 184,0 | 209,0 | 231,0 | 258,0 | 287,0 | 306,0 | 329,9 |
| 457,2 | | | | | 88,6 | 97,3 | 110,0 | 122,0 | 138,0 | 156,0 | 173,0 | 189,0 | 216,0 | 238,0 | 268,0 | 296,0 | 316,0 | 335,5 |
| 470,0 | | | | | 91,1 | 100,1 | 113,4 | 124,5 | 141,0 | 159,6 | 179,0 | 195,3 | 222,0 | 245,2 | 274,4 | 305,2 | 325,5 | 345,6 |
| 482,6 | | | | | | | | 130,0 | 145,0 | 164,0 | 184,0 | 201,0 | 228,0 | 252,0 | 282,0 | 314,0 | 335,0 | 355,6 |
| 508,0 | | | | | | 108,3 | 122,8 | 135,0 | 154,0 | 173,0 | 193,0 | 211,0 | 241,0 | 266,0 | 300,0 | 331,0 | 353,0 | 375,6 |
| 521,0 | | | | | | 111,2 | 126,0 | 138,3 | 156,0 | 177,0 | 199,0 | 217,0 | 246,0 | 272,0 | 305,0 | 340,0 | 363,0 | 385,6 |
| 530,0 | | | | | | | | 140,8 | 159,0 | 181,0 | 203,0 | 221,0 | 252,0 | 278,0 | 311,0 | 347,0 | 370,0 | 393,0 |
| 559,0 | | | | | | | 135,4 | 148,7 | 168,4 | 190,7 | 214,2 | 233,6 | 265,8 | 293,8 | 329,1 | 366,5 | 391,2 | 415,9 |
| 570,0 | | | | | | | | | | 194,6 | 218,6 | 238,4 | 271,3 | 299,9 | 336,0 | 374,3 | 399,5 | 424,6 |
| 584,2 | | | | | | | | | 176,2 | 199,6 | 224,2 | 244,6 | 278,3 | 307,7 | 344,8 | 384,0 | 410,0 | 435,8 |
| 610,0 | | | | | | | 148,0 | 162,5 | 184,0 | 208,5 | 234,2 | 255,5 | 290,8 | 321,6 | 360,4 | 401,6 | 428,8 | 456,1 |
| 622,0 | | | | | | | | | | 212,8 | 239,1 | 260,9 | 296,9 | 328,4 | 368,1 | 410,2 | 438,0 | 465,6 |
| 635,0 | | | | | | | | | | 192,0 | 217,4 | 244,2 | 266,6 | 303,3 | 335,6 | 376,0 | 419,0 | 447,6 |
| 660,0 | | | | | | | 160,3 | 176,1 | 199,7 | 226,3 | 254,3 | 277,5 | 315,9 | 349,4 | 391,7 | 436,7 | 466,4 | 495,6 |
| 711,2 | | | | | | | | 189,9 | 215,4 | 244,1 | 274,3 | 299,4 | 340,9 | 377,2 | 423,1 | 471,8 | 504,0 | 536,0 |
| 762,0 | | | | | | | | | | | | | | 366,0 | 405,0 | 454,4 | 506,8 | 541,5 |
| 812,0 | | | | | | | | | | | | | | 390,6 | 432,4 | 485,2 | 511,3 | 578,5 |


| | | | | | | | | | | | | | O. D. mm | |
|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------|-------|
| 35,0 | 40,0 | 45,0 | 50,0 | 55,0 | 60,0 | 65,0 | 70,0 | 75,0 | 80,0 | 85,0 | 90,0 | 100,0 | 120,0 | |
| | | | | | | | | | | | | | | 21,3 |
| | | | | | | | | | | | | | | 26,9 |
| | | | | | | | | | | | | | | 33,7 |
| | | | | | | | | | | | | | | 38,0 |
| | | | | | | | | | | | | | | 42,4 |
| | | | | | | | | | | | | | | 44,5 |
| | | | | | | | | | | | | | | 48,3 |
| | | | | | | | | | | | | | | 51,0 |
| | | | | | | | | | | | | | | 54,0 |
| | | | | | | | | | | | | | | 57,0 |
| | | | | | | | | | | | | | | 60,3 |
| | | | | | | | | | | | | | | 63,5 |
| | | | | | | | | | | | | | | 67,0 |
| | | | | | | | | | | | | | | 70,0 |
| | | | | | | | | | | | | | | 73,0 |
| | | | | | | | | | | | | | | 76,1 |
| | | | | | | | | | | | | | | 82,5 |
| | | | | | | | | | | | | | | 88,9 |
| | | | | | | | | | | | | | | 95,0 |
| | | | | | | | | | | | | | | 101,6 |
| | | | | | | | | | | | | | | 108,0 |
| | | | | | | | | | | | | | | 114,3 |
| 68,5 | 73,3 | | | | | | | | | | | | | 121,0 |
| 74,2 | 79,9 | | | | | | | | | | | | | 127,0 |
| 79,3 | 85,8 | 91,0 | | | | | | | | | | | | 133,0 |
| 84,5 | 91,7 | 97,7 | | | | | | | | | | | | 139,7 |
| 90,3 | 98,3 | 105,0 | 110,6 | | | | | | | | | | | 146,0 |
| 95,7 | 104,5 | 112,0 | 118,4 | | | | | | | | | | | 152,4 |
| 101,0 | 112,0 | 119,2 | 126,3 | | | | | | | | | | | 159,0 |
| 106,0 | 119,0 | 126,5 | 134,4 | 141,1 | 146,5 | | | | | | | | | 165,1 |
| 112,3 | 123,4 | 133,3 | 141,9 | 149,3 | 155,5 | | | | | | | | | 168,3 |
| 115,0 | 126,0 | 136,8 | 145,8 | 153,7 | 160,3 | | | | | | | | | 171,0 |
| 117,4 | 129,2 | 139,8 | 149,2 | 157,3 | 164,2 | | | | | | | | | 177,8 |
| 123,0 | 136,0 | 147,3 | 157,5 | 166,6 | 174,3 | | | | | | | | | 191,0 |
| 134,6 | 149,0 | 162,0 | 173,9 | 184,5 | 193,8 | | | | | | | | | 193,7 |
| 136,0 | 151,0 | 167,0 | 179,0 | 188,1 | 197,8 | | | | | | | | | 203,0 |
| 144,0 | 161,0 | 178,0 | 191,0 | 200,7 | 211,6 | | | | | | | | | 216,0 |
| 156,2 | 173,6 | 189,8 | 204,7 | 218,4 | 230,8 | | | | | | | | | 219,1 |
| 158,0 | 176,0 | 196,0 | 211,0 | 222,6 | 235,0 | 247,0 | | | | | | | | 229,0 |
| 167,0 | 186,0 | 204,0 | 220,0 | 236,0 | 250,0 | 262,9 | 274,5 | | | | | | | 244,5 |
| 180,0 | 201,0 | 224,0 | 243,0 | 257,0 | 273,0 | 287,7 | 301,2 | | | | | | | 254,0 |
| 188,0 | 211,0 | 232,0 | 251,5 | 270,0 | 287,0 | 303,0 | 317,6 | | | | | | | 267,0 |
| 200,0 | 223,0 | 250,0 | 271,0 | 287,6 | 306,0 | 323,8 | 340,0 | 355,1 | | | | | | 273,0 |
| 205,0 | 229,0 | 256,0 | 275,0 | 296,0 | 315,0 | 33,4 | 350,4 | 366,2 | 380,8 | 394,1 | | | | 279,0 |
| 210,6 | 235,8 | 259,7 | 282,4 | 303,8 | 324,0 | 343,0 | 360,8 | 377,3 | 392,6 | 406,7 | | | | 292,0 |
| 164,6 | 182,3 | 193,8 | 221,8 | 321,5 | 343,3 | 363,9 | 383,2 | 401,4 | 418,2 | 433,9 | | | | 298,5 |
| 227,0 | 255,0 | 285,0 | 306,0 | 330,3 | 353,0 | 374,3 | 394,5 | 413,4 | 431,0 | 447,5 | | | | 305,0 |
| 232,0 | 261,0 | 288,0 | 314,0 | 338,0 | 362,0 | 384,7 | 405,7 | 425,4 | 444,0 | 461,2 | 477,2 | | | 318,0 |
| 244,3 | 274,2 | 303,0 | 330,5 | 356,7 | 381,8 | 405,5 | 428,1 | 449,4 | 469,5 | 488,4 | 506,0 | | | 323,9 |
| 249,0 | 280,0 | 313,0 | 338,0 | 370,0 | 390,0 | 415,0 | 438,3 | 460,4 | 481,2 | 500,8 | 519,1 | 552,2 | | 330,0 |
| 254,0 | 285,0 | 316,0 | 345,0 | 372,0 | 399,0 | 425,0 | 449,0 | 471,6 | 493,2 | 513,6 | 532,7 | 567,2 | | 339,7 |
| 263,0 | 295,6 | 327,0 | 357,2 | 386,2 | 413,9 | 440,3 | 465,6 | 489,6 | 512,4 | 533,9 | 554,2 | 591,1 | | 343,0 |
| 265,0 | 298,0 | 330,0 | 361,0 | 390,0 | 418,0 | 446,0 | 471,0 | 496,0 | 518,9 | 540,8 | 561,5 | 599,3 | | 355,6 |
| 276,0 | 311,0 | 349,0 | 377,0 | 413,0 | 437,0 | 466,0 | 493,0 | 519,0 | 543,7 | 567,2 | 589,5 | 630,3 | 697,2 | 356,0 |
| 287,0 | 323,0 | 358,5 | 392,0 | 424,5 | 455,7 | 485,0 | 514,0 | 541,9 | 568,2 | 593,2 | 617,0 | 660,9 | 733,9 | 368,0 |
| 298,0 | 336,4 | 372,9 | 408,0 | 442,0 | 475,0 | 506,0 | 537,0 | 566,0 | 593,8 | 620,5 | 645,9 | 693,0 | 772,4 | 381,0 |
| 309,0 | 349,0 | 387,0 | 423,0 | 459,0 | 493,0 | 527,0 | 559,0 | 590,0 | 619,5 | 647,7 | 674,7 | 725,0 | 810,9 | 394,0 |
| 320,0 | 361,0 | 406,0 | 439,0 | 483,0 | 513,0 | 547,0 | 581,0 | 613,0 | 644,0 | 673,7 | 702,3 | 756,0 | 847,5 | 406,4 |
| 331,0 | 373,0 | 421,0 | 455,0 | 500,0 | 531,0 | 567,0 | 603,0 | 636,3 | 669,0 | 700,0 | 730,2 | 786,7 | 884,8 | 419,0 |
| 343,0 | 387,0 | 430,0 | 471,0 | 512,0 | 551,0 | 588,0 | 625,0 | 660,0 | 694,1 | 727,0 | 758,6 | 818,3 | 922,7 | 431,8 |
| 353,0 | 399,0 | 443,0 | 486,0 | 528,0 | 569,0 | 609,0 | 647,0 | 684,0 | 720,0 | 754,6 | 787,9 | 850,8 | 961,9 | 445,0 |
| 364,0 | 411,0 | 464,0 | 502,0 | 553,0 | 587,7 | 628,7 | 668,4 | 707,0 | 744,0 | 780,2 | 815,0 | 881,0 | 997,9 | 457,2 |
| 375,5 | 424,2 | 471,7 | 517,9 | 562,9 | 606,7 | 649,2 | 690,5 | 730,6 | 769,4 | 807,0 | 843,4 | 912,5 | 1035,8 | 470,0 |
| 386,0 | 437,0 | 486,0 | 533,0 | 580,0 | 625,0 | 669,0 | 712,3 | 754,0 | 794,3 | 833,5 | 871,4 | 943,5 | 1073,0 | 482,6 |
| 408,0 | 461,0 | 521,0 | 565,0 | 614,0 | 663,0 | 710,0 | 756,0 | 801,0 | 844,0 | 886,7 | 927,8 | 1006,0 | 1148,2 | 508,0 |
| 419,0 | 474,0 | 527,0 | 580,0 | 631,0 | 681,0 | 731,0 | 778,0 | 825,0 | 870,0 | 914,0 | 956,6 | 1038,2 | 1186,7 | 521,0 |
| 427,0 | 483,0 | 538,0 | 592,0 | 644,0 | 695,0 | 745,0 | 794,0 | 842,0 | 887,8 | 932,8 | 976,6 | 1060,4 | 1213,3 | 530,0 |
| 452,1 | 511,8 | 570,2 | 627,3 | 693,3 | 738,0 | 791,6 | 843,8 | 894,8 | 944,6 | 993,2 | 1040,5 | 1131,5 | 1299,1 | 559,0 |
| 461,8 | 522,8 | 582,6 | 641,2 | 698,5 | 754,6 | 809,5 | 863,1 | 915,5 | 966,7 | 1016,6 | 1065,4 | 1159,1 | 1331,7 | 570,0 |
| 474,0 | 536,8 | 598,4 | 658,7 | 717,8 | 775,7 | 832,3 | 887,7 | 941,8 | 994,7 | 1046,4 | 1096,9 | 1194,0 | 1373,7 | 584,2 |
| 496,0 | 561,9 | 626,6 | 690,0 | 752,2 | 813,2 | 873,0 | 931,5 | 988,8 | 1044,9 | 1100,0 | 1153,0 | 1257,0 | 1450,1 | 610,0 |
| 506,7 | 574,1 | 640,3 | 705,3 | 769,1 | 831,6 | 892,8 | 952,9 | 1011,7 | 1069,3 | 1125,6 | 1180,8 | 1287,0 | 1485,6 | 622,0 |
| 518,0 | 587,0 | 654,8 | 721,3 | 786,7 | 850,8 | 913,7 | 975,4 | 1035,8 | 1095,0 | 1152,9 | 1209,6 | 1319,4 | 1524,0 | 635,0 |
| 539,8 | 612,0 | 683,0 | 752,7 | 821,2 | 888,4 | 954,4 | 1019,2 | 1082,8 | 1145,0 | 1206,0 | 1266,0 | 1382,0 | 1598,0 | 660,0 |
| 583,6 | 662,1 | 739,3 | 815,3 | 890,0 | 963,6 | 1035,8 | 1106,9 | 1176,7 | 1245,3 | 1312,6 | 1378,7 | 1507,3 | 1749,5 | 711,2 |
| 627,5 | 712,2 | 795,7 | 877,9 | 958,9 | 1038,7 | 1117,3 | 1194,6 | 1270,7 | 1345,5 | 1419,1 | 1491,5 | 1632,5 | 1899,9 | 762,0 |
| 670,7 | 761,5 | 851,2 | 939,6 | 1026,8 | 1112,7 | 1197,4 | 1280,9 | 1363,1 | 1444,1 | 1523,9 | 1602,5 | 1755,9 | 2047,8 | 812,0 |
| 35,0 | 40,0 | 45,0 | 50,0 | 55,0 | 60,0 | 65,0 | 70,0 | 75,0 | 80,0 | 85,0 | 90,0 | 100,0 | 120,0 | |

TOLERANCES

W.T.

 ± 12,5%

 ± 15%

 ± 20%

OUTSIDE DIAMETER
± 1% on the nominal size,
with a minimum ± 0.5 mm.

STRAIGHTNESS
For OD ≥ 33.7 mm, the
maximum allowed deviation
on straightness (in mm)
corresponds to 1.5‰ on the
total tube length.

Note: the norm EN 10297-1
does not state any tolerance
on ovality, eccentricity
or inner diameter: these
parameters are settled by
what stated on OD and w.t.