

TS14

FEATURES

- Wide temperature range,
- Long life: 105°C 2000 hours
- Miniature and large capacity

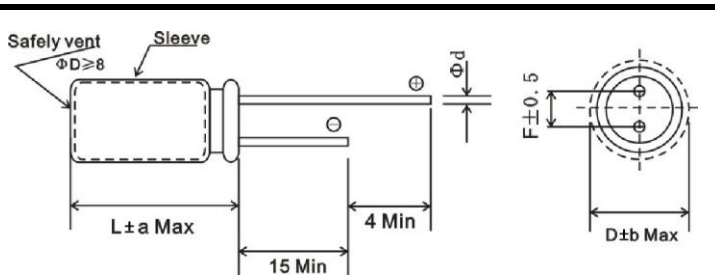


◆ Specifications

| I T E M S | | P E R F O R M A N C E | | C H A R A C T E R I S T I C S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------|---------------------------------------|--------|------|------|------|------|---------|---------|--------------------|-----|----|----|--------|-----|-----|-----|-----|---------|---------|---------------|-------------|------|------|------|------|------|------|------|------|------|---------------|------|---|---|---|---|---|---|---|---|---|
| Operating Temperature Range(°C) | -40~+105 | | | -25~+105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage Range (V) | 6.3~100 | | | 160~450 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Range | 0.1μF~22000μF | | | 0.47μF~470μF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance (+20°C, 120Hz) | ±20% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage current (+20°C, max) | I ≤ 0.01CV or 3μA (after 2 minutes, whichever is greater) | | | I ≤ 0.03CV(μA)+40μA (after 2 minutes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor (+20°C, 120Hz) | <table border="1"> <tr> <td>U_R(V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> <td>160~250</td> <td>350~400</td> <td>450</td> </tr> <tr> <td>Tan δ(Max.)</td> <td>0.22</td> <td>0.17</td> <td>0.15</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td>0.12</td> <td>0.15</td> <td>0.17</td> </tr> </table> | | | | | | | | | | | U _R (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160~250 | 350~400 | 450 | Tan δ(Max.) | 0.22 | 0.17 | 0.15 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.12 | 0.15 | 0.17 | | | | | | | | | |
| | U _R (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160~250 | 350~400 | 450 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tan δ(Max.) | 0.22 | 0.17 | 0.15 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.12 | 0.15 | 0.17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| When nominal capacitance exceeds 1000μF, add 0.02 to the value above for each 1000μF increase. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature Characteristics (Impedance ratio at 120Hz) | <table border="1"> <tr> <td>U_R (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25~100</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Z-25°C/Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>5</td> <td>6</td> <td>6</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>3</td> <td>5</td> <td>6</td> <td>6</td> </tr> </table> | | | | | | | | | | | U _R (V) | 6.3 | 10 | 16 | 25~100 | 160 | 200 | 250 | 350 | 400 | 450 | Z-25°C/Z+20°C | 4 | 3 | 2 | 2 | 2 | 2 | 3 | 5 | 6 | 6 | Z-40°C/Z+20°C | 8 | 6 | 4 | 3 | 2 | 2 | 3 | 5 | 6 | 6 |
| | U _R (V) | 6.3 | 10 | 16 | 25~100 | 160 | 200 | 250 | 350 | 400 | 450 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Z-25°C/Z+20°C | 4 | 3 | 2 | 2 | 2 | 2 | 3 | 5 | 6 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z-40°C/Z+20°C | 8 | 6 | 4 | 3 | 2 | 2 | 3 | 5 | 6 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Load Life | After applying rated voltage with specified ripple current for 2000 hours at +105°C and then resumed 24 hours: Capacitance change: ±20% of the initial measured value Leakage current: ≤the initial specified value Dissipation factor: ≤200% of the initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shelf Life | After storage for 1000 hours at +105°C, U _R to be applied for 30 minutes and then resumed 24 hours: Capacitance change: ±20% of the initial measured value Leakage current: ≤the initial specified value Dissipation factor: ≤200% of the initial specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

◆ Dimensions

mm



| | | | | | | | |
|----------|-----|------|------|-----|---------|-------|----|
| ΦD | 5 | 6.3 | 8 | 10 | 12.5/13 | 16~18 | 22 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | | 7.5 | 10 |
| Φd ±0.05 | 0.5 | L<20 | L≥20 | 0.6 | | 0.8 | |
| | | 0.5 | 0.5 | | | | |

| | | | | |
|--------|------|-----------|-----------|-----------|
| a Max. | D<18 | D=18 | | D>18 |
| | | L<35.5 | L≥35.5 | |
| | | +1.5 -1.0 | +2.0 -1.0 | +2.0 -1.0 |

| | | |
|--------|--------|-----|
| b Max. | (D<18) | 0.5 |
| | (D≥18) | 1.0 |

◆ Multiplier for ripple current

Frequency coefficient

| | | | | | | |
|------------------|---------|-----|------|------|------|----------|
| Frequency (Hz) | 50 (60) | 120 | 400 | 1K | 10K | 50K-100K |
| | Cap(μF) | | | | | |
| CAP ≤ 10 | 0.8 | 1 | 1.30 | 1.45 | 1.65 | 1.70 |
| 10 < CAP ≤ 100 | 0.8 | 1 | 1.23 | 1.36 | 1.48 | 1.53 |
| 100 < CAP ≤ 1000 | 0.8 | 1 | 1.16 | 1.25 | 1.35 | 1.38 |
| 1000 < CAP | 0.8 | 1 | 1.11 | 1.17 | 1.25 | 1.28 |

Temperature coefficient

| | | | |
|------------------|------|------|------|
| Temperature (°C) | +70 | +85 | +105 |
| Coefficient | 1.96 | 1.68 | 1.0 |

TS14

◆ STANDARD RATINGS Ripple Current: 105°C, 120Hz

Example Part Number: TS14011C100MSB030R

| WV µF | 6.3 | | 10 | | 16 | | 25 | | 35 | | 50 | | 63 | | 100 | |
|----------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms |
| 0.1~0.47 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 3 | 5x11 | 3 | 5x11 | 3 |
| 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 9 | 5x11 | 9 | 5x11 | 9 |
| 2.2 | -- | -- | -- | -- | -- | -- | 5x11 | 11 | -- | -- | 5x11 | 11 | 5x11 | 11 | 5x11 | 15 |
| 3.3 | -- | -- | -- | -- | -- | -- | 5x11 | 15 | -- | -- | 5x11 | 15 | 5x11 | 15 | 5x11 | 18 |
| 4.7 | -- | -- | -- | -- | -- | -- | 5x11 | 18 | -- | -- | 5x11 | 18 | 5x11 | 20 | 5x11 | 20 |
| 6.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 20 | 5x11 | 25 | 5x11 | 25 |
| 10 | -- | -- | 5x11 | 20 | 5x11 | 20 | 5x11 | 25 | 5x11 | 25 | 5x11 | 25 | 5x11 | 30 | 6.3x12 | 35 |
| 22 | -- | -- | 5x11 | 20 | 5x11 | 30 | 5x11 | 35 | 5x11 | 35 | 5x11 | 40 | 6.3x11 | 50 | 6.3x12 | 65 |
| 33 | -- | -- | 5x11 | 20 | 5x11 | 40 | 5x11 | 40 | 5x11 | 50 | 5x12 | 50 | 6.3x11 | 60 | 8x12 | 85 |
| 47 | -- | -- | 5x11 | 45 | 5x11 | 50 | 5x11 | 50 | 6.3x11 | 65 | 6.3x11 | 70 | 6.3x12 | 90 | 10x12.5 | 120 |
| 68 | -- | -- | 5x11 | 60 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10x16 | 180 |
| 100 | -- | -- | 5x11 | 180 | 5x11 6x11 | 70 80 | 6.3x11 | 90 | 6.3x12 | 102 | 8x12 | 120 | 10x12 | 150 | 10x20 | 220 |
| 120 | -- | -- | -- | -- | -- | -- | 6.3x11 | 100 | 8x12 | 120 | 8x16 | 140 | 10x16 | 180 | 10x20 | 250 |
| 150 | -- | -- | -- | -- | -- | -- | 6.3x11 | 110 | 8x12 | 140 | 10x12 | 160 | 10x16 | 210 | 13x20 | 280 |
| 180 | -- | -- | -- | -- | -- | -- | 8x12 | 135 | 8x12 | 165 | 10x12 | 190 | 10x16 | 230 | 13x20 | 310 |
| 220 | 5x11 | 75 | 5x11 6.3x11 | 110 130 | 6.3x11 | 95 | 8x12 | 150 | 8x12 | 180 | 10x17 | 240 | 10x17 | 270 | 13x25 | 380 |
| 330 | 6.3x12 | 100 | 6.3x11 | 110 | 8x12 | 180 | 8x12 | 170 | 8x16 | 200 | 10x17 | 320 | 13x20 | 380 | 16x25 | 510 |
| 470 | 6.3x12 | 130 | 6.3x12 8x12 | 120 190 | 8x12 | 210 | 8x16 10x12 | 190 250 | 10x17 | 310 | 13x20 | 430 | 13x25 | 500 | 16x25 | 680 |
| 560 | -- | -- | 8x12 10x12 | 200 220 | -- | -- | -- | -- | 10x20 | 400 | 13x20 | 600 | 13x25 | 600 | 16x35 | 750 |
| 680 | -- | -- | 8x16 | 320 | -- | -- | 10x16 | 380 | 10x20 | 450 | 13x25 | 720 | 16x25 | 700 | 16x35 | 850 |
| 820 | -- | -- | 10x12 | 350 | -- | -- | -- | -- | 13x20 | 500 | 13x25 | 750 | 16x25 | 800 | 18x35 | 1000 |
| 1000 | 8x14 | 300 | 8x14 | 400 | 10x17 | 440 | 10x21 | 500 | 13x20 | 580 | 13x25 | 790 | 16x30 | 900 | 18x40 | 1200 |
| 1200 | -- | -- | -- | -- | -- | -- | -- | -- | 13x20 | 700 | 16x25 | 850 | 16x35 | 1100 | -- | -- |
| 1500 | -- | -- | 10x16 | 520 | -- | -- | 13x20 | 600 | 13x25 | 860 | 16x30 | 980 | 18x35 | 1210 | -- | -- |
| 1800 | -- | -- | -- | -- | -- | -- | -- | -- | 16x25 | 900 | 16x35 | 1150 | -- | -- | -- | -- |
| 2200 | 10x20 | 540 | 10x20 | 600 | 10x20 13x20 | 600 700 | 13x25 | 800 | 16x25 | 937 | 16x35 | 1230 | 18x35 | 1310 | -- | -- |
| 2700 | -- | -- | -- | -- | -- | -- | 16x25 | 900 | -- | -- | 18x35 | 1320 | -- | -- | -- | -- |
| 3300 | 13x20 | 670 | 13x20 | 800 | 13x25 | 920 | 16x25 | 1000 | 16x30 | 1080 | 18x40 | 1400 | -- | -- | -- | -- |
| 3900 | -- | -- | 13x20 | 900 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 4700 | 13x20 | 900 | 13x25 | 1000 | 16x25 | 1050 | -- | -- | 18x40 | 1540 | -- | -- | -- | -- | -- | -- |
| 6800 | 13x25 | 1020 | 16x25 | 1200 | 16x35 | 1430 | 18x35 | 1630 | -- | -- | -- | -- | -- | -- | -- | -- |
| 8200 | -- | -- | 16x30 | 1450 | -- | -- | 18x35 | 2000 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10000 | 16x25 | 1220 | 16x35 | 1600 | 18x35 | 1700 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 12000 | -- | -- | 16x35 | 1650 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 15000 | 16x35 | 1300 | 18x35 | 1700 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22000 | 18x40 | 1400 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| WV µF | 160 | | 200 | | 250 | | 350 | | 400 | | 450 | | 500 | |
|----------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms | Size (mm) ØDxL | Ripple Current mArms |
| 1 | 6.3x11 | 14 | -- | -- | 6.3x12 | 9 | 6.3x11 | 15 | 8x12 | 19 | 6.3x11 | 12 | -- | -- |
| 2.2 | 6.3x11 | 15 | 6.3x11 | 15 | 6.3x11 | 15 | 6.3x11 | 20 | 8x12 | 30 | 8x12 | 24 | -- | -- |
| 3.3 | 6.3x11 | 20 | 8x11 | 20 | 8x11 | 35 | 8x11 | 30 | 8x12 | 35 | 8x12 | 38 | -- | -- |
| 4.7 | 6.3x11 | 45 | 8x12 | 40 | 8x12 | 40 | 8x12 | 35 | 8x12 | 42 | 10x12 | 42 | -- | -- |
| 6.8 | -- | -- | -- | -- | 8x12 | 50 | 10x12 | 45 | 10x13 | 58 | 10x20 | 58 | -- | -- |
| 10 | 8x12 | 65 | 10x12 | 70 | 10x17 | 70 | 10x20 | 75 | 10x16 | 78 | 10x20 | 80 | -- | -- |
| 22 | 10x12 | 110 | 10x16 | 110 | 10x17 | 120 | 13x20 | 130 | 13x20 | 140 | 13x20 | 150 | -- | -- |
| 33 | 10x16 | 150 | 10x16 | 135 | 13x20 | 170 | 13x25 | 190 | 13x20 | 210 | 13x25 16x20 | 230 | -- | -- |
| 47 | 10x20 | 190 | 13x20 | 190 | 13x25 | 225 | 16x25 | 300 | 16x20 | 390 | 16x25 | 400 | 18x25 | 420 |
| 56 | -- | -- | -- | -- | 13x25 | 270 | 16x25 | 340 | -- | -- | 16x30 | 320 | -- | -- |
| 68 | 13x20 | 260 | 13x25 | 250 | 13x25 | 295 | 16x30 | 370 | 16x25 | 420 | 18x26 | 366 | -- | -- |
| 82 | -- | -- | -- | -- | 16x25 | 310 | 16x35 | 410 | 18x30 | 450 | 18x30 | 440 | -- | -- |
| 100 | 13x25 | 350 | 13x25 | 310 | 16x25 | 340 | 18x30 | 450 | 18x30 | 490 | 18x40 | 490 | -- | -- |
| 120 | -- | -- | -- | -- | -- | -- | -- | -- | 18x32 | 530 | 18x40 | 540 | -- | -- |

Note: Specification are subject to change without notice. For more detail and update, please visit our website.

TS14

◆ Higher Ripple Current Ripple Current: 105°C, 120Hz

Example Part Number: TS14011C100MSB030SR

| WV µF | 6.3 | | 10 | | 16 | | 25 | | 35 | | 50 | | 63 | | 100 | |
|----------|-----------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current |
| | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms |
| 0.1~0.47 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 8 | 5x11 | 8 | 5x11 | 14 |
| 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 11 | 5x11 | 13 | 5x11 | 19 |
| 2.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 20 | 5x11 | 15 | 5x11 | 30 |
| 3.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 30 | 5x11 | 19 | 5x11 | 32 |
| 4.7 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 33 | 5x11 | 22 | 5x11 | 38 |
| 6.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 5x11 | 42 | 5x11 | 34 | 5x11 | 52 |
| 10 | -- | -- | -- | -- | 5x11 | 50 | 5x11 | 38 | 5x11 | 41 | 5x11 | 50 | 5x11 | 50 | 6.3x12 | 73 |
| 22 | -- | -- | 5x11 | 50 | 5x11 | 54 | 5x11 | 57 | 5x11 | 61 | 5x11 | 78 | 6.3x11 | 86 | 6.3x12 | 104 |
| 33 | -- | -- | 5x11 | 60 | 5x11 | 64 | 5x11 | 69 | 5x11 | 75 | -- | -- | 6.3x11 | 100 | 8x12 | 150 |
| 47 | -- | -- | 5x11 | 71 | 5x11 | 80 | 5x11 | 106 | 6.3x11 | 110 | 6.3x11 | 125 | 6.3x12 | 130 | 10x12.5 | 190 |
| 68 | -- | -- | 5x11 | 83 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10x16 | 239 |
| 100 | -- | -- | 5x11 | 100 | 5x11 6x11 | 120 142 | 6.3x11 | 145 | 6.3x12 | 150 | 8x12 | 188 | 10x12 | 295 | 10x20 | 320 |
| 220 | 5x11 | 150 | 5x11 6.3x11 | 155 175 | 6.3x11 | 190 | 8x12 | 236 | 8x12 | 270 | 10x17 | 370 | 10x17 | 440 | 13x25 | 450 |
| 330 | 6.3x12 | 170 | 6.3x11 | 200 | 8x12 | 270 | 8x12 | 310 | 8x16 | 455 | 10x17 | 420 | 13x20 | 560 | -- | -- |
| 470 | 6.3x12 | 230 | 6.3x12 8x12 | 260 290 | 8x12 | 310 | 8x16 10x12 | 350 380 | 10x17 | 520 | 13x20 | 630 | 13x25 | 700 | 16x25 | 780 |
| 680 | -- | -- | 8x16 | 390 | -- | -- | 10x16 | 520 | 10x20 | 590 | 13x25 | 720 | 16x25 | 800 | 16x35 | 1021 |
| 1000 | 8x14 | 380 | -- | -- | 10x17 | 645 | 10x21 | 775 | 13x20 | 810 | 13x25 | 950 | -- | -- | 18x40 | 1344 |
| 2200 | -- | -- | 10x20 | 760 | 10x20 13x20 | 735 760 | 13x25 | 1110 | 16x25 | 1260 | 16x35 | 1470 | 18x35 | 2180 | -- | -- |
| 3300 | 13x20 | 920 | -- | -- | 13x25 | 1170 | 16x25 | 1440 | 16x30 | 1420 | -- | -- | -- | -- | -- | -- |
| 4700 | -- | -- | 13x25 | 1280 | 16x25 | 1320 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 6800 | -- | -- | -- | -- | -- | -- | 18x35 | 2160 | -- | -- | -- | -- | -- | -- | -- | -- |
| 10000 | -- | -- | 16x35 | 2220 | 18x35 | 2350 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| WV µF | 160 | | 200 | | 250 | | 350 | | 400 | | 450 | | 500 | |
|----------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|----------------|----------------|-----------|----------------|
| | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current | Size (mm) | Ripple Current |
| | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms | ØDxL | mArms |
| 1 | -- | -- | -- | -- | 6.3x12 | 16 | 6.3x11 | 16 | 8x12 | 25 | 6.3x11 | 27 | -- | -- |
| 2.2 | 6.3x11 | 23 | 6.3x11 | 30 | 6.3x11 | 35 | -- | -- | 8x12 | 39 | 8x12 | 39 | -- | -- |
| 3.3 | 6.3x11 | 34 | -- | -- | 8x11 | 42 | -- | -- | 8x12 | 45 | 8x12 | 45 | -- | -- |
| 4.7 | -- | -- | 8x12 | 46 | 8x12 | 45 | 8x12 | 55 | 8x12 | 56 | 10x12 | 58 | -- | -- |
| 6.8 | -- | -- | -- | -- | 8x12 | 52 | 10x12 | 75 | 10x13 | 75 | 10x20 | 90 | -- | -- |
| 10 | -- | -- | -- | -- | 10x17 | 116 | 10x20 | 105 | 10x16 | 105 | 10x20 | 120 | -- | -- |
| 22 | -- | -- | 10x16 | 165 | 10x17 | 180 | 13x20 | 220 | 13x20 | 200 | 13x20 | 215 | -- | -- |
| 33 | 10x16 | 205 | 10x16 | 225 | 13x20 | 245 | 13x25 | 270 | 13x20 | 270 | 13x25 16x20 | 270 270 | -- | -- |
| 47 | 10x20 | 270 | 13x20 | 300 | 13x25 | 320 | 16x25 | 330 | 16x20 | 390 | 16x25 | 395 | 18x25 | 420 |
| 56 | -- | -- | -- | -- | 13x25 | 350 | 16x25 | 400 | -- | -- | 16x30 | 430 | -- | -- |
| 68 | 13x20 | 350 | 13x25 | 350 | 13x25 | 400 | 16x30 | 475 | 16x25 | 475 | 18x26 | 510 | -- | -- |
| 82 | -- | -- | -- | -- | 16x25 | 480 | 16x35 | 520 | 18x30 | 580 | 18x30 | 590 | -- | -- |
| 100 | 13x25 | 470 | 13x25 | 490 | 16x25 | 530 | 18x30 | 620 | 18x30 | 650 | 18x40 | 650 | -- | -- |
| 120 | -- | -- | -- | -- | -- | -- | -- | -- | 18x32 | 720 | 18x40 | 750 | -- | -- |

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