

ZL シリーズ  
SERIES

105°C 高リップル 低インピーダンス品  
105°C High Ripple Current, Low Impedance

・105°C 1000~5000時間品。  
Load Life : 105°C 1000~5000 hours.

RoHS  
compliance



◆規格表 / SPECIFICATIONS

| 項目 Items   | 特性 Characteristics  |                               |  |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
|--|---|-------------------------------|--|---------------------|----------------------|------------------------------|--|------|---------------|-------------------------|---|------------------|--|------|------|------|------|------|------|------|--|------------------|---|---|---|---|---|---|---|---|--|
| カテゴリ温度範囲<br>Category Temperature Range                                   | -40~+105°C  |                               |  |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 定格電圧範囲<br>Rated Voltage Range  | 6.3~100Vdc  |                               |  |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 静電容量許容差<br>Capacitance Tolerance   | ±20% (20°C, 120Hz)  |                               |  |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 漏れ電流<br>Leakage Current (MAX)  | I=0.01CV又は3µAのいずれか大なる値以下 (定格電圧印加2分後)<br>I=0.01CV or 3µA whichever is greater. (After 2 minutes)<br>I=漏れ電流(µA) Leakage Current      C=静電容量(µF) Capacitance      V=定格電圧(Vdc) Rated Voltage  |                               |  |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 損失角の正接 (tanδ)<br>Dissipation Factor (MAX)                                | <table border="1"> <tr> <td>定格電圧(Vdc)<br/>Rated Voltage</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>(20°C, 120Hz)</td> </tr> <tr> <td>tanδ</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td></td> </tr> </table> <p>1000µFを越えるものは1000µF増す毎に上表の値に0.02を加えた値とする。<br/>When capacitance is over 1000µF, tanδ shall be added 0.02 to the listed value with increase of every 1000µF.</p>   | 定格電圧(Vdc)<br>Rated Voltage    | 6.3  | 10                  | 16                   | 25                           | 35   | 50   | 63            | 100                     | (20°C, 120Hz)                               | tanδ             | 0.22   | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 |  |                  |   |   |   |   |   |   |   |   |  |
| 定格電圧(Vdc)<br>Rated Voltage   | 6.3   | 10                            | 16   | 25                  | 35                   | 50                           | 63   | 100  | (20°C, 120Hz) |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| tanδ   | 0.22  | 0.19                          | 0.16   | 0.14                | 0.12                 | 0.10                         | 0.09   | 0.08 |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 耐久性<br>Endurance   | <p>105°C中で右表の時間定格電圧(リップル重量)印加後、下記項目を満足すること。<br/>After applying rated voltage with rated ripple current for specified time at 105°C, the capacitors shall meet the following requirements.</p> <table border="1"> <tr> <td>静電容量変化率<br/>Capacitance Change</td> <td>初期値の±25%以内<br/>Within ±25% of the initial value.</td> <td>ケースサイズ<br/>Case Size</td> <td>時間(hrs)<br/>Life Time</td> </tr> <tr> <td>損失角の正接<br/>Dissipation Factor</td> <td>規格値の200%以下<br/>Not more than 200% of the specified value.</td> <td>L=7</td> <td>1000</td> </tr> <tr> <td>漏れ電流<br/>Leakage Current</td> <td>規格値以下<br/>Not more than the specified value.</td> <td>L≥11</td> <td>φD≤6.3 2000<br/>φD= 8 3000<br/>φD= 10 4000<br/>φD≥12.5 5000</td> </tr> </table> | 静電容量変化率<br>Capacitance Change | 初期値の±25%以内<br>Within ±25% of the initial value.          | ケースサイズ<br>Case Size | 時間(hrs)<br>Life Time | 損失角の正接<br>Dissipation Factor | 規格値の200%以下<br>Not more than 200% of the specified value. | L=7  | 1000          | 漏れ電流<br>Leakage Current | 規格値以下<br>Not more than the specified value. | L≥11             | φD≤6.3 2000<br>φD= 8 3000<br>φD= 10 4000<br>φD≥12.5 5000 |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 静電容量変化率<br>Capacitance Change  | 初期値の±25%以内<br>Within ±25% of the initial value.   | ケースサイズ<br>Case Size           | 時間(hrs)<br>Life Time                                     |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 損失角の正接<br>Dissipation Factor   | 規格値の200%以下<br>Not more than 200% of the specified value.  | L=7                           | 1000   |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 漏れ電流<br>Leakage Current  | 規格値以下<br>Not more than the specified value.   | L≥11                          | φD≤6.3 2000<br>φD= 8 3000<br>φD= 10 4000<br>φD≥12.5 5000 |                     |                      |                              |  |      |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| 低温特性<br>Low Temperature Stability<br>(インピーダンス比)<br>Impedance Ratio (MAX) | <table border="1"> <tr> <td>定格電圧(Vdc)<br/>Rated Voltage</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>(120Hz)</td> </tr> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td></td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td></td> </tr> </table>  | 定格電圧(Vdc)<br>Rated Voltage    | 6.3  | 10                  | 16                   | 25                           | 35   | 50   | 63            | 100                     | (120Hz)                                     | Z(-25°C)/Z(20°C) | 2  | 2    | 2    | 2    | 2    | 2    | 2    | 2    |  | Z(-40°C)/Z(20°C) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |  |
| 定格電圧(Vdc)<br>Rated Voltage   | 6.3   | 10                            | 16   | 25                  | 35                   | 50                           | 63   | 100  | (120Hz)       |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| Z(-25°C)/Z(20°C)   | 2   | 2                             | 2  | 2                   | 2                    | 2                            | 2  | 2    |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |
| Z(-40°C)/Z(20°C)   | 3   | 3                             | 3  | 3                   | 3                    | 3                            | 3  | 3    |               |                         |   |                  |  |      |      |      |      |      |      |      |  |                  |   |   |   |   |   |   |   |   |  |

◆リップル電流補正係数 /  
MULTIPLIER FOR RIPPLE CURRENT

| 周波数(Hz)<br>Frequency | 120  | 1k   | 10k  | 100k≤ |
|----------------------|------|------|------|-------|
| 5.6~68µF             | 0.40 | 0.70 | 0.90 | 1.00  |
| 82~270µF             | 0.50 | 0.73 | 0.92 | 1.00  |
| 330~680µF            | 0.55 | 0.77 | 0.94 | 1.00  |
| 820~1800µF           | 0.60 | 0.80 | 0.96 | 1.00  |
| 2200~6800µF          | 0.70 | 0.85 | 0.98 | 1.00  |

◆寸法図 / DIMENSIONS (mm)



◆呼称方法 / PART NUMBER

|                       |                 |                     |                                  |               |                         |                     |
|-----------------------|-----------------|---------------------|----------------------------------|---------------|-------------------------|---------------------|
| □□□                   | ZL              | □□□□□               | M                                | □□□           | □□                      | DXL                 |
| 定格電圧<br>Rated Voltage | シリーズ名<br>Series | 静電容量<br>Capacitance | 静電容量許容差<br>Capacitance Tolerance | 副記号<br>Option | リード加工記号<br>Lead Forming | ケースサイズ<br>Case Size |

◆副記号 / OPTION

|                    |                |
|--------------------|----------------|
| PETスリーブ PET Sleeve | 記号 Code<br>EFC |
|--------------------|----------------|

**◆標準品一覧表 / STANDARD SIZE**

| 定格電圧<br>Rated Voltage<br>(Vdc) | 静電容量<br>Capacitance<br>( $\mu$ F) | 外形寸法<br>Size<br>$\phi$ D $\times$ L(mm) | 定格リプル電流<br>Rated ripple current<br>(mA r.m.s./105°C, 100kHz) | インピーダンス( $\Omega$ MAX)<br>Impedance |               |
|--------------------------------|-----------------------------------|---|--|-------------------------------------|---------------|
|                                |                                   |   |  | 20°C, 100kHz                        | -10°C, 100kHz |
| 6.3                            | 39                                | 4 $\times$ 7                            | 130  | 0.85                                | 2.6           |
|                                | 68                                | 5 $\times$ 7                            | 210  | 0.43                                | 1.3           |
|                                | 150                               | 6.3 $\times$ 7                          | 300  | 0.23                                | 0.69          |
|                                | 150                               | 5 $\times$ 11                           | 250  | 0.30                                | 1.0           |
|                                | 220                               | 8 $\times$ 7                            | 380  | 0.15                                | 0.45          |
|                                | 330                               | 6.3 $\times$ 11                         | 405  | 0.13                                | 0.41          |
|                                | 560                               | 8 $\times$ 11.5                         | 760  | 0.072                               | 0.22          |
|                                | 820                               | 8 $\times$ 16                           | 995  | 0.056                               | 0.17          |
|                                | 1000                              | 10 $\times$ 12.5                        | 1030   | 0.053                               | 0.16          |
|                                | 1200                              | 8 $\times$ 20                           | 1250   | 0.041                               | 0.13          |
|                                | 1200                              | 10 $\times$ 16                          | 1430   | 0.038                               | 0.12          |
|                                | 1500                              | 10 $\times$ 20                          | 1820   | 0.023                               | 0.069         |
|                                | 2200                              | 10 $\times$ 23                          | 2150   | 0.022                               | 0.066         |
|                                | 3300                              | 12.5 $\times$ 20                        | 2360   | 0.021                               | 0.053         |
|                                | 3900                              | 12.5 $\times$ 25                        | 2770   | 0.018                               | 0.045         |
|                                | 4700                              | 12.5 $\times$ 30                        | 3290   | 0.016                               | 0.041         |
| 5600                           | 12.5 $\times$ 35                  | 3400                                    | 0.015  | 0.039                               |               |
| 5600                           | 16 $\times$ 20                    | 3140                                    | 0.018  | 0.045                               |               |
| 6800                           | 16 $\times$ 25                    | 3460                                    | 0.016  | 0.043                               |               |
| 10                             | 27                                | 4 $\times$ 7                            | 130  | 0.89                                | 2.7           |
|                                | 56                                | 5 $\times$ 7                            | 210  | 0.44                                | 1.4           |
|                                | 100                               | 5 $\times$ 11                           | 250  | 0.30                                | 1.0           |
|                                | 120                               | 6.3 $\times$ 7                          | 300  | 0.23                                | 0.69          |
|                                | 180                               | 8 $\times$ 7                            | 380  | 0.15                                | 0.45          |
|                                | 220                               | 6.3 $\times$ 11                         | 405  | 0.13                                | 0.41          |
|                                | 470                               | 8 $\times$ 11.5                         | 760  | 0.072                               | 0.22          |
|                                | 680                               | 8 $\times$ 16                           | 995  | 0.056                               | 0.17          |
|                                | 680                               | 10 $\times$ 12.5                        | 1030   | 0.053                               | 0.16          |
|                                | 1000                              | 8 $\times$ 20                           | 1250   | 0.041                               | 0.13          |
|                                | 1000                              | 10 $\times$ 16                          | 1430   | 0.038                               | 0.12          |
|                                | 1200                              | 10 $\times$ 20                          | 1820   | 0.023                               | 0.069         |
|                                | 1500                              | 10 $\times$ 23                          | 2150   | 0.022                               | 0.066         |
|                                | 2200                              | 12.5 $\times$ 20                        | 2360   | 0.021                               | 0.053         |
|                                | 3300                              | 12.5 $\times$ 25                        | 2770   | 0.018                               | 0.045         |
|                                | 3900                              | 12.5 $\times$ 30                        | 3290   | 0.016                               | 0.041         |
| 3900                           | 16 $\times$ 20                    | 3140                                    | 0.018  | 0.045                               |               |
| 4700                           | 12.5 $\times$ 35                  | 3400                                    | 0.015  | 0.039                               |               |
| 5600                           | 16 $\times$ 25                    | 3460                                    | 0.016  | 0.043                               |               |
| 16                             | 18                                | 4 $\times$ 7                            | 130  | 0.92                                | 2.8           |
|                                | 33                                | 5 $\times$ 7                            | 210  | 0.45                                | 1.4           |
|                                | 56                                | 5 $\times$ 11                           | 250  | 0.30                                | 1.0           |
|                                | 68                                | 6.3 $\times$ 7                          | 300  | 0.24                                | 0.72          |
|                                | 120                               | 8 $\times$ 7                            | 380  | 0.15                                | 0.45          |
|                                | 120                               | 6.3 $\times$ 11                         | 405  | 0.13                                | 0.41          |
|                                | 330                               | 8 $\times$ 11.5                         | 760  | 0.072                               | 0.22          |
|                                | 470                               | 8 $\times$ 16                           | 995  | 0.056                               | 0.17          |
|                                | 470                               | 10 $\times$ 12.5                        | 1030   | 0.053                               | 0.16          |
|                                | 680                               | 8 $\times$ 20                           | 1250   | 0.041                               | 0.13          |
|                                | 680                               | 10 $\times$ 16                          | 1430   | 0.038                               | 0.12          |
|                                | 1000                              | 10 $\times$ 20                          | 1820   | 0.023                               | 0.069         |
|                                | 1200                              | 10 $\times$ 23                          | 2150   | 0.022                               | 0.066         |
|                                | 1500                              | 12.5 $\times$ 20                        | 2360   | 0.021                               | 0.053         |
|                                | 2200                              | 12.5 $\times$ 25                        | 2770   | 0.018                               | 0.045         |
|                                | 2700                              | 12.5 $\times$ 30                        | 3290   | 0.016                               | 0.041         |
| 2700                           | 16 $\times$ 20                    | 3140                                    | 0.018  | 0.045                               |               |
| 3300                           | 12.5 $\times$ 35                  | 3400                                    | 0.015  | 0.039                               |               |
| 3900                           | 16 $\times$ 25                    | 3460                                    | 0.016  | 0.043                               |               |
| 25                             | 15                                | 4 $\times$ 7                            | 130  | 0.94                                | 2.9           |
|                                | 27                                | 5 $\times$ 7                            | 210  | 0.46                                | 1.4           |
|                                | 47                                | 5 $\times$ 11                           | 250  | 0.30                                | 1.0           |
|                                | 56                                | 6.3 $\times$ 7                          | 300  | 0.24                                | 0.72          |
|                                | 100                               | 8 $\times$ 7                            | 380  | 0.15                                | 0.45          |
|                                | 100                               | 6.3 $\times$ 11                         | 405  | 0.13                                | 0.41          |
|                                | 220                               | 8 $\times$ 11.5                         | 760  | 0.072                               | 0.22          |
|                                | 330                               | 8 $\times$ 16                           | 995  | 0.056                               | 0.17          |
|                                | 330                               | 10 $\times$ 12.5                        | 1030   | 0.053                               | 0.16          |
|                                | 470                               | 8 $\times$ 20                           | 1250   | 0.041                               | 0.13          |
|                                | 470                               | 10 $\times$ 16                          | 1430   | 0.038                               | 0.12          |
|                                | 680                               | 10 $\times$ 20                          | 1820   | 0.023                               | 0.069         |
|                                | 820                               | 10 $\times$ 23                          | 2150   | 0.022                               | 0.066         |
|                                | 1000                              | 12.5 $\times$ 20                        | 2360   | 0.021                               | 0.053         |
|                                | 1500                              | 12.5 $\times$ 25                        | 2770   | 0.018                               | 0.045         |
|                                | 1800                              | 12.5 $\times$ 30                        | 3290   | 0.016                               | 0.041         |
| 1800                           | 16 $\times$ 20                    | 3140                                    | 0.018  | 0.045                               |               |
| 2200                           | 12.5 $\times$ 35                  | 3400                                    | 0.015  | 0.039                               |               |
| 2700                           | 16 $\times$ 25                    | 3460                                    | 0.016  | 0.043                               |               |

**◆標準品一覧表 / STANDARD SIZE**

| 定格電圧<br>Rated Voltage<br>(Vdc) | 静電容量<br>Capacitance<br>( $\mu$ F) | 外形寸法<br>Size<br>$\phi$ D×L(mm) | 定格リプル電流<br>Rated ripple current<br>(mA r.m.s./105°C, 100kHz) | インピーダンス( $\Omega$ MAX)<br>Impedance |               |       |
|--------------------------------|-----------------------------------|--------------------------------|--|-------------------------------------|---------------|-------|
|                                |                                   |                                |  | 20°C, 100kHz                        | -10°C, 100kHz |       |
| 35                             | 10                                | 4×7                            | 130  | 0.96                                | 2.9           |       |
|                                | 18                                | 5×7                            | 210  | 0.47                                | 1.5           |       |
|                                | 33                                | 5×11                           | 250  | 0.30                                | 1.0           |       |
|                                | 39                                | 6.3×7                          | 300  | 0.25                                | 0.75          |       |
|                                | 56                                | 8×7                            | 380  | 0.16                                | 0.48          |       |
|                                | 56                                | 6.3×11                         | 405  | 0.13                                | 0.41          |       |
|                                | 150                               | 8×11.5                         | 760  | 0.072                               | 0.22          |       |
|                                | 220                               | 8×16                           | 995  | 0.056                               | 0.17          |       |
|                                | 220                               | 10×12.5                        | 1030   | 0.053                               | 0.16          |       |
|                                | 270                               | 8×20                           | 1250   | 0.041                               | 0.13          |       |
|                                | 330                               | 10×16                          | 1430   | 0.038                               | 0.12          |       |
|                                | 470                               | 10×20                          | 1820   | 0.023                               | 0.069         |       |
|                                | 560                               | 10×23                          | 2150   | 0.022                               | 0.066         |       |
|                                | 680                               | 12.5×20                        | 2360   | 0.021                               | 0.053         |       |
|                                | 1000                              | 12.5×25                        | 2770   | 0.018                               | 0.045         |       |
|                                | 50                                | 5.6                            | 4×7  | 130                                 | 1.0           | 3.0   |
| 10                             |                                   | 5×7                            | 210  | 0.50                                | 1.5           |       |
| 22                             |                                   | 6.3×7                          | 300  | 0.26                                | 0.78          |       |
| 22                             |                                   | 5×11                           | 238  | 0.34                                | 1.18          |       |
| 33                             |                                   | 8×7                            | 380  | 0.17                                | 0.51          |       |
| 56                             |                                   | 6.3×11                         | 385  | 0.14                                | 0.50          |       |
| 100                            |                                   | 8×11.5                         | 724  | 0.074                               | 0.22          |       |
| 120                            |                                   | 8×16                           | 950  | 0.061                               | 0.18          |       |
| 150                            |                                   | 10×12.5                        | 979  | 0.061                               | 0.18          |       |
| 180                            |                                   | 8×20                           | 1190   | 0.046                               | 0.14          |       |
| 220                            |                                   | 10×16                          | 1370   | 0.042                               | 0.12          |       |
| 270                            |                                   | 10×20                          | 1580   | 0.030                               | 0.090         |       |
| 330                            |                                   | 10×23                          | 1870   | 0.028                               | 0.085         |       |
| 470                            |                                   | 12.5×20                        | 2050   | 0.027                               | 0.068         |       |
| 560                            |                                   | 12.5×25                        | 2410   | 0.023                               | 0.059         |       |
| 63                             |                                   | 15                             | 5×11   | 165                                 | 0.88          | 3.5   |
|                                | 33                                | 6.3×11                         | 265  | 0.35                                | 1.4           |       |
|                                | 56                                | 8×11.5                         | 500  | 0.22                                | 0.88          |       |
|                                | 82                                | 8×16                           | 665  | 0.16                                | 0.64          |       |
|                                | 82                                | 10×12.5                        | 685  | 0.15                                | 0.60          |       |
|                                | 120                               | 8×20                           | 820  | 0.12                                | 0.48          |       |
|                                | 120                               | 10×16                          | 945  | 0.11                                | 0.44          |       |
|                                | 180                               | 10×20                          | 1100   | 0.080                               | 0.32          |       |
|                                | 180                               | 12.5×16                        | 1135   | 0.082                               | 0.27          |       |
|                                | 220                               | 10×23                          | 1300   | 0.073                               | 0.29          |       |
|                                | 270                               | 12.5×20                        | 1495   | 0.060                               | 0.20          |       |
|                                | 330                               | 12.5×25                        | 1850   | 0.043                               | 0.14          |       |
|                                | 470                               | 12.5×30                        | 2250   | 0.039                               | 0.13          |       |
|                                | 470                               | 16×20                          | 1990   | 0.045                               | 0.14          |       |
|                                | 100                               | 560                            | 12.5×35  | 2450                                | 0.033         | 0.11  |
|                                |                                   | 560                            | 16×25  | 2550                                | 0.032         | 0.096 |
| 680                            |                                   | 12.5×40                        | 2780   | 0.029                               | 0.096         |       |
| 680                            |                                   | 18×20                          | 2450   | 0.038                               | 0.10          |       |
| 820                            |                                   | 16×31.5                        | 2810   | 0.026                               | 0.078         |       |
| 820                            |                                   | 18×25                          | 2780   | 0.031                               | 0.084         |       |
| 1000                           |                                   | 16×35.5                        | 2835   | 0.021                               | 0.063         |       |
| 1000                           |                                   | 18×31.5                        | 3270   | 0.025                               | 0.068         |       |
| 1200                           |                                   | 16×40                          | 3340   | 0.019                               | 0.057         |       |
| 1200                           |                                   | 18×35.5                        | 3310   | 0.020                               | 0.054         |       |
| 1500                           |                                   | 18×40                          | 3420   | 0.018                               | 0.049         |       |
| 6.8                            |                                   | 5×11                           | 125  | 1.4                                 | 5.6           |       |
| 15                             |                                   | 6.3×11                         | 205  | 0.57                                | 2.3           |       |
| 27                             |                                   | 8×11.5                         | 355  | 0.36                                | 1.4           |       |
| 39                             |                                   | 8×16                           | 450  | 0.25                                | 1.0           |       |
| 47                             |                                   | 10×12.5                        | 450  | 0.24                                | 0.96          |       |
| 56                             |                                   | 8×20                           | 565  | 0.19                                | 0.76          |       |
| 68                             |                                   | 10×16                          | 580  | 0.18                                | 0.72          |       |
| 82                             |                                   | 10×20                          | 750  | 0.13                                | 0.52          |       |
| 82                             |                                   | 12.5×16                        | 735  | 0.13                                | 0.43          |       |
| 100                            |                                   | 10×23                          | 880  | 0.12                                | 0.48          |       |
| 120                            |                                   | 12.5×20                        | 1045   | 0.094                               | 0.31          |       |
| 180                            |                                   | 12.5×25                        | 1195   | 0.071                               | 0.23          |       |
| 220                            |                                   | 12.5×30                        | 1410   | 0.063                               | 0.21          |       |
| 220                            | 16×20                             | 1295                           | 0.071  | 0.21                                |               |       |
| 270                            | 12.5×35                           | 1560                           | 0.052  | 0.17                                |               |       |
| 270                            | 16×25                             | 1600                           | 0.053  | 0.16                                |               |       |
| 270                            | 18×20                             | 1470                           | 0.069  | 0.19                                |               |       |
| 330                            | 12.5×40                           | 1700                           | 0.046  | 0.15                                |               |       |
| 390                            | 16×31.5                           | 1750                           | 0.041  | 0.12                                |               |       |
| 390                            | 18×25                             | 1620                           | 0.049  | 0.13                                |               |       |
| 470                            | 16×35.5                           | 1890                           | 0.033  | 0.10                                |               |       |
| 470                            | 18×31.5                           | 1775                           | 0.039  | 0.11                                |               |       |
| 560                            | 16×40                             | 2080                           | 0.030  | 0.090                               |               |       |
| 560                            | 18×35.5                           | 2060                           | 0.031  | 0.084                               |               |       |
| 680                            | 18×40                             | 2570                           | 0.028  | 0.076                               |               |       |