

Surface Mount Aluminum Electrolytic Capacitors NACE Series

FEATURES

- CYLINDRICAL V-CHIP CONSTRUCTION
- LOW COST, GENERAL PURPOSE, 2000 HOURS AT 85°C
- NEW EXPANDED CV RANGE (up to 6800µF)
- ANTI-SOLVENT (2 MINUTES)
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING



**RoHS
Compliant**

includes all homogeneous materials

*See Part Number System for Details

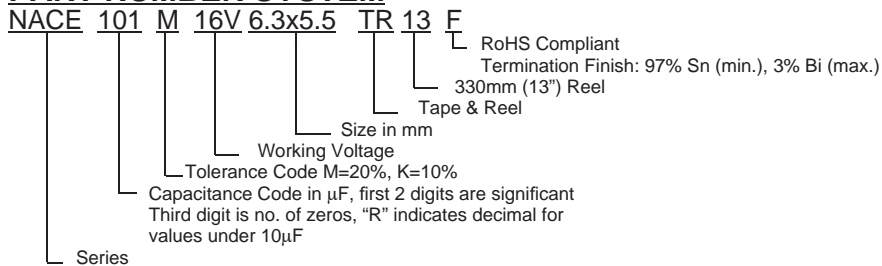
CHARACTERISTICS

| | |
|---|------------------------------------|
| Rated Voltage Range | 4.0 ~ 100Vdc |
| Rate Capacitance Range | 0.1 ~ 6,800µF |
| Operating Temp. Range | -40°C ~ +85°C |
| Capacitance Tolerance | ±20% (M), ±10% |
| Max. Leakage Current After 2 Minutes @ 20°C | 0.01CV or 3µA whichever is greater |

| | | | | | | | | | | | |
|---|--------------------|--|------|------|------|------|------|------|------|------|------|
| Tan δ @ 120Hz/20°C | W.V. (Vdc) | 4.0 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | |
| | 3mm Dia. | 0.40 | 0.30 | - | 0.19 | 0.16 | 0.14 | 0.14 | - | - | |
| | 4 ~ 6.3mm Dia. | 0.35 | 0.26 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | 0.10 | 0.10 | |
| | 8x6.5mm Dia. | - | 0.25 | 0.26 | 0.20 | 0.16 | 0.14 | 0.12 | - | 0.10 | |
| | 8mm Dia. ~ up | C<1000µF | 0.40 | 0.30 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.10 |
| | | C<1500µF | - | 0.30 | - | 0.20 | - | 0.14 | - | - | - |
| | | C<2200µF | - | - | 0.26 | - | 0.18 | - | - | - | - |
| C<3300µF | | - | 0.34 | - | 0.24 | - | - | - | - | - | |
| C<4700µF | | - | - | 0.30 | - | - | - | - | - | - | |
| | C<6800µF | - | 0.40 | - | - | - | - | - | - | - | |
| Low Temperature Stability Impedance Ratio @ 120Hz | W.V. (Vdc) | 4.0 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | |
| | Z-25°C/Z+20°C | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | Z-40°C/Z+20°C | 15 | 8 | 6 | 4 | 4 | 3 | 3 | 3 | 3 | |
| Load Life Test 85°C 2,000 Hours | Capacitance Change | Within ± 25% of initial measured value | | | | | | | | | |
| | Tan δ | Less than 200% of specified max. value | | | | | | | | | |
| | Leakage Current | Less than specified max. value | | | | | | | | | |

*See standard products and case size table for items available in 10% tolerance

PART NUMBER SYSTEM



PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.
Also found at www.niccomp.com/precautions
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com



Surface Mount Aluminum Electrolytic Capacitors NACE Series

STANDARD PRODUCTS, SPECIFICATIONS AND CASE SIZE TABLE D ϕ xL (mm)

| NIC Part Number | Cap. (μ F) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Ripple current (mA) @ +85°C/120Hz | Max. ESR (Ω) @ +20°C/120Hz | Load Life Hours @ +85°C | |
|--------------------------|-----------------|------------|------------------------------------|--|-------------------------------------|-------------------------|-------|
| NACE220M4V3X5.5TR13F | 22 | 4 | 0.40 | 19 | 30.1 | 2,000 | |
| NACE330M4V4X5.5TR13F | 33* | | 0.35 | 26 | 17.6 | 2,000 | |
| NACE470M4V4X5.5TR13F | 47* | | 0.35 | 34 | 12.4 | 2,000 | |
| NACE680M4V5X5.5TR13F | 68* | | 0.35 | 52 | 8.54 | 2,000 | |
| NACE101M4V5X5.5TR13F | 100* | | 0.35 | 61 | 5.80 | 2,000 | |
| NACE151M4V6.3X5.5TR13F | 150* | | 0.35 | 74 | 3.87 | 2,000 | |
| NACE221M4V6.3X5.5TR13F | 220* | | 0.35 | 82 | 2.64 | 2,000 | |
| NACE331M4V6.3X6.3TR13F | 330 | | 0.35 | 102 | 1.76 | 2,000 | |
| NACE471M4V6.3X8TR13F | 470* | | 0.35 | 150 | 1.42 | 2,000 | |
| NACE102M4V10X8TR13F | 1000 | | 0.40 | 330 | 0.67 | 2,000 | |
| NACE150M6.3V3X5.5TR13F | 15 | 6.3 | 0.30 | 16 | 33.1 | 2,000 | |
| NACE220M6.3V3X5.5TR13F | 22 | | 0.30 | 21 | 26.5 | 2,000 | |
| NACE220M6.3V4X5.5TR13F | 22* | | 0.26 | 31 | 18.1 | 2,000 | |
| NACE330M6.3V5X5.5TR13F | 33* | | 0.26 | 39 | 12.6 | 2,000 | |
| NACE470M6.3V5X5.5TR13F | 47* | | 0.26 | 47 | 8.47 | 2,000 | |
| NACE680M6.3V6.3X5.5TR13F | 68* | | 0.26 | 63 | 5.86 | 2,000 | |
| NACE101M6.3V6.3X5.5TR13F | 100* | | 0.26 | 71 | 3.98 | 2,000 | |
| NACE151M6.3V6.3X5.5TR13F | 150* | | 0.26 | 78 | 2.66 | 2,000 | |
| NACE221M6.3V6.3X6.3TR13F | 220* | | 0.26 | 95 | 1.96 | 2,000 | |
| NACE331M6.3V6.3X8TR13F | 330* | | 0.26 | 150 | 1.31 | 2,000 | |
| NACE331M6.3V8X6.5TR13F | 330 | | 0.25 | 300 | 1.76 | 2,000 | |
| NACE471M6.3V8X10.5TR13F | 470 | | 0.30 | 300 | 1.06 | 2,000 | |
| NACE681M6.3V10X8TR13F | 680* | | 0.30 | 300 | 0.59 | 2,000 | |
| NACE102M6.3V8X10.5TR13F | 1000* | | 0.30 | 330 | 0.50 | 2,000 | |
| NACE152M6.3V10X10.5TR13F | 1500* | | 0.30 | 450 | 0.35 | 2,000 | |
| NACE332M6.3V12.5X14TR13F | 3300 | | 0.34 | 750 | 0.17 | 2,000 | |
| NACE682M6.3V16X17TR13F | 6800 | | 0.40 | 1330 | 0.10 | 2,000 | |
| NACE220M10V4X5.5TR13F | 22* | | 10 | 0.20 | 35 | 15.1 | 2,000 |
| NACE330M10V5X5.5TR13F | 33* | | | 0.20 | 43 | 10.1 | 2,000 |
| NACE470M10V6.3X5.5TR13F | 47 | | | 0.20 | 59 | 7.06 | 2,000 |
| NACE680M10V6.3X5.5TR13F | 68* | 0.20 | | 66 | 4.88 | 2,000 | |
| NACE101M10V6.3X5.5TR13F | 100* | 0.20 | | 76 | 3.32 | 2,000 | |
| NACE151M10V6.3X6.3TR13F | 150* | 0.20 | | 88 | 2.21 | 2,000 | |
| NACE221M10V6.3X8TR13F | 220* | 0.20 | | 150 | 1.51 | 2,000 | |
| NACE221M10V8X6.5TR13F | 220 | 0.26 | | 250 | 1.99 | 2,000 | |
| NACE331M10V8X10.5TR13F | 330* | 0.24 | | 280 | 1.21 | 2,000 | |
| NACE471M10V8X10.5TR13F | 470 | 0.24 | | 300 | 0.85 | 2,000 | |
| NACE471M10V10X8TR13F | 470 | 0.24 | | 300 | 0.85 | 2,000 | |
| NACE102M10V10X10.5TR13F | 1000* | 0.24 | | 450 | 0.40 | 2,000 | |
| NACE222M10V12.5X14TR13F | 2200 | 0.26 | | 730 | 0.24 | 2,000 | |
| NACE472M10V16X17TR13F | 4700 | 0.30 | | 1200 | 0.13 | 2,000 | |
| NACE100M16V3X5.5TR13F | 10 | 16 | | 0.19 | 20 | 26.5 | 2,000 |
| NACE100M16V4X5.5TR13F | 10 | | | 0.16 | 25 | 26.5 | 2,000 |
| NACE220M16V5X5.5TR13F | 22* | | | 0.16 | 39 | 12.1 | 2,000 |
| NACE330M16V6.3X5.5TR13F | 33* | | | 0.16 | 57 | 8.04 | 2,000 |
| NACE470M16V6.3X5.5TR13F | 47* | | | 0.16 | 68 | 5.65 | 2,000 |
| NACE680M16V6.3X5.5TR13F | 68* | | | 0.16 | 75 | 3.91 | 2,000 |
| NACE101M16V6.3X5.5TR13F | 100* | | 0.16 | 86 | 2.66 | 2,000 | |
| NACE101M16V8X6.5TR13F | 100 | | 0.20 | 200 | 3.32 | 2,000 | |
| NACE151M16V6.3X8TR13F | 150* | | 0.16 | 135 | 1.77 | 2,000 | |
| NACE221M16V6.3X8TR13F | 220* | | 0.16 | 150 | 1.21 | 2,000 | |
| NACE331M16V8X10.5TR13F | 330 | | 0.20 | 280 | 1.01 | 2,000 | |
| NACE331M16V10X8TR13F | 330 | | 0.20 | 280 | 1.01 | 2,000 | |
| NACE471M16V8X10.5TR13F | 470 | | 0.20 | 330 | 0.71 | 2,000 | |
| NACE681M16V10X10.5TR13F | 680* | | 0.20 | 450 | 0.49 | 2,000 | |
| NACE152M16V12.5X14TR13F | 1500 | | 0.20 | 710 | 0.24 | 2,000 | |
| NACE332M16V16X17TR13F | 3300 | | 0.24 | 1200 | 0.12 | 2,000 | |

*Items available in optional 10% tolerance

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

| Frequency Hz | 100<f \leq 1K | 1K<f \leq 10K | 10K< f \leq 100K | f \geq 100K |
|---------------------------------|-----------------|-----------------|--------------------|---------------|
| C \leq 4.7 μ F | 1.0 | 1.3 | 1.5 | 2.0 |
| 4.7 μ F<C \leq 33 μ F | 1.0 | 1.2 | 1.3 | 1.45 |
| C>33 μ F | 1.0 | 1.1 | 1.2 | 1.3 |



Surface Mount Aluminum Electrolytic Capacitors NACE Series

STANDARD PRODUCTS, SPECIFICATIONS AND CASE SIZE TABLE DφxL (mm)

| NIC Part Number | Cap. (μF) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Ripple current (mA) @ +85°C/120Hz | Max. ESR (Ω) @ +20°C/120Hz | Load Life Hours @ +85°C |
|-------------------------|-----------|------------|----------------------------|--|----------------------------|-------------------------|
| NACE4R7M25V3X5.5TR13F | 4.7 | 25 | 0.16 | 12 | 49.4 | 2,000 |
| NACE4R7M25V4X5.5TR13F | 4.7 | | 0.14 | 19 | 23.2 | 2,000 |
| NACE100M25V5X5.5TR13F | 10 | | 0.14 | 28 | 10.6 | 2,000 |
| NACE220M25V6.3X5.5TR13F | 22 | | 0.14 | 52 | 7.04 | 2,000 |
| NACE330M25V6.3X5.5TR13F | 33 | | 0.14 | 63 | 4.95 | 2,000 |
| NACE470M25V6.3X6.3TR13F | 47 | | 0.14 | 68 | 3.42 | 2,000 |
| NACE680M25V6.3X6.3TR13F | 68 | | 0.14 | 80 | 2.32 | 2,000 |
| NACE101M25V6.3X8TR13F | 100 | | 0.14 | 91 | 2.66 | 2,000 |
| NACE101M25V8X6.5TR13F | 100 | | 0.16 | 130 | 1.55 | 2,000 |
| NACE151M25V8X10.5TR13F | 150* | | 0.16 | 200 | 1.33 | 2,000 |
| NACE221M25V8X10.5TR13F | 220 | | 0.16 | 250 | 1.21 | 2,000 |
| NACE221M25V10X8TR13F | 220 | | 0.16 | 250 | 1.21 | 2,000 |
| NACE331M25V8X10.5TR13F | 330 | | 0.16 | 310 | 0.81 | 2,000 |
| NACE471M25V10X10.5TR13F | 470 | | 0.16 | 430 | 0.57 | 2,000 |
| NACE102M25V12.5X14TR13F | 1000 | | 0.16 | 660 | 0.27 | 2,000 |
| NACE222M25V16X17TR13F | 2200 | 0.18 | 1150 | 0.14 | 2,000 | |
| NACE2R2M35V3X5.5TR13F | 2.2 | 35 | 0.14 | 8.0 | 90.4 | 2,000 |
| NACE3R3M35V3X5.5TR13F | 3.3 | | 0.14 | 10 | 60.3 | 2,000 |
| NACE4R7M35V4X5.5TR13F | 4.7* | | 0.12 | 20 | 42.3 | 2,000 |
| NACE100M35V5X5.5TR13F | 10* | | 0.12 | 30 | 19.9 | 2,000 |
| NACE220M35V6.3X5.5TR13F | 22* | | 0.12 | 54 | 9.05 | 2,000 |
| NACE330M35V6.3X6.3TR13F | 33* | | 0.12 | 60 | 6.04 | 2,000 |
| NACE330M35V8X6.5TR13F | 33 | | 0.14 | 130 | 7.04 | 2,000 |
| NACE470M35V6.3X6.3TR13F | 47* | | 0.12 | 70 | 4.24 | 2,000 |
| NACE470M35V8X6.5TR13F | 47 | | 0.14 | 165 | 4.95 | 2,000 |
| NACE680M35V6.3X8TR13F | 68 | | 0.12 | 110 | 2.93 | 2,000 |
| NACE101M35V6.3X8TR13F | 100 | | 0.12 | 130 | 1.99 | 2,000 |
| NACE151M35V8X10.5TR13F | 150* | | 0.14 | 220 | 1.33 | 2,000 |
| NACE151M35V10X8TR13F | 150* | | 0.14 | 220 | 1.33 | 2,000 |
| NACE221M35V8X10.5TR13F | 220 | | 0.14 | 270 | 1.06 | 2,000 |
| NACE331M35V10X10.5TR13F | 330 | | 0.14 | 340 | 0.71 | 2,000 |
| NACE471M35V12.5X14TR13F | 470 | 0.14 | 590 | 0.49 | 2,000 | |
| NACE681M35V12.5X14TR13F | 680 | 0.14 | 610 | 0.34 | 2,000 | |
| NACE152M35V16X17TR13F | 1500 | 0.14 | 1060 | 0.17 | 2,000 | |
| NACER10M50V3X5.5TR13F | 0.1 | 50 | 0.14 | 1.0 | 1660 | 2,000 |
| NACER10M50V4X5.5TR13F | 0.1* | | 0.10 | 1.0 | 1660 | 2,000 |
| NACER22M50V3X5.5TR13F | 0.22 | | 0.14 | 2.3 | 1660 | 2,000 |
| NACER22M50V4X5.5TR13F | 0.22* | | 0.10 | 2.3 | 754 | 2,000 |
| NACER33M50V3X5.5TR13F | 0.33 | | 0.14 | 3.5 | 503 | 2,000 |
| NACER33M50V4X5.5TR13F | 0.33* | | 0.10 | 3.5 | 503 | 2,000 |
| NACER47M50V3X5.5TR13F | 0.47 | | 0.14 | 4.0 | 353 | 2,000 |
| NACER47M50V4X5.5TR13F | 0.47* | | 0.10 | 5.5 | 353 | 2,000 |
| NACE1R0M50V3X5.5TR13F | 1.0 | | 0.14 | 8.0 | 166 | 2,000 |
| NACE1R0M50V4X5.5TR13F | 1.0* | | 0.10 | 10 | 166 | 2,000 |
| NACE2R2M50V4X5.5TR13F | 2.2* | | 0.10 | 15 | 75.4 | 2,000 |
| NACE3R3M50V4X5.5TR13F | 3.3* | | 0.10 | 15 | 50.3 | 2,000 |
| NACE4R7M50V5X5.5TR13F | 4.7* | | 0.10 | 23 | 35.3 | 2,000 |
| NACE100M50V6.3X5.5TR13F | 10* | | 0.10 | 34 | 16.6 | 2,000 |
| NACE220M50V6.3X6.3TR13F | 22* | | 0.10 | 58 | 7.54 | 2,000 |
| NACE220M50V8X6.5TR13F | 22 | 0.12 | 120 | 9.05 | 2,000 | |
| NACE330M50V6.3X8TR13F | 33* | 0.10 | 65 | 5.03 | 2,000 | |
| NACE330M50V8X6.5TR13F | 33 | 0.12 | 85 | 6.04 | 2,000 | |
| NACE470M50V6.3X8TR13F | 47* | 0.10 | 90 | 3.53 | 2,000 | |
| NACE680M50V8X10.5TR13F | 68* | 0.12 | 120 | 2.44 | 2,000 | |
| NACE820M50V10X8TR13F | 82 | 0.12 | 200 | 2.44 | 2,000 | |
| NACE101M50V8X10.5TR13F | 100* | 0.12 | 200 | 1.99 | 2,000 | |
| NACE221M50V10X10.5TR13F | 220 | 0.12 | 320 | 0.91 | 2,000 | |
| NACE331M50V12.5X14TR13F | 330 | 0.12 | 520 | 0.60 | 2,000 | |
| NACE471M50V16X17TR13F | 470 | 0.12 | 925 | 0.43 | 2,000 | |
| NACE102M50V16X17TR13F | 1000 | 0.12 | 940 | 0.20 | 2,000 | |

*Items available in optional 10% tolerance



STANDARD PRODUCTS, SPECIFICATIONS AND CASE SIZE TABLE DφxL (mm)

| NIC Part Number | Cap. (μF) | W.V. (Vdc) | Dissipation Factor (Tan δ) | Max. Ripple current (mA) @ +85°C/120Hz | Max. ESR (Ω) @ +20°C/120Hz | Load Life Hours @ +85°C |
|--------------------------|-----------|------------|----------------------------|--|----------------------------|-------------------------|
| NACER10M63V4X5.5TR13F | 0.1* | 63 | 0.10 | 1.0 | 1660 | 2,000 |
| NACER22M63V4X5.5TR13F | 0.22* | | 0.10 | 2.3 | 754 | 2,000 |
| NACER33M63V4X5.5TR13F | 0.33* | | 0.10 | 3.5 | 503 | 2,000 |
| NACER47M63V4X5.5TR13F | 0.47* | | 0.10 | 5.0 | 353 | 2,000 |
| NACE1R0M63V4X5.5TR13F | 1.0* | | 0.10 | 10 | 166 | 2,000 |
| NACE2R2M63V4X5.5TR13F | 2.2* | | 0.10 | 15 | 75.4 | 2,000 |
| NACE3R3M63V5X5.5TR13F | 3.3* | | 0.10 | 15 | 50.3 | 2,000 |
| NACE4R7M63V5X5.5TR13F | 4.7* | | 0.10 | 23 | 35.3 | 2,000 |
| NACE100M63V6.3X5.5TR13F | 10* | | 0.10 | 34 | 16.6 | 2,000 |
| NACE220M63V6.3X8TR13F | 22* | | 0.10 | 70 | 7.54 | 2,000 |
| NACE330M63V8X10.5TR13F | 33* | | 0.12 | 160 | 6.04 | 2,000 |
| NACE470M63V8X10.5TR13F | 47* | | 0.12 | 170 | 4.24 | 2,000 |
| NACE680M63V8X10.5TR13F | 68 | | 0.12 | 180 | 2.44 | 2,000 |
| NACE101M63V10X10.5TR13F | 100* | | 0.12 | 280 | 1.99 | 2,000 |
| NACE221M63V12.5X14TR13F | 220 | 0.12 | 410 | 0.91 | 2,000 | |
| NACE471M63V16X17TR13F | 470 | 0.12 | 700 | 0.43 | 2,000 | |
| NACE1R0M100V4X6.3TR13F | 1.0* | 100 | 0.10 | 10 | 166 | 2,000 |
| NACE2R2M100V6.3X6.3TR13F | 2.2* | | 0.10 | 20 | 75.4 | 2,000 |
| NACE3R3M100V6.3X6.3TR13F | 3.3* | | 0.10 | 28 | 50.3 | 2,000 |
| NACE3R3M100V8X6.5TR13F | 3.3 | | 0.10 | 50 | 90.4 | 2,000 |
| NACE4R7M100V6.3X6.3TR13F | 4.7* | | 0.10 | 35 | 35.3 | 2,000 |
| NACE100M100V6.3X8TR13F | 10* | | 0.10 | 50 | 16.6 | 2,000 |
| NACE220M100V8X10.5TR13F | 22* | | 0.10 | 120 | 7.54 | 2,000 |
| NACE330M100V10X10.5TR13F | 33* | | 0.10 | 190 | 5.03 | 2,000 |
| NACE470M100V12.5X14TR13F | 47 | | 0.10 | 330 | 3.53 | 2,000 |
| NACE680M100V12.5X14TR13F | 68 | | 0.10 | 350 | 2.44 | 2,000 |
| NACE101M100V16X17TR13F | 100 | | 0.10 | 550 | 1.66 | 2,000 |
| NACE151M100V16X17TR13F | 150 | | 0.10 | 560 | 1.11 | 2,000 |

*Items available in optional 10% tolerance

DIMENSIONS (mm)

| Case Size | Dφ ±0.5 | L max. | A ±0.2 | B ±0.2 | I ±0.2 | W | P ±0.2 |
|-----------|---------|--------|--------|--------|--------|------------|--------|
| 3 x 5.5 | 3.0 | 5.5 | 3.3 | 3.3 | 1.5 | 0.45 ~ 0.8 | 0.6 |
| 4 x 5.5 | 4.0 | 5.5 | 4.3 | 4.3 | 1.8 | 0.5 ~ 0.8 | 1.0 |
| 5 x 5.5 | 5.0 | 5.5 | 5.3 | 5.3 | 2.1 | 0.5 ~ 0.8 | 1.4 |
| 6.3 x 5.5 | 6.3 | 5.5 | 6.6 | 6.6 | 2.5 | 0.5 ~ 0.8 | 2.2 |
| 6.3 x 6.3 | 6.3 | 6.3 | 6.6 | 6.6 | 2.5 | 0.5 ~ 0.8 | 2.2 |
| 6.3 x 8 | 6.3 | 8.0 | 6.6 | 6.6 | 2.5 | 0.5 ~ 0.8 | 2.2 |
| 8 x 6.5 | 8.0 | 6.5 | 8.3 | 8.3 | 3.4 | 0.5 ~ 0.8 | 2.2 |
| 8 X 10.5 | 8.0 | 10.5 | 8.3 | 8.3 | 2.9 | 0.7 ~ 1.0 | 3.2 |
| 10 x 8 | 10.0 | 8.0 | 10.3 | 10.3 | 3.2 | 0.7 ~ 1.4 | 4.6 |
| 10 x 10.5 | 10.0 | 10.5 | 10.3 | 10.3 | 3.2 | 0.7 ~ 1.4 | 4.6 |
| 12.5 x 14 | 12.5 | 14.0 | 12.8 | 12.8 | 4.5 | 0.6 ~ 1.4 | 4.6 |
| 16 x 17 | 16.0 | 17.5 | 17.0 | 17.0 | 5.5 | 0.9 ~ 1.5 | 6.7 |

