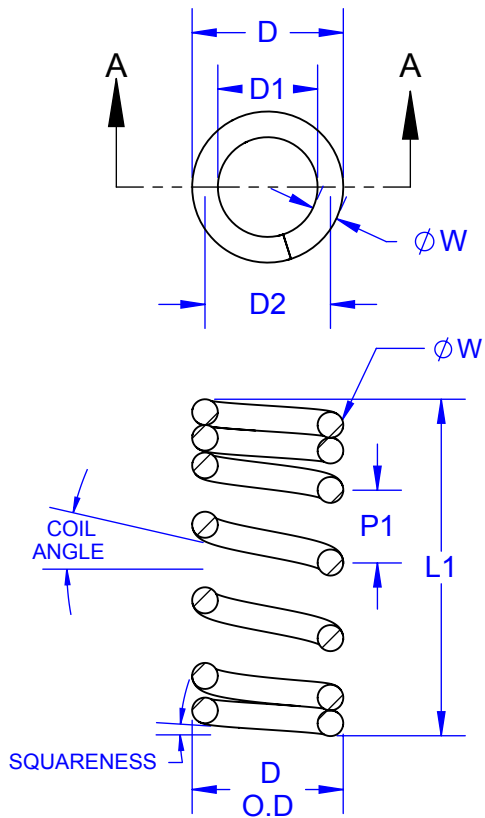


MICRO-COIL SPRING - FREE (WITHOUT LOAD)

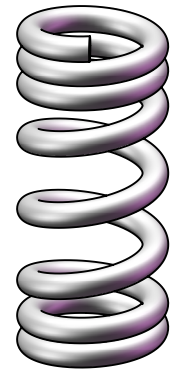
FREE (WITHOUT LOAD)



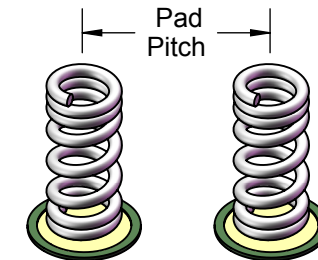
DIMENSION TABLE 1
FREE WITHOUT LOAD
(INCH)

| DWG | PART# | ØD O.D. | L1 | ØW Wire | P1 | Active Coils | Total Coils | Coil Deg | ØD1 I.D. | ØD2 Median | Spring Index | Pad Pitch |
|--------|---------------|---------|-------|---------|--------|--------------|-------------|----------|----------|------------|--------------|-----------|
| 170615 | MCS172P6x15 | 0.006 | 0.015 | 0.0010 | 0.0025 | 4.00 | 8.00 | 9.043° | 0.0040 | 0.005 | 5.00 | 0.4mm |
| 170820 | MCS172P8x20 | 0.008 | 0.020 | 0.0012 | 0.0028 | 5.00 | 9.00 | 7.467° | 0.0056 | 0.0068 | 5.67 | 0.5mm |
| 171025 | MCS172P10x25 | 0.010 | 0.025 | 0.0015 | 0.0035 | 5.00 | 9.00 | 7.467° | 0.0070 | 0.0085 | 5.67 | 0.65mm |
| 171231 | MCS172P12x30 | 0.012 | 0.030 | 0.00185 | 0.0044 | 4.73 | 8.73 | 7.834° | 0.0083 | 0.0102 | 5.50 | 0.8mm |
| 171435 | MCS172P14x35 | 0.014 | 0.035 | 0.0022 | 0.0051 | 4.77 | 8.77 | 7.780° | 0.0097 | 0.0119 | 5.38 | 0.8mm |
| 171640 | MCS172P16x40 | 0.016 | 0.040 | 0.0025 | 0.0058 | 4.80 | 8.80 | 7.740° | 0.0111 | 0.0136 | 5.42 | 1.0mm |
| 171845 | MCS172P18x45 | 0.018 | 0.045 | 0.0028 | 0.0065 | 4.82 | 8.82 | 7.710° | 0.0125 | 0.0153 | 5.45 | 1.0mm |
| 172050 | MCS172P20x50 | 0.020 | 0.050 | 0.0034 | 0.010 | 3.30 | 7.30 | 10.855° | 0.0132 | 0.0166 | 4.88 | 1.0mm |
| 172051 | MCS172P20x50A | 0.020 | 0.050 | 0.0031 | 0.0074 | 4.68 | 8.68 | 7.909° | 0.0138 | 0.0169 | 5.45 | 1.0mm |
| 173587 | MCS172P35x87 | 0.035 | 0.087 | 0.0054 | 0.0129 | 4.67 | 8.67 | 7.872° | 0.0242 | 0.0296 | 5.48 | >1.5mm |

MODEL




FREE
WITHOUT
LOAD

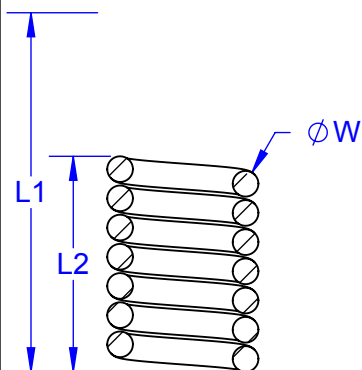
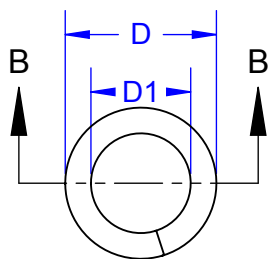


Notes:

1. MATERIAL: BERYLLIUM COPPER - C17200 (ALLOY 25).
2. TEMPER: HARD TEMPER (TD05) PER ASTM B 197.
3. COIL: CYLINDRICAL DOUBLE-CLOSED END - SQUARED (CENG).
4. POST PLATED: Sn63/Pb37 - 100 MICRO-INCH THICK.

| APPROVALS | DATE |  | | | |
|-------------|----------|---|--------|--------------------|--------------|
| DRAWN T.Au | 12/07/13 | | | | |
| ENG M. Hart | 12/07/13 | TITLE MICRO-COIL SPRING CCGA INTERCONNECT | | | |
| MFG | | SCALE 50:1 | SIZE A | DRAWING NO. 172000 | REV A |
| QA | | DO NOT SCALE DRAWING | | | SHEET 1 OF 8 |
| CUST | | | | | |
| REVISED | | | | | |

MICRO-COIL SPRING - FULL COMPRESSION (SOLID)



DIMENSION TABLE 2
~60% SOLID (FULLY COMPRESSED)
(INCH)

| DWG | PART# | ϕ D O.D. | L1 | L2 | ϕ W Wire | TRAVEL L1 - L2 | % Compr | LOAD LBS | LOAD gm | ϕ D1 I.D. |
|--------|---------------|------------------|-------|-------|------------------|-------------------|------------|-------------|------------|-------------------|
| 170615 | MCS172P6x15 | 0.006 | 0.015 | 0.009 | 0.0010 | 0.006 | 60% | 0.0105 | 4.7g | 0.0040 |
| 170820 | MCS172P8x20 | 0.008 | 0.020 | 0.012 | 0.0012 | 0.008 | 60% | 0.0092 | 4.2g | 0.0056 |
| 171025 | MCS172P10x25 | 0.010 | 0.025 | 0.015 | 0.0015 | 0.010 | 60% | 0.0144 | 6.5g | 0.0070 |
| 171231 | MCS172P12x30 | 0.012 | 0.030 | 0.018 | 0.00185 | 0.012 | 60% | 0.0249 | 11.3g | 0.0083 |
| 171435 | MCS172P14x35 | 0.014 | 0.035 | 0.021 | 0.0022 | 0.014 | 60% | 0.0330 | 15.0g | 0.0097 |
| 171640 | MCS172P16x40 | 0.016 | 0.040 | 0.024 | 0.0025 | 0.016 | 60% | 0.0423 | 19.2g | 0.0111 |
| 171845 | MCS172P18x45 | 0.018 | 0.045 | 0.027 | 0.0028 | 0.018 | 60% | 0.0527 | 24g | 0.0125 |
| 172050 | MCS172P20x50 | 0.020 | 0.050 | 0.028 | 0.0034 | 0.022 | 60% | 0.1687 | 76g | 0.0132 |
| 172051 | MCS172P20x50A | 0.020 | 0.050 | 0.030 | 0.0031 | 0.020 | 60% | 0.0716 | 32g | 0.0138 |
| 173587 | MCS172P35x87 | 0.035 | 0.087 | 0.052 | 0.0054 | 0.035 | 60% | 0.2139 | 97g | 0.0242 |



MODEL
SOLID
L = 60%

TopLine®

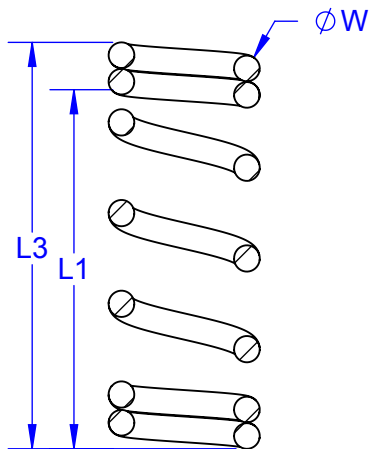
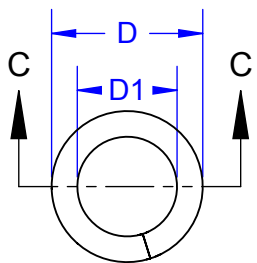
TITLE MICRO-COIL SPRING
CCGA INTERCONNECT

| | | | |
|---------------|-----------|-----------------------|----------|
| SCALE NONE | SIZE A | DRAWING NO. 172000 | REV A |
|---------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING

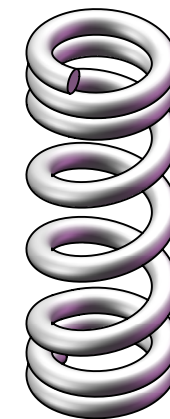
SHEET 2 OF 8

MICRO-COIL SPRING -120% EXTENDED



DIMENSION TABLE 3
120% EXTENDED POSITION
(INCH)

| DWG | PART# | ϕ D O.D. | L1 | L3 | W | TRAVEL L3 - L1 | % Compr | ϕ D1 I.D. |
|--------|---------------|------------------|-------|--------|---------|-------------------|------------|-------------------|
| 170615 | MCS172P6x15 | 0.006 | 0.015 | 0.0180 | 0.0010 | 0.003 | 120% | 0.0040 |
| 170820 | MCS172P8x20 | 0.008 | 0.020 | 0.024 | 0.0012 | 0.004 | 120% | 0.0056 |
| 171025 | MCS172P10x25 | 0.010 | 0.025 | 0.030 | 0.0015 | 0.005 | 120% | 0.0070 |
| 171231 | MCS172P12x30 | 0.012 | 0.030 | 0.036 | 0.00185 | 0.006 | 120% | 0.0083 |
| 171435 | MCS172P14x35 | 0.014 | 0.035 | 0.042 | 0.0022 | 0.007 | 120% | 0.0097 |
| 171640 | MCS172P16x40 | 0.016 | 0.040 | 0.048 | 0.0025 | 0.008 | 120% | 0.0111 |
| 171845 | MCS172P18x45 | 0.018 | 0.045 | 0.054 | 0.0028 | 0.009 | 120% | 0.0125 |
| 172050 | MCS172P20x50 | 0.020 | 0.050 | 0.060 | 0.0034 | 0.010 | 120% | 0.0132 |
| 172051 | MCS172P20x50A | 0.020 | 0.050 | 0.060 | 0.0031 | 0.010 | 120% | 0.0138 |
| 173587 | MCS172P35x87 | 0.035 | 0.087 | 0.104 | 0.0054 | 0.017 | 120% | 0.0242 |



MODEL
EXTENDED
L = 120%

TopLine®

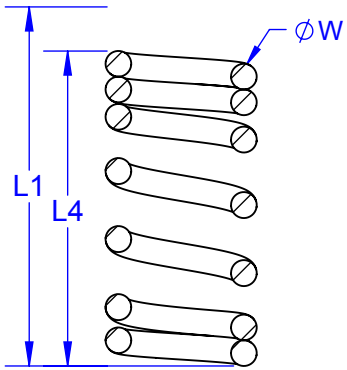
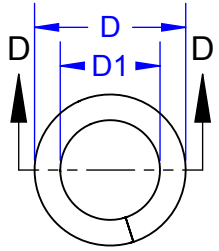
TITLE MICRO-COIL SPRING
CCGA INTERCONNECT

| | | | |
|---------------|-----------|-----------------------|----------|
| SCALE NONE | SIZE A | DRAWING NO. 172000 | REV A |
|---------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING

SHEET 3 OF 8

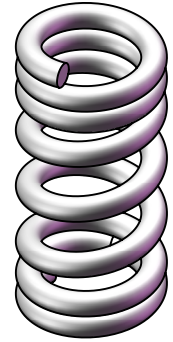
MICRO-COIL SPRING - 90% COMPRESSION



SECTION D-D

DIMENSION TABLE 4
POINT 1 COMPRESSION 90%
(INCH)

| DWG | PART# | ϕ D O.D. | L1 | L4 | ϕ W Wire | TRAVEL L1 - L4 | % Compr | LOAD LBS | LOAD gm | ϕ D1 I.D. |
|--------|---------------|------------------|-------|--------|------------------|-------------------|------------|-------------|------------|-------------------|
| 170615 | MCS172P6x15 | 0.006 | 0.015 | 0.0135 | 0.0010 | 0.0015 | 90% | 0.0026 | 1.18g | 0.0040 |
| 170820 | MCS172P8x20 | 0.008 | 0.020 | 0.0180 | 0.0012 | 0.0020 | 90% | 0.0023 | 1.05g | 0.0056 |
| 171025 | MCS172P10x25 | 0.010 | 0.025 | 0.0225 | 0.0015 | 0.0025 | 90% | 0.0036 | 1.64g | 0.0070 |
| 171231 | MCS172P12x30 | 0.012 | 0.030 | 0.0270 | 0.00185 | 0.0030 | 90% | 0.0062 | 2.82g | 0.0083 |
| 171435 | MCS172P14x35 | 0.014 | 0.035 | 0.0315 | 0.0022 | 0.0035 | 90% | 0.0083 | 3.77g | 0.0097 |
| 171640 | MCS172P16x40 | 0.016 | 0.040 | 0.0360 | 0.0025 | 0.0040 | 90% | 0.0106 | 4.82g | 0.0111 |
| 171845 | MCS172P18x45 | 0.018 | 0.045 | 0.0405 | 0.0028 | 0.0045 | 90% | 0.0132 | 6.00g | 0.0125 |
| 172050 | MCS172P20x50 | 0.020 | 0.050 | 0.0450 | 0.0034 | 0.0050 | 90% | TBA | TBA | 0.0132 |
| 172051 | MCS172P20x50A | 0.020 | 0.050 | 0.0450 | 0.0031 | 0.0050 | 90% | 0.0179 | 8.14g | 0.0138 |
| 173587 | MCS172P35x87 | 0.035 | 0.087 | 0.0783 | 0.0054 | 0.0087 | 90% | 0.0535 | 24.3g | 0.0242 |



MODEL
L = 90%

TopLine[®]

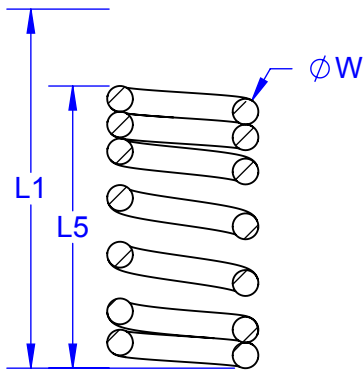
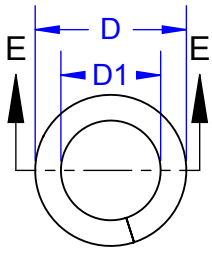
TITLE MICRO-COIL SPRING
CCGA INTERCONNECT

| | | | |
|---------------|-----------|-----------------------|----------|
| SCALE NONE | SIZE A | DRAWING NO. 172000 | REV A |
|---------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING

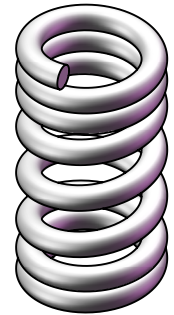
SHEET 4 OF 8

MICRO-COIL SPRING - 75% COMPRESSION



DIMENSION TABLE 5
POINT 2 COMPRESSION 75%
(INCH)

| DWG | PART# | ØD O.D. | L1 | L5 | ØW Wire | TRAVEL L1 - L5 | % Compr | LOAD LBS | LOAD gm | ØD1 I.D. |
|--------|---------------|---------|-------|--------|---------|----------------|---------|----------|---------|----------|
| 170615 | MCS172P6x15 | 0.006 | 0.015 | 0.0113 | 0.0010 | 0.0037 | 75% | 0.00562 | 2.55g | 0.0040 |
| 170820 | MCS172P8x20 | 0.008 | 0.020 | 0.0150 | 0.0012 | 0.0050 | 75% | 0.00577 | 2.62g | 0.0056 |
| 171025 | MCS172P10x25 | 0.010 | 0.025 | 0.0188 | 0.0015 | 0.0062 | 75% | 0.00902 | 4.10g | 0.0070 |
| 171231 | MCS172P12x30 | 0.012 | 0.030 | 0.0225 | 0.00185 | 0.0075 | 75% | 0.0155 | 7.00g | 0.0083 |
| 171435 | MCS172P14x35 | 0.014 | 0.035 | 0.0263 | 0.0022 | 0.0087 | 75% | 0.0206 | 9.36g | 0.0097 |
| 171640 | MCS172P16x40 | 0.016 | 0.040 | 0.0300 | 0.0025 | 0.0100 | 75% | 0.0264 | 12.0g | 0.0111 |
| 171845 | MCS172P18x45 | 0.018 | 0.045 | 0.0338 | 0.0028 | 0.0112 | 75% | 0.0329 | 15.0g | 0.0125 |
| 172050 | MCS172P20x50 | 0.020 | 0.050 | 0.0375 | 0.0034 | 0.0125 | 75% | TBA | TBA | 0.0132 |
| 172051 | MCS172P20x50A | 0.020 | 0.050 | 0.0375 | 0.0031 | 0.0125 | 75% | 0.0447 | 20.0g | 0.0138 |
| 173587 | MCS172P35x87 | 0.035 | 0.087 | 0.0653 | 0.0054 | 0.0217 | 75% | 0.1337 | 60.0g | 0.0242 |



MODEL
L = 75%

TopLine®

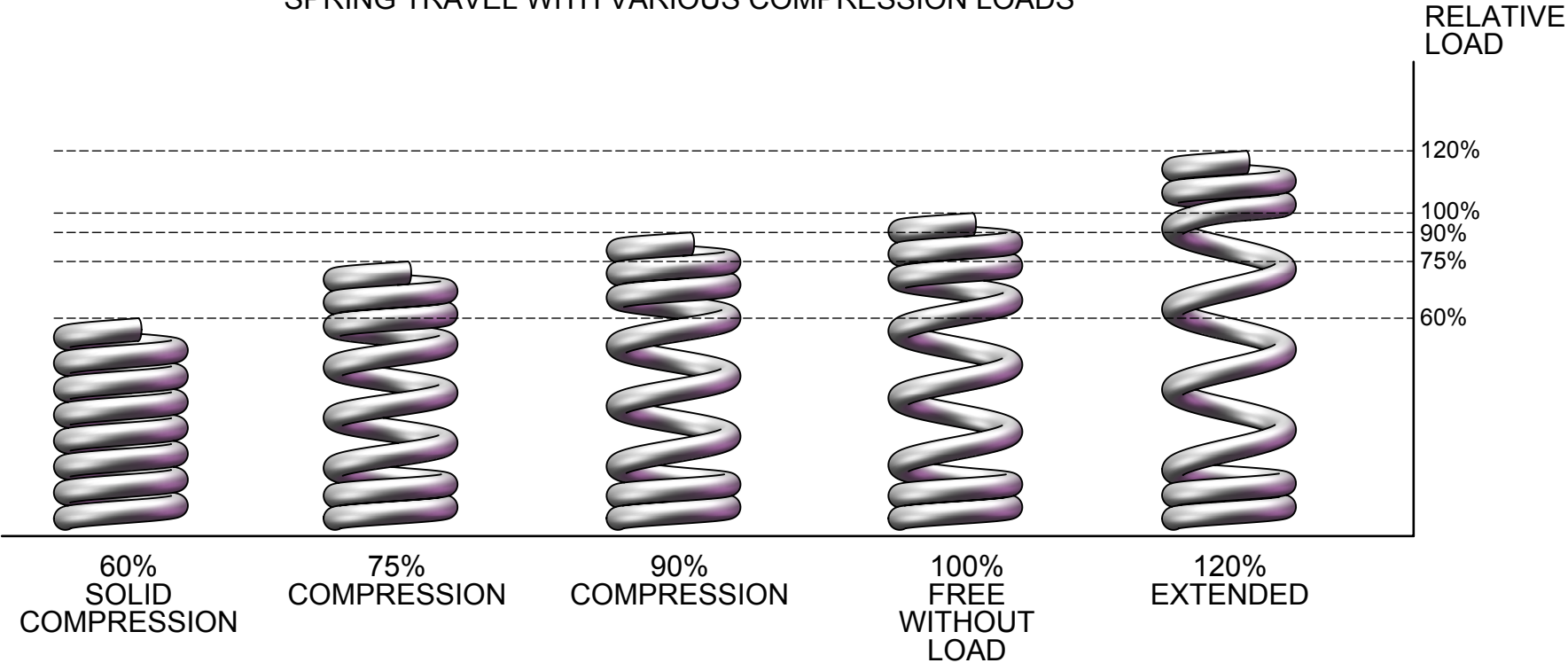
TITLE MICRO-COIL SPRING
CCGA INTERCONNECT

| | | | |
|---------------|-----------|-----------------------|----------|
| SCALE NONE | SIZE A | DRAWING NO. 172000 | REV A |
|---------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING

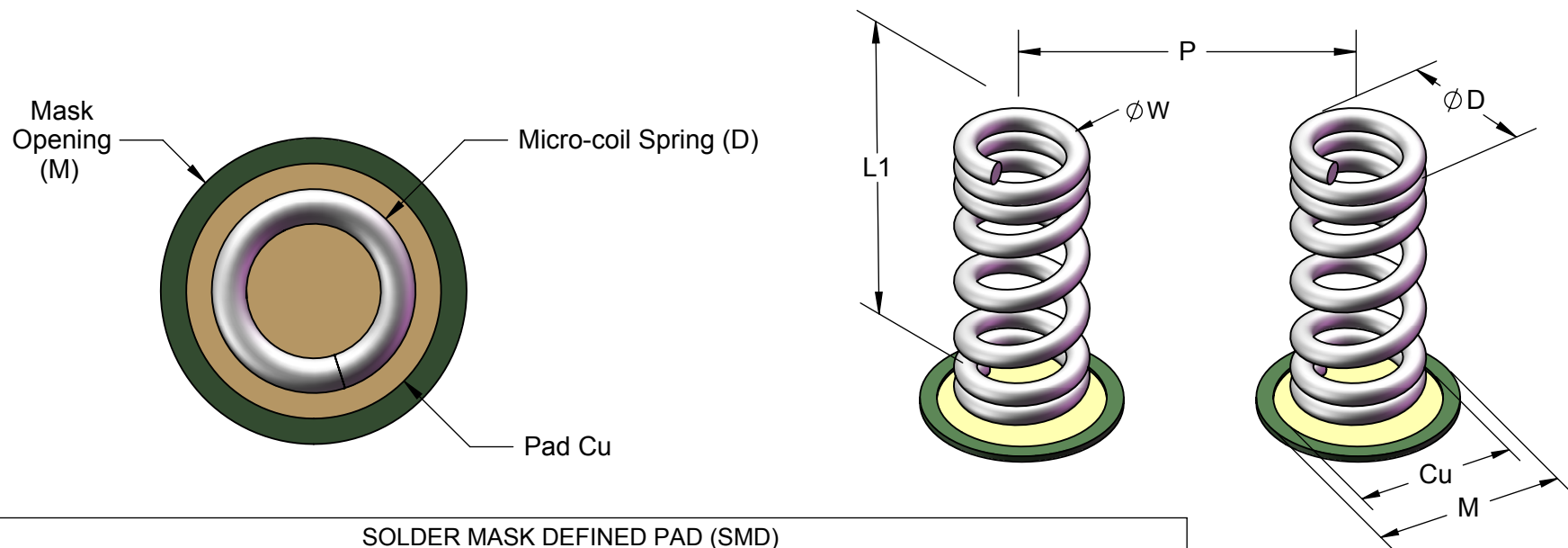
SHEET 5 OF 8

SPRING TRAVEL WITH VARIOUS COMPRESSION LOADS



| | | | |
|---|-----------|-----------------------|--------------|
| TopLine® | | | |
| TITLE MICRO-COIL SPRING CCGA INTERCONNECT | | | |
| SCALE 50:1 | SIZE A | DRAWING NO. 172000 | REV A |
| DO NOT SCALE DRAWING | | | SHEET 6 OF 8 |

PC BOARD PAD
SMD - SOLDER MASK DEFINED PAD



SOLDER MASK DEFINED PAD (SMD)

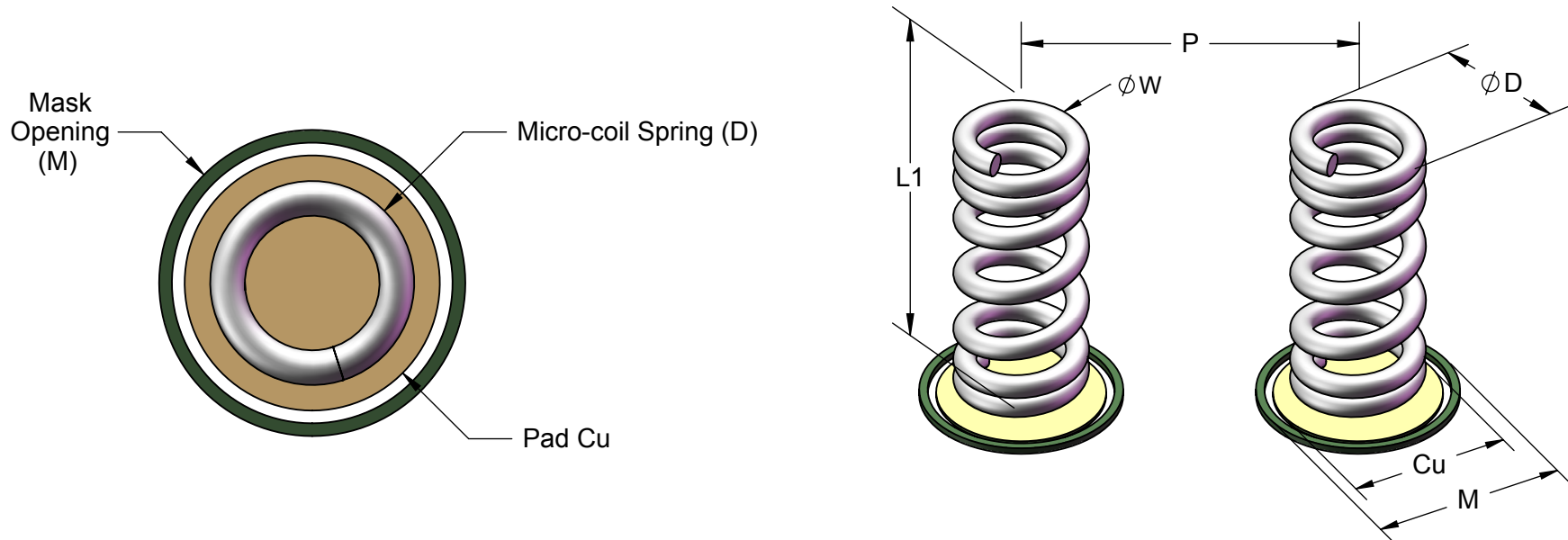
DIMENSION TABLE 6
(INCH)

| DWG | PART# | ØD O.D. | L1 | ØW Wire | P Pad Pitch | ØCu Pad | ØM Mask Open | Stencil Thickness |
|--------|---------------|------------|-------|------------|-------------------|------------|--------------------|----------------------|
| 170615 | MCS172P6x15 | 0.006 | 0.015 | 0.0010 | 0.4mm | 0.012 | 0.008 | 0.002 |
| 170820 | MCS172P8x20 | 0.008 | 0.020 | 0.0012 | 0.5mm | 0.014 | 0.0100 | 0.003 |
| 171025 | MCS172P10x25 | 0.010 | 0.025 | 0.0015 | 0.65mm | 0.016 | 0.0125 | 0.003 |
| 171231 | MCS172P12x30 | 0.012 | 0.030 | 0.00185 | 0.8mm | 0.019 | 0.0150 | 0.004 |
| 171435 | MCS172P14x35 | 0.014 | 0.035 | 0.0022 | 0.8mm | 0.022 | 0.0180 | 0.005 |
| 171640 | MCS172P16x40 | 0.016 | 0.040 | 0.0025 | 1.0mm | 0.025 | 0.0200 | 0.005 |
| 171845 | MCS172P18x45 | 0.018 | 0.045 | 0.0028 | 1.0mm | 0.027 | 0.0225 | 0.006 |
| 172050 | MCS172P20x50 | 0.020 | 0.050 | 0.0034 | 1.0mm | 0.030 | 0.0250 | 0.008 |
| 172051 | MCS172P20x50A | 0.020 | 0.050 | 0.0031 | 1.0mm | 0.030 | 0.0250 | 0.008 |
| 173587 | MCS172P35x87 | 0.035 | 0.087 | 0.0054 | >1.5mm | 0.050 | 0.0430 | 0.010 |

Notes: PCB BOARD DIMENSIONS ARE PRESENTED ONLY AS A GUIDELINE.
DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.

| | | | |
|---|-----------|-----------------------|--------------|
| TopLine® | | | |
| TITLE MICRO-COIL SPRING CCGA INTERCONNECT | | | |
| SCALE NONE | SIZE A | DRAWING NO. 172000 | REV A |
| DO NOT SCALE DRAWING | | | SHEET 7 OF 8 |

PC BOARD PAD
NSMD - NON SOLDER MASK DEFINED PAD



NON-SOLDER MASK DEFINED PAD (NSMD)

DIMENSION TABLE 7
FREE WITHOUT LOAD
(INCH)

| DWG | PART# | ϕD O.D. | L1 | ϕW Wire | P Pad Pitch | ϕCu Pad | ϕM Mask Open | Stencil Thickness |
|--------|---------------|------------------|-------|------------------|-------------------|------------------|--------------------------|----------------------|
| 170615 | MCS172P6x15 | 0.006 | 0.015 | 0.0010 | 0.4mm | 0.008 | 0.012 | 0.002 |
| 170820 | MCS172P8x20 | 0.008 | 0.020 | 0.0012 | 0.5mm | 0.0100 | 0.016 | 0.003 |
| 171025 | MCS172P10x25 | 0.010 | 0.025 | 0.0015 | 0.65mm | 0.0125 | 0.018 | 0.003 |
| 171231 | MCS172P12x30 | 0.012 | 0.030 | 0.00185 | 0.8mm | 0.0150 | 0.020 | 0.004 |
| 171435 | MCS172P14x35 | 0.014 | 0.035 | 0.0022 | 0.8mm | 0.0180 | 0.022 | 0.005 |
| 171640 | MCS172P16x40 | 0.016 | 0.040 | 0.0025 | 1.0mm | 0.0200 | 0.025 | 0.005 |
| 171845 | MCS172P18x45 | 0.018 | 0.045 | 0.0028 | 1.0mm | 0.0225 | 0.028 | 0.006 |
| 172050 | MCS172P20x50 | 0.020 | 0.050 | 0.0034 | 1.0mm | 0.0250 | 0.030 | 0.008 |
| 172051 | MCS172P20x50A | 0.020 | 0.050 | 0.0031 | 1.0mm | 0.0250 | 0.030 | 0.008 |
| 173587 | MCS172P35x87 | 0.035 | 0.087 | 0.0054 | >1.5mm | 0.0430 | 0.050 | 0.010 |

Notes: PCB BOARD DIMENSIONS ARE PRESENTED ONLY AS A GUIDELINE.
DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.

TopLine[®]

TITLE MICRO-COIL SPRING
CCGA INTERCONNECT

| | | | |
|---------------|-----------|-----------------------|----------|
| SCALE NONE | SIZE A | DRAWING NO. 172000 | REV A |
|---------------|-----------|-----------------------|----------|

DO NOT SCALE DRAWING

SHEET 8 OF 8