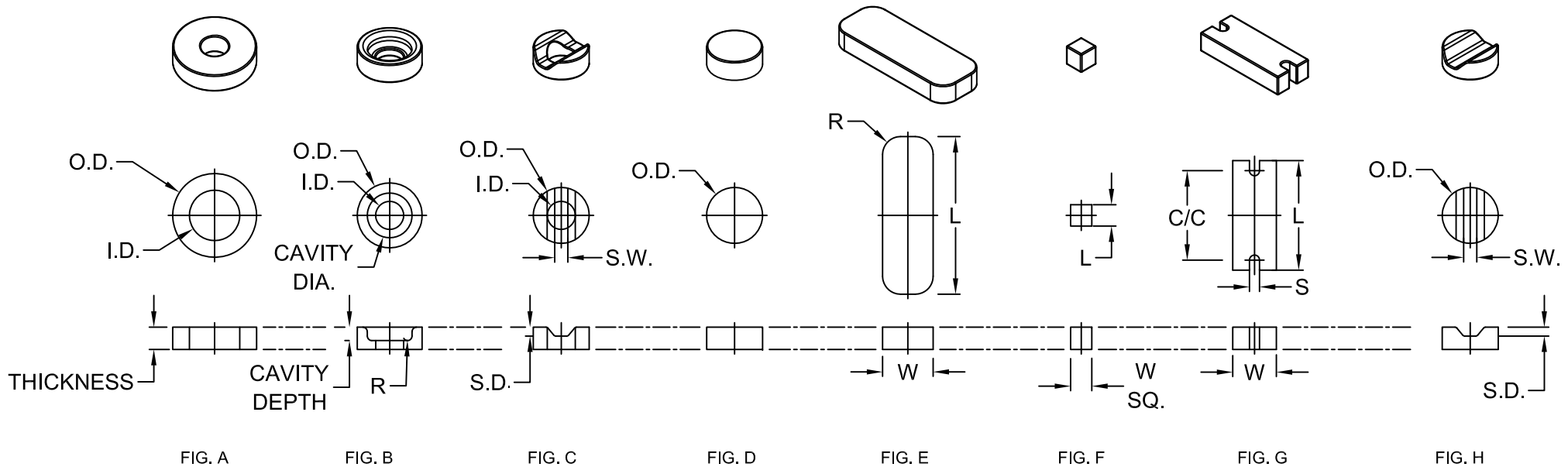


| REV. | DESCRIPTION                                      | DATE     | APPROVED |
|------|--------------------------------------------------|----------|----------|
| A    | Engineering Release.                             | 10/15/03 | M. C.    |
| B    | Updated TO-21 ID.                                | 09/05/06 | M. C.    |
| C    | Updated Part Thickness Offered.                  | 09/08/10 | T. Y.    |
| D    | Corrected TO-13 OD Typo.                         | 07/03/12 | T. Y.    |
| E    | Added Figure H.                                  | 07/18/12 | T. Y.    |
| F    | Removed Part Numbers from Part Offering, Table 1 | 07/01/14 | J. C.    |
| G    | Removed Part Numbers, See Page 2                 | 03/06/15 | J. C.    |
| H    | Add Part Number, See Page 2                      | 03/31/15 | J. C.    |



EXAMPLE:

TO-200-100E

└ Suffix I.D. (see Table 1)

└ Part Thickness

└ TO Style

└ Series

TABLE 1

| SUFFIX I.D. | I.D. DESCRIPTION  | NOTES                                                    |
|-------------|-------------------|----------------------------------------------------------|
| NONE        | Wax               | Offered for all part numbers.                            |
| E           | Effervescent      | Offered for all part numbers.                            |
| CR          | Color Removed     | Offered for all part numbers.                            |
| DR          | Detergent Removed | Offered for all part numbers.                            |
| H           | Salt              | Not offered for P/Ns: TO-10, TO-11, TO-64, TO-65, TO-68. |
| XH          | Extra Hard        | Not offered for P/Ns: TO-10, TO-11, TO-64, TO-65, TO-68. |

|                                                      |                          |                                                                                                                                                                 |  |
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| DECIMALS                                             | ANGULAR                  |                                                                                                                                                                 |  |
| .X ± .1                                              | X° ± 1°                  |  <b>TITLE:</b> DISS-O-PADS,<br>WASH-AWAY SPACERS                           |  |
| .XX ± .01                                            |                          |                                                                                                                                                                 |  |
| .XXX ± .005                                          |                          | <b>PART NO:</b> TO-XXX-XXX <b>REVISION:</b> H                                                                                                                   |  |
| DESIGNED:<br><b>D. Green</b>                         | DATE:<br><b>10/15/03</b> | <b>CAGE CODE :</b> 32559 <b>SHEET #</b> 1 <b>OF</b> 3                                                                                                           |  |
| CHECKED:<br><b>Michael Chen</b>                      | DATE:<br><b>10/15/03</b> | CAD GENERATED DOCUMENT. DO NOT MEASURE DRAWING.                                                                                                                 |  |

| REV | DESCRIPTION   | DATE | APPROVED |
|-----|---------------|------|----------|
|     | SEE SHEET #1. |      |          |
|     |               |      |          |

## TO-5

| PART NO. | I.D.         | O.D.          | THICKNESS                                                                    | FIG. | TO-5        |
|----------|--------------|---------------|------------------------------------------------------------------------------|------|-------------|
| TO-5     | .225 (5.7mm) | .375 (9.5mm)  | .030, .040, .050, .060, .070, .085, .090, .100, .120, .130, .150, .170, .200 | A    | Spacer      |
| TO-6     | .250 (6.4mm) | .375 (9.5mm)  | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150, .160, .180, .190 | A    | I.C. Spacer |
| TO-9     | .300 (7.8mm) | .437 (11.1mm) | .030, .040, .050, .070, .080, .090, .100, .120, .130, .150, .180, .200       | A    | -           |
| TO-13    | .225 (5.7mm) | .310 (7.9mm)  | .030, .040, .050, .060, .070, .080, .090, .100, .120, .130, .150             | A    | Epoxy Case  |

## TO-18

| PART NO. | I.D.         | O.D.         | CAVITY DIA.  | CAVITY DEPTH | THICKNESS                                                                                                  | FIG. | TO-18             |
|----------|--------------|--------------|--------------|--------------|------------------------------------------------------------------------------------------------------------|------|-------------------|
| TO-12    | .125 (3.2mm) | .310 (7.9mm) | .215 (5.5mm) | .065 (1.7mm) | .080, .090, .100, .120, .130, .180                                                                         | B    | .250 (6.4mm) L.S. |
| TO-16    | .125 (3.2mm) | .205 (5.2mm) | -            | -            | .030, .040, .045, .050, .060, .070, .080, .090, .100, .120, .130, .150, .175, .200                         | A    | Epoxy Case        |
| TO-17    | .170 (4.3mm) | .250 (6.4mm) | -            | -            | .030, .035, .040, .050, .060, .070, .090, .100, .120, .130, .140, .150, .170, .180, .200                   | A    | Thin Walls        |
| TO-18    | .125 (3.2mm) | .250 (6.4mm) | -            | -            | .030, .040, .045, .050, .055, .060, .070, .080, .090, .100, .120, .125, .130, .150, .170, .190, .200, .250 | A    | Standard          |
| TO-20    | .125 (3.2mm) | .290 (7.4mm) | .200 (5.1mm) | .065 (1.7mm) | .070, .090, .100, .120, .130, .150                                                                         | B    | .200 (5.1mm) L.S. |
| TO-27    | .125 (3.2mm) | .290 (7.4mm) | -            | -            | .030, .040, .050, .060, .070, .090, .100, .120, .130                                                       | A    | Heavy Walls       |

## AXIAL

| PART NO. | I.D.         | O.D.          | THICKNESS                                                              | SLOT DEPTH   | SLOT WIDTH   | FIG. |
|----------|--------------|---------------|------------------------------------------------------------------------|--------------|--------------|------|
| TO-21    | .125 (3.2mm) | .250 (6.4mm)  | .050, .070, .080, .090, .100, .120, .130, .150, .170, .200, .230, .250 | .045 (1.1mm) | .060 (1.5mm) | C    |
| TO-35    | -            | .440 (11.2mm) | .100, .120, .130, .140, .150, .170, .180, .190, .220, .230, .250       | .065 (1.7mm) | .230 (5.8mm) | H    |
| TO-36    | -            | .187 (4.7mm)  | .050, .060, .070, .080, .090, .100, .120, .130, .150                   | .040 (1.0mm) | .080 (2.0mm) | H    |
| TO-37    | -            | .156 (4.0mm)  | .050, .070, .080, .090, .100, .120                                     | .025 (.64mm) | .050 (1.3mm) | H    |

## ON-END/CORDWOOD

| PART NO. | I.D.         | O.D.         | CAVITY DIA.  | CAVITY DEPTH | THICKNESS                                                                                                              | FIG. |
|----------|--------------|--------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------|------|
| TO-7     | .075 (1.9mm) | .175 (4.4mm) | -            | -            | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150, .180, .210                                                 | A    |
| TO-8     | .062 (1.6mm) | .156 (4.0mm) | -            | -            | .030, .035, .040, .050, .055, .060, .065, .070, .080, .085, .090, .100, .105, .120, .130, .150, .160, .190, .200, .210 | A    |
| TO-10    | .040 (1.0mm) | .085 (2.2mm) | -            | -            | .025, .030, .040, .050, .060, .065, .070, .080, .090, .100                                                             | A    |
| TO-11    | .045 (1.1mm) | .100 (2.5mm) | -            | -            | .030, .040, .050, .060, .070, .080, .100, .110, .120                                                                   | A    |
| TO-26    | .070 (1.8mm) | .187 (4.7mm) | -            | -            | .030, .040, .050, .060, .070, .090, .100, .120, .125, .150                                                             | A    |
| TO-40    | .045 (1.1mm) | .156 (4.0mm) | -            | -            | .030, .040, .050, .060, .070, .080, .090, .100, .120, .130, .150, .160                                                 | A    |
| TO-64    | .045 (1.1mm) | .140 (3.6mm) | -            | -            | .030, .035, .040, .050, .060, .070, .090, .100, .120, .125, .130, .140, .150, .160, .175                               | A    |
| TO-65    | .075 (1.9mm) | .140 (3.6mm) | -            | -            | .030, .035, .040, .045, .050, .060, .070, .080, .090, .100, .120, .125, .130, .150, .175                               | A    |
| TO-67    | .045 (1.1mm) | .140 (3.6mm) | .090 (2.3mm) | .025 (.64mm) | .050, .055, .060, .070, .090, .100, .120, .130                                                                         | B    |
| TO-68    | .045 (1.1mm) | .110 (2.8mm) | .075 (1.9mm) | .025 (.64mm) | .040, .050, .055, .060, .070, .090, .100, .120, .130, .150, .160                                                       | B    |

## SOLID

| PART NO. | I.D. | O.D.         | THICKNESS                                                  | FIG. |
|----------|------|--------------|------------------------------------------------------------|------|
| TO-29    | -    | .156 (4.0mm) | .040, .050, .060, .070, .090, .100, .120, .130             | D    |
| TO-31    | -    | .125 (3.2mm) | .040, .050, .060, .070, .090, .100, .120, .130             | D    |
| TO-32    | -    | .187 (4.7mm) | .030, .040, .050, .060, .070, .080, .090, .100, .120, .130 | D    |
| TO-33    | -    | .250 (6.4mm) | .030, .040, .050, .060, .070, .080, .090, .100, .120, .130 | D    |
| TO-34    | -    | .375 (9.5mm) | .040, .050, .060, .070, .090, .100, .120, .130, .250       | D    |

|                                                      |                          |                                                                                                                                                                 |  |
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| DECIMALS                                             | ANGULAR                  |                                                                                                                                                                 |  |
| .X ± .1                                              | X° ± 1°                  | <br><b>TITLE:</b> DISS-O-PADS,<br>WASH-AWAY SPACERS                        |  |
| .XX ± .01                                            |                          |                                                                                                                                                                 |  |
| .XXX ± .005                                          |                          | <b>PART NO:</b> TO-XXX-XXX                                                                                                                                      |  |
| DESIGNED:<br><b>D. Green</b>                         | DATE:<br><b>10/15/03</b> | <b>REVISION:</b><br><b>H</b>                                                                                                                                    |  |
| CHECKED:<br><b>Michael Chen</b>                      | DATE:<br><b>10/15/03</b> | <b>CAGE CODE :</b> 32559 <b>SHEET #</b> 2 <b>OF</b> 3<br>CAD GENERATED DOCUMENT. DO NOT MEASURE DRAWING.                                                        |  |

| REV | DESCRIPTION   | DATE | APPROVED |
|-----|---------------|------|----------|
|     | SEE SHEET #1. |      |          |
|     |               |      |          |

# GENERAL PURPOSE

| PART NO. | I.D.         | O.D.          | THICKNESS                                                                                | FIG. |
|----------|--------------|---------------|------------------------------------------------------------------------------------------|------|
| TO-46    | .090 (2.3mm) | .250 (6.4mm)  | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150, .200, .240                   | A    |
| TO-19    | .250 (6.4mm) | .480 (12.2mm) | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150, .190, .200, .230, .250       | A    |
| TO-22    | .225 (5.7mm) | .437 (11.1mm) | .030, .040, .050, .060, .070, .080, .090, .100, .110, .120, .130, .150, .190, .200, .250 | A    |
| TO-23    | .090 (2.3mm) | .310 (7.9mm)  | .030, .040, .050, .055, .060, .070, .090, .100, .120, .130, .150, .180, .190, .200, .250 | A    |
| TO-24    | .090 (2.3mm) | .340 (8.6mm)  | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150                               | A    |
| TO-30    | .275 (7.0mm) | .397 (10.0mm) | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150                               | A    |
| TO-25    | .180 (4.6mm) | .480 (12.2mm) | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150, .250                         | A    |
| TO-28    | .172 (4.4mm) | .343 (8.7mm)  | .030, .040, .050, .060, .070, .090, .100, .120, .130, .180, .190                         | A    |
| TO-41    | .156 (4.0mm) | .360 (9.1mm)  | .030, .040, .050, .060, .070, .090, .100, .120, .130, .140                               | A    |
| TO-42    | .250 (6.4mm) | .438 (11.1mm) | .030, .040, .050, .060, .070, .090, .100, .120, .130                                     | A    |

# RECTANGULAR & SQUARE

| PART NO. | L             | W            | R             | THICKNESS                                                                                                  | FIG. |             |
|----------|---------------|--------------|---------------|------------------------------------------------------------------------------------------------------------|------|-------------|
| TO-100   | .670 (17.0mm) | .100 (2.5mm) | .031 (.79mm)  | .030, .035, .040, .045, .050, .060, .065, .070, .075, .080, .090, .100, .120, .130, .150, .200             | E    | Rectangular |
| TO-101   | .562 (14.3mm) | .185 (4.7mm) | -             | .030, .040, .050, .060, .070, .080, .090, .100, .120, .130, .150, .160, .220                               | E    | Rectangular |
| TO-102   | .505 (12.8mm) | .160 (4.1mm) | -             | .040, .050, .060, .070, .090, .100, .120, .130, .150                                                       | E    | Rectangular |
| TO-116   | .666 (16.9mm) | .300 (7.8mm) | .063 (1.6mm)  | .030, .040, .050, .055, .060, .065, .070, .075, .080, .090, .100, .110, .120, .125, .130, .150, .180, .200 | E    | Rectangular |
| TO-117   | .666 (16.9mm) | .281 (7.1mm) | .100 (2.54mm) | .030, .040, .050, .060, .070, .080, .090, .100, .120, .125, .130, .140, .150, .160                         | E    | Rectangular |
| TO-118   | .705 (17.9mm) | .260 (6.6mm) | .080 (2.0mm)  | .030, .040, .050, .060, .070, .080, .090, .100, .110, .120, .130, .150, .160, .170, .175, .200             | E    | Rectangular |
| TO-120   | .085 (2.2mm)  | .085 (2.2mm) | -             | .030, .035, .040, .045, .050, .060, .070, .090, .100, .120                                                 | F    | Square      |
| TO-121   | .095 (2.4mm)  | .095 (2.4mm) | -             | .030, .035, .040, .045, .050, .060, .070, .075, .085, .090, .095, .100, .120                               | F    | Square      |

# RADIAL & AXIAL DEVICE

| PART NO. | C/C           | S            | W            | L             | THICKNESS                                                              | FIG. |
|----------|---------------|--------------|--------------|---------------|------------------------------------------------------------------------|------|
| TO-200   | .100 (2.5mm)  | .035 (.89mm) | .095 (2.4mm) | .190 (4.8mm)  | .030, .035, .040, .050, .060, .070, .080, .090, .100, .120, .130, .150 | G    |
| TO-201   | .150 (3.8mm)  | .035 (.89mm) | .095 (2.4mm) | .240 (6.1mm)  | .030, .040, .050, .060, .070, .090, .100, .120, .130, .150             | G    |
| TO-203   | .200 (5.1mm)  | .035 (.89mm) | .095 (2.4mm) | .290 (7.4mm)  | .030, .040, .050, .060, .070, .090, .100, .120, .130, .140, .150, .200 | G    |
| TO-204   | .250 (6.4mm)  | .040 (1.0mm) | .145 (3.7mm) | .340 (8.6mm)  | .040, .050, .060, .070, .080, .090, .100, .120, .130, .150             | G    |
| TO-205   | .300 (7.8mm)  | .040 (1.0mm) | .145 (3.7mm) | .390 (9.9mm)  | .040, .050, .060, .070, .090, .100, .120, .130, .150, .215             | G    |
| TO-206   | .400 (10.2mm) | .045 (1.1mm) | .195 (5.0mm) | .490 (12.4mm) | .040, .050, .060, .070, .080, .090, .100, .120, .130, .150, .215       | G    |
| TO-207   | .500 (12.7mm) | .045 (1.1mm) | .195 (5.0mm) | .590 (15.0mm) | .040, .050, .060, .070, .090, .100, .120, .130, .150                   | G    |

|                                                                                       |                          |                                                                                                                                                                 |                       |
|---------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
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| <u>DECIMALS</u>                                                                       | <u>ANGULAR</u>           |                                                                                                                                                                 |                       |
| .X ± .1                                                                               | X° ± 1°                  |                                                                                                                                                                 |                       |
| .XX ± .01                                                                             |                          |                                                                                                                                                                 |                       |
| .XXX ± .005                                                                           |                          |                                                                                                                                                                 |                       |
|  |                          | TITLE: DISS-O-PADS,<br>WASH-AWAY SPACERS                                                                                                                        |                       |
| DESIGNED:<br><b>D. Green</b>                                                          | DATE:<br><b>10/15/03</b> | PART NO:<br><b>TO-XXX-XXX</b>                                                                                                                                   | REVISION:<br><b>H</b> |
| CHECKED:<br><b>Michael Chen</b>                                                       | DATE:<br><b>10/15/03</b> | CAGE CODE : 32559   SHEET # 3 OF 3                                                                                                                              |                       |
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