

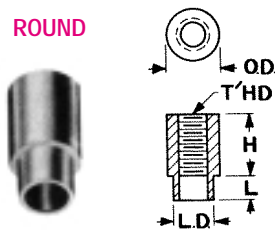
# SWAGE/FORCE FIT STANDOFFS

Designers' Choice

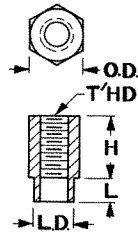


## SWAGE THREADED STANDOFFS

ROUND



HEX



**SPECIFICATIONS:**

Brass: per ASTM-B16

Nickel Plate: QQ-N-290

| ROUND CAT. NO.                         | H Height Above Panel | L Shank Length | For Panel Thickness | LD Shank Diameter | HEX CAT. NO. |
|--|----------------------|----------------|---------------------|-------------------|--------------|
| <b>2-56 THREAD × .156 O.D. (5/32")</b> |                      |                |                     |                   |              |
| 1589-2                                 | .125                 | .109           | 1/16                | .125              | 1731-2       |
| 1590-2                                 | .187                 | .109           | 1/16                | .125              | 1734-2       |
| 1591-2                                 | .250                 | .109           | 1/16                | .125              | 1740-2       |
| 1596-2                                 | .375                 | .109           | 1/16                | .125              | 1743-2       |
| <b>4-40 THREAD × .187 O.D. (3/16")</b> |                      |                |                     |                   |              |
| 2260-2                                 | .125                 | .109           | 1/16                | .139              | 2270-2       |
| 2261-2                                 | .187                 | .109           | 1/16                | .139              | 2271-2       |
| 2262-2                                 | .250                 | .109           | 1/16                | .139              | 2272-2       |
| 2263-2                                 | .375                 | .109           | 1/16                | .139              | 2273-2       |
| 2264-2                                 | .500                 | .109           | 1/16                | .139              | 2274-2       |
| <b>4-40 THREAD × .250 O.D. (1/4")</b>  |                      |                |                     |                   |              |
| 1560 A                                 | .125                 | .109           | 1/16                | .187              | 1653-2       |
| 1560 F                                 | .125                 | .140           | 3/32                | .187              | 1653-3       |
| 1790-2                                 | .187                 | .109           | 1/16                | .187              | 1746-2       |
| 1790-3                                 | .187                 | .140           | 3/32                | .187              | 1746-3       |
| 1650-2                                 | .250                 | .109           | 1/16                | .187              | 1627-2       |
| 1650-3                                 | .250                 | .140           | 3/32                | .187              | 1627-3       |
| 1651-2                                 | .375                 | .109           | 1/16                | .187              | 1628-2       |
| 1651-3                                 | .375                 | .140           | 3/32                | .187              | 1628-3       |
| 1623-2                                 | .500                 | .109           | 1/16                | .187              | 1629-2       |
| 1623-3                                 | .500                 | .140           | 3/32                | .187              | 1629-3       |
| 1624-2                                 | .625                 | .109           | 1/16                | .187              | 1654-2       |
| 1624-3                                 | .625                 | .140           | 3/32                | .187              | 1654-3       |
| 1625-2                                 | .750                 | .109           | 1/16                | .187              | 1655-2       |
| 1625-3                                 | .750                 | .140           | 3/32                | .187              | 1655-3       |
| 1792-2                                 | .875                 | .109           | 1/16                | .187              | 1749-2       |
| 1792-3                                 | .875                 | .140           | 3/32                | .187              | 1749-3       |
| 1652-2                                 | 1.000                | .109           | 1/16                | .187              | 1630-2       |
| 1652-3                                 | 1.000                | .140           | 3/32                | .187              | 1630-3       |
| <b>6-32 THREAD × .250 O.D. (1/4")</b>  |                      |                |                     |                   |              |
| 1560 B                                 | .125                 | .109           | 1/16                | .187              | 1620-2       |
| 1560 C                                 | .125                 | .140           | 3/32                | .187              | 1620-3       |
| 1612-2                                 | .187                 | .109           | 1/16                | .187              | 1752-2       |
| 1612-3                                 | .187                 | .140           | 3/32                | .187              | 1752-3       |
| 1546                                   | .250                 | .109           | 1/16                | .187              | 1621-2       |
| 1546 B                                 | .250                 | .140           | 3/32                | .187              | 1621-3       |
| 1546 D                                 | .250                 | .171           | 1/8                 | .187              | 1621-4       |
| 1561 B                                 | .375                 | .109           | 1/16                | .187              | 1622-2       |
| 1561 C                                 | .375                 | .140           | 3/32                | .187              | 1622-3       |
| 1561 D                                 | .375                 | .171           | 1/8                 | .187              | 1622-4       |
| 1604-2                                 | .500                 | .109           | 1/16                | .187              | 1758-2       |
| 1604-3                                 | .500                 | .140           | 3/32                | .187              | 1758-3       |
| 1604-4                                 | .500                 | .171           | 1/8                 | .187              | 1758-4       |
| 1605-2                                 | .625                 | .109           | 1/16                | .187              | 1759-2       |
| 1605-3                                 | .625                 | .140           | 3/32                | .187              | 1759-3       |
| 1608-2                                 | .750                 | .109           | 1/16                | .187              | 1761-2       |
| 1608-3                                 | .750                 | .140           | 3/32                | .187              | 1761-3       |
| 1796-2                                 | .875                 | .109           | 1/16                | .187              | 1775-2       |
| 1796-3                                 | .875                 | .140           | 3/32                | .187              | 1775-3       |
| 1609-2                                 | 1.000                | .109           | 1/16                | .187              | 1784-2       |
| 1609-3                                 | 1.000                | .140           | 3/32                | .187              | 1784-3       |

### STAKING TOOLS FOR SWAGE STANDOFFS

Precision made tools-heat treated and plater. Will give your job the professional appearance. Set of tools consists of: Top Staking Tool and Anvil.



|              |                                    |
|--------------|------------------------------------|
| CAT.NO.TL-19 | For Bushing 5/32 OD with 2-56 Thd. |
| CAT.NO.TL-20 | For Bushing 1/4 OD with 4-40 Thd.  |
| CAT.NO.TL-21 | For Bushing 1/4 OD with 6-32 Thd.  |

A broaching-type fastener/standoff for installation in panels and circuit boards .060 inch and thicker made of plastic and other non-ductile materials. Available threaded or with clearance holes. Easy to install, pressed into punched or drilled holes.

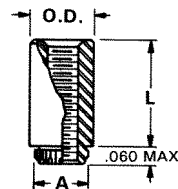
**MATERIALS:** Stainless Steel  
per ASTM-A581/A582

**Mounting Holes:**

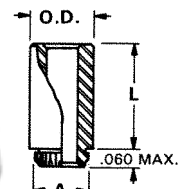
- .147 hole for 2-56.
- .166 hole for 4-40.
- .213 hole for 6-32.

**Tolerance on Mounting Holes:**

+ .003/- .000.



Threaded



Clear Hole

### THREADED

| CAT. NO. | THREAD | "L" LENGTH | O.D. | "A"  |
|----------|--------|------------|------|------|
| 4860     | 2-56   | .065       | .219 | .165 |
| 4861     | 4-40   | .065       | .219 | .184 |
| 4862     | 4-40   | .125       | .219 | .184 |
| 4863     | 4-40   | .250       | .219 | .184 |
| 4864     | 4-40   | .375       | .219 | .184 |
| *4865    | 4-40   | .500       | .219 | .184 |
| 4866     | 6-32   | .065       | .281 | .231 |
| 4867     | 6-32   | .125       | .281 | .231 |
| 4868     | 6-32   | .250       | .281 | .231 |
| 4869     | 6-32   | .375       | .281 | .231 |
| *4870    | 6-32   | .500       | .281 | .231 |

\*Thread depth .375

### CLEAR HOLE

| CAT. NO. | I.D.      | LENGTH | O.D. | "A"  |
|----------|-----------|--------|------|------|
| 4850     | #4 (.116) | .065   | .219 | .184 |
| 4851     | #4 (.116) | .125   | .219 | .184 |
| 4852     | #4 (.116) | .250   | .219 | .184 |
| 4853     | #4 (.116) | .375   | .219 | .184 |
| 4854     | #4 (.116) | .500   | .219 | .184 |
| 4855     | #6 (.143) | .065   | .281 | .231 |
| 4856     | #6 (.143) | .125   | .281 | .231 |
| 4857     | #6 (.143) | .250   | .281 | .231 |
| 4858     | #6 (.143) | .375   | .281 | .231 |
| 4859     | #6 (.143) | .500   | .281 | .231 |

## CUSTOM SPACERS & STANDOFFS

Keystone is fully integrated to meet your total design & production needs.

Manufacturing custom designs & modifications of standard items is our specialty.

Quotations on special spacers & standoffs furnished promptly upon receipt of sample, sketch, print or CAD drawings.



Designers' Choice

# SPACERS & STANDOFFS

## ALUMINUM ECONOMY SPACERS

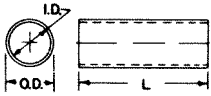
• PRECISION FORMED • NO BURRS

Made of flat strip aluminum and rolled on precision equipment. Assures maximum bearing surface, square ends.

Aluminum: Per 5052-H34 per QQ-A-250/8b



Tight Joint on Outside Diameter



Description and Tol.

| SPACER FOR | I.D. ±.005 | O.D. ±.007 |
|------------|------------|------------|
| #4         | .125       | .167       |
| #6         | .151       | .193       |
| #8         | .178       | .232       |

| L Length | #4 Screw CAT. NO. | #6 Screw CAT. NO. | #8 Screw CAT. NO. |
|----------|-------------------|-------------------|-------------------|
| .187     | 397               | —                 | —                 |
| .250     | 398               | 405               | 412               |
| .312     | 399               | 406               | 413               |
| .375     | 400               | 407               | 414               |
| .437     | 401               | 408               | 415               |
| .500     | 402               | 409               | 416               |
| .625     | 403               | 410               | 417               |
| .750     | 418               | 425               | 432               |
| .875     | 419               | 426               | 433               |
| 1.000    | 420               | 427               | 434               |
| 1.250    | 421               | 428               | 435               |
| 1.500    | 422               | 429               | 436               |
| 1.750    | —                 | 430               | 437               |
| 2.000    | —                 | —                 | 438               |

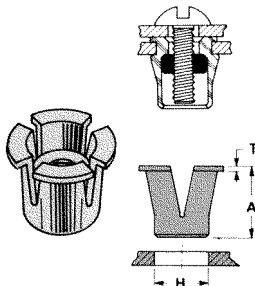
## BLIND CAPTIVE NUTS — PRESS FIT

MOUNT CHASSIS, PANELS, HEAT SINKS, SOCKETS

**MATERIAL:** Molded Nylon with Brass threaded insert.

- EASY ASSEMBLY
- DAMPENS VIBRATION
- ELIMINATES INSULATING WASHER
- HI-DIELECTRIC STRENGTH

A unique reusable fastener made of NYLON which contains a threaded brass nut. Finger pressure or light tap seals it in a pre-drilled hole. The nut is drawn up causing a Nylon bulge behind the workpiece. Screw may be removed or replaced.

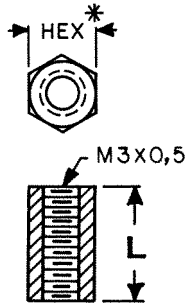


| CAT. NO. | THREAD | "H" HOLE SIZE REQ/D. | IDEAL SHEET THICKNESS | A    | T    |
|----------|--------|----------------------|-----------------------|------|------|
| 4341     | 4-40   | .250                 | .047                  | .312 | .030 |
| 4342     | 6-32   | .312                 | .078                  | .375 | .030 |
| 4343     | 8-32   | .406                 | .093                  | .500 | .030 |

## METRIC HEX THREADED STANDOFFS

A comprehensive range of precision made metric hex spacers.

**MATERIAL:** Brass, ASTM-B16, Nickel plated (QQ-N-290)



| 5mm HEX* |      |
|----------|------|
| CAT. NO. | "L"  |
| 4390     | 5mm  |
| 4391     | 10mm |
| 4392     | 15mm |
| 4393     | 20mm |
| 4394     | 25mm |

| 5.5mm HEX* |      |
|------------|------|
| CAT. NO.   | "L"  |
| 4395       | 5mm  |
| 4396       | 10mm |
| 4397       | 15mm |
| 4398       | 20mm |
| 4399       | 25mm |

## ROUND CLEAR SPACERS

BRASS OR ALUMINUM

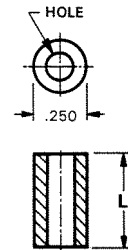
**MATERIALS:**

Brass: ASTM-B16, Nickel plate (QQ-N-290)  
Aluminum: Iridite Finish (MIL-C-5541)

| L LENGTH | HOLE | BRASS    | ALUMINUM |
|----------|------|----------|----------|
|          |      | CAT. NO. | CAT. NO. |
| .125     | .120 | 1909     | 2036     |
| .250     | .120 | 1454A    | 3457     |
| .375     | .120 | 1454B    | 3458     |
| .500     | .120 | 1454C    | 3459     |
| .625     | .120 | 1919     | 2314     |
| .750     | .120 | 1454D    | 3460     |
| .875     | .120 | 1920     | 3402     |
| 1.000    | .120 | 1545E    | 3461     |
| 1.500    | .120 | 1924     | 3462     |
| 2.000    | .120 | 1925     | 3463     |
| .125     | .140 | 1934     | 3403     |
| .250     | .140 | 1457A    | 3464     |
| .375     | .140 | 1457B    | 3465     |
| .500     | .140 | 1457C    | 3466     |
| .625     | .140 | 1935     | 3429     |
| .750     | .140 | 1957D    | 3467     |
| .875     | .140 | 1936     | 3438     |
| 1.000    | .140 | 1457E    | 3468     |
| 1.500    | .140 | 1937     | 3469     |
| 2.000    | .140 | 1938     | 3470     |
| .125     | .171 | 1942     | 4258     |
| .250     | .171 | 1480     | 3471     |
| .375     | .171 | 1481     | 3472     |
| .500     | .171 | 1482     | 3473     |
| .625     | .171 | 2032     | 4259     |
| .750     | .171 | 1483     | 3474     |
| .875     | .171 | 2033     | 4260     |
| 1.000    | .171 | 1484     | 3475     |
| 1.500    | .171 | 2034     | 3476     |
| 2.000    | .171 | 2035     | 3477     |

CLEARANCE HOLE:

- .120 for #4 screw
- .140 for #6 screw
- .171 for #8 screw



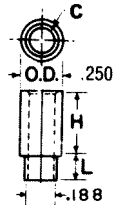
## ROUND SWAGE CLEAR SPACERS

**MATERIAL:** Brass, ASTM-B16, Nickel plate (QQ-N-290)

CLEARANCE HOLE:

- .120 for #4 screw
- .140 for #6 screw

| CAT. NO. | H HEIGHT | FOR PANEL THICKNESS | C HOLE | L    |
|----------|----------|---------------------|--------|------|
| 5060-2   | .250     | 1/16                | .120   | .109 |
| 5060-3   | .250     | 3/32                | .120   | .141 |
| 5061-2   | .375     | 1/16                | .120   | .109 |
| 5061-3   | .375     | 3/32                | .120   | .141 |
| 5062-2   | .500     | 1/16                | .120   | .109 |
| 5062-3   | .500     | 3/32                | .120   | .141 |
| 5063-2   | .250     | 1/16                | .140   | .109 |
| 5063-3   | .250     | 3/32                | .140   | .141 |
| 5064-2   | .375     | 1/16                | .140   | .109 |
| 5064-3   | .375     | 3/32                | .140   | .141 |
| 5065-2   | .500     | 1/16                | .140   | .109 |
| 5065-3   | .500     | 3/32                | .140   | .141 |



## HEX STAINLESS THREADED STANDOFFS

**MATERIAL:** Stainless Steel per ASTM-A581/A582, Class 303

• Corrosion Resistant

| L Length Inches | 4-40 Thread CAT. NO. | 6-32 Thread CAT. NO. | 8-32 Thread CAT. NO. |
|-----------------|----------------------|----------------------|----------------------|
| 1/4 (.250)      | 1921                 | 1922                 | 1923                 |
| 3/8 (.375)      | 1921A                | 1922A                | 1923A                |
| 1/2 (.500)      | 1921B                | 1922B                | 1923B                |
| 3/4 (.750)      | 1921C                | 1922C                | 1923C                |
| 1 (1.000)       | 1921D                | 1922D                | 1923D                |
| 1 1/2 (1.500)   | 1921E                | 1922E                | 1923E                |
| 2 (2.000)       | 1921F                | 1922F                | 1923F                |

- 4-40 thread on 1/2" and over tapped 1/4" each end
- 6-32 & 8-32 thread on 1" and over tapped 3/8" each end

