

# PLASTITE® 48 THREAD-FORMING FASTENER

The Plastite® 48 fastener combines a unique tri-lobular body with a 48° thread profile to **maximize performance and reliability**. Two thread-forming styles are available to meet the specific requirements of a wide range of thermoplastics.



## SPECIFICATIONS

Sizes • #00 – 5/16"; other sizes may be available upon request

Head Styles • Can be used with any external or internal head designs; pan, hex washer, and flat styles standard

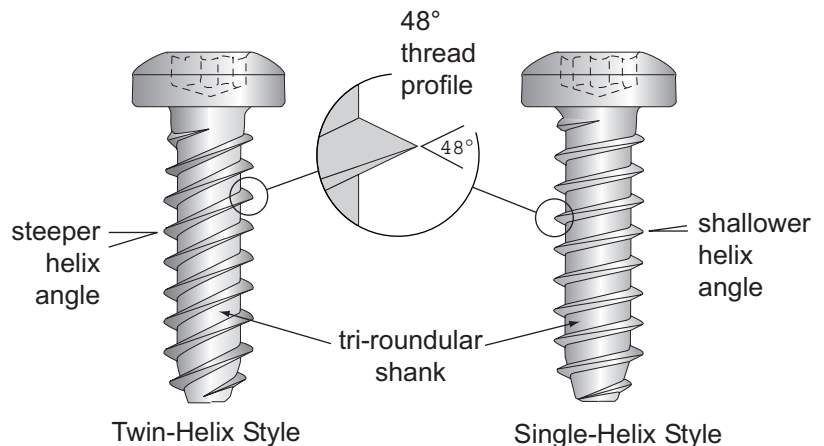
Drive System • Can use any system, including TORX PLUS Drive

Finish • As required

## APPLICATIONS

Twin Helix Style • Thermoplastics with a flexural modulus up to 850,000 p.s.i.

Single Helix Style • Thermoplastics with a flexural modulus between 850,000 p.s.i. and 1,400,000 p.s.i.



Plastite 48 Fasteners

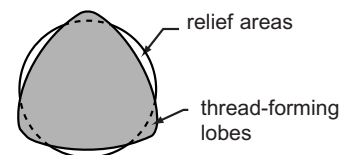
## KEY ADVANTAGES

- Reduces possibility of boss failure
- Increases product reliability
- Eliminates need for inserts and lock washers

## FEATURES & BENEFITS

Tri-roundular configuration allows displaced material to cold flow back into relief areas

- Minimizes radial stress
- Reduces possibility of boss failure
- Eliminates need for inserts and lock washers
- Allows design of thinner bosses



48° thread profile allows threads to penetrate deeply into plastic material

- Generates strong mating threads
- Resists vibration loosening
- Reduces probability of strip-out and pull-out

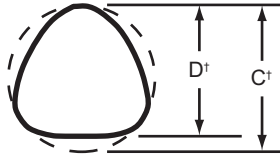
Twin lead design and steep helix angle provides greater shear area in softer plastics (with a flexural modulus up to 850,000 p.s.i.)

- Increases holding power
- Allows faster seating of fastener

Single lead design and narrow helix angle lowers drive torque and failure torque in stiffer thermoplastics (with flexural modulus between 850,000 and 1,300,000 p.s.i.)

- Creates less stress on the boss

# PLASTITE® 48 THREAD-FORMING FASTENER



† C dimension measured with Tri-Flute Micrometer  
D diameter measured with Standard Micrometer

## DIMENSIONAL DATA – INCH SIZES

| Nom. Size | Thread Pitch (per inch) | C Dimension max-min (in) | D Dimension max-min (in) | Screw Length Tolerance (in) | Screw Length Tolerance (in) |
|-----------|-------------------------|--------------------------|--------------------------|-----------------------------|-----------------------------|
|           |                         |                          |                          | under 3/4"                  | over 3/4"                   |
| #00       | 51                      | .0496 - .0466            | .0475 - .0445            | ±.015                       | ±.015                       |
| #0        | 42                      | .0665 - .0635            | .0635 - .0605            | ±.015                       | ±.015                       |
| #1        | 32                      | .081 - .078              | .078 - .075              | ±.030                       | ±.030                       |
| #2        | 28                      | .092 - .086              | .089 - .083              | ±.030                       | ±.030                       |
| #3        | 24                      | .110 - .104              | .106 - .100              | ±.030                       | ±.030                       |
| #4        | 20                      | .127 - .121              | .123 - .117              | ±.030                       | ±.050                       |
| #6        | 19                      | .147 - .141              | .143 - .137              | ±.030                       | ±.050                       |
| #7        | 18                      | .166 - .160              | .160 - .154              | ±.030                       | ±.050                       |
| #8        | 16                      | .185 - .179              | .179 - .173              | ±.030                       | ±.050                       |
| #9        | 15                      | .199 - .193              | .193 - .187              | ±.030                       | ±.050                       |
| #10       | 14                      | .212 - .206              | .208 - .202              | ±.030                       | ±.050                       |
| #12       | 14                      | .232 - .226              | .226 - .220              | ±.030                       | ±.050                       |
| 1/4"      | 10                      | .276 - .270              | .268 - .262              | ±.050                       | ±.050                       |
| 5/16"     | 9                       | .345 - .335              | .335 - .325              | ±.050                       | ±.050                       |

## DIMENSIONAL DATA – METRIC SIZES\*

\*soft converted metric sizes

| Nom. Size | Thread Pitch | C Dimension max-min (mm) | D Dimension max-min (mm) | Screw Length Tolerance (mm) | Screw Length Tolerance (mm) |
|-----------|--------------|--------------------------|--------------------------|-----------------------------|-----------------------------|
|           |              |                          |                          | under 19.05mm               | over 19.05mm                |
| 1.12      | 0.50         | 1.26 - 1.18              | 1.21 - 1.13              | ±0.38                       | ±0.38                       |
| 1.59      | 0.60         | 1.69 - 1.61              | 1.61 - 1.54              | ±0.38                       | ±0.38                       |
| 1.91      | 0.79         | 2.06 - 1.98              | 1.98 - 1.91              | ±0.76                       | ±0.76                       |
| 2.26      | 0.91         | 2.34 - 2.18              | 2.26 - 2.11              | ±0.76                       | ±0.76                       |
| 2.63      | 1.06         | 2.79 - 2.64              | 2.69 - 2.54              | ±0.76                       | ±0.76                       |
| 3.12      | 1.27         | 3.23 - 3.07              | 3.12 - 2.97              | ±0.76                       | ±1.27                       |
| 3.63      | 1.34         | 3.73 - 3.58              | 3.63 - 3.48              | ±0.76                       | ±1.27                       |
| 4.06      | 1.41         | 4.22 - 4.06              | 4.06 - 3.91              | ±0.76                       | ±1.27                       |
| 4.55      | 1.59         | 4.70 - 4.55              | 4.55 - 4.39              | ±0.76                       | ±1.27                       |
| 4.90      | 1.69         | 5.05 - 4.90              | 4.90 - 4.75              | ±0.76                       | ±1.27                       |
| 5.28      | 1.81         | 5.38 - 5.23              | 5.28 - 5.13              | ±0.76                       | ±1.27                       |
| 5.74      | 1.81         | 5.89 - 5.74              | 5.74 - 5.59              | ±0.76                       | ±1.27                       |
| 6.81      | 2.54         | 7.01 - 6.86              | 6.81 - 6.65              | ±1.27                       | ±1.27                       |
| 8.51      | 2.82         | 8.76 - 8.51              | 8.51 - 8.26              | ±1.27                       | ±1.27                       |

\* Plastite 48 fasteners are not available in true metric sizes. The chart above provides nominal inch dimensions converted to millimeters.

# PLASTITE® 48 THREAD-FORMING FASTENER

## HOLE SIZES PER PERCENTAGE OF THREAD ENGAGEMENT

| Size    | 100%  |       | 90%   |       | 80%   |       | 70%   |       | 60%   |       | 50%   |       | 40%   |       |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|         | in.   | mm    | in.   | mm    | in.   | mm    | in.   | mm    | in.   | mm    | in.   | mm    | in.   | mm    |
| #00-51  | .0377 | 0.957 | .0386 | 0.980 | .0395 | 1.003 | .0404 | 1.026 | .0413 | 1.049 | .0423 | 1.074 | .0432 | 1.097 |
| #0-42   | .0498 | 1.265 | .0510 | 1.295 | .0523 | 1.328 | .0535 | 1.359 | .0548 | 1.392 | .0560 | 1.422 | .0573 | 1.455 |
| #1-32   | .0621 | 1.577 | .0632 | 1.605 | .0646 | 1.641 | .0658 | 1.671 | .0671 | 1.704 | .0683 | 1.735 | .0695 | 1.765 |
| #2-28   | .0743 | 1.887 | .0757 | 1.923 | .0771 | 1.958 | .0785 | 1.994 | .0799 | 2.029 | .0813 | 2.065 | .0827 | 2.101 |
| #3-24   | .0855 | 2.172 | .0873 | 2.217 | .0890 | 2.261 | .0908 | 2.306 | .0925 | 2.350 | .0943 | 2.395 | .0960 | 2.438 |
| #4-20   | .0970 | 2.464 | .1000 | 2.540 | .1020 | 2.591 | .1050 | 2.667 | .1070 | 2.718 | .1100 | 2.794 | .1130 | 2.870 |
| #6-19   | .1180 | 2.997 | .1200 | 3.048 | .1230 | 3.124 | .1250 | 3.175 | .1280 | 3.251 | .1300 | 3.302 | .1320 | 3.353 |
| #7-18   | .1370 | 3.480 | .1390 | 3.531 | .1420 | 3.607 | .1440 | 3.657 | .1460 | 3.708 | .1490 | 3.785 | .1510 | 3.835 |
| #8-16   | .1440 | 3.658 | .1480 | 3.759 | .1510 | 3.835 | .1550 | 3.937 | .1580 | 4.013 | .1620 | 4.115 | .1650 | 4.191 |
| #9-15   | .1570 | 3.988 | .1590 | 4.039 | .1610 | 4.089 | .1640 | 4.166 | .1660 | 4.216 | .1680 | 4.267 | .1700 | 4.318 |
| #10-14  | .1700 | 4.318 | .1740 | 4.420 | .1770 | 4.496 | .1810 | 4.597 | .1850 | 4.699 | .1890 | 4.801 | .1920 | 4.877 |
| #12-14  | .1880 | 4.775 | .1920 | 4.877 | .1960 | 4.978 | .1990 | 5.055 | .2030 | 5.156 | .2070 | 5.258 | .2110 | 5.359 |
| 1/4"-10 | .2180 | 5.537 | .2230 | 5.664 | .2280 | 5.791 | .2330 | 5.918 | .2380 | 6.045 | .2430 | 6.172 | .2480 | 6.299 |
| 5/16"-9 | .2840 | 7.214 | .2910 | 7.391 | .2980 | 7.569 | .3050 | 7.747 | .3110 | 7.899 | .3180 | 8.077 | .3250 | 8.255 |

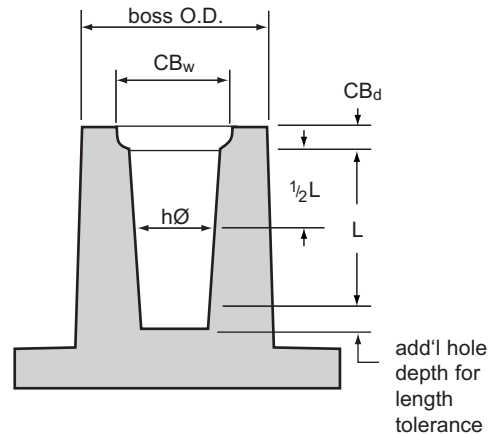
### BOSS DESIGN RECOMMENDATIONS

The length of engagement (L) should be 2 to 3 times the fastener's C dimension. Testing should be done to determine optimal thread engagement on any application with a lower length of engagement.

The nominal hole size ( $h\emptyset$ ) must be established based on the amount of thread engagement (see chart above). For optimum performance, the hole size should provide a minimum 70% thread engagement.

The outside diameter of the boss (boss O.D.) should be 2.5 to 3 times the nominal diameter of the screw (C dimension). The boss height should not exceed 2 times the boss O.D.

The counterbore width ( $CB_w$ ) should be slightly larger than the C dimension. Its depth ( $CB_d$ ) should be 1/4 to 1/2 the thread pitch.



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