

## Screws For Plastics

### The PLASTITE® family of TRILOBULAR™ screws for fastening in plastic

The following is intended as a guide to choosing threaded fasteners which will provide optimum application and performance characteristics in a wide range of plastics. It contains detailed information on PLASTITE® thread-rolling screws.

Because of the variations in the manufacture of individual grades of plastics, particularly in the quantity of filler used, it is imperative that tests be conducted on each proposed application by a competent engineering laboratory.

REMINC/CONTI's network of licensees provide this testing service usually without obligation. This provides the design engineer with recommendations in the following areas: type of fasteners, quantity and sizes, design of the fastening site or boss, hole sizes. Torque values needed for power tool settings during assembly, including: drive, strip, seating, breakaway and prevailing off torque. A written report on the test results is usually provided.

### How the TRILOBULAR™ family optimizes fastener performance and lowers in-place costs.

PLASTITE® TRILOBULAR™ thread-rolling screws were developed specifically for use in plastics. They combine a unique TRILOBULAR™ cross-sectional form with deep, wide, spaced threads.

**Easier to drive.** Three swaging lobes with full relief of the thread form reduce driving effort and operator fatigue.

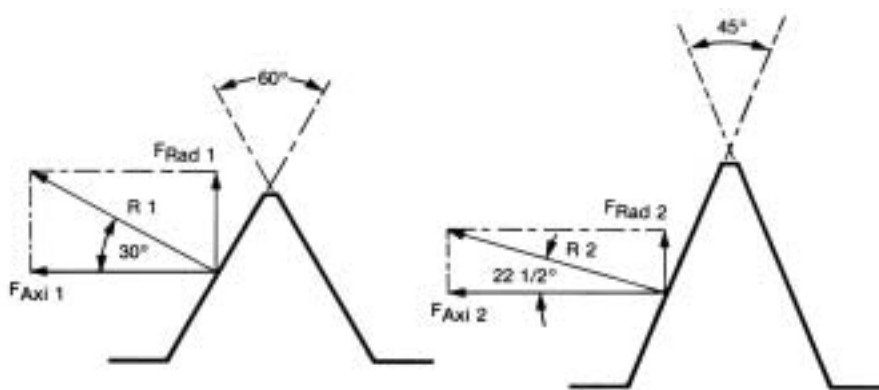
**More holding power.** The three-lobed design of PLASTITE® screws takes full advantage of the cold flow characteristics of many plastics by allowing plastic material to recover and fill in between the lobes. This establishes maximum resistance to vibrational loosening. In addition, the screws' deep, coarsely-spaced threads provide a heavier shear area and deeper thread engagement in the plastic, further enhancing holding capabilities.

**Reduced hoop stress.** The PLASTITE® screw's TRILOBULAR™ design reduces dangerous hoop stress and the friction of root interference, which can frequently cause the bursting of thin-walled bosses.

**Better quality threads.** The smooth burnishing action of PLASTITE® thread-rolling screws eliminates the dangers inherent in the use of thread-cutting screws. PLASTITE® screws roll form high quality internal threads with no damage to the molecular structure of the plastic, significantly reducing the danger of material failure.

**Fast, cost-effective application.** The easy starting, easy driving capabilities of PLASTITE® screws cut assembly time and costs. Exceptional holding power eliminates the need for costly inserts and lockwashers.

Fewer torque problems. The unusually high drive-to-strip ratio of PLASTITE® screws permits a wider span of torque settings to be safely used with automatic drivers. Strip-out is virtually eliminated.



Resolution of Resultant Forces comparing PLASTITE 45 thread form with standard 60° thread form.

### PLASTITE® 45 Screws

PLASTITE® 45 screws represent the latest refinement of the cost savings and performance capabilities of TRILOBULAR™ technology for assembling plastic components. The TRILOBULAR™ shape makes use of the plastic's natural resiliency and creep characteristics, allowing the plastic to fill in the depressions between the lobes. This helps lock the fastener in place providing prevailing torque if fastener removal is attempted. Years of research revealed that exceptional performance could be achieved by combining the TRILOBULAR™ shape with the following attributes:

- Wide thread spacing
- Narrow thread angle

The extra wide thread spacing and more acute thread angle of PLASTITE® 45 screws keep induced stress to a minimum during the thread forming operation. These attributes also permit a deeper thread without increased drive torque. Also, the extra wide thread spacing allows stress to be dispersed over a greater area in the plastic boss or nut member, and the plastic material remaining between the threads is left strong and intact, thus providing for high assembly loads and stripping resistance. The narrow thread angle also reduces stress by displacing less material and creating less bursting pressure (See above illustration).

Hardened and tempered screws are significantly stronger than plastic so if the assembly becomes over-torqued, usually the plastic will give way and strip out. Strip out in the plastic will occur cylindrically so the more nut member material that remains within the cylinder the more resistant to strip out will be the plastic. It is for this reason the wide thread spacing of a PLASTITE® 45 screw increases the assembly strength at the same time that it reduces stress.

PLASTITE® 45 screws are the perfect balance between application needs and efficient manufacturing for consistent performance.

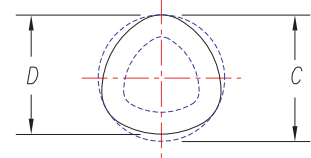
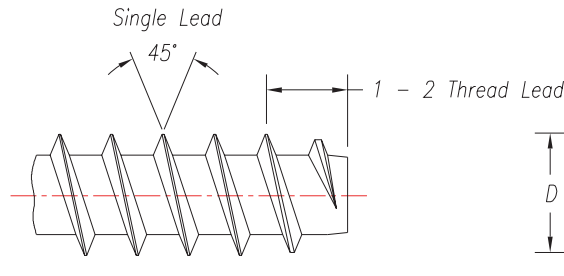
### PLASTITE® 48-2 Screws

PLASTITE® 48-2 screws have a TRILOBULAR™ body like PLASTITE® 45 screws, but incorporate a double lead, two-start thread. The steeper helix angle from the double lead permits higher fail torque to be obtained, usually resulting in a higher differential between fail torque and thread forming torque, which allows easier power tool adjustment when assembly stripping is the problem.

# PLASTITE® 45 Screws



Recommended pilot hole sizes are subject to variation dependent on depth of engagement, ease of driving required and material being tapped. Users of PLASTITE® 45 screws should perform their own test to determine the most efficient pilot hole size for their own particular use, or contact the application engineering department of a licensed supplier or REMINC.



## MATERIAL:

SAE Low Carbon Steel, Suitably Hardened and Tempered

## LENGTH TOLERANCES:

**Inch**  
 Sizes #2-#12 thru 3/4" ± .030"  
 Sizes #2-#12 Over 3/4" ± .050"  
 Over 1/4" Dia. All Lengths ± .050"

**Metric**  
 Sizes M2-M5 Up to 20mm ± 0.8 mm  
 Sizes M2-M5 Over 20mm ± 1.3 mm  
 M6-M8 All Lengths ± 1.3 mm

## FINISH:

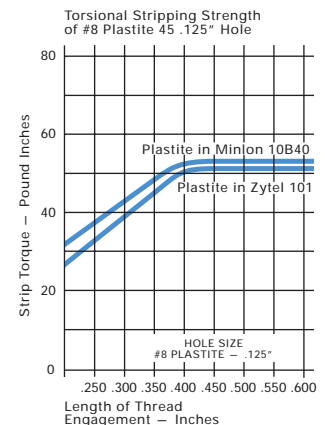
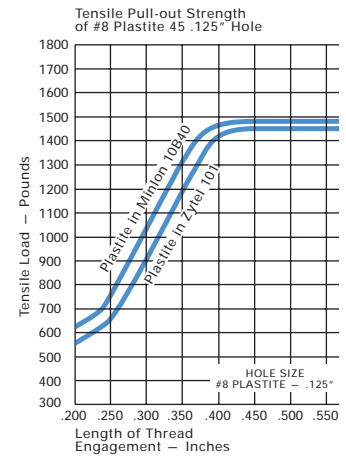
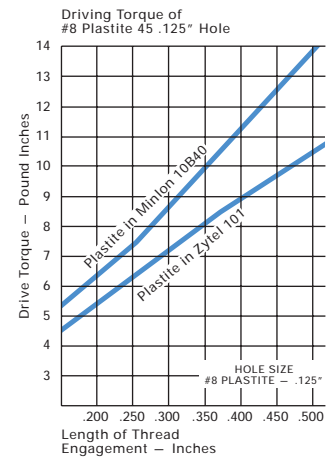
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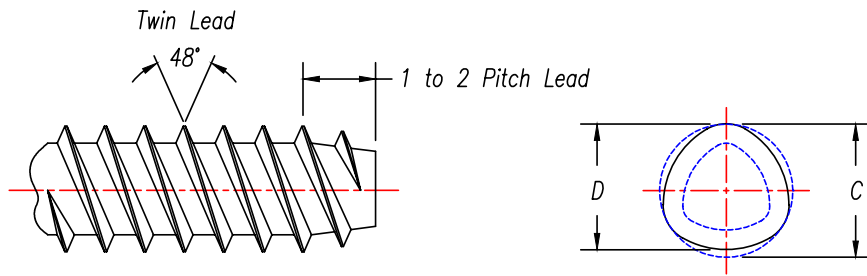
## PLASTITE® 45 Standards - METRIC

Screw Size	"C"	"D"	Minimum Out-of-Round	Recommended Pilot Hole	
				Min.	Max.
M2 x 1.35	2.04 - 1.92	1.99 - 1.87	0.05	1.40	1.60
M2.5 x 1.4	2.53 - 2.41	2.49 - 2.37	0.05	1.85	2.05
M3 x 1.5	3.04 - 2.92	2.99 - 2.87	0.05	2.30	2.50
M3.5 x 1.65	3.54 - 3.42	3.46 - 3.34	0.08	2.75	3.00
M4 x 1.75	4.04 - 3.89	3.94 - 3.79	0.10	3.20	3.45
M4.5 x 2	4.54 - 4.39	4.43 - 4.28	0.11	3.60	3.90
M5 x 2.2	5.04 - 4.89	4.94 - 4.79	0.10	3.70	4.10
M5 x 2.3	5.04 - 4.89	4.94 - 4.79	0.10	3.70	4.10
M6 x 2.5	6.04 - 5.89	5.93 - 5.78	0.11	4.70	5.10
M8 x 3	8.04 - 7.86	7.89 - 7.71	0.15	6.50	7.10

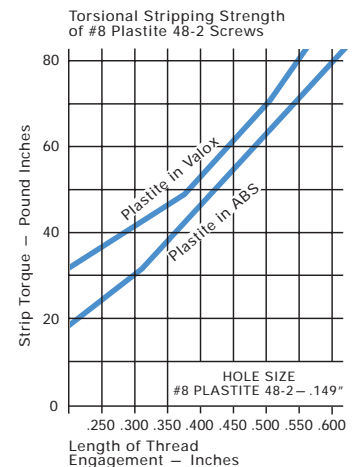
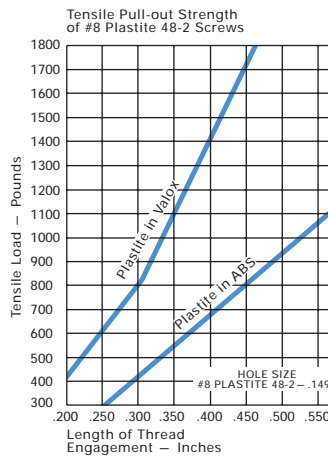
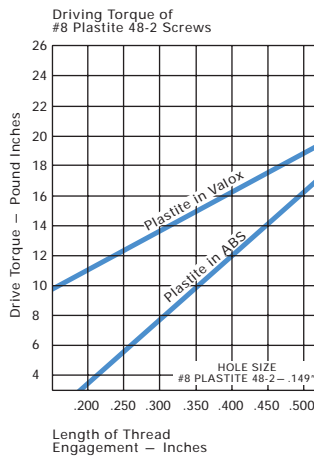
## PLASTITE® 45 Standards - INCH

Screw Size	"C"	"D"	Minimum Out-of-Round	Recommended Pilot Hole	
				Min.	Max.
#2-19	.0875-.0835"	.0845-.0805"	.002"	.065"	.073"
#3-18	.101-.097"	.098-.094"	.002"	.076"	.084"
#4-17	.1145-.1095"	.111-.106"	.0025"	.087"	.096"
#5-15	.1275-.1225"	.1235-.1185"	.003"	.099"	.108"
#6-13	.141-.136"	.137-.132"	.003"	.102"	.114"
#7-12	.153-.148"	.1485-.1435"	.0035"	.114"	.127"
#8-11	.167-.161"	.162-.156"	.004"	.126"	.139"
#9-10	.179-.173"	.174-.168"	.004"	.135"	.149"
#10-9	.194-.188"	.189-.183"	.004"	.150"	.165"
#12-9	.220-.214"	.2145-.2085"	.0045"	.170"	.186"
1/4-8	.253-.247"	.247-.241"	.005"	.198"	.216"
9/32-8	.284-.278"	.278-.272"	.005"	.227"	.246"
5/16-8	.316-.308"	.309-.301"	.006"	.255"	.275"
21/64-8	.332-.324"	.325-.317"	.006"	.270"	.290"
11/32-8	.349-.341"	.342-.334"	.006"	.285"	.306"
3/8-7	.379-.371"	.371-.363"	.007"	.309"	.332"





PLASTITE® 48-2 TRILOBULAR™ thread-rolling screws have twin lead threads to provide faster, more efficient insertion. The sharp 48° thread profile increases holding strength and reduces material displacement and boss bursting tendencies. Drive and strip torques are higher, making drive tool adjustments simple. NOTE: Component and boss design should allow for much faster engagement than with single lead screws.



**MATERIAL:**  
Low Carbon Steel, Suitably Hardened and Tempered

**FINISH:**  
As Requested

**LENGTH TOLERANCES:**

**Nom. Length Tol.**  
Thru 3/4" ±.030"  
Over 3/4" ±.050"  
Over 1/4" Dia.  
All Lengths ±.050"

Screw Size T.P.I. (1)	"C"		"D"		Minimum Out-of- Round	Recommended Pilot Hole Sizes	
	Max.	Min.	Max.	Min.		Soft Ductile Materials	Brittle Materials
2 (.089) - 28	.092	.086	.089	.083	.002	.076	.080
* 3 (.106) - 24	.110	.104	.106	.100	.002	.088	.094
4 (.123) - 20	.127	.121	.123	.117	.002	.100	.106
6 (.143) - 19	.147	.141	.143	.137	.003	.122	.128
* 7 (.160) - 18	.166	.160	.160	.154	.004	.134	.142
8 (.179) - 16	.185	.179	.179	.173	.004	.149	.158
* 9 (.193) - 15	.199	.193	.193	.187	.004	.162	.172
10 (.208) - 14	.212	.206	.208	.202	.004	.175	.185
12 (.230) - 11	.235	.229	.230	.224	.005	.195	.206
* 12 (.226) - 14	.232	.226	.226	.220	.005	.195	.205
1/4 (.268) - 10	.276	.270	.268	.262	.006	.224	.240
5/16 (.335) - 9	.345	.335	.335	.325	.006	.286	.303

\* Non-standard size

1. Size/TPI - The PLASTITE® 48-2 screw size designation combines the commonly used numerical screw size with the major diameter (Max. "D"), as measured with ordinary micrometers, followed by the number of threads per inch.
2. Recommended pilot hole sizes are subject to variation dependent on depth of engagement, ease of driving required and material being tapped. Users of PLASTITE® 48-2 screws should perform their own test to determine the most efficient pilot hole size for their own particular use, or contact the application engineering department of a qualified supplier or REMINC.