



# DELTA PT®

## HIGH PERFORMANCE THREAD FORMING FASTENER

Delta PT® fasteners offer an improvement over the proven performance of PT® fasteners. Delta PT® fasteners are engineered to provide maximum performance in a wide range of thermoplastics. The improved design results in a stronger fastener that creates optimal material flow during installation, provides higher performance, better clamp loads and increased joint life.

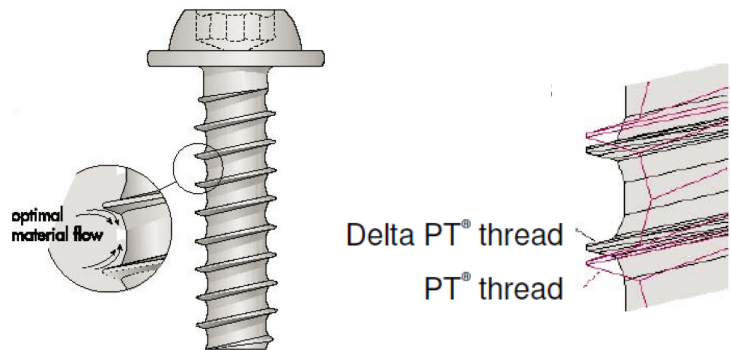


### FEATURES

- ▶ Flank geometry engineered to provide better material flow during installation combined with high flank engagement
- ▶ Larger fastener cross-section increases shear area and fastener strength
- ▶ Optimized pitch allows high clamp load with smaller contact pressure

### BENEFITS

- ▶ Minimizes radial stress
- ▶ Offers increased fatigue life
- ▶ Optimizes material flow
- ▶ Can achieve higher clamp loads and seating torques
- ▶ Provides increased torsional and tensile strength
- ▶ May permit use of shorter fasteners and/or smaller diameters, if necessary



### STANDARD DESIGN GUIDELINES

- ▶ Sizes: Delta PT® 14-70 (1.4mm-7.0mm) Other sizes under development
- ▶ Head Styles: Can be used with any head design
- ▶ Specials: Shoulder screws, sems, double end studs, collar studs; others as required
- ▶ Drive Systems: TORX PLUS® Drive is recommended to facilitate the proper amount of torque transfer required for forming threads. Other styles also available.

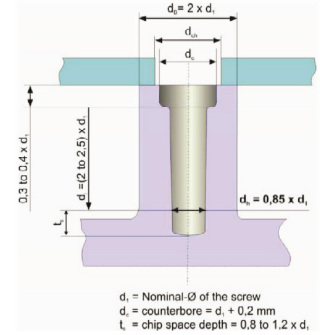
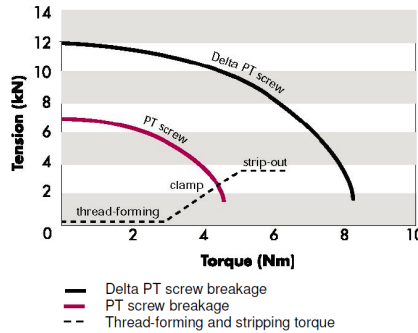




**DESIGN RECOMMENDATIONS FOR DELTA PT® THREAD-FORMING FASTENERS**

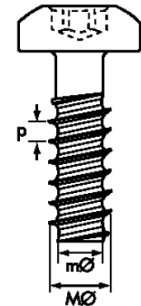
**UP TO 50% INCREASE IN TENSILE & TORSIONAL STRENGTH**

The enlarged shear area of the Delta PT® fastener increases its tensile and torsional strength, improving fastener strength over the PT® fastener. The torque/tension chart demonstrates how the failure levels for Delta PT® fasteners is comfortably above normal seating torque levels. The criteria for optimum hole diameter is the maximum clamp load during the thread-forming process. A good starting point to determining the proper hole diameter is  $d=0.8 \times d_1$

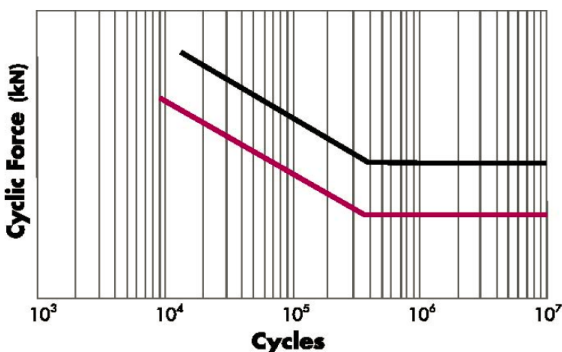


**DIMENSIONAL DATA & BOSS DESIGN RECOMMENDATIONS**

Specific applications will require some modifications to allow for the flexural modulus of the material, molding conditions, mold tool design, feed distance from gate, weld lines, structural heterogeneity and amount of reground material. **In order to ensure optimal performance, we recommend testing on initial samples.** With its extended core diameter and optimum thread design, the Design PT® fastener offers a longer fatigue life than the PT® fastener. The Delta PT® design provides better thread engagement and, therefore, better conditions against stress fractures of the thread flank.



The chart below demonstrates that the Delta PT® fastener provides greater resistance against screw breakage than the PT® fasteners under in-service loads.



Delta PT fastener  
PT fastener  
 $R = 0.1$   
Cycle stress; breakage of the fastener cross section

**DIMENSIONAL DATA**

NOM. SIZE	P THREAD PINCH (MM)	MØ MAJOR DIA. (MM)	MØ MINOR DIA. (MM)
Delta PT 14	0.573	1.4	0.928
Delta PT 16	0.641	1.6	1.073
Delta PT 18	0.709	1.8	1.218
Delta PT 20	0.78	2.0	1.4
Delta PT 22	0.85	2.2	1.5
Delta PT 25	0.95	2.5	1.7
Delta PT 30	1.12	3.0	2.1
Delta PT 35	1.29	3.5	2.5
Delta PT 40	1.46	4.0	2.8
Delta PT 45	1.63	4.5	3.2
Delta PT 50	1.80	5.0	3.5
Delta PT 60	2.14	6.0	4.3
Delta PT 70	2.48	7.0	5.0