

Plastic Tapered Thread Fittings Installation Guide

Generally, plastics compatible, non-hardening sealants that do not add slipperiness are highly recommended to ensure leak free joints when installing plastic fittings with tapered thread terminations. Injection molded plastic pipe threads do tend to produce the most reliably leak free joints when they are installed using PTFE or DuPont™ Teflon® thread seal tape. If using PTFE tape, wrap this tape one and a half turns around the male thread in a clockwise direction, viewed from the pipe end, before assembly. Female tapered threads are more likely to split and leak when too many wraps of thread tape are used. Paste sealant should applied to male threads only. Whichever type of sealant is used, it is important to prevent it from becoming a contaminant. To avoid this, leave the first two threads uncovered.

Do not over-tighten fittings, especially plastic fittings. Over-tightening may lead to fitting failure because female tapered threads can deform or split and leak. Be aware that slippery thread sealants such as PTFE tape make it much easier to over-tighten fittings. The basic rule of thumb when installing plastic tapered pipe threaded fittings is finger tight plus one-half to one turn with a wrench. Keep in mind that the smaller the termination diameter of a fitting, the easier it is to over-tighten.

For pipe joints, variations in thread loading are common when male and female threads are of different materials. There are also frequent variances in tubing wall thickness. Because of these realities, standard torque specifications are not useful and may lead to damaged threads and leaking.

Length of thread engagement and number of turns can also be used as a guideline for installation. Thread engagement is generally understood to be the length of male pipe thread that can be screwed in by hand without too much effort. This table shows the thread engagement called for in the tapered pipe thread standard for proper thread engagement during assembly. The tolerance is plus or minus one turn. Keep in mind threads are frequently cut shorter than called for in tapered pipe thread standards. Always inspect for leaks after assembly.

American Standard Taper Pipe External Threads (Male NPT)

Nominal Size (inches)	Actual OD (inches)	Threads per Inch	Length of Engagement in Inches (hand tight)	Effective Thread Length (inches)
1/8	0.407	27	0.124 = 3.3 turns	0.260
1/4	0.546	18	0.172 = 3.1 turns	0.401
3/8	0.681	18	0.184 = 3.3 turns	0.408
1/2	0.850	14	0.248 = 3.4 turns	0.534

Get more information: [Tapered Pipe Threads and Fittings: Making the Connection](#)

Ensuring a gas or liquid-tight connection means understanding tapered pipe threads

It is the sole responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or product damage.

**Conditions are based on ambient or room temperature unless otherwise noted, about 64°F (18°C) to 73°F (23°C).*



Industrial Specialties Mfg. and IS Med Specialties

End your search, simplify your supply chain
ISO 9001:2015 Certified Companies

4091 S. Eliot St., Englewood, CO 80110-4396

Phone 303-781-8486 | Fax 303-761-7939

industrialspec.com | ismedspec.com

© Copyright 2022 Industrial Specialties Mfg.