

What Are NPT Pipe Thread Fittings Used For?

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Typical applications, the industries that specify npt pipe thread fittings, and how to choose the right size, material and finish for the joint.

NPT Pipe Thread Fittings are used for joining and sealing fluid or pneumatic lines. They are manufactured to ASME B1.20.1, and selection is driven by the screw size, the fit and tolerance the assembly requires, and the service environment.

Primary duty

Joining and sealing fluid or pneumatic lines

Governing standard

ASME B1.20.1

Screw size range

1 to 312

Category

Pipe & Pneumatic Fittings

Application notes are general engineering guidance. Verify the property class and any approval requirement against your own design calculation.



The primary duty of NPT Pipe Thread Fittings is joining and sealing fluid or pneumatic lines. Below: the sectors that specify them in volume, the checklist used to select the right size and material for the application, installation notes, and the known limits of the type. Stocked across roughly 1 to 312, they cover general to heavy-duty work.

Typical Applications for NPT Pipe Thread Fittings

The most common settings where these are specified:

- **Hydraulic & fluid power:** sealed, pressure-rated joints in fluid lines.
- **Process & plant piping:** tapped connections on manifolds and equipment.
- **General machine building:** fastening covers, brackets, motors and sub-assemblies on production equipment.
- **Maintenance & repair (MRO):** a stocked size for servicing existing plant where the original fastener spec must be matched.
- **Fabrication & metalwork:** bench and on-site assembly of steel frames, enclosures and weldments.

How to Specify NPT Pipe Thread Fittings for Your Application

- **Size:** Match the nominal size to the mating thread or hole. This product spans 1–312; check the full table below for the exact dimensions of each size.

- **Thread & pressure:** Match the thread form (BSP/NPT/metric) and pressure rating to the line, and seal appropriately (tape, sealant or O-ring).
- **Environment:** For damp, coastal or chemical exposure prefer A4/316 stainless or a suitable coating; indoors, plated steel or A2 is usually sufficient.
- **Standard:** This product is supplied to ASME B1.20.1. Quoting the standard on your order guarantees interchangeable dimensions between suppliers.

Installation & Assembly Practice

- Seal tapered threads with PTFE tape or anaerobic sealant applied clear of the first thread; parallel threads seal on a washer or O-ring, not on the thread.
- Tighten to the fitting manufacturer's torque — over-tightening tapered threads splits female ports.

Common Selection Mistakes with NPT Pipe Thread Fittings

- Mating BSP and NPT threads directly — the 55°/60° forms do not seal against each other.
- Exceeding the pressure rating of the lowest-rated component in the line.

Where NPT Pipe Thread Fittings Are Not the Right Choice

Do not mix thread forms (BSP into NPT) without an adapter, and do not exceed the pressure rating of the lowest-rated component.

Technical Drawing

Customize the parameters below — every spec field is editable, and the drawing redraws to match the values you choose. Changing the size will snap the other fields to that size's standard values; you can then override any individual value.

Sends the selected values to the quote form below.

Request a Quote

The form below follows the current technical drawing configuration. Change the drawing values above and the request details update automatically.

Dimensions & Specifications (ASME B1.20.1)

Size	Nominal size (in)	Major diameter (mm)	Pitch (mm)	Threads per inch (TPI)	Taper	Reference standard	Notes
1/16 NPT	1/16	7.938	0.941	27	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
1/8 NPT	1/8	10.287	0.941	27	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
1/4 NPT	1/4	13.716	1.411	18	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
3/8 NPT	3/8	17.145	1.411	18	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
1/2 NPT	1/2	21.336	1.814	14	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
3/4 NPT	3/4	26.67	1.814	14	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
1 NPT	1	33.401	2.209	11.5	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
1-1/4 NPT	1-1/4	42.164	2.209	11.5	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
1-1/2 NPT	1-1/2	48.26	2.209	11.5	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
2 NPT	2	60.325	2.209	11.5	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
2-1/2 NPT	2-1/2	73.025	3.175	8	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
3 NPT	3	88.9	3.175	8	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
3-1/2 NPT	3-1/2	101.6	3.175	8	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
4 NPT	4	114.3	3.175	8	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing

Size	Nominal size (in)	Major diameter (mm)	Pitch (mm)	Threads per inch (TPI)	Taper	Reference standard	Notes
5 NPT	5	141.3	3.175	8	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing
6 NPT	6	168.275	3.175	8	1:16	ASME B1.20.1	Tapered pipe thread, self-sealing

Inside the plant

Manufactured in our own plant

This part is cold-formed, threaded, heat-treated and finished in-house. The stages below are where its class and finish are actually decided.



01

Cold heading

Wire rod is drawn to size and cold-formed into blanks. Forming rather than cutting keeps the grain flow continuous around the head, which is where a bolt is most likely to fail.

Head dimensions and under-head radius checked at set-up and per shift.



2.

02

Thread rolling

Threads are rolled between hardened dies rather than cut. Rolled threads are stronger in fatigue than cut threads and hold pitch and flank angle far more consistently across a batch.

Go / no-go ring gauges to ISO 965 tolerance class 6g.

3.



03

Heat treatment

Quench-and-temper brings carbon and alloy steel to the property class ordered — 8.8, 10.9 or 12.9 — with the furnace charge tracked so a finished lot can be traced back to it.

Core hardness and tensile tested per lot to ISO 898-1.

4.



04

Surface treatment

Zinc, zinc-nickel, hot-dip galvanizing, black oxide, phosphate and Dacromet, selected against the service environment rather than against the price list.

Coating thickness and neutral salt spray hours to ISO 9227.

Frequently Asked Questions

What material should NPT Pipe Thread Fittings be for outdoor use?

For damp, coastal or chemical environments specify A4 (316) stainless or a suitably coated steel. For indoor or dry use, A2 (304) stainless or zinc-plated steel is normally adequate.

Are NPT Pipe Thread Fittings made to a recognized standard?

Yes — they are manufactured to ASME B1.20.1, so dimensions are interchangeable between suppliers when you quote the standard on your order.

What are NPT Pipe Thread Fittings used for?

Joining and sealing fluid or pneumatic lines. They are supplied to ASME B1.20.1.

Which industries use NPT Pipe Thread Fittings?

They are commonly specified in hydraulic & fluid power, process & plant piping and general machine building, among other sectors.

Can I get a quote for NPT Pipe Thread Fittings in the size and material I need?

Yes. Use the technical drawing and quote form on this page to set the size and options, then send the exact configuration to our team for pricing and lead time.

Related Pages

Product page: [NPT Pipe Thread Fittings — specifications & sizes](#)

NPT Pipe Thread Fittings Specification Guides

- [A4 stainless NPT Pipe Thread Fittings](#)

Related Fastener Applications

- [BSP Pipe Thread Fittings applications](#)
- [Hydraulic Compression Fittings applications](#)
- [Push-In Pneumatic Fittings applications](#)