**Thread Cross Reference**

**Thread Standards**

When attaching two threaded devices together, there are a number of factors that come into play, the critical ones are size, thread standard and gender. Material composition is also a factor -- aluminum, brass, copper, plastic, iron, galvanized, etc. In fire fighting, coupling devices are mainly aluminum or brass. Plastic is not common but can be used selectively. Galvanized and iron should be avoided due to the rusting factor. Typically, copper is not used in firefighting systems.

When talking threads, you will encounter numerous types or systems. Generally speaking, NPSH is used in Canada for the smaller hoses (1" & 1½") with NST (NH) used in USA. Forestry applications typically use NPSH or quarter turn quick connect fittings. The charts below will outline characteristics of various thread standards.

|  |  |  |  |
| --- | --- | --- | --- |
| **THREAD** | **SYSTEM NAME** | **SEAL METHOD** | **THREAD COMPATIBILITY** |
| **NPT** | American Standard Taper Pipe Thread (National Pipe Tapered) | Thread Seal or  Washer Seal\* | Male NPT - *Female* NPT, NPTF, NPSM\*, NPSH \*  Female NPT - *Male* NPT, NPTF |
| **NPSH** | American Standard Straight Pipe for Hose Couplings (National Pipe Straight Hose) | Washer Seal | Male NPSH - *Female* NPSH, NPSM  Female NPSH - *Male* NPSH, NPT, NPTF, NPSM |
| **NH or NST** | American Standard Fire Hose Coupling Thread (National Hose Thread also known as National Standard Thread) | Washer Seal | Male NH (NST)- Female NH(NST)  Female NH (NST)- Male NH (NST)  *Not compatible with other systems. Thread pitch and diameters of fire threads may vary according to local and municipal regulations.* |
| **GHT** | Garden Hose Thread | Washer Seal | Male GHT - *Female* GHT  Female GHT - *Male* GHT  *Not compatable with other systems.* |
| **NPTF** | American Standard Taper Pipe Fuel Dry Seal Thread (National Pipe Tapered) | Thread Seal or  Washer Seal\* | Male NPTF - *Female* NPTF, NPT, NPSM\*, NPSH\*  Female NPTF - *Male* NPTF, NPT |
| **IPS** | Iron Pipe Straight Thread | Washer Seal | Generic Name for Straight Pipe Thread (NPSH) |
| **IPT** | Iron Pipe Thread |  | Generic Name for All Pipe Thread  *More information is needed.* |
| **TIPT** | Tapered Iron Pipe Thread | Thread Seal | Generic Name for Tapered Pipe Thread (NPT) |
| **CHT** | **C**hemical **H**ose **T**hread  (also known as Booster Hose Thread). Same as 1" National Hose Thread (NH) or American Standard Fire Hose Thread (NST) | Washer  Seal | 1" Male NH (NST) with 1" Female NH (NST)  1" Female NH (NST) with 1" Male NH (NST)  1" Thread is used on both ¾" hose and 1" hose.  *Not compatible with other systems* |
| **BSPP** | British Standard Pipe Parallel | Washer Seal | Male BSPP - *Female* BSPP  Female BSPP - *Male* BSPP  Female BSPP - *Male* BSPTr  M-BSPP not compatible /w F-BSPTr |
| **BSPTr** | British Standard Pipe Tapered | Thread Seal or  Washer Seal\* | Male BSPTr - *Female* BSPTr, BSPP\*  Female BSPTr - *Male* BSPTr  F-BSPTr not compatible /w M-BSPP |
| Numerous other thread standards may be encountered. In USA, larger cities or specific municipalities may use unique standards for municipal water and fire fighting services. Examples are New York City Fire Department Thread and Chicago Fire Department Thread. One reason for these unique threads may be to reduce occurrences of theft of hoses and accessories.  Canada also has unique threads -- often by province. You may encounter CSA, BCT, QST, NFLD, NSST, WCT, etc. If you need to be compatible with your local fire department, you should determine what they use and what you would need to attach to their equipment. | | | |

**COMMONLY USED THREADS**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | National  Standard  Thread  NH/NST | | Straight  Iron Pipe  NPSH/IPT | | Standard  Pipe  Thread  NPT/TIPT | | British  Standard  Pipe Thread  BSP | |
| Size | ODM | TPI | ODM | TPI | ODM | TPI | ODM | TPI |
| ¾" | 1.375 | 8 | 1.035 | 14 | 1.050 | 14 |  |  |
| 1" | 1.375 | 8 | 1.295 | 11.5 | 1.315 | 11.5 | 1.309 | 11 |
| 1½" | 1.990 | 9 | 1.878 | 11.5 | 1.900 | 11.5 |  |  |
| 2" | 2.515 | 8 | 2.352 | 11.5 | 2.375 | 11.5 | 1.882 | 11 |
| 2½" | 3.068 | 7.5 | 2.841 | 8 | 2.875 | 8 |  |  |
| 3" | 3.623 | 6 | 3.470 | 8 | 3.500 | 8 | 2.960 | 11 |
| 3½" | 4.243 | 6 | 3.970 | 8 | 4.000 | 8 | 4.125 | 3 |
| 4" | 5.010 | 4 | 4.470 | 8 | 4.500 | 8 | 4.625 | 3 |
| 4½" | 5.760 | 4 | 4.970 | 8 | 5.000 | 8 | 5.125 | 3 |
| 5" | 6.260 | 4 |  |  | 5.563 | 8 | 5.625 | 3 |
| 6" | 7.025 | 4 |  |  | 6.625 | 8 | 6.625 | 3 |

**Note:**

                    Residential garden hose fittings are ¾" GHT with 1.0625" ODM x 11½ TPI