
Lighting Pipe Specifications

Version 1.1, (c) 1999 by Bill Williams

1.) SCHEDULE 40 and 80 PIPE

In the theatre, television and entertainment industries it is common to hang or support portable lighting fixtures (luminaires) above and around the stage. The standard method used for overhead lighting is simply to hang or support the luminaires from a horizontal pipe using a special pipe or C-Clamp.

The standard pipe used for stage lighting applications in North America is known as Schedule 40 (and Schedule 80) pipe. This pipe is nothing more than standard steel plumbing pipe that is also rated for structural applications. No other pipe product should be used for lighting applications.

This pipe is available in both Schedule 40 (standard wall) and Schedule 80 (extra heavy wall), from a wide number of plumbing and steel suppliers in the USA and Canada. It is usually supplied in 20 or 22' lengths. This pipe is easily cut and threaded on-site if required to accommodate a wide range of standard plumbing fittings (couples, T's L's and end caps.)

2.) STANDARD APPLICATIONS

For all general theatre, television and entertainment lighting applications 1.5 inch Schedule 40 steel pipe is used almost exclusively. Schedule 80 pipe is used where additional strength is required. The outside diameter of 1.5" SC 40 and SC 80 pipes is 1.90 inches.

This pipe is most often used in the construction of overhead lighting grids and is also used as the 'fly pipe' in most counterweight or winch type of systems. This pipe is also used in the construction of vertical lighting booms, lighting towers and lighting ladders.

The standard lighting pipe clamp (C-Clamp) that is used to hang most lighting fixtures is ideally sized and suited for 1.5 inch, SC 40 or 80 pipes. The typical force required to tighten the clamp (by hand) cannot damage the pipe. Some other standard lighting accessories also use the same C-Clamp, including the side arm and the scenery bumper. Although both 1.25" and 2.0" pipe will work with most American and British C-Clamps, only 1.50" pipe (with a 1.90 inch outside diameter) is recommended for professional lighting applications (no exceptions).

For most lighting applications, steel 1.5" SC 40 pipe is supported on not less than 9-10 foot mounting centers. Due to a thicker wall, SC 80 pipe is stronger, heavier and more expensive than SC 40 (standard) pipe.

Typically the steel pipe should be specified as being 'rust free' and with a 'clear lacquer protective finish' It should also be specified that it must be: straight, true and free from all rust. This pipe can also be painted (after a complete cleaning and priming).

3.) STEEL OR ALUMINUM PIPE

Although steel SC 40 and SC 80 pipe is used for most lighting applications, this pipe is also available in aluminum with the exact same inside and outside dimensions. Aluminum pipe is more expensive than steel and is usually used only for lightweight or touring applications (such as portable lighting trusses, booms or towers) Aluminum pipe may also be more easily damaged than steel pipe, particularly by an over tightened pipe clamp. Aluminum lighting pipes should not be painted as the paint tends to chip and flake off after prolonged use. The natural aluminum finish is 'self-protecting' and provides some reflective 'glitter', suitable for many entertainment lighting applications. Aluminum SC 40 pipe is often used as the luminaire mounting pipe in the manufacture of aluminum lighting trusses.

4.) OTHER APPLICATIONS

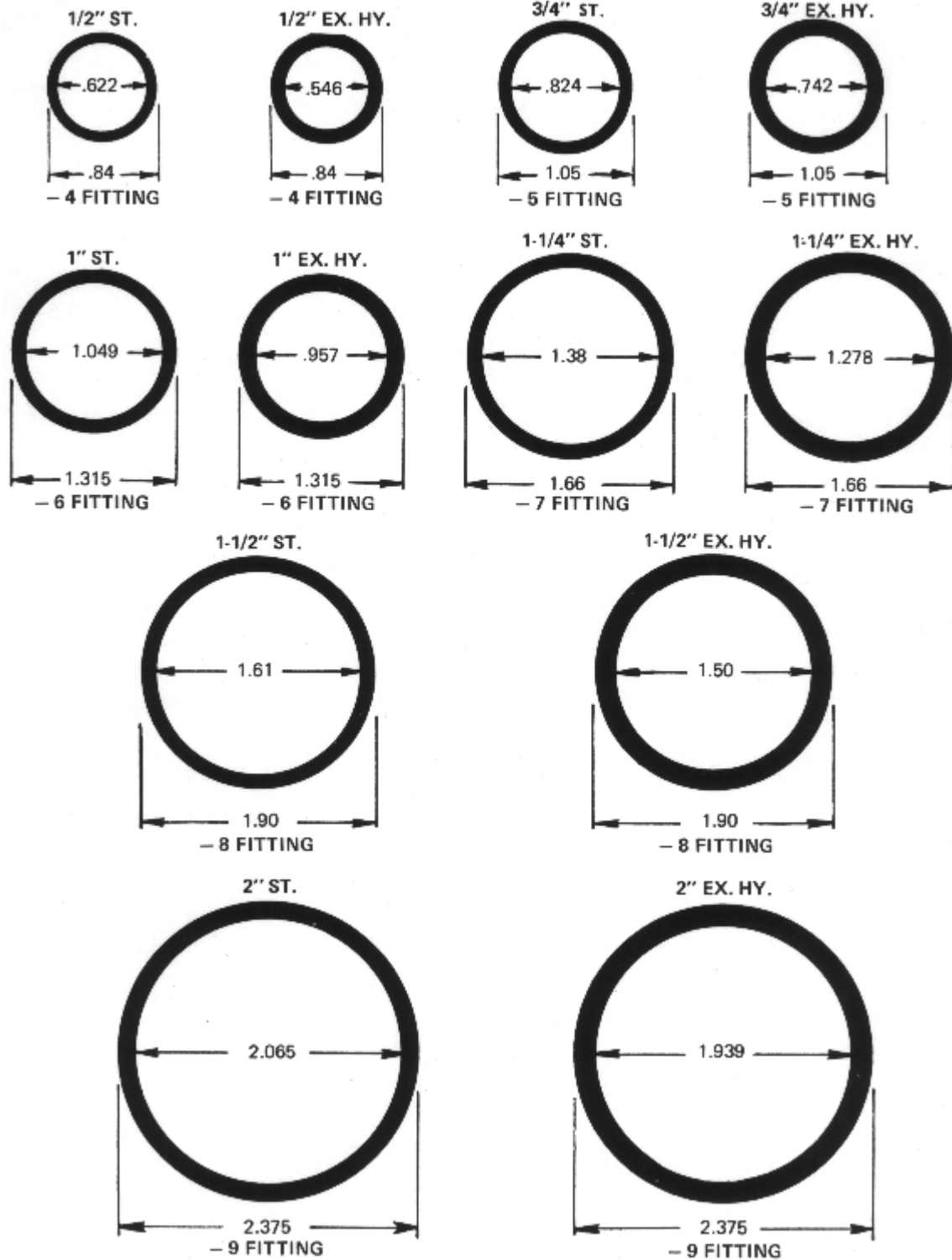
SC 40 and SC 80 pipe is often used for structural applications and can easily be welded. In addition to the standard 'threaded' plumbing fittings that are available, a number of different companies also make non threaded accessories (flanges, fittings, hangers and connectors) for many different pipe diameters. (KEE-KLAMP Company, USA, is one example). Structural applications particularly where life safety is concerned should be approved or certified by a registered structural engineer.

5.) QUICK REFERENCE CHART

The following chart shows the inside and outside diameter for standard SCHEDULE 40/80 pipe (both steel and aluminum). Note that both the standard 1.5" Schedule 40 and 80 pipe commonly used in the theatre have an outside diameter of 1.90 inches.

PIPE DIMENSIONS

STANDARD (SCHEDULE 40) & EXTRA HEAVY (SCHEDULE 80)



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