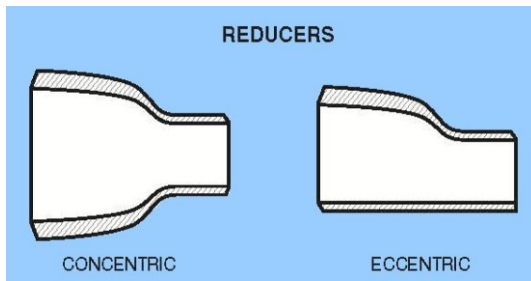




## BRODER METALS GROUP Pipework Fittings

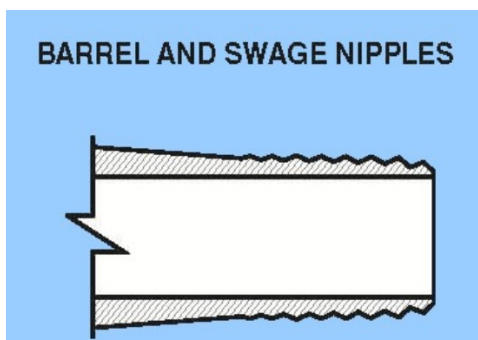


A reducer is used in pipeline configurations when it is necessary to reduce the bore or internal pipe size. The length of the reduction is usually equal to the average of the larger and smaller pipe diameters.

There are two main types of reducer: concentric (flow is reduced evenly from the larger to smaller diameter) and eccentric (reducer is shaped with one straight and one reducing edge) reducers.

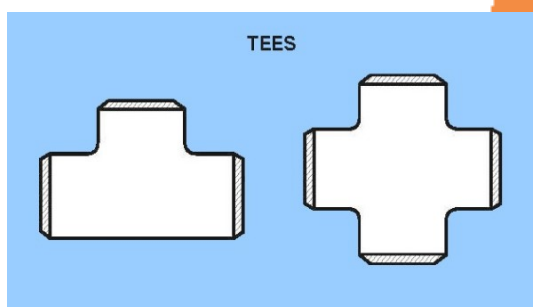
A reducer can be used either as nozzle or as diffuser depending on the original speed and desired of the flow.

Like reducers, swage nipples are used to constrict the flow in pipework systems, however swage nipples are usually longer than reducers, and are used more extensively in higher pressure applications.



The swage's bore usually matches that of the pipe onto which they are fitting, although it is possible to have different bores / wall thicknesses / schedules as appropriate to meet the requirements of the pipework configuration and flow requirements.

The swage ends can be plain (one or both ends), threaded (one or both ends), bevelled if a weld is to be used to strengthen the connection (again, one or both ends), or a combination thereof.



A tee is the most common and most flexibly supplied pipe fitting – being used to combine or split flows securely amongst three or four branch pipes.

Tees commonly are T-shaped with two outlets at 90° to the connection to the main line, or three outlets (two at 90° and one at 180° to the main line) and are categorized as:

Equal – used where the size of the branch is same as the header pipe. Unequal – used where the branch size is

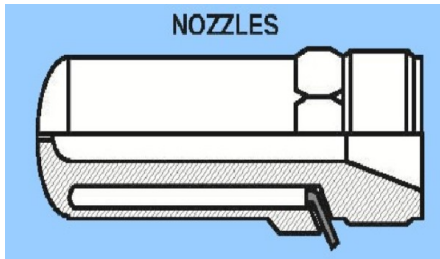
less than that of header size.

Tees can be supplied with female thread sockets / weld sockets / or with opposed weld sockets and side outlet(s) with female threads and Alloy Flanges & Fittings will be pleased to advise on the most suitable to use (based on their shapes and structure) from: Straight Tee, Reducing Tee, Double Branch Tee, Double Branch Reducing Tee, Conical Tee, Double Branch Conical Tee, Bullhead Tee, Conical Reducing Tee, Double Branch Conical Reducing Tee, Tangential Tee, and Double Branch Tangential Tee.

Tees are sized according to a standard nomenclature of “end” x “end” x “centre”. So if you want a tee that is 1" on both ends and 3/4" in the centre it would be classed as a 1" x 1" x 3/4" tee.



## BRODER METALS GROUP Pipework Fittings

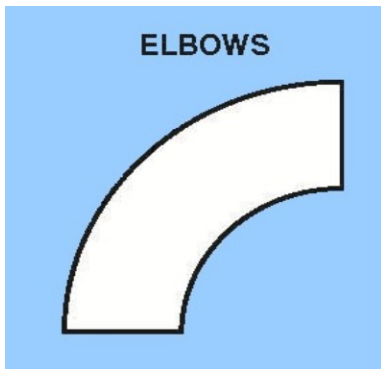


NOZZLES

Nozzles are used to control the direction of the flow within a pipe configuration or to change or control the rate of flow within the pipework (especially to increase the velocity or pressure of flow pre/post -nozzle).

An elbow is a fitting installed between two lengths of pipe to create a change of direction of the flow of the pipework to avoid obstacles or make best use of space available.

The following types of elbows are typically available:



ELBOWS

Long Radius (LR) Elbows – radius is 1.5 times the pipe diameter

Short Radius (SR) Elbows – radius is 1.0 times the pipe diameter

90 Degree Elbow – sometimes called a quarter bend - where change in direction required is 90°

45 Degree Elbow – where change in direction required is 45°

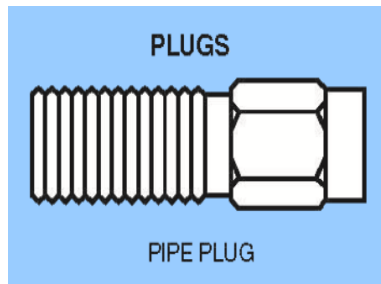
22.5° Degree Elbow - where change in direction required is 22.5°

The ends of the elbow can be machined for butt welding, threaded (usually female), or socketed. When the ends of the two pipes differ in size, the fitting is called a reducing elbow.

Most elbows are available in short radius or long radius variants. The short radius elbows have a center-to-end distance equal to the Nominal Pipe Size (NPS) in inches, while the long radius is 1.5 times the NPS in inches.

Short Radius elbows are typically used in pressurized systems, while Long Radius elbows are typically used in low-pressure gravity-fed systems and other applications where low turbulence and minimum deposition of entrained solids are of concern.

A plug closes off the end of a pipe. It is similar to a cap but it fits inside the fitting it is mated to. Plugs can have a threaded end to ensure a tight fit into the pipe end, but be capable of removal should the configuration change.



PLUGS

PIPE PLUG

Broder Metals Group can supply fittings in a wide variety of materials, including stainless (such as 304, 316 and 321), duplex / super duplex (e.g. F44, F51, F53, F55), nickel alloys (including alloy 625, alloy 718), Titanium (grade 2 and 5), high yield carbon steel and 6 Moly steel.

Fittings are supplied to ANSI / ASME B16 (standards of pipes and fittings) and the appropriate dimensional specification (of the 49 covered in the standard, for example:

ASME/ANSI B16.5 for pipe flanges and flange fittings which covers pressure-temperature ratings, materials, dimensions, tolerances, marking, testing, and methods of designating openings for pipe flanges and flanged fittings for flanges with rating class designations 150, 300, 400, 600, 900, 1500, and 2500 in sizes NPS 1/2 through NPS 24,

ASME/ANSI B16.9 which covers overall dimensions, tolerances, ratings, testing, and markings for wrought factory-made butt-welding fittings in sizes NPS 1/2 through 48 (DN 15 through 1200).

ASME/ANSI B16.11 which covers ratings, dimensions, tolerances, marking and material requirements for forged fittings - both socket-welding and threaded).

**Any questions? For more information contact us**