

Assembly Instructions for Bondstrand® Fiberglass Saddles

Scope

These instructions describe the proper procedures for mounting Bondstrand filament-wound epoxy saddles on epoxy pipe. This procedure is suitable for all saddle types.

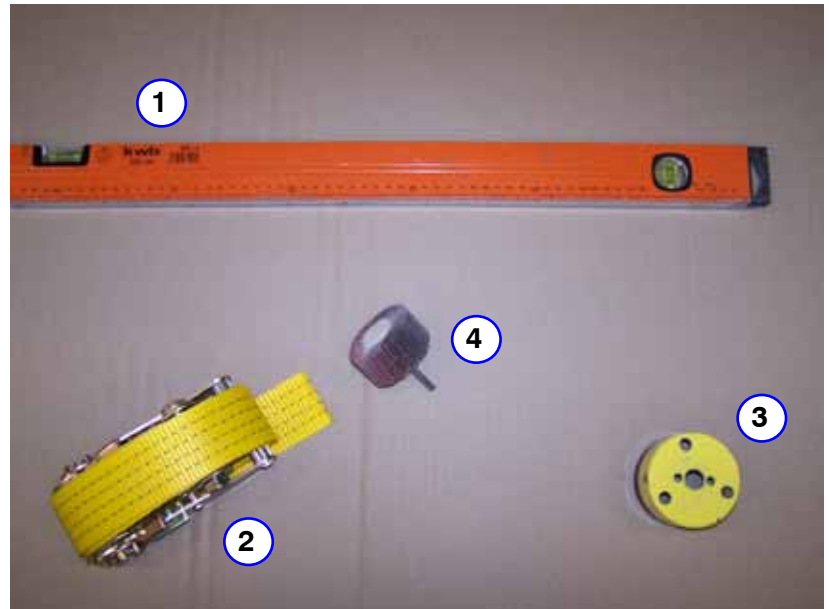
Bondstrand fiberglass saddles

Bondstrand saddles are Glassfiber Reinforced Epoxy (GRE) filament-wound epoxy pipe saddles in diameters 25 through 1000 mm (1-40 inch) designed to be used in combination with Bondstrand pipes. Reducing saddles are used in Bondstrand pipe systems to connect appendages, e.g. pressure gauges. Several types of saddles are available. Depending on the application one of the below described saddles can be used.

Tooling

Check the presence and quality of the material (saddle), adhesive and tooling. The tooling listed below is, as a minimum, required to mount the saddle.

1. Level;
2. Band clamp;
3. Hole saw;
4. Flapper wheel sander grid 40/60.

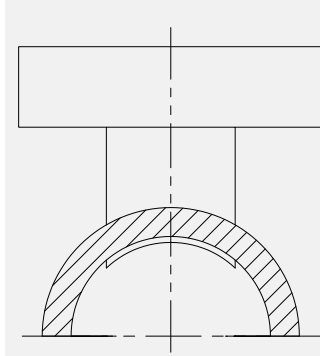


Tooling

Bondstrand saddle types

Reducing saddle with flanged branch

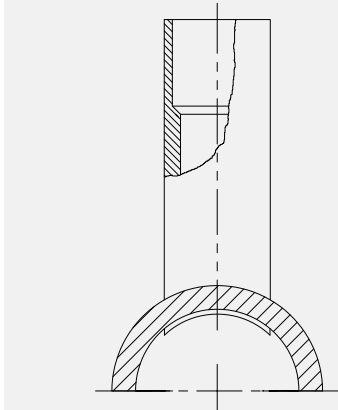
These saddles are available in pressure classes up to 16 bar depending on the size. Flanged reducing saddles are available in size 2"- 40" with either Quick-Lock or Taper adhesive bonded flanges. Refer to the product datasheets for available branch sizes. Flanged reducing saddles are generally used to connect vents and drains or temperature and pressure gauges. To connect branch lines reducing tees are recommended.



Reducing saddle with flanged branch

Reducing saddle with socket outlet

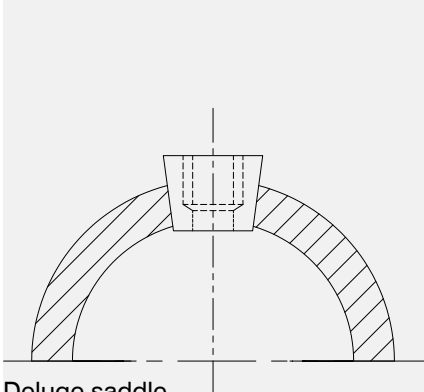
The socket reducing saddles are, depending on size, suitable up to 16 bar. This type of reducing saddle is available in size 3"-40" with either a Quick-Lock or Taper adhesive bonded bell end. Refer to the product datasheets for available branch sizes. In general socket reducing saddles are used to connect short branch lines (e.g. drain or vent lines). Reducing tees are recommended to connect to branch lines.



Reducing saddle with socket outlet

Reducing saddle with bushing

Bushing saddle can be used for pressures up to 16 bar (depending on size) and are available in sizes 2"-40". The outlet can be NPT or BSP threaded. Thread sizes up to 1" are available. Bushing saddles are used to connect pressure and temperature gauges.

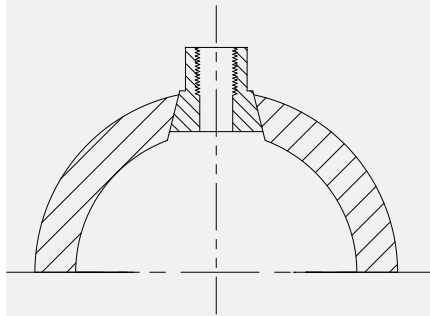


Deluge saddle



Reducing saddle with bushing

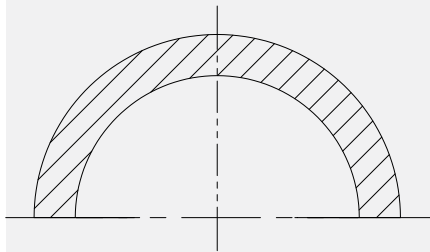
Deluge saddles are available up to 16 bar (depending on size). Deluge saddles are manufactured using titanium reversed taper bushings that are bonded in the saddle. The outlet can be NPT or BSP threaded. Thread sizes up to 1" are available. Deluge saddles are used in deluge piping to connect deluge nozzles.



Deluge saddle

Support saddle

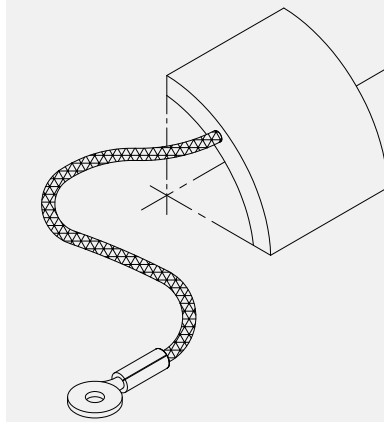
Available in sizes 1" up to and including 40". Support saddle can be used at sliding supports (wear saddle) or at anchor supports to restrict movement of the pipe.



Support saddle

Grounding saddle

Grounding saddles are used to ground conductive pipe. They are available in size 1" – 40" and are bonded to the pipe using RP-60 conductive adhesive.



Grounding saddle

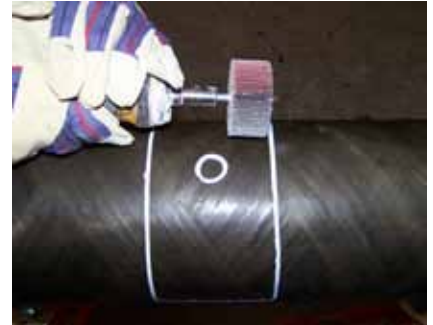
Assembly of saddles

Mark the outline of the saddle on the surface of the pipe.



Mark outline saddle

Sand the area with a flapper wheel, using a grid 40 or 60 abrasive. Sand the bonding area until the resin rich outer layer is completely removed. After sanding, the surface should show a dull, fresh finish (not a polished look).



Sand area with flapper wheel

If a hole in the pipe is required, mark and drill the hole opening. Do not use oil or other lubricants for drilling. Make the hole just slightly larger than the outer diameter of the protuted part of the branch at the inner radius of the saddle. A hole saw with a pilot drill and a carbide cutting works best for 3/4-inch and larger holes, while a standard drill bit for steel will usually suffice for smaller holes.

Examine the inside surface of the pipe around the newly cut hole for cracks in the liner. Chipped or cracked liner material must be sanded off and a thin layer of adhesive added to the affected areas.



When required mark and drill the hole opening

Sand the inside surface of the saddle using a flapper sander. Lightly re-sand the pipe surface and the edge of the hole, especially if the surface may have been contaminated while drilling the hole.

All mating surfaces, plus the edge of the hole, must be clean and dry and must be sanded within two hours of assembly.

After sanding, surfaces to be bonded should show a dull, fresh finish (not a polished look).



Sand the inside surface of the saddle

Thoroughly wipe the sanded saddle and pipe surfaces with a clean, dry paper cloth or use a duster brush to remove dust particles. If surfaces become wet, warm with Bondstrand heating blanket until dry, then re-sand. Protect the mating surfaces from moisture during wet weather by tenting over the working area. Do not touch the prepared surfaces with bare hands or any article that would leave an oily film. Never use solvents for cleaning bonding surfaces.



Wipe the sanded saddle and pipe surfaces clean

Unless the project specifications or the Bondstrand Chemical Resistance Chart recommend a special adhesive for your particular service, one should use Bondstrand RP-34 Epoxy Adhesive. If a different Bondstrand adhesive is required, substitute for the RP-34 an equal quantity of the desired adhesive.

Instructions for mixing and using the adhesive are found in the package. Grounding saddles are bonded using RP60 conductive adhesive.



Use required Bondstrand Epoxy adhesive kit

Apply enough adhesive to completely cover the mating surfaces of both pipe and saddle and a thin layer to the hole edge in the pipe with the spatula supplied in the adhesive kit. Then add a liberal amount of adhesive in the central area of the pipe mating surface so that excess adhesive will be forced to flow from the central area to the saddle edges when the saddle and pipe are banded. If saddle is to be mounted over a hole, avoid excess flow towards the hole by placing the excess adhesive around the hole, about halfway between the hole and the edge of the saddle.



Apply enough adhesive

Push the saddle into place and check the alignment of the outlet using a level.



Push saddle into place and check the alignment

Draw the saddle against the pipe using two band clamps at each end of the saddle.

Do not over tight as this will squeeze out all the adhesive. Put just enough tension on the band clamps until adhesive is shown at all edges.

Remove excess adhesive for a nice finish. Once again check the alignment.



Use band clamps

Cure the adhesive bonded saddle at ambient temperature for at least 8 hours, leaving the bandclamps in place.

Remove the bandclamps and heat cure the adhesive using NOV FGS heating blankets. Use two blankets for reducing saddles, one at each side of the outlet. The required curing time is two hours.



Use NOV FGS heating blanket for heat cure

Safety

Wear suitable protective clothing, gloves and eye protection at all times.



Personal protective equipment (PPE)

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