

Clamshell

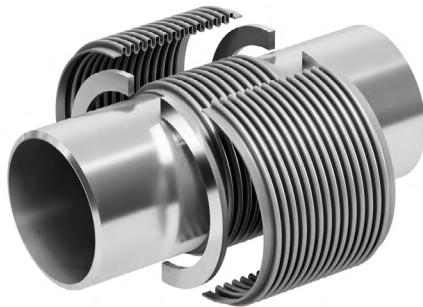
Oversize clamshell & same size clamshell

If a bellows is leaking or damaged, or if a bellows has to be changed with a target to having the minimum down time, this is where a clamshell should be considered.

MACOGA Clamshell bellows is the best solution when a quick and unexpected replacement of the bellow is neces-

sary. Clamshell bellows is a two-piece bellow which is welded around the existing unit. degrees, the expansion joint is free to deflect angularly and laterally. With three or more tie rods only lateral deflections are possible.

The bellows is split in half longitudinally in our works. The halves are match-marked to ensure the bellows halves are aligned correctly. The clamshell is fitted accurately in position. A purge gas is set up to minimize oxidizing of the weld to ensure a good quality weld. The clamshell halves are then welded back together.



Oversize clamshell

Installed on top of the current bellow while the system operates.

An oversize clamshell expansion joint is the best solution to sealing a leaking bellows while keeping the plant on line. Over-size-clamshell bellows is installed on top of the current bellow while the system operates. The leaking bellows are encapsulated by adding split rings with a larger outside diameter than the leaking bellows on either side of the leaking bellows. These split rings are used to locate the new oversize bellows.

Advantages of over-size clam-shell bellows

- Installation/assembly is possible while the pipeline operates.
- The down time on the pipeline or heat exchanger is minimized which results enormous cost-savings.
- On heat exchangers or penetration seals on boilers internal pipes do not need to be removed.



Same size clamshell

The pipe line must be shut down to install a same-size clamshell and the current bellows to be replaced is removed and discarded.

The replacement bellows is manufactured, with exactly the same diameter as the original bellows.

The pipe outside diameter where the bellows was located and welded needs to be ground smooth to obtain a weldable surface.

Typical applications

- Heat exchangers
- FCC expansion joints repairs
- Pipe penetration seals on boilers

Sample images

