

Torispherical domed ends now manufactured in Hamilton

In the stainless steel fabrication market identifying a need is a key skill. Hendl and Murray Engineering (HME) have done just this – adding the creation of torispherical domes into their pressure vessel manufacturing capability, minimising lead times and maximising quality for clients.

Perceived need

Hendl and Murray Engineering has installed a plasma seam welder, a dished end press with automated manipulator system, and a hydraulic flanging machine to enable the company to manufacture torispherical ends in house.



The dished end press turning flat discs into torispherical domes – the manipulation of the discs in the machine is fully automated.

This gives the company the ability to complete the process of forming and prepping dished ends up to 4,600mm in diameter and up to 16mm thick in stainless steel.

Previously, most large dished ends were imported from overseas at a significant cost and with unreliable lead times due to factors such as unexpected shipping delays – often making it difficult to begin pressure vessel manufacture and meet client deadlines.

The supply options within New Zealand were limited, relatively expensive and with unacceptable lead times.

Increased demand

Although investment and commissioning of the domed end manufacturing process began a few years ago it has more than proved its worth in recent years with demand growing. The pressure vessels are used for a range of applications including the dairy, petrochemical, and wine industries, to name a few.

They are also used for pressure cleaning and the torispherical domes are also used to ensure efficient weight distribution in silos.



The complete, knuckled dome.

Fully automated

By importing the dished end press direct from overseas and adding it to their existing system the entire process is now automated.

It also means HME's own lead times are locked in and speedier – plus, the process of achieving a locally made product is more economical.

Quality & efficiency

The volatile nature of pressured vessels means the checks and balances for end dome construction are particularly stringent.

This factor and the fact that HME often custom designs the dish ends or modifies clients' own designs, were two other reasons to bring everything in house for precision quality control.

The process

- The process starts with profile cut plate sections being created to the required dished end diameter
- Edges are bevelled for weld prep on the nibbler machine – considerably faster than being done by hand.
- The sections are then fed through the plasma seam welder for a full penetration weld.
- Next the full circumference of the 'disc' is bevelled with the nibbler to allow for the weld prep to join the dome to the barrel once it has been formed.

- The full 'disc' then goes through the dished end press with automated manipulator – this is a fully automated process methodically pressing the dish to form a perfect torispherical dome.
- The dome then goes through the hydraulic flanging machine to put a knuckle radius (or straight section) on the edge of the dome.
- Lastly, any final polishing requirements are now completed on the domes – they can be polished from the mill finish right up to a pharmaceutical grade mirror finish.



The power of insight

The equipment and automation process has been of even greater advantage to Hendl and Murray Engineering and their pressure vessel construction than first expected – the company's satisfied clients are the first to agree.