

HED: Refuse-to-Fuse

Known as the leading innovator in piping solutions and services, Victaulic continues to transform the industry with the most advanced engineering technologies and services that allow customers to tackle their most unique construction challenges.

One such innovation is that of Victaulic's Refuse-to-Fuse technology, the company's fastest and most economical method of joining HDPE pipe.

"The Refuse-to-Fuse technology has been developed as a new joining method for high density polyethylene pipe (HDPE) that eliminates the need to fuse," comments Marcel Ley, Regional Manager Victaulic South Africa.

"This technology ensures that customers save time with no heating or cooling of pipe ends, does not require fusing equipment."

Additionally, the solution can be installed in any weather condition, with Ley clarifying that customers will not need a fusing tent, and no additional heating or cooling time will be needed in extreme weather conditions.

The benefits of making use of Refuse-to-Fuse technology products are plentiful. Victaulic claim that the technology enables the coupling to be installed up to ten times faster than conventional joining methods, resulting in reducing on-site crew time, in addition to installing in locations where fusing equipment may not reach.

Ley comments on Victaulic's Refuse-to-Fuse products all meeting or exceeding HDPE pressure ratings, and is able to be dragged as one would a conventional fused pipe.

"The pressure rating of HDPE pipe is determined by the material and the pipe wall thickness SDR or DR. ANSI size pipe is typically made to PE4710 which has pressure ratings of 333psi in SDR 7, 200psi in SDR 11 and 125 in SDR 17. ISO size pipe is typically made from PE100, which has pressure ratings of 25 bar in SDR 7, 16 Bar in SDR 11 and 10 Bar in SDR 17," he says.

Moreover, Victaulic couplings for HDPE pipe are all designed for buried services, with the company providing industry accepted coatings that protect the housings and hardware from the harsh underground environment.

Plastic Pipe Institute (PPI) – as well as other pipe manufacturers - publish the minimum bend radius recommended for HDPE pipes. These values vary by pipe diameter, wall thickness and material. The pipes tested with Victaulic couplings meet or exceed the pipe recommendations, meaning the joints maintained their integrity at tighter radii of curvature than recommended for the pipe itself.

Victaulic testing results indicate that there are no negative effects on the allowable tensile loads when using Victaulic couplings for HDPE pipe. Dragging HDPE pipe lengths joined with the properly installed Victaulic couplings is similar to like size fused systems based on industry standard safe pull loads.

Ley explains the requirements for the handling and preparation process for Victaulic's products that differ from the current fusing process, noting that the only major preparation required is that of a relatively square pipe end with minimal scratching or scarring to the sealing surface.

"Other than these requirements, no special pipe handling is required," he says. "Unlike fusing, the pipe ends can be wet, cold or warm since the coupling is not sensitive to humidity or temperature variations. The "perfection" of facing HDPE pipe for butt fusing (scraping the oxide layer and exact squaring of the end) is not required for Victaulic HDPE couplings. The pipe ends do not need to be wiped down with cleaning agents to remove dirt and oil, nor is there a scraping requirement to remove the outer oxide layer that must be done to electrofuse pipe."

Case study Atlas Resources Hamman Salt Water Disposal

In June 2015, construction was completed at the Atlas Resources Hamman salt water disposal (SWD) facility in Jacksboro, Texas. The Hamman facility encompasses of ten water tanks, two oil tanks, one gun barrel, and three offload stations. Prior to its commencement, the project's contractor knew the job would be laden with challenges associated with joining HDPE pipe while facing construction schedule constraints.

Fusing HDPE pipe would be an unfavourable option because of its extremely time-consuming nature. Additionally, fusion would require good weather conditions in order to allow for proper mending of fusion welds. Prefabrication options and new Victaulic HDPE products boasted several attractive benefits, including controlled costs and a dramatic improvement on the SWD facility's completion date.

Victaulic was able to provide a hard number for the prefabrication piece of the project and presented the new Style 908, Style 907, and Style 905 HDPE couplings as a way to finish the job in just 3–4 weeks, according to Atlas Resources personnel. During the first week of assembly, the job site was hit with high winds and 11–13" | 28–33cm of rain.

Fortunately, thanks to Victaulic, construction was able to remain on schedule, with the prefabricated portion finishing in 6 days and the offload station and additional piping finishing in 10 days. The easy-to-install Victaulic HDPE couplings were the ideal solution to deal with heavy rain and wet conditions, especially when compared with HDPE fusion.

After successfully overcoming various challenges by using Victaulic HDPE solutions, the Hamman facility was recognised by the Plastic Pipe Institute (PPI) and received the 2016 Energy Piping Systems Division Project of the Year award.