

Case Study: HYMAX GRIP Minimizing Water Downtime During COVID-19

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The Client

John Sanchez is the assistant superintendent for water construction in the city of Santa Clara, CA, in the heart of Silicon Valley. With a population of nearly 130,000, the city's water system is made up of a variety of materials including cast iron, ductile steel, PVC and asbestos cement.

The Situation

John's crew was replacing a deteriorating water line with new piping that would include a right-angle connection to a new line for later installation. The old extending pipe would be disconnected from the old pipe but would stay active until the new connecting line would be installed later. The plan was to place an end cap at the end of the old pipe, which would usually involve placing a thrust block to restrain the cap. Making a thrust block would involve shutting down water service for multiple days as the cement was poured, cured and then

attached with tie rods. With California's shelter-in-place order implemented due to COVID-19, John wanted to ensure that the water shutdown was minimized as much as possible given people were spending most of their time at home.

The Challenge

How to add the end cap to the pipe while maintaining water service to residents without disruption.

The Solution

John decided to use the HYMAX® GRIP end cap on the end of the line to avoid using a thrust block. The GRIP's universal gripping system could restrain the cap onto the pipe and be installed in approximately two hours. John could save on labor and material costs that would be spent creating a thrust block while water service to customers could be maintained throughout the process.

There were four distinct advantages to installing the HYMAX GRIP end cap.

1. Ease of installation

The special HYMAX GRIP chain provided a circular restraint around the pipe. As the pipe applied axial pressure on the end cap, the GRIP chain increasingly tightened around the pipe to prevent pullout. The radial closing mechanism also held the pipe tightly in place during installation, making it



easier to install while allowing water to flow through the end cap (see above).

The HYMAX GRIP has a universal gripping system designed to restrain metal and plastic pipes and has a transition capability of up to 1.1". It can work with a wide range of pipe diameters, meaning that John had extra flexibility to use the GRIP for a variety of other pipe sizes he might find in the ground.

2. Cost savings

Using the HYMAX GRIP end cap meant that the pipe could be capped quickly and easily without disrupting water service. Normally, a thrust block would need to be created, a process that could take three days to design the block,



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pour the concrete, cure it and restraint it to the pipe with tie rods, as well as using more workers on the job. With the HYMAX GRIP end cap, the installation could be easily made in a matter of two hours with just two workers. With reduced labor hours, significant savings were achieved. “Making the repair with the HYMAX GRIP end cap meant a lot less time was needed to seal the end of the pipe,” said John. “Instead of the days involved with placing a thrust block, we could do the job by just installing the end cap to complete the installation.”

3. Durability

The HYMAX GRIP end cap also offers a high level of durability. Made of exceptionally durable ductile iron, the GRIP end cap can withstand working temperature of up to +125°F. HYMAX GRIP meets or exceeds standards AWWA C219, NSF-61 and NSF-372.

The new pipes were also connected with a HYMAX GRIP coupling (see above), lowering the risk of damage and cracking due to ground shifts with the coupling’s dynamic deflection. The HYMAX GRIP’s patented gasket effectively transforms the pipe joint into a flexible connection and allows dynamic



deflection of up to 4 degrees per side. The product can adapt to out-of-round pipe shape (up to 0.16”) for optimum fit on pipe ends with its innovative radial closing design and sealing system that can eliminate installation errors. Even if pipes are just a bit out of alignment, the HYMAX GRIP’s dynamic deflection can still allow for the connection, meaning there’s a smaller chance of mistakes during installation. Overall, these features offered John a durable solution

that would likely reduce future repairs and maintenance.

4. Advanced anti-galling

The GRIP’s nuts and bolts have advanced anti-galling using a unique dry treatment process with Molecular Anti-Galling (MAG) based on embedded zinc to prevent galling and enables repeated bolt tightening. It also eliminates the need for grease, preventing dust and dirt build-up. The HYMAX GRIP’s fusion-bonded epoxy coating also helps insulate against corrosion.

Conclusion

The HYMAX GRIP end cap enabled John to avoid a repair that would normally take days to implement and shut down water service to many people as they sheltered-in-place during the COVID-19 pandemic. With the HYMAX GRIP end cap, the repair was made in just a couple of hours and no customers lost water service at all. “We were able to make the repair and people in the affected area might have not even realized that we were at work,” said John. “The HYMAX GRIP allowed us to get the job done easily with a durable solution that will last a long time.”

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