

Case Study: HYMAX GRIP Flange Adapter in Fountain, CO

The Client

The Water Department for the City of Fountain, Colorado serves approximately 27,000 customers of which 80% are residential. The water infrastructure is made up of approximately 682,000 feet of pipe comprised of water mains measuring 2 to 24 inches of PVC (80% of the system), ductile iron (15%), and asbestos cement pipe (5%).

The Situation

Water Department Foreman Justin Moore was working to remove perfluorinated chemical (PFCs) that were detected in 2016. While not mandatory to remove, the city decided it was best to filter out the PFCs for the benefit of residents' health.

A granulated activate carbon (GAC) filtration system needed to be installed for one of the wells. One of the water mains would need to be detoured into the GAC filter and then rerouted back to the water main. This new piping would be restrained, however, standard methods of restraint for this kind of project would be time-consuming and costly with pipe rodding reinforcement. In addition, the option of using mechanical joints would mean that specialty piping of different sizes would need to be installed, further driving up costs. "Normally, this kind of a project requires a sizeable investment both in terms of materials and labor costs. Given tight budgets, anything we can do to save the municipality money makes a difference," said Moore.

The Challenge

To install the GAC while minimizing costs due to speciality piping and restraint rodding and reducing worker time in the ditch.

The Solution

Moore decided to use a series of six HYMAX GRIP Flange Adaptors to restrain the pipes directing water through the GAC. The HYMAX GRIP Flange Adaptors could be connected to straight end pipes with the flange end connecting to another flanged pipe. No rodding would be required, nor specialty piping of different sizes. The HYMAX GRIP Flange Adaptor provided several advantages for Moore.

1. Lower Cost and Ease of Installation

The special HYMAX GRIP chain offered circular restraint around the pipe, unlike typical wedge-style restraints that point-load and weaken the pipe. As the pipe applies axial pressure, the GRIP chain increasingly tightens around the pipe to prevent pullout. The radial closing mechanism also holds the pipes tightly in place during installation to give installers full control over the gap between pipes.

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, replacing Moore's need to use a variety of size-specific sections which would be necessary with mechanical joint couplings. The internal restraining design meant that there was also no need for costly rodding, an expensive and time-consuming installation.

By using HYMAX GRIPs instead of mechanical joints and rodding, Moore could get the job done faster while employing only four workers compared to six. Not only did Moore save the water department

money, his workers spent less time in the ditch to minimize their risk during the job. “It’s really great to get jobs done quickly so workers can get to the next installation or go home,” said Moore. “The more important thing, however, is that it’s much safer when workers spend less time in the ditch.”

2. Durability and Flexibility

The product also offered a whole new level of durability. The GRIP is made of highly durable ductile iron, and can withstand working temperature of up to +125°F. HYMAX GRIP meets or exceeds standards AWWA C219, NSF-61 and NSF-372.

The coupling’s dynamic deflection reduced the risk of damage and cracking due to ground shifts and temperature changes. 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 also adapt to out-of-round pipe shape (up to 0.16”) for optimum fit on both 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 make the HYMAX GRIP a long-term solution that reduces the need for future repairs and maintenance.

3. 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.

Conclusions

Using the HYMAX GRIP Flange Adaptors allowed Moore to restrain pipes more easily and at lower cost. Instead of using mechanical joint couplings, size-specific sections of pipe and restraint rodding, Moore was able to simply use HYMAX GRIP Flange Adaptors with its wide transition capability to get the job done with fewer staff. On top of that, workers spent less time in the ditch to help minimize safety risks. The ductile iron couplings were also highly durable and featured dynamic deflection to reduce the risk of damage and cracking due to ground shifts and temperature changes. “At the end of the day, we were able to install the filtration system faster and more easily, meaning residents could sooner enjoy the benefits of clean water,” said Moore.