

**The Expansion Joint
and
Check Valve People**

The Rain in Spain Is No Match for ProFlex™ Check Valves



Project Summary

Pamplona, the capital of Spain's Navarra province, is a city rich with history dating back to 75 B.C., famous for the annual Running of the Bulls. Pamplona is also a major point along the El Camino de Santiago pilgrimage route.

Flowing through the city and providing most of the region's water needs is the Arga River. Owing to its low elevation, Pamplona is prone to flooding during heavy rain events. Flooding presents not only a serious financial strain on the city but also a dangerous threat to public health and well-being.

In 2021, the Commonwealth of the Pamplona Region (Mancomunidad de la Comarca de Pamplona), which provides municipal services, including water and wastewater treatment to 50 municipalities, undertook an initiative to resolve the persistent flooding that plagued the Pamplona neighborhoods along the Arga River. Engineering firm Obras Especiales (OBENASA) was awarded the project.

The Rochapea neighborhood, located on the right bank of the Arga River in one of Pamplona's oldest sections, was among the first to be remediated. A major goal of the "Renovación redes Rochapea" project was to alleviate the backflow that would inevitably accompany a heavy rain event, causing floodwater and sewage to overwhelm the drainage system and back up into streets and homes.

Valves were identified as a critical component of the project but choosing the right type required careful consideration. The Commonwealth wanted a valve that would not only eliminate the backflow events but also offer economic value, provide a long service life, and prevent theft and vandalism, which can be a major concern with metal valves like flap-gates. Because the outlet to the river is accessible to the public, the Commonwealth also wanted a valve that would not be visible, preserving the aesthetics of the historic neighborhood.

OBENASA sought guidance from Hidrostant, a Navarra-based provider of solutions for optimizing water and wastewater networks. Having worked on many valve installation projects over the years, Hidrostant suspected a check valve would be the ideal solution. Alberto Ayesa, manager of Hidrostant, contacted Proco Products, Inc. (Stockton, Calif.) to discuss possible solutions. "Working with Proco, we always know we'll get the best technical solution for whatever challenge we are trying to solve," said Ayesa.

After careful consideration, Hidrostant and Proco Products determined that the ProFlex™ Style 790 Low Headloss In-Line Rubber Check Valve offered the best option for addressing the backflow concerns while also prohibiting theft and tampering. Together, they custom-engineered and designed the perfect fit for the application.

The Solution

The ProFlex™ 790 is an all-elastomer check valve, which means it isn't susceptible to corrosion and erosion like metal valves are. Furthermore, with its all-rubber construction, the ProFlex™ 790 isn't a target for thieves looking for scrap metal. Its durability allows the valve to stand the test of time with an average service life of 35 to 50 years. Immune to the ever-rising cost of stainless steel and other metals, the ProFlex™ 790 is an affordable and dependable choice for cities and towns of all sizes.



ProFlex™ 790

The design of the ProFlex™ 790 allows it to be installed without modification to existing structures. "It's a fairly lightweight valve compared to a steel body valve," noted Cal Hayes, General Manager of Proco's Waterworks Division. "It doesn't require any heavy equipment to install it. With two men, the valve can be installed within a couple of hours."

One of the unique features of the ProFlex™ 790 is that it is installed inside the pipe — out of the public's sight. "The Rochapea neighborhood is a well-established part of the city with apartment buildings and residential areas. People don't want to look down on a duckbill valve sitting out on the river," said Hayes. "The ProFlex™ 790 is hidden from view and out of reach."

Installation inside the pipe also means the valve is unaffected by wave action. "There is no concern with the river velocity being so high that it washes away or damages the valve — which could happen if the valve were installed at the end of the pipe," Hayes explained.

With any valve, headloss is a major consideration. A certain amount of energy is required to move a given volume of liquid through a pipe. As that liquid moves through the pipe, friction causes resistance to flow. The subsequent loss of energy is called headloss. "If the headloss is very high, it means there must be a lot of water in the city before the valve's going to open," said Hayes. With the ProFlex™ 790, the low headloss allows the valve to easily crack open under pressure from flow, preventing upstream flooding.



Progress photos of the Style 790 installation

Results

Hidrostantk installed the 500-millimeter, 20-inch ProFlex 790 valves in November 2021 — just in time for one of the wettest seasons on record. In December, Storm Barra brought flooding that ravaged the Navarra region, causing the Arga River to flow at an astonishing 508 cubic meters per second. The new valves were put to the test — and passed with flying colors. "The valves were submerged 2.5 meters below the maximum level of water for two days," Ayesa noted. They functioned seamlessly without a single backflow event.

After the flood water receded, officials were able to inspect the drainage system, finding they were in excellent condition. "When the level of the water subsided below the valve, the ProFlex™ 790 evacuated the water and sediments inside the pipe and was ready for the next event," said Ayesa. "The performance was perfect compared with other kinds of valves in the same location that become blocked with sediments and floating debris."

Thanks to the ProFlex™ 790 valves, the Commonwealth can now feel confident that backflow will no longer be an issue in Rochapea.



Final installation of valve in headwall

About Hidrostantk

Since 1996, Hidrostantk has provided innovative solutions that optimize the management of sewage and stormwater networks. Hidrostantk is the representative for Proco Products in Spain and can be contacted at (+34) 948 74 11 10 or via email at info@hidrostantk.com. Visit www.hidrostantk.com to learn more.

About Proco Products, Inc.

Proco Products, Inc. is the global leader in the design and supply of expansion joints and check valves for piping/ducting systems. For over 35 years, Proco has prided themselves on offering the most complete line of products to suit a variety of applications. The ProFlex™ Series 700 Check Valves are commonly used in the water and sewage industry. Rubber check valves are a cost-effective way to control back pressures from sewage treatment plants, outfalls, and tidal operations. All Proco check valves are manufactured completely of barnacle resistant rubber with a top-quality fungicide elastomer.

Proco Products, Inc. operates worldwide through a global agent and distribution network providing a wide range of products and services. Quality and service will always be Proco's highest priority. Contact Proco for pricing and availability on the appropriate expansion joint or check valve for your application.



2431 N. Wigwam Drive
Stockton, CA 95205 USA
Toll-Free: 800.344.3246
Ph: 209.943.6088

Email: sales@procoproducts.com
www.procoproducts.com