

connect reliable
no fast material restrictions



Reliability and responsibility – that's our business:
A key reference project.



Project: Installation of 3 rigid flow retarders and 2 flexible flow retarders with hydrostatic butterfly-valve systems in the Feldkirch city sewer system to prevent flooding in severe rainfall conditions.

Mandate: The flow retarders – concrete chambers weighing as much as 42 tonnes – had to be quickly, safely and reliably integrated into the existing sewer system.

Solution: The connection to the sewer system was made using the Straub-Flex 3LS two-part pipe coupling, which is particularly suited to compensating for changes in length and stresses, and which has a proved and tested history in the gas and water supply sectors, in industry, power stations and marine engineering.

Advantages: The flow retarders have saved Feldkirch more than EUR 4 million in comparison with the alternative solution of high-capacity storm-water reservoirs. The easy installation of the Straub-Flex 3LS pipe-coupling ensured a complete, tightly sealed connection between the flow retarder and the sewer system less than an hour after introduction of the concrete chamber.

Project partners:

M+G Ingenieure
Leusbündtweg 12
A-6800 Feldkirch
Tel. 0043-5522-724-75
www.m-g.at

Rohr West
Betonrohrsysteme GmbH
Illwinkel 2, A-6524 Schlins
Tel. 0043-5524-8521-12
www.rohr-west.at

Güthler Ingenieurteam GmbH
Schaffhauser Str. 103
D-79761 Waldshut-Tiengen
Tel. 0049-7741-6092-0
www.guethler-ingenieure.de

solutions

The simple, fast and reliable Straub pipe coupling in the Feldkirch sewer system:

An advanced coupling solution for controlled drainage.

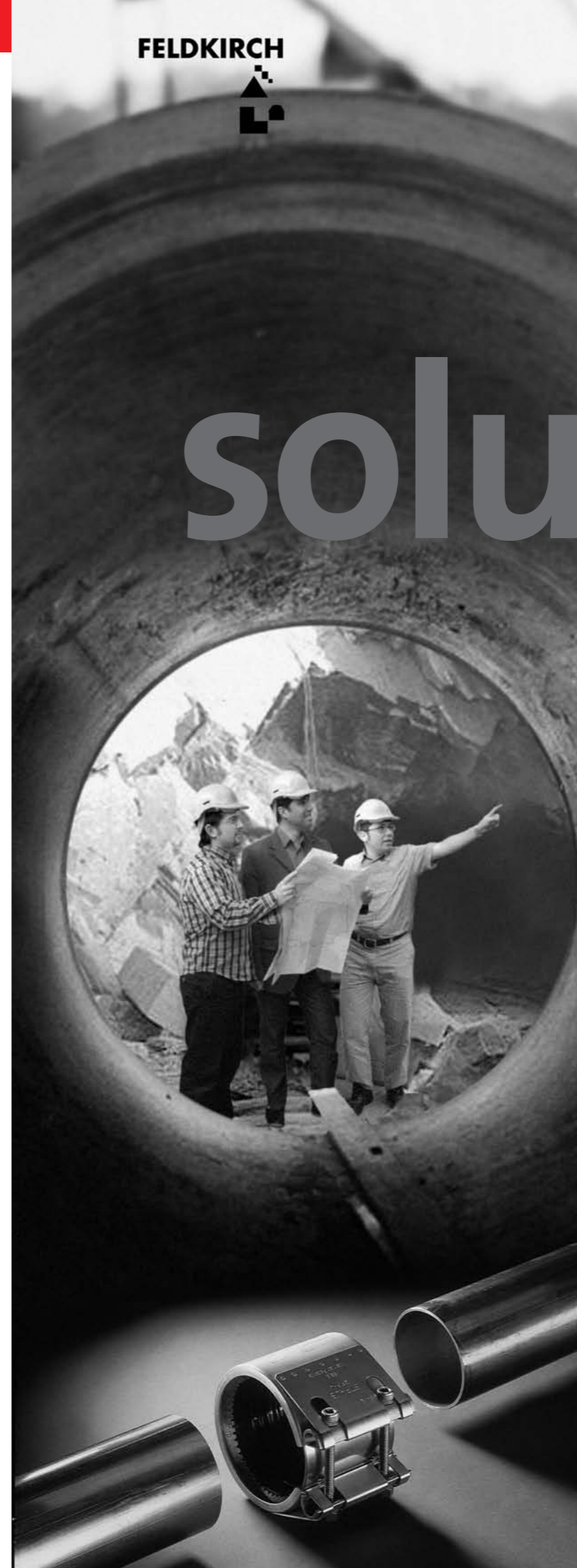
Flow retarders, using a flexible hydrostatic butterfly-valve system in the main sewer, have proved to be the most reliable and economic solution to preventing flooding in Feldkirch in periods of extreme rainfall. Straub expertise guided the project from the planning stage right through to connection of the concrete chambers into the sewer network, including provision of comprehensive documentation. The highly efficient Straub-Flex 3LS pipe coupling reduced the installation time for a single flow retarder to less than one hour.

Our solutions – your advantage.
Every day, we provide our customers with the optimum solution for pipe couplings that meet the most stringent requirements. The benefits of our long-standing experience and expertise are especially apparent when we tackle highly demanding challenges. You can rely on more than just ingenious high-tech products. We also provide you with support and advice on technical matters, engineering and documentation, and guide your project from the first exploratory investigations to successful on-site completion – flexibly, swiftly, safely and dependably. You can rely on us: our solutions work to your advantage.

Straub Werke AG
Rohrverbindungen
Straubstrasse 13,
7323 Wangs, Switzerland
Tel. +41 81 725 41 00
Fax +41 81 725 41 01
www.straub.ch
straub@straub.ch



an OAliaxis company





Comprehensive planning, proven precision work and highly engineered pipe couplings ensure uncompromisingly tight pipe couplings

connected fast reliable no material restrictions



situations of threatening flooding, the flow retarders are able to control the flow of flood water upstream of the critical areas of the sewer system. In comparison with the storm-water reservoir alternative, this elegant and safe solution has saved the city of Feldkirch more than EUR 4 million.

The solution:

■ A total of five flow retarders were installed in the Gisingen district of Feldkirch. Three of these are rigid flow retarders; they were installed in sections of the sewer system with pipe diameters of 1690 or 2400 mm. The two larger ones, which this article focuses on, are equipped with a flexible hydrostatic butterfly-valve system, and are linked into the sewer network by means of 2400 mm joint spigots.

Hand in hand toward the optimum solution

The flexible hydrostatic flow retarder comprises a compact 42-tonne concrete chamber, 4.10 m high, 3.5 m wide and 4 m long, made by the concrete pipe system manufacturer, Rohr West. Located inside the chamber are two wings, which rotate around vertical axes, together with the float/gearing system. Each side of the chamber incorporates a 2400 mm diameter joint spigot – one for the inflow and one for the outflow. The two-part Straub-Flex 3LS pipe coupling, used to connect the chamber into the sewer system, consists of two clamp halves, made from V4A stainless steel (material number 1.4571/316Ti), connected by lock parts. A single-part rubber sleeve, with sealing lips on both sides, is inset in these clamp halves. In the case being described, the procedure for installing the flow retarder involved exposing the sewer pipe and enlarging the excavation to take the con-

crete chamber. A section of the sewer pipe was removed, corresponding to the length of the concrete chamber. The Straub couplings were then pushed onto the two exposed ends of the pipe, and the chamber was lowered into the prepared hole in alignment with the pipe axis. A gap of around 50 mm was left between the cut ends of the sewer pipe and the joint spigots on the chamber. This was simply bridged by the pipe coupling. Two opposing lock parts, each with three bolts, allow the necessary seal pressure to be built up. The sealing lips of the couplings act on the circumference of the pipe ends being joined.

« The installation took less than an hour from lowering the concrete chamber to everything being fully connected up – and we then had a reliable, tight seal. »

Bmst. Ing. Roland Mayrhofer, M+G Ingenieure



Fast, simple, safe and reliable

In addition to its functional features, the key attraction of the ingenious and proven Straub coupling system is its simple, time-saving and reliable fitting on the construction site. The installation took less than an hour from lowering the concrete chamber to everything being fully connected up, making a reliable, tight seal. Installation tolerances can be readily compensated for with these pipe couplings. Since there is no need to machine the pipe ends being joined, a considerable amount of time and expense is saved. A major advantage of the Straub-Flex pipe couplings is that the only part in contact with the joint spigot is the seal, allowing changes in length and stresses in the pipe system to be taken up by the coupling. Drawing on years of practical experience, the couplings have been designed for quick and easy fitting and to guarantee a high level of operational reliability.

EU funding

The development of flexible hydrostatic flow retarders, involving Feldkirch and a number of other towns and cities, benefits from EU funding within the scope of the EU Life rainwater retention measures project. In order to apply for funding, the development engineers were required to submit detailed calculations and functional reports. Extensive model trials were carried out at Konstanz College of Technology, to evolve the formulae necessary for the calculations. In addition, special water-level sensors were fitted in the first flow retarders to be installed, to deliver calibrated data for future calculations.

Straub specialists were involved in the challenging project from the outset, provided assistance in drawing up the required documentation and worked closely with everyone concerned on the construction site to ensure smooth installation of the Straub-Flex 3LS pipe coupling. ■



A section of the sewer pipe has been removed, ready for installation of the flow retarder.



After the pipe couplings have been pushed onto the ends of the pipe, the concrete chamber is lowered in alignment with the pipe axis.



The seals act on the circumference of both joint spigots.



The pressure required to ensure a secure seal is built up by tightening the lock parts.

The challenge:

■ In recent years, many regions of the world – including the Alpine countries – have suffered from unpredictable weather patterns. Nestling in the Austrian Alps, Feldkirch has repeatedly had to struggle with the problem of the inability of downstream levels of the sewer system to cope with the excessive volumes of storm water. Flooded streets, cellars and basements in the surrounding residential areas have been the costly and unpleasant consequence.

Feldkirch city engineers were faced with a choice: either to construct additional, high-capacity storm-water reservoirs or to expand the at-risk areas of the sewer system to ensure that even extreme rainfall would not overload them. Following extensive investigation and costing studies, the decision was taken to install flow retarders, linked into the main sewer by means of Straub pipe couplings. In