

## DUCTILE IRON PIPE SYSTEM

Information from the European Association for Ductile Iron Pipe Systems · EADIPS®



### Editorial

Dear readers,  
 in this October 2011 issue of the Newsletter, you can see my report on how ductile iron pipelines are one of the things helping to improve the energy balance of hydroelectric power stations. This is how ductile iron pipe systems are putting real life into the idea of sustainability.

I also tell you about the rehabilitation of a water supply pipeline and the installation of a snow-making system to ensure successful operation at a winter sports facility.

Have an enjoyable and stimulating read,

Sincerely yours,

Raimund Moisa



Canton of Obwalden – Herber small hydroelectric power station at Giswil

### Fully protected ductile iron pipes

The Gemeinde-Wasserversorgung Giswil water supply utility gave the job of planning the new Herber small hydroelectric power station at Giswil to the canton's Elektrizitätswerk Obwalden electricity supply utility. The plans required the old water pressure pipeline to be replaced by a new pipeline of DN 200 ductile iron pipes, PFA = 40 bars, wall-thickness class K 9.

◆ The total length of the penstock pipeline from the Pörter power station to the Herber small hydroelectric power station is 1,270 m, giving a net head of 290 m. vonRollecopur fully protected push-in jointed pipes with a reinforced coating to EN 545 were used for the new pressure pipeline. The ductile iron pipes were given a lining to EN 15655 and a polyurethane coating to EN 15189 in the factory. Thanks to the flexibility of the well-tried vonRollecocys push-in joint system, the ductile iron pipes could be connected easily, quickly and economically.

The turbine spins at a speed of 1,000 rpm with the water flowing at a nominal rate of 72 L/s. Output is 150 kW. The polyurethane-lined fully protected pipe with a minimal wall roughness of  $k < 0.01$  mm provides excellent prerequisites for the head to be exploited to good effect.

### Replacement of the Wiesentheid water pipeline

The main roads are having to be renovated in the little market town of Wiesentheid in Lower Franconia; the old drinking water pipelines are being replaced as well. The first road to be renovated was Nikolaus-Fey-Straße.

◆ Some 500 m of ductile iron pipes to EN 545 with a cement mortar lining have been installed in this section. Of this length, around 360 m was pulled in trenchlessly by the directional drilling technique,

with the pipes connected up one by one. The client and the firm of engineering consultants responsible were won over by the ductile iron pipes of DN 150 nominal size with the BLS® restrained push-in

joint and the rugged cement mortar coating. It is not just costs that the trenchless variant of installation saves; the quick connection and the time-saving pulling-in of the pipes also meant that there was only a small amount of disruption for local residents and to the traffic on the road.



◆ At the heart of the new “Biathlon Arena Lenzerheide” is a system of 1.8 km of DN 100 ductile iron pipes, with a pressure rating of PFA 64, with a polyurethane (PUR) lining and with a coating consisting of a zinc coating with a bituminous finishing layer to EN 545. Ductile iron fittings are also part of the system. The snow-making system as a whole is being installed in two sections. The first section

## Biathlon Arena Lenzerheide

### Installation of the snow-making system

Snow is going to be made more reliable for the Biathlon and Cross-Country Skiing Arena in Lantsch/Lenz by a new snow-making system. The ductile iron pipe system provides an economical solution for new snow-making infrastructure.

began in the summer of 2011 with the Lantsch/Lenz part of the system. The second section, the snow-making system at the cross-country skiing lodge, will be completed at the end of 2011. These are the main installation requirements to bear in mind for snow-making systems:

- very high operating pressure,
- installation is generally in steep and stony terrain

(pipes often have to be brought in by helicopter),

- connection needs to be easy and unaffected by the weather,
- optimum energy efficiency for the operation of the pipeline system.

Ductile iron pipes and fittings are ideal in meeting all these requirements and this makes them outstandingly suitable for the installation of snow-making systems.

## TERMINE

### 17–18 October 2011

rbv/FGR®/EADIPS® 2011 Ductile Iron Pipes Seminar, Berlin

### 21–22 November 2011

16. Technisch-wissenschaftlicher ROHRBAU-Kongress [16<sup>th</sup> Technical & Scientific PIPELINE INSTALLATION Congress], Weimar

### 26 January 2012

Tiefbauforum Neu-Ulm 2012 [Neu-Ulm 2012 Underground Construction Forum], Neu-Ulm

### 2 February 2012

3. Herrenberger Tiefbautag [3<sup>rd</sup> Herrenberg Underground Construction Day], Herrenberg

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## Energy generation by means of ductile iron pipes

A PVC pressure pipeline some 40 years old needed to be rehabilitated in the municipality of Flachau in the Pongau district of Austria.

◆ This water pipeline transported water from the Marbach Springs 11 km away. The geodetic difference in height is about 200 m. In the old pipeline system, pressure break manholes were used to limit the pressure in the PVC pressure pipeline. The aim of the project was to increase the diameter of the pipeline to cater for the increased demand for drinking water and to use the existing difference in height between the intake structure at the springs and the structure distributing the water to produce energy. The old plastic pipeline was replaced by DN 400 ductile iron pipes. This material, ductile cast iron, made it possible for the new pipeline to be used as a penstock pipeline for a new hydroelectric power station. Operating pressures of 25 bars are the sort of stress that ductile iron pipes take in their stride. The laying of the new 7,200 m long drinking water pipeline was carried out in three stages from 2005 to 2010. The hydroelectric power station was constructed in the winter of 2010/11 and went into operation in February 2011.

The key piece of equipment at the station is a twin-jet Pelton turbine which drives a synchronous generator.

Ductile iron pipes are successfully contributing to the generation of renewable energy by water power.

