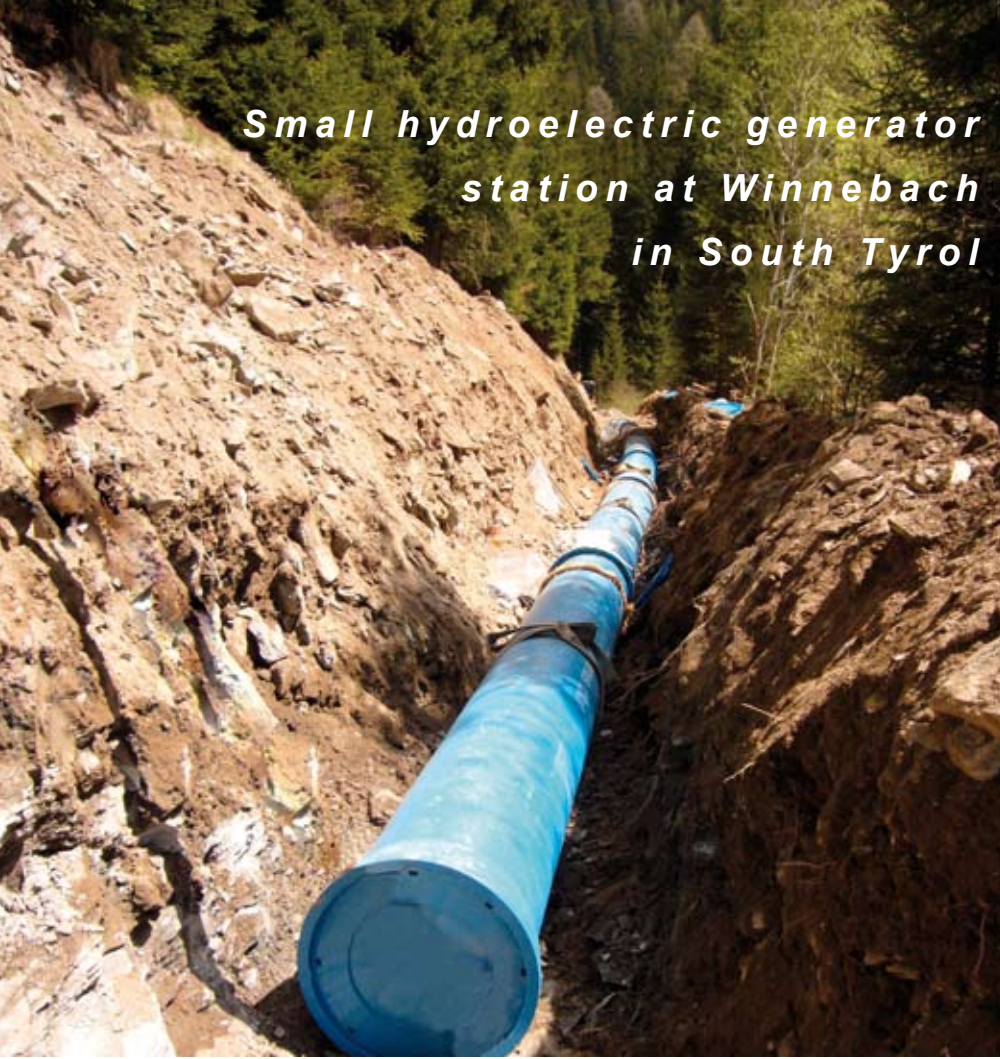


Small hydroelectric generator station at Winnebach in South Tyrol



Turbine pipe including a large number of special structures

Waterpower plays an important part in the generation of energy in South Tyrol. It is a renewable and inexhaustible source of energy and using it safeguards the energy supply and at the same time protects our habitat for future generations. The environmental balance sheet for waterpower is the best of all, because the water from rivers is used and is returned to them unchanged. Small hydroelectric generator stations are particularly good because not only are they an economical energy source that is kind to the environment but they also have beneficial effects on the habitat of both man and beast.

This is why the largest energy supplier in South Tyrol, SEL AG, has again invested in a new small hydroelectric generator station. The station, which is being built in the Pustertal in South Tyrol to the most stringent ecological standards, is to have an average annual rated output of 1,170 kilowatts. It is permissible for 260 to 480 litres per second of water to be diverted from the river Winnebach to generate power. The remaining volume of water flowing has been measured as 50 litres per second in winter and 100 litres per second from April to November. Pipes measuring a total of 3,300 metres in length are being

laid for the generator station. The project envisages the construction of a water-diverting generator station with a water intake structure situated at Ast in the commune of Terenten. The water is diverted by an underground pipe constructed from individual pipes of ductile cast iron. The turbine building, most of which is above ground, is situated in the parish of Dörfll in the commune of Vintl, where the Winnebach flows into the river Rienz. Having been used in the turbine, the water is returned to the Winnebach by a concrete channel followed by an overflow weir.

"Manhole" – produced in the form of a DN 600/600 all-flanged tee



Trench holding the feed water pipe and the empty piping for control cables



So that the landscape is spoiled as little as possible, the whole of the pressure pipe has been constructed as a DN 600 underground pipeline (of wall thickness classes K9 and K10). The turbine building is being partly buried in earth bankings.

Nor have the fish been forgotten: so that there is no risk to their spawning grounds, a so-called fish ladder has been incorporated in the water intake structure. What is more, small hydroelectric stations have a beneficial effect on fish stocks anyway, because the eddies from the turbines introduce oxygen into the water.

The special feature of this project is the many inspection and connection „man-holes“ distributed along the length of the 3.3 kilometre long path followed by the pipe carrying the feed water. Four inspection openings (or „manholes“, in the form of DN 600/600 all-flanged tees) have been installed to provide access facilities to the pipe every 600 meters for inspection work. However, the pipe carrying the feed water supplies water not only to the turbine but also to two branch pipes running to hydrants, which are to be used for fighting forest fires. There are also four nearby farms whose sprinkler systems are being connected to the new pressure pipe.

For the most part, the route followed by the pipe is along forest roads and through areas of forest but there are also two high points where it crosses the Winnebach. To avoid any air inclusions in the pipe, it is necessary for an automatic air supply and air venting unit to be installed.

Because of the many special structures, the Winnebach hydroelectric generator station project involves more fittings than any other turbine project for the past ten years – about 110 fittings are being installed.

Another novel feature is the system for locating leaks by means of fibre optics. To enable possible leaks to be located as accurately as possible, a fibre optic cable has been laid below the bottom of the pipe. This technique has been developed by the University of Hydraulic Engineering at Innsbruck.

(We will be publishing a report on this subject in the next issue of inFORM.)

Mountains, castles and sundials

The Pustertal in South Tyrol: a paradise for nature-lovers and culture-seekers

The Pustertal is a valley whose height ranges from 700 to approximately 1,600 metres. It is situated mainly in South Tyrol and it runs between Brixen and Lienz. It branches off eastwards from the Eisacktal at a point to the north of Brixen and the rivers Rienz and Drau flow through it. In the High Pustertal, there are the characteristic peaks of the Sexten and Lienz Dolomites. This is also the place where the celebrated



Drei Zinnen tower into the sky. Deodat de Dolomieu was the first man to investigate the calcareous rocks in the region, and it is from him that these peaks take their name. The Dolomites have a close connection with the history of alpine mountaineering. A name that will be remembered in this connection is the film director and actor Luis Trenker, who came from the Tyrol and whose films often „starred“ mountain landscapes.

The Pustertal has some 73,000 inhabitants living on a good 2,000 square kilometres of land. The best known towns are Bruneck, Wengen and Toblach. From the administrative point of view it consists of the districts of Hochabtei, Hochpustertal, Kronplatz and Tauferer Ahrntal.

A wide range of sporting activities are available: climbing, hiking, mountain-biking, paragliding, rafting and much else besides. In winter, the High Pustertal is an absolute paradise for skiers. A special attraction is the micro-climate tunnel at Prettau. This is a disused mine gallery in which there are micro-climatic conditions consisting of a temperature of about 9° Celsius and a relative humidity of approximately 95%. These have a beneficial effect particularly on people suffering from respiratory prob-



lems. In the Pustertal tourists will find everything they want from luxury hotels to family-owned boarding houses. The charm of the valley comes from the association of the old and the new, of traditional country life and modern-day living, of the Tyrolean and the Italian.

Seeing the well-preserved town walls and town gates and the castle at Bruneck, the visitor will find himself transported into the middle ages. Nowhere else in Europe are there so many properties dating from the middle ages situated so closely together as there are here. With its 400 or so castles and citadels, South Tyrol generally is the region which can boast the largest number of medieval edifices. There are many romances from the age of chivalry that tell the story of those times. Rodeneck Castle is one of the largest castles in South Tyrol and is the home of a renowned cycle of frescoes dating from the 13th century showing scenes from Hartmann von Aue's Middle High German epic „Iwein“. The „Gustav Mahler Music Weeks“ would also seem to be a byword among lovers of classical music. Today, handicrafts are still a living presence in the Pustertal in the form of its wood-carving, its lace-making, its weaving and its making of Patschen or felt shoes. Typical culinary products are cheese and home-cured bacon.

A special event is the Stegener Market which is held in autumn every year and is the biggest food and handicraft market in the whole of Tyrol. There are booths there selling mulled wine and the special little sausages and stalls where you can buy schnapps and cheeses and all sorts of handicraft products.

That the people in the Pustertal seem to have a rather sunny disposition is shown by one of the other special features of the region: the many sundials. What is it that people say? Only count the happy hours!