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## A Swiss-Army-Knife for Croatia HOBAS® GRP Used for Drainage and Sewer System in Zadar



Due to its advantageous geographic position at the Adriatic Sea, its history and mild Mediterranean climate, the Croatian town and county Zadar is marked by rapid development and growth. Apart from flourishing tourism the town benefits also from fishery and transport business thanks to the harbor. Growth regarding the latter is however restricted by its capacity and location close to downtown. A new ferry terminal was therefore planned to be built in the Port of Gaženica next to the existing container and already established fishing harbor. The institute IGH d.d. and Rijekaprojekt d.o.o. have been entrusted with the design of this complex project. A new storm- and wastewater drainage system formed a comparably small yet essential and challenging part of the project.

### Challenging Requirements

A broad range of requirements needed to be considered for the in total 7.2-km-long sewer and stormwater drainage system. For instance, approximately two thirds of line had to be constructed in the newly established embankment at the shore and in tidal zones, which meant that only highly corrosion resistant pipe material that is unsusceptible to saltwater and in- and externally leak-tight came into consideration. The small cover to the pipeline top as well as a section with a crossing railway would expose the pipe to high loads and therefore calls for high material stiffness. Finally, a part of the pipeline that was to be installed above ground, suspended under the docks, would be exposed to UV light as well as seawater and presented further criteria that narrowed the choice of suitable pipe systems.

### A Swiss-Army-Knife Solution

A thorough technical analysis and comparison of several contemplable pipe materials and manufacturers was conducted to find the “Swiss-army-knife” pipe solution that would meet several requirements and suit all installation conditions – and HOBAS became the supplier of choice. The GRP products’ excellent properties such as the long product life, leak-tightness, corrosion and abrasion resistance, fulfilled the general requirements. Additional advantages

corresponding to project specific requirements are in particular the wide range of available products and installation possibilities and the pipes' high stiffness: Not only pipes with various diameters ranging from DN 300 to DN 1400 but also fittings and a total of 202 manholes as well as a completely pre-equipped pumping station made up the all-in-one pipe system. The products' versatility regarding installation possibilities has already been proven with former projects successfully implemented in Zadar and reinforced the subcontractor's decision for HOBAS GRP.

### Installation Made Easy

From the first cut with the spade HOBAS GRP Pipe Systems proved its worth. The two to four meter deep pipe trench excavated along the shore filled rapidly with seawater so that pumping out water would have been of no avail. The pipeline was thus installed directly in the water filled trenches with the help of divers. Thanks to the easy handling of the relatively light GRP products and practical push-on couplings, the installation proceeded well despite challenging circumstances. The line was safely bedded on and covered with gravel sized 16 to 32 mm. Last but not least, HOBAS Pipes weigh about twice as much as water so that no safety measures against buoyancy during the installation needed to be taken into account.

The optimal cooperation between the main contractor STRABAG AG, the supervising institute IGH, the engineering team, the subcontractor Vodoinstalacija and the pipe supplier HOBAS had its part in the successful completion of construction works under the given challenging conditions. As pipe supplier, HOBAS can be proud to have delivered impeccable products that helped tackle all technical hurdles and complete the project within the given timeframe.

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Year of construction

**2010-2011**

Installation time

**13.5 months**

Scope of products

**7,235 m pipe,  
202 shafts, equipped  
pumping shaft**

Diameter

**DN 300 – DN 1400**

Pressure class

**PN 1**

Stiffness class

**SN 10000**

Application

**SewerLine®**

Installation method

**Open trench; subaqueous with the help of divers, above ground on suspension**

Client

**Port of Zadar**

Contractor

**STRABAG AG, Cologne;  
Subcontractor: Vodoinstalacija d.o.o., Zadar**

Benefits

**High corrosion and abrasion resistance; wide range of available diameters and manholes; longitudinal stiffness, easy installation also under water**

