

Schlüsselbauer Technology GmbH & Co KG, 4673 Gaspoltshofen, Österreich

## Baltic States: High Quality Concrete Components for Civil Engineering

While the concrete component industry for civil engineering in Central Europe is stagnating or has already declined, the Baltic States have recently upgraded machines or invested in new and modern production plants for their concrete components. Compared with other European countries, the quality of the infrastructural engineering products implemented in Latvia and Lithuania will soon put them into a leading position. The recently delivered Schlüsselbauer production plants will be used for the production of manholes, manhole cones, adjustment rings, covers and cover plates. The different regional and customer specifications have been achieved with nominal dimensions from 700 mm – which is the standard manhole dimension for Lithuania for example – up to 2.500 mm. A common factor shared between all of the manufacturers and their chosen machinery is the challenge for better product quality and a variable utilization of the production technique.

The enormous economical growth in the civil engineering sector in the Baltic States has clearly been shown in a recent European survey. The sales of concrete pipes and manhole products rose by 83.4 % between the years 2003 and 2006 [1]. The stability of this remarkable growth within the construction industry in the Baltic States will further be strengthened through projects such as the planned infrastructure development in Latvia's metropolis Riga. An estimated 6 billion Euro is expected to be invested alone in Riga, the capital city of this country with a population of 2.3 Million, within the next 10 years [2].

Recently multiple installations of two different machine types from the company Schlüsselbauer have taken place in the Baltic States. Many manufacturers of manholes, manhole bases and manhole cones have chosen the machine type Magic. This machine, which combines very high flexibi-



*The civil engineering industry in the Baltic States has experienced a huge leap regarding the quality of its concrete elements within the last 10 years.*

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Transport of a manhole out of the Magic production plant at the concrete works Marijampolės Gelzbetonis.



Modern manhole components for use in civil engineering in Lithuania -This photo shows manhole cones and manhole rings at the company Kauno Gelzbetonis.

lity with regards to the products being produced together with the flexibility of the every day production on the plant, has been in worldwide use for many years. The mould quick change system on this machine makes it possible for the operator to change very quickly to the production of different product dimensions or product types. The range goes up to a product diameter of 2.700 mm and a product weight of 3.000 kg. The product spectrum also ranges from simple manholes which are pre-holed for the later use of step rungs to large format cones with centric or eccentric entrances. Of course, if desired, the steps or step rungs can be directly vibrated in. The transport of the products to the curing area as well as the product handling is carried out by the Magic machine operator by use of an electric cart. At the moment in the Baltic States the single production system has been adopted, however the Magic

Program is also ideal for the production of up to six products - depending on the component dimensions - per work cycle. In addition to the already mentioned manhole components the Magic is also the ideal solution for pipes, link elements, roadside channel components and palisades. Depending on the products that are to be produced a progressive and automatic production is possible on this production machine.

The Ringmaster production plant from Schlüsselbauer is another popular machine type that has been adopted by the Baltic States. This comparatively compact machine (erected without a foundation) is used for the production of concrete components with an outer diameter of maximum 1.100 mm. Typically it is used for the production of adjustment rings, covers and cover plates. In Lithuania the required product range

includes even and interlocking grade rings in different building heights, manhole rings DN700, building height 250 mm with rebated joints as well as cover plates.

Furthermore, circular and angular products up to a building height of 300 mm and a product weight of 250 kg can be produced quickly and with minimum use of personnel on this machine. The Ringmaster can also be used both as a Stand Alone Version and as part of a fully automatic production concept. According to customer requirements different automation variations are also possible. One Ringmaster installation in Lithuania is, for example, equipped with an automatic stacking system which carefully removes the finished product from the machine straight after production and places it in the programmed curing position. This has the advantage that the handling and curing of these products are carried

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out within a small, economical space without any extra work for the machine operator. A one man economical production is possible on all Ringmaster installations for production with or without pallets.

■ Sources

- [1] <http://epp.eurostat.ec.europa.eu>
- [2] <https://www.bfai.de>

FURTHER INFORMATION

**SCHLÜSSELBAUER** 

Schlüsselbauer Technology GmbH & Co KG  
 Hörbach 4 · 4673 Gaspoltshofen, Austria  
 T +43 7735 71440 · F +43 7735 714455  
[sbm@sbm.at](mailto:sbm@sbm.at) · [www.sbm.at](http://www.sbm.at)



Production of manhole rings with different dimensions at the concrete works Kauno Gelzbetonis and Vilnius Gelzbetoninis Konstrukcijs Gamykla Nr. 3.



Adjustment ring with rebated joint DN 700 from the Ringmaster production at the company JSC Gelgaudiskio Gelzbetonis



Production and handling of covers by use of the Ringmaster automatic stacking system.