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Flexible Production Plant for Manhole Production

In autumn 2008 in the Polish town of Bochnia, about 40 kilometres from Krakau, the company ABM Solid S.A. commissioned a production plant for the production of manhole bases, manhole rings and manhole cones. The decision to invest in a production plant of the type Magic from the company Schlüsselbauer was based on the high requirements for a flexible production plant. ABM Solid S.A. is a company that serves all western building sectors involved in civil engineering. The success story of the group began with the foundation of "EXBUD-20" in 1991 followed by their entrance into the construction industry in 1993. Since the managing director and main owner Mr. Marek Pawlik completed the share deal of EXBUD S.A. in 1998, ABM Solid has been operating as an independent group. Their performance spectrum covers the complete planning and completion of all building activities through to ready-to-use solutions especially for the commercial engineering sector.

As well as their broad spectrum of activities within civil engineering, including production and storage buildings, office buildings and sports centres, the public infrastructure sector also provides ABM Solid with a considerable source of revenue. Also included in their portfolio are power and heat supply stations, waste disposal, canal and sewage treatment plants. ABM Solid Capital Group's turnover reached about 63 million Euros in 2006. Both turnover and earnings grew immensely compared with the year before which meant that recent investments can now be further developed over the coming years. By investing in the manhole components production plant Magic, ABM Solid has taken a considerable step forward in securing its position on the market as a provider of complete solutions together with a reliable technology partner.

When making the investment decision it was important for both Mr. Pawlik together with the responsible employees to find a plant on which it was possible to produce a

wide variety of manhole components and at the same time reduce the amount of time needed for changing moulds necessary for the production of different products or dimensions.

The integrated Magic mould quick change system makes it possible to change the dimensions completely within a very short space of time without affecting the high productivity even during a short term change in the production demand.

The ABM Solid production plant is designed to produce products with the dimensions DN1000 and DN1200 but if required it can also produce DN1500 products.

Economical One-Man Plant

The plant concept is fundamentally designed to be a one-man plant. Due to the degree of automation the production unit can be operated by one operator however, if required a second worker can operate

the electric product transport cart. The electric product transport cart is not only designed for the transport of fresh products away from the machine and the transport of the cured products to the pallet removal area but can also be used to deliver and carry away pallets from the pallet magazine. This means that the use of an extra fork lift truck or crane is not necessary. The separate actions carried out on the machine are done automatically and are optimally coordinated. The pallets are transported to the production area via a conveyor belt and stacking magazine. As soon as a fresh product comes out of the machine, by means of the product removal device, the next pallet is immediately fed in and the next production cycle begins. This means that the production procedure is clearly defined and a constant production cycle is guaranteed.

ABM'S Magic plant is a standalone production machine designed for the manual transportation of products away from the



An overview of the new production plant for the production of manhole rings and cones as well as manhole bases at the company ABM Solid.



The Schlüsselbauer Magic 1501, designed for one-man operation, during production.



Manhole rings with dimensions of 1000 and 1200mm and total heights of 500, 750 and 1000mm are produced.



Manhole cones and manhole rings within the curing area of the company.

machine. An electric cart transports the fresh products away from the machine and delivers them to the production building for the curing process. The building offers enough inside space for the fresh concrete products. Only one electric cart and one worker are necessary to transport fresh and cured products, which take one whole day to cure, to their destination. The production machine also has enough buffer zone in the extraction area of the machine to “park” several fresh products before they are transported further. This means that it is not necessary for the electric cart to work completely coordinated with the production cycle

No Contamination of the Work Area Caused by Drizzle

Another function for the buffer is in the form of a conveyor belt used for receiving the bottom pallets. Once the pallets have been removed they are then fed into the automatic pallet cleaning system. Finally the pallets are oiled and either immediately used again in the next production cycle or prepared to be stored and replaced by different dimensions. Instead of being oiled using the traditional spray method the pallets are oiled by use of a machine operated sponge. This method is not only economical on material but doesn't create drizzle which has been seen to cause contamination of

the machine area over the years resulting in production prevention.

With this equipment ABM Solid will start producing manhole rings DN1000 and DN1200 respectively with total heights of 500, 750, and 1000mm. Furthermore they will also produce manhole cones DN1000 and DN1200 with total heights of 600mm. To complete the whole manhole programme the Magic is also able to produce manhole bases upside down without a channel. These manhole bases with a total height of 500mm are also produced in the dimensions DN1000 and DN1200 whereby the wall thicknesses are 120 and 135mm. The step rungs are directly cast into all components. To protect the spigot during transport to the curing area support rings are used. ABM Solid has already planned the production of further products on this flexible and high performance machine.

As a contribution to both human and plant safety and as support for the operators, the simple operation and the latest safety standards were taken into consideration when planning the plant layout. All danger zones are protected with a protection cage and corresponding automatic light barriers. If in the accidental event of the danger zone being entered then the plant is automatically switched off and can only be switched



Depending on choice step rungs or step irons are applied in the manhole components.



Oiling by use of a sponge: No drizzle, no contamination of the working area.

on again once the danger zone has been vacated. The clearly structured operation desk including monitor allows the operator to gain an overview of the whole production process at all times.

The Magic 1501 is fundamentally designed for both single and multiple production and is also designed to produce a wide range of products e.g. manhole components, pipes with rebated joints or perforations, roadside channel elements, drain pipes and special components. The Magic 1501 operates with an automatic pallet feed-in system and this allows for the production of products with or without integrated gaskets according to choice. In the case of production of products with an integrated gasket, the gasket is manually placed on the pallet before the pallet is placed on the automatic feed-in. The Schlüsselbauer plant type Magic 1501 is very successfully in operation worldwide. Recently a Magic plant also went into production at the company Reiff-Beton in Kruft, Germany. A detailed report about this plant can be read in the April 2008 edition of CPI.



Mr. Stanislaw Przyborowski and Mr. Zbigniew Franczak from ABM Solid present the new Magic 1501.

FURTHER INFORMATION

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