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New flexible plant for manufacture of concrete pipes in Eastern Algeria

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Located in the northeastern provincial capital of Batna (Algeria), the Sarl Bensekhria company's new pipe plant has successfully engaged in the manufacture and sale of concrete pipes in various diameters since mid-2016. CEO Marzouk Ben Sekhria wants to set new quality and production capacity standards with his new automated plant.

After extensive and strategic market studies, Mr Marzouk Ben Sekhria decided to invest in a modern, versatile concrete pipe making machine at the beginning of 2016 with his newly-founded company Sarl Bensekhria. The increased demand for drainage and sewage pipelines in Batna province also contributed to the decision-making process. In search of the appropriate production plant, Mr Marzouk Ben Sekhria inspected pipe machines in other concrete plants to inform himself about the various production methods and possible suppliers.

After consideration of all important criteria, the Prinzing-Pfeiffer GmbH company from Blaubeuren, a member of the Topwerk Group, ultimately received the order to deliver a complete concrete pipe making machine that would enable the customer to cover the desired product range in the infrastructure sector.

Sarl Bensekhria began construction and foundation work for the new plant in January 2016 and finally, in March 2016, began installation of the new production plants and equipment, which was carried out quickly with the help of skilled installation personnel from Prinzing-Pfeiffer.

The scope of delivery primarily consisted of a Variant 2500/1500 pipe production machine with associated mould equipment for the manufacture of DN 300 to DN 2000 concrete pipes and a Prinzing-Pfeiffer PP SMS 260/24 System apilion cage welding machine, supplemented by a compact dosing and mixing plant.

As a vertical "underfloor" vibrating pipe making machine, the capacity range and multifunctional features of the deployed Variant are designed for a broad range of applications and high production output. Round pipes, rectangular section box culverts, shaft systems and similar products can all be manufactured. The very high compaction quality of Prinzing-Pfeiffer vibration technology, open selection of dimensions and shapes, industrial suitability and customer-friendly operation were in the foreground during the development.



Variant 2500/1500 concrete pipe machine during installation



Pipe production hall



Concrete pipe after demoulding

A Variant 2500/1500 double plant was selected based on customer specifications for production output and desired maximum product size. For example, box culverts with maximum external dimensions of 3,000 x 3,000 mm can be produced on the first side, alternating with concrete pipes with a maximum internal diameter of 1,500 mm on the second side.

The plant required for production of reinforcement cages consists of a semiautomatic Prinzing-Pfeiffer PP SMS 260/24 System apilion cage welding machine that easily allows production of round pipe reinforcement, with or without bell and spigot, in diameters from 340 to 3,100 mm. The completed reinforcement cages are removed from the machine with a cage extraction trolley and can then be taken to the storage area or pipe preparation area.

The concrete is produced with a compact dosing and mixing plant. Two moisture sensors – one in the sand bin and one in the 1,500 litre planetary mixer – guarantee consistent concrete quality, which is particularly necessary with dry concrete for pipe production.

After mixing, concrete is transported by conveyor belt to the pipe making machine and temporarily stored in the concrete storage silo of the charging equipment. The next step in the manufacture of a concrete pipe is setting the mould jacket on a base pallet with a reinforcement cage that already has a mounted, integrated rubber seal. When mould jacket / reinforcement cage / base pallet are assembled, the complete unit is lifted with a bridge crane and carried to the Variant where it is lowered over the mould core on the support frame.

The charging equipment with concrete conveyor belt and rotating feed conveyor are swung into position above the mould by means of a hydraulic drive and locked. The mould is gradually filled with the aid of the rotating feed conveyor, resulting in an evenly concreted and well compacted product. The feed rate can be adjusted to individual requirements. Monitoring of the filling level is laser controlled and ensures that the end product height is always uniform. During the charging process, the product is compacted with a central vibrator that is attached to the mould core using hydraulic clamping devices. Upon completion of the filling process, the charging equipment is swung to the side or to the second production station. The spigot shaper with press and spigot profile ring attached to the portal is then positioned above the mould. The spigot profile ring is slowly lowered under pressure onto the top of the mould with the central vibrator running. The



Exterior view of plant site with storage yard



Outdoor storage yard with production hall

spigot is formed under pulsating pressure and oscillation, giving it a smooth, accurately sized surface. The spigot shaper is subsequently lifted from the product and the portal is swung back to its initial position.

After this process, the concrete pipe is ready for demoulding. A GRP support ring is placed on the spigot while still in the machine in order that its perfectly moulded geometry cannot change during demoulding and curing. The base pallet, mould jacket and final product are then pulled off the mould core, which is fixed to the base plate. This is done by a bridge crane, which lifts the mould with the product standing on the base pallet out of the production pit and then transports the entire unit to the demoulding area. Here, the mould jacket is slowly lifted from the freshly produced concrete pipe. The now empty mould jacket is taken to the next prepared base pallet so that a new production cycle can begin and the next product manufactured.

Currently, the new Sarl Bensekhria plant mainly produces pipes in sizes DN 300 - DN 1500, which are sold within approx. 150 km in Batna province. But production of even larger diameters up to DN 2500 and box culverts are planned in the future. Both Mr Marzouk Ben Sekhria and his assistant Mr Nouaceur are highly satisfied with the new plant.

"With our young, motivated team, we have managed to manufacture high quality concrete pipes and thus achieve a dominant position as a pipe manufacturer in eastern Algeria. Our market includes both state and private companies that developed large infrastructure projects."

From the beginning, the Sarl Bensekhria company was accompanied and supported by Topwerk Afrika, an independent Topwerk Group sales company for the African continent with headquarters in nearby Tunisia. Topwerk Afrika is led by Mr Youssef Maaoui, who receives energetic support from his committed sales and service team. This ensures local customer and after-sale service, which was an additional important factor in Mr Marzouk Ben Sekhria's decision in favour of a pipe making machine from Germany.

The new pipe making machine precisely matches the objectives of the Sarl Bensekhria company to occupy a leading position in the Eastern Algeria market and is also an excellent starting point in order to be well-equipped for future developments such as large size pipe or frame production. ■



CEO Marzouk Ben Sekhria



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