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Investment in a new electric control and safety technology pays off

■ Jan Nemitz, Prinzing Pfeiffer GmbH, Germany

ShinHeung Concrete currently produce various types of concrete pipes from DN 300 up to DN 1500 for sewerage and drainage on 3 Radial Presses (RP) at 2 locations (ShinHeung & Hans) in the southwest of South Korea. ShinHeung factory operates two older Radial Presses RP 1230 (built in 1979) and RP 830 (built in 1992). At Hans Co. factory the latest fully automatic Radial Press RP 1630, which was commissioned in 2020, incl. the Prinzing Pfeiffer visualization system type "Karajan", the QCS (quick-change system) for a fast and safe size change, base pallet handling and pipe test lines.

After Mr. K.H. Lee (Owner) and Mr. K.S. Moon (Director) found the new Radial Press at the Hans Co. factory to be much more efficient and could produce higher quality pipes, the decision was made to upgrade two older Radial Presses at the ShinHeung factory to meet future requirements and to continue to be one of the leading concrete pipe companies in the South Korean market.

Mr. K.S. Moon (Director): "We have known the supervisor at Prinzing Pfeiffer Karl Josef Six (or Charly) for over 30 years. With his professionalism, experience and relationship with the ShinHeung team, the job was done with excellence and speed."

The investment decision to upgrade followed an in-depth analysis and inventory of the complete equipment, starting with the electric control and sensor technology, the hydraulic components, the safety equipment, right through to the general condition of the existing machines.

The experts from Prinzing Pfeiffer, in close cooperation with the customer, thoroughly examined the factories carefully evaluated collected information and confirmed possibility to upgrade both machines at ShinHeung factory.



Aerial photograph ShinHeung Concrete factory

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*Aerial photograph
Hans Co factory*



With well-structured manageable investments, existing older machines can thus be optimized to a modern standard both in terms of safety, efficiency, and product quality.

The scope of upgrade included:

Radial Press RP 1230 (year of manufacture 1979)

- Replacement of the complete electrical control system, including the latest worldwide proven Siemens Simatic S7 PLC
- Replacement of the power cabinet to control the pumping motors used in the main- and control hydraulic system
- Multipanel with the new visualization system type “Karajan” which runs with the Microsoft Windows standard operating system.
- New manual control panel for the most important movements during adjustments or the cleaning of the radial press
- The most up-to-date safety light-barriers, safety hardware and software according to specially designed safety layout
- Laser distance measuring system for the RP main gearbox for controlling precise movements
- New status monitor for the RP machine frame. Including a large-format display for the rpm control of the RP main shaft (press- and distributor shaft) and a current machine condition report by means of a traffic light system
- Teleservice for easy remote troubleshooting and maintenance of the PLC program or visualization system
- Remote control for operating the machine from a forklift

Radial Press RP 830 (year of construction 1992)

Since the RP 830 was upgraded to a Siemens S7 control system in 2013 and the company is still very satisfied with the current condition and performance, the investment in a new modern safety system was the primary objective. Here, too, the company opted for a most up-to-date proven safety system including light barriers, safety hardware and software in accordance with a customized safety layout.



Mr. K. S. Moon (Director), Charly Six (Supervisor Prinzing Pfeiffer), Mr. H. W. Lee (Owner's son), Mr. K.H. Lee (Owner)



Left side: Radial Press RP 1230; right side: Radial Press RP 830



Front view: Radial Press RP 1230 (year of manufacture 1979)

Despite some complications in obtaining visas and entering South Korea due to ongoing Corona restrictions, the upgrades were successfully carried out on both machines, one after the other, within one month. This meant uninterrupted production continued with one Radial Press, while the other RP was being upgraded.

With the upgraded 2 Radial Presses as well as the new plant in the Hans branch, ShinHeung is now well equipped for the future growth. Like Hans Co., ShinHeung plans also to invest in a base pallet handling and concrete pipe test line including documentation in the future. ■

After one month, both plants were fully operational again and the production output of high-quality concrete pipes substantially increased.



Side view: Radial Press RP 830 (year of manufacture 1992)

Mr. K.H. Lee (Owner): "By overhauling the machines, the service life and the business were secured for the next generation - this is part of the family tradition. The grandfather, who had started producing blocks at the time, also invested in the production of concrete pipes and passed the business on to his son. At both locations, the overhaul of the systems has created the highest level of personal and operational safety. 30 years ago, we started developing our market with the help of Arie van Ettehoven (PP Sales Manager retired). He helped us to visit companies in Germany and Europe to gain experience and to integrate reinforced concrete pipes according to the Korean standard in Korea. Aria is not just a business partner, but a friend. Today we are the leading manufacturer of reinforced concrete pipes and have further expanded our market strength and reputation with the overhaul. The new security system exceeds the required requirements in Korea and offers the highest level of operational security for our employees. Furthermore, we were able to reduce the maintenance times of the systems and significantly increase the operational consistency and reliability."



Preparation for concrete pipe production



Professional production of concrete pipes DN 1000



Control cabin with RP - Multipanel including the new visualization system type Karajan



Freshly produced concrete pipes DN 1000 with integrated gasket



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Electrical control system for the Radial Press RP 1230, built in a 3-door control cabinet including the latest worldwide proven Siemens Simatic S7 PLC technology