

Practical casting moulds as a basis for high-quality concrete jacking pipes with and without HDPE corrosion protection

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All over the world, more and more moulds from Schlüsselbauer Technology are being used for mould hardening production of concrete jacking pipes. There are at least three key aspects behind this trend. The increase in use of jacking pipes to avoid having costly and time-consuming open trenches on construction sites is an ongoing trend in pipeline construction. In addition to this, there is increasing demand for corrosion-resistant pipelines—above all in the wastewater sector. Finally, Schlüsselbauer has continually improved the quality and functionality of its concrete casting moulds over several decades, to the point where its Perfect Forming Technology casting moulds are now considered among the leading products in the concrete sector.

In jacking pipe operations across Asia, Europe, and North America, significant amounts of wet cast concrete pipes produced using this mould range are now being installed.

The increasing number of jacking pipe operations has led to an interesting development in the area of reinforced concrete pipes. Until just a few years ago—and despite a lower demand overall—pipes produced using a dry-cast process were supplied, but this situation has now completely changed. Now, nearly everywhere in the world, concrete jacking pipes are being produced using a mould hardening process. New possibilities in concrete technology have also contributed to this, along with the general increase in quality requirements



Typical Perfect Pipe construction site store (Haren, Deutschland). The first Perfect Pipe DN 1200 jacking pipes in Germany were installed here in 2021.



Installation of Perfect Pipe jacking pipes in the first project of its kind implemented in Singapore—this was reported on in CPI 2/2016.



Space is usually at a premium in pipe jacking operations. This makes the Perfect Jacking Pipe even more advantageous, as a complete, corrosion-protected pipe system is created as soon as the next pipe is inserted.

on the market. Schlüsselbauer Technology has reacted and contributed to this trend by placing special focus on constantly developing and improving this type of mould. Pipes produced using a mould hardening process with consistent quality from the tip end to the joint have largely replaced dry-cast products for pipe jacking. And even when directly compared with other pipe materials, robust yet high-quality concrete pipes are increasingly preferred.

One notable advance in the use of precision manufactured moulds is the introduction of the Perfect Pipe concrete-plastic composite pipe. This corrosion-resistant pipe has an HDPE

lining permanently embedded in the self-compacting concrete (SCC) and a plastic plug connection, which means it is no longer necessary to weld plastic on the construction site for nominal widths up to DN 1500. The Perfect Pipe system is also equally as suitable for underground pipe jacking as it is for installation in open trenches. Above all, the fact that the pipeline is produced ready for use and protected against corrosion as soon as it has been joined to the subsequent pipe in the starting pit is of crucial importance for efficient jacking. After reaching the reception pit, no subsequent work is required to seal the pipe connections. To protect them against corrosion, the injection sleeves for lubricants are sealed.



Perfect Pipe jacking pipes are connected by plastic connectors with external gas-kets. These connectors not only enable flexibility in joining during installation, their use also means that no welding is required following joining, up to a pipe diameter of 1500 mm.



The production of jacking pipes can be designed to be highly efficient in both cases—either as a specialized production exclusively for pipe jacking or as an additional feature alongside an established production process for mould-hardened products—with or without HDPE lining.



Automated production plant in Malaysia specializing in Perfect Jacking Pipe—a detailed report on this was published in CPI 2/2018.

The fact that the high-quality design of a casting mould directly influences the concrete product quality is evident in a number of ways in concrete jacking pipes. To protect the tip ends, masterheaders that can be demoulded separately are used on Schlüsselbauer Technology moulds. This reliably prevents spalling at the tip ends, which is frequently seen when this is not done, primarily in pipes with a construction length of more than 2 m. Concrete burrs at the openings or joints of casting moulds are also prevented by the precise production methods used in the Perfect Forming System. If these functional moulds are to be integrated into a needs-based automation system, the capacity and flexibility of a jacking pipe production can likewise be optimized. ■



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