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news:

HEKAPLUS Cable Ducting System of PE-HD for Particular Requirements

Site Report
City Tramway Tunnel Karlsruhe

- **Construction** — Tunnel with stopover areas
- **Client** — KASIG Karlsruher Schieneninfrastruktur-Gesellschaft
- **Building contractor** — BEMO Tunneling GmbH
- **Building period** — Planning approval 2008 - planned completion 2020
- **Project** — Relocation in the underground of the existing above-ground tramway line in the inner city area of Karlsruhe

  Tunnel length about 1,800 m with seven underground stops
- **Type of pipe** — HEKAPLUS-S/R DN 63, DN 110 and DN 160 PE-HD cable duct for installation in concrete

Casing to cable chute

Duct package in armouring

Placing of concrete and allover filling between pipe intervals

Relocation of inner-city tramway lines including stopover areas in the underground

An increased passenger volume of the Karlsruhe tramway lines demands in the inner city area a relocation in the underground of the railway tracks and stopover areas. This will also ensure a safe and quicker cycle sequence of the trains.

The building measure, as planned, includes:

- seven underground stops
- about 1,800 m of tunnel tube
- construction of a triangular junction
- construction of three access roads

In the areas of the driving routes, the tunnel is built by thrust boring while the stopover areas are made using the cut-and-cover method. For all sections, cable ducts are required in larger quantities in order to ensure adequate provision of communication and control cables and power supply lines. All cable ducts are laid in site-mixed concrete.

Duct packages consisting of several layers side by side and on top of each other need to be arranged in spacers to ensure the specified clearance, and protected against uplifting by adequate equipment.

Standard requirements for professional laying in concrete:

Pressure tightness
HEKAPLUS cable ducts are tested for their resistance to 0.5 bar of external and internal pressure in accordance with an in-house quality commitment following DIN EN 1277. This ensures reliable protection against any penetration of liquid concrete.

Compression strength
With an increased compression strength of F ≥ 750 N to DIN EN 61386-24 HEKAPLUS cable ducts reliably meet all standard requirements of VDE 0100-520 for installation in concrete.

Conclusion:
The new HEKAPLUS cable duct system excellently suits applications where safe installation in concrete is of top priority.

Pipe systems installed/planned to be installed:

HEKAPLUS DN 63: abt. 56,000 m
HEKAPLUS DN 110: abt. 102,000 m
HEKAPLUS DN 160: abt. 5,500 m

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