



DEHN protects.

Charging infrastructure: Underground distribution system with integrated lightning and surge protection

Customer

Langmatz 

Project overview

Sector

Electromobility
SMART GRID

Application

Underground distribution system EK 880 with surge protection for the charging infrastructure

Hardware

(depending on the application)
DEHNvap EMOB
STAK 25
BLITZDUCTORconnect
DEHNpatch

DEHN protects.



Charging infrastructure: Underground distribution system with integrated lightning and surge protection

Langmatz GmbH

Langmatz GmbH is a medium-sized company based in Garmisch-Partenkirchen offering customised system solutions and high-quality products for infrastructure applications. Its Europe-wide clientele includes companies in the power engineering, telecommunication and traffic engineering sectors. The company's core competencies in these markets range from design, development and production to the marketing of innovative systems, for example in the field of the charging infrastructure for electromobility.

Challenge

The rapidly increasing expansion of the charging infrastructure presents major challenges for communities, planners and network operators. These include increasingly limited space, the need to blend in with the architecture of the cityscape and safety concerns when installing connection cabinets. The underground distribution system EK 880 from Langmatz has the solution to all these challenges. This fully-fledged service box based on a polycarbonate manhole completely replaces the aboveground cabinet. Alternative locking variants protect the distribution system against unauthorised access whilst a pneumatic spring mechanism ensures speedy access for authorised personnel. The distribution system also has installation space for a service entrance box and a meter mounting board for direct measurement, all housed in a flood-secure submersion cover. It is also possible to integrate WLAN and other critical elements of SMART CITY infrastructure. As they are highly sensitive, there is a significant risk of lightning and surge damage to the electronic components in the charging infrastructure and electric vehicles. The economic consequences of the resulting maintenance, downtime and even loss of image can be severe. Standard series such as IEC 60364-4-44, clause 443 and IEC 60364-7-722 call for protection measures against transient overvoltages.

Solution

With this in mind, the EK 880 system solution has all the necessary electrical protective devices including powerful lightning current and surge arresters. Langmatz relies here on efficient and proven quality solutions from DEHN. The power supply line is protected by DEHNvap EMOB, a com-



combined arrester with energy-coordinated type 1+2+3 protective effect based on purely mechanical spark gap technology which is especially designed for the charging infrastructure. Thanks to the wave breaker function, electronic components in the charging infrastructure and the electric vehicle are reliably protected. In addition, through-wiring is ensured via the lightning current carrying pin-shaped terminal STAK 25 to meet all EMC requirements. If copper-based data and communication lines are installed, they can be protected by, e.g. BLITZDUCTORconnect or DEHNpatch to ensure full lightning equipotential bonding.

Benefits of the universal solution DEHNvap EMOB

- ➔ Type 1+2+3 combined arrester based on mechanical spark gap technology especially for e-mobility
- ➔ Wave breaker function: Residual energy < 0.5 J
- ➔ Maximum backup fuse: 250 A gG
- ➔ Conforms with VDE-AR-N 4100
- ➔ KEMA-certified