

Providing full service consulting
for power utilities

For experts by experts

Brugg Cables

The innovative, Swiss cable manufacturer with a comprehensive range of services in power transmission and distribution.

Whether you have questions, ideas or suggestions, current or future projects, come and talk to us. Your contact at the sales department:
info@bruggcables.com

bruggcables.com

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T E R N A G R O U P

Engineering Services

for High Voltage Cable Systems up to 500 kV



Engineering
Services

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BRUGG CABLES ACADEMY
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Please find more details on the courses currently offered in the online documentation www.bruggcables.com/academy

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Find more detailed information about our products and services on
www.bruggcables.com



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Brugg Cables Services

The Brugg Cables Services consists of a team of engineers, project managers and technicians. Our team has longterm experience in all facets of the industry. We are customer oriented and interested in a life-cycle partnership, which gives our clients the confidence that the results represent their interests. We offer comprehensive services packages: Engineering Services, Asset Management, Emergency Response Solutions, Testing Services.

We routinely work with all stakeholders including field staff, engineers, non-technical senior management, board of directors, regulators, litigators, and the public. All of this combined with our proficient skills in technical writing results in readable reports that are easy to follow and apply.

Our clients include distribution cooperatives, generation and transmission cooperatives, investor-owned utilities, municipal utilities, public utility districts, and industry associations.



Engineering services

High voltage cable systems are complex in terms of design and installation. Many parameters during all stages of project tendering, planning, preparation, project execution and after sales services are important to consider such as environmental conditions, electrical parameters (e.g. load), thermal heat transfer, magnetic field considerations, civil works considerations and more.

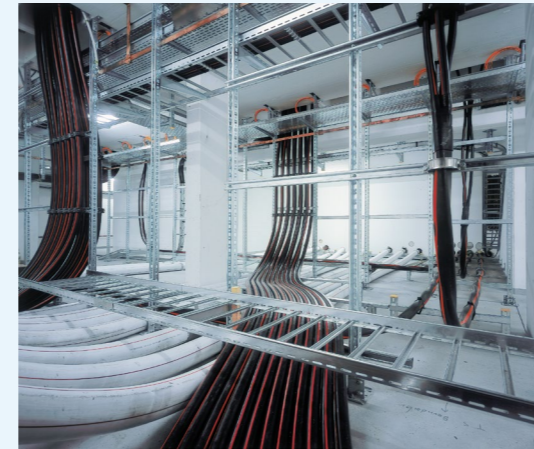
Brugg Cables, looking back at a history and experience spanning over 100 years, is capable of providing a number of services from pre-planning ideas to the final delivery of small to large-scale high voltage cabling system solutions all over the world. Above mentioned services may be bundled into a package that include all or some of the following engineering services.

Locations

- Europe
- Asia
- Middle east
- USA



Scope of services



All our calculations are based on internationally recognised standards such as IEC or recommendations, given by reputable associations, i.e. Cigré. Reliability is one of our highest priorities: one important part of our packages is a fully comprehensive final report, which reflects all results and gives you the confidence in our solution. Please contact us with your requirements and we will be glad to prepare a suitable engineering package that is tailor-made to your system.

Cable design calculations

- Ampacity
- Induced Voltages
- Short Circuit, etc.

Cable installation concept

- Installation Solution (cable route, cable fixing)
- Mechanical Stress Calculations
- Steel Support and Fixing Clamp Calculations
- Cable Pulling concept and forcing calculation

Magnetic field studies

- Magnetic Field Calculation
- Cable Shielding Concept

Oil-filled cable pressure calculations

- Redefinition of the cable pressure design in case of use of transition joints

Your advantages

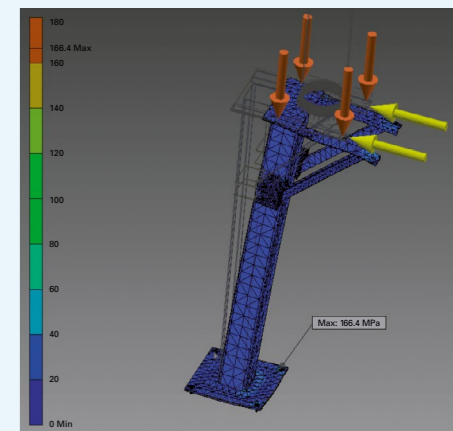
All our system engineers have not only got a theoretical background about calculations and tools, but also have a wide experience in the actual site environments, where cable systems are installed.

As one benefit of this combination, we will provide you with a complete system solution that is feasible and installable, and which contains the right choice of high voltage system products considering also economical aspects.

Studies/calculations examples

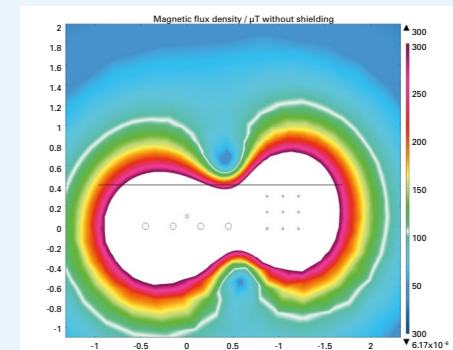
Magnetic stress calculations

High voltage cables and steel supports for cable systems are subjected to a variety of mechanical stresses due to thermal expansion and contraction and forces developed during short circuit conditions. Fixing concepts and steel supports for cables and terminations must be designed to accommodate these mechanical stresses for the design life often in the range of 30 to 40 years of service. Figure shows a calculated example of a steel structure for a cable outdoor sealing end.



Magnetic field calculations

Environmental considerations such as magnetic field emissions from power lines become increasingly important especially in densely populated urban areas or in the vicinity of sensitive electronic equipment. Brugg Cables solutions for such scenarios are shown in Figures using finite element analysis.



Continuous current carrying studies

For the selection of the right cable with sufficient conductor size calculations must be performed to determine the correct selection. Using well-established software tools a variety of standard and non-standard installation scenarios may be considered as shown in Figures.

