Business Unit

Tunnelling & Civil Engineering

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Innovative solutions on a sound basis

Construction of infrastructure is both complex and demanding. Planning and constructing tunnels, power plants or bridges requires comprehensive knowledge and a great deal of experience. Implenia bundles their know-how to generate a powerful entity that can provide you with an integrated solution. Our focus is to bring quality, costs, deadlines and sustainability all into balance in the framework of your project. And, we use the highest Swiss standards to do so.

One step ahead
Our combination of experience, the spirit of innovation and cutting-edge processes and technologies results in solutions that are one step ahead. Our highly-trained professionals work towards this end with a high level of commitment. That is why Implenia’s engineers and specialists succeed time and time again in achieving impressive results. Numerous references substantiate this claim. Whether in tunnel construction, civil engineering or foundation engineering – or in combination with one another.

Our values – the cornerstone of our business
Our way of thinking and acting is guided by a clear set of values. Reliability and integrity shape our behaviour. Transparency characterises our dealings with partners and all other contacts and includes an effort to ensure that our decisions can be understood. Implenia prioritises both the needs and the added value of our customers and strives for the highest operative and financial excellence possible.
Implenia is a recognised expert for demanding tunnelling projects of all types. Whether for transportation, power plants or for supply and disposal. The expertise and experience we have acquired throughout our 100-year history are second to none. Testaments to this are the numerous projects that have set new standards in tunnelling construction. With the Gotthard Tunnel, the longest railway tunnel in the world, we have helped write transport history.
Successful tunnelling construction is based on a winning combination of man and machine. Over the decades, Implenia has repeatedly proven its ability to realise major achievements that set new international standards. A recent example of this is the construction of the longest railway tunnel in the world.

Comprehensive competence
The realisation of large-scale transportation tunnels demands high-level engineering and construction skills. Paired with a respect for nature and many years of experience, Implenia embodies all of the prerequisites necessary for tackling the most demanding challenges.

We are well acquainted with all the latest tunnelling methods, as we apply them on a daily basis. Whether excavating with tunnel boring machines in hard rock, shield machines in soft ground or drilling and blasting, you can rely on us. Additional services such as forepoling, NATM, horizontal jet-grouting (forepoling), grouting, ground freezing and preventer-protected drilling are our stock-in-trade, whether it be headings with tunnel boring machines in rock, with shield machines in loose rock or drill and blast tunnel driving. Additional services such as pipe screen, diamond screen, jet grout arch, grouting, ground freezing or preventer-protected bores are all just part of the job for us. We can take on the development or optimisation of supply management and logistic concepts as well as their implementation.

From planning to outfitting
Beyond the realisation phase, we are the right partner for the outfitting of transportation tunnels. We have proven our ability to competently master the logistical challenges entailed with the installing of railway and traffic technology with numerous projects – the Lötschberg tunnel, the newly constructed stretch of Mattstetten–Rothrist (Bahn 2000), the Glattalbahn, the “Zurich Cross-City Link” as well as the section E of the Gotthard Base Tunnel.

Renovation and reconstruction of existing tunnels rounds out our range of services. We are available as a general contractor, total services contractor or specialised subcontractor.
Building excellence despite the toughest conditions

Power plant construction demands specialised services in gallery construction. As these building sites are often located in remote areas the access is difficult, our experts are often also faced with a challenging topography and climate. By offering the full spectrum of construction disciplines, Implenia is able to rise to this challenge.

Galleries, shafts and caverns
Implenia offers a broad array of services in the field of power plant construction. Our team of engineers and experts are entrusted with constructing galleries and shafts of challenging lengths and inclinations — whether it be using one of our many tunnel boring machines, for which we have our own inventory and unrivalled experience at our disposal, or with conventional drilling and blasting methods. For vertical and sloping shafts, we use the raise-boring methods, shaft drilling machines or blasting, whichever is best suited. Our specialists developed the preventer-protected exploration drilling technique for use in the construction of the Gotthard Base Tunnel. The construction of caverns of all dimensions rounds out our range of services.

In sync with nature
Topography makes every project unique. Not man, but nature governs the rules in power plant construction. Our specialists succeed in overcoming even the most difficult of obstacles, thanks to their extensive experience and flexibility. And as they do so, they are pursuing a single goal: handing over the completed project on schedule and in a quality that Implenia customers are accustomed to expect.
Big in little things, too

Supply and disposal lines are central lifelines in populated areas. The continuous growth of urban centres and agglomerations demands new construction methods, which will cause the least amount of disturbance to people and traffic. Implenia strives for innovative solutions.

Ensuring the supply round the clock
Without supply lines for electricity, water, oil or gas, urban life would very quickly grind to a halt. That is why Implenia is not only there for you when large tunnels are concerned. We are also your specialist for service tunnels with small dimensions. We offer advanced, comprehensive construction solutions that require no excavation work.

Minor operation, major impact
Using microtunnelling techniques, pipe jacking and horizontal drilling, we are in a position to construct service tunnels and pipelines which require only one access and one exit shaft above ground. We have all the equipment necessary to carry out this kind of work – allowing us to provide everything from a single source and to complete your project swiftly and flexibly.
Ability, knowledge and experience are the basis for Implenia’s strong market position. We offer advanced infrastructure solutions from a single source, whenever needed, in cooperation with specialists from other business units in the Implenia Group. The special challenges associated with civil engineering motivate our professionals to new heights of performance time and time again. A testimony to this is the construction of Germany’s largest run-of-the-river power plant in Iffezheim.

Civil engineering.
Bridging the gap.
Experience and qualifications make the difference

With heavy civil engineering and construction we are able to show the full range of our expertise, river power plant construction is among Implenia’s core competencies. Our most valuable resource consists of our experienced and highly-qualified management and construction-site personnel. They are the guarantee for high quality as well as for compliance with cost and deadline constraints.

A broad range of services
A large team of experienced staff – from masons to project managers and engineers – apply their ability and knowledge on a daily basis. Cut-and-cover tunnels, galleries, overpasses and underpasses for roads and railways, power plants along rivers and in the mountains, ventilation stations and large sewer and utility line construction projects all document our versatility.

Implenia masters even the most demanding challenges and can rely on a highly diversified competence pool in doing so. For example, a collaboration of our civil and foundation engineering business units has been entrusted with the overall responsibility for the new dam and power house for the Rheinfelden river power plant.

On, beside or in water
River and stream linings, revitalisation, bank and shore reinforcements with boulders as well as rock removal and excavation under water – whether on, beside or in water, we are in our element. We are also able to carry out services for you competently such as driving and extracting sheet piling or drilling piles from a working platform or floating pontoons. Trained divers round out our team of specialists.
Serving people with modern bridge construction

We want to build bridges. And to do so, Implenia unleashes the full force of their combined know-how, exploiting the entire spectrum of modern engineering’s technical possibilities.

Bridges connect people
Our range of services comprises bridges of all types: from the construction of the most common load-bearing systems, such as beam and slab bridges using in situ concrete and prefabricated elements, all the way to cantilever, arch and frame and cable-stayed bridges. All of the options afforded by modern engineering creativity are open to you, which include the entire spectrum of bridge-construction services. Numerous projects are evidence of Implenia’s competence, such as the very delicate Pont de la Poya near Fribourg, which blends harmoniously into the landscape. The construction of the two pylons which, rise to a height of 110 metres must bear the enormous weight of the bridge deck, which presented special challenges in this project.

Excellently equipped
The falsework we have developed ourselves gives the impression of making the impossible possible in bridge construction. The single-span load bearing system is composed of a combination of scaffolding girders and a shoring tower. The spatial scaffolding girders consist of modular elements which are connected by means of bolts. This system also allows the construction of unconventional types of bridges which are impressive not only in terms of technologies, but aesthetics as well.
Implenia is right at home in all areas of the broadly diversified foundation engineering discipline. Our leadership in this sector is due to our vast experience and to having our own in-house geotechnical engineers. Proven specialists take on even the toughest challenges, making use of our fleet of modern, high-performance machines.
Solidly built on improved soil

Implenia covers all aspects of foundation engineering including: deep basements, bracings, foundations, soil improvement and dewatering. We respond to your challenging issues with innovative solutions. When it benefits the project, we bring together our specialists from the other business units civil engineering and tunnel construction, as demonstrated by the example of the Zentralbahn railway in Lucerne.

For excavations of all types and all methods
Implenia offers comprehensive solutions for entire excavation projects. Bored pile, diaphragm and soldier pile walls, as well as soil nailing and anchor walls are all used for deep excavations. Our many years of experience with diaphragm walls has also been applied for the successful sealing of dams, landfills and tank systems.

To improve the subsoil, we employ the most suitable project-specific solutions. We drill piles using various methods and with the necessary specifications, carry out low and high pressure grouting and perform exploratory drilling. With our fleet of machines, we are able to do all this work on rough terrain that is difficult to access.

Dewatering
Planning and executing dewatering concepts are among our core competencies. Whether dewatering a site with pumps or dewatering with a wellpoint system or lowering the groundwater level with deep wells, we guarantee that your construction project will be completed successfully. One of our specialties is the construction of vertical and horizontal wells which are used to pump groundwater for drinking water.
A functioning infrastructure, whether it is for transportation systems, power supply or waste water disposal, are the arteries of modern society and of vital importance. This is why maintaining them, including periodic renovation and upgrading, is a must. Implenia has decades of experience in this area and offers a comprehensive range of services.
Increased value

Timely and professional renovation and repair is the most cost-effective way of preserving and extending the life of existing infrastructures. Implenia is a specialist here, from consulting to execution.

Your partner of choice for all types of infrastructure
Implenia is your partner for the renovation, repair and maintenance of engineering structures, galleries, tunnels, bridges, sewer systems, sewage treatment facilities, parking structures and additional types of infrastructure. We not only execute the work, but are also able to offer you consulting services, assess the condition of your structure and develop made-to-measure projects — always with a view towards the most economical solution.

Equipped for every need
In terms of technology, a comprehensive range of services awaits you at Implenia that encompasses the latest technologies. Our competence spans a broad spectrum from the most modern high-pressure water techniques to adhesive reinforcement, concrete injection, synthetic resin work, electrochemical desalination and inhibitor techniques. We also offer the renovation of historical buildings to round out the spectrum.