



# SÄNGER + LANNINGER

Mining and Tunnelling since 1887



# Tasks

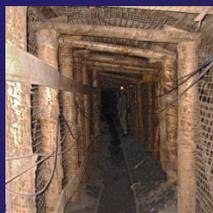
- The conservation of mine workings in deep mining as well as mastering the rock in tunnelling calls for a wide range of methods geared to the corresponding application.
- Towards this end, high demands are placed on the responsible contractor with regard to versatility and experience in order to ensure that the most varied cases of application and situations can be processed safely and successfully.





# Experience

- Sänger+Lanninger can rely on experience extending back over more than 50 years.
- This makes S+L a competent partner as far as working with construction materials, injection and redevelopment in mining are concerned.
- S+L can also provide important support for planning projects as well as for selecting suitable materials and machines.





# Your Success is important for Us!

As a consequence, Sanger+Lanninger Service GmbH offers special services, which are tailored to your requirements:

- ◉ Mining and adit construction
- ◉ Tunnelling
- ◉ Industrial assemblies
- ◉ Provision of qualified staff





# Mining and Adit Construction

- Shaft filling
- Excavating roads/driving
- Enlargement work
- Grouting operations
- Assembly and dismantling of underground machines and systems
- Repair and maintenance work above and below ground
- Redevelopment work
- Abandoned mine workings/ post-mining
- Provision of skilled staff



# Tunnelling

- Driving operations
- Enlargement work
- Grouting work
- Assembly and dismantling of machines and systems
- Repair and maintenance work
- Redevelopment work
- Provision of skilled staff



# Industrial Assemblies



- Planning and consulting
- Engineering
- Development, planning, design
- Heavy steel construction
- Plant engineering
- Pipeline construction
- Mechanical engineering
- Assembly and dismantling of machines and systems
- Conveyor technology
- Repair and maintenance
- Qualified welding operations
- Provision of staff



# Provision of qualified Staff

- Engineers
- Technicians
- Locksmiths
- Welders with valid welding certificates
- Pipe erectors in accordance with isometrics
- Turners/Millers
- Electricians

If you have special requirements – please get in touch with us!

# Branches



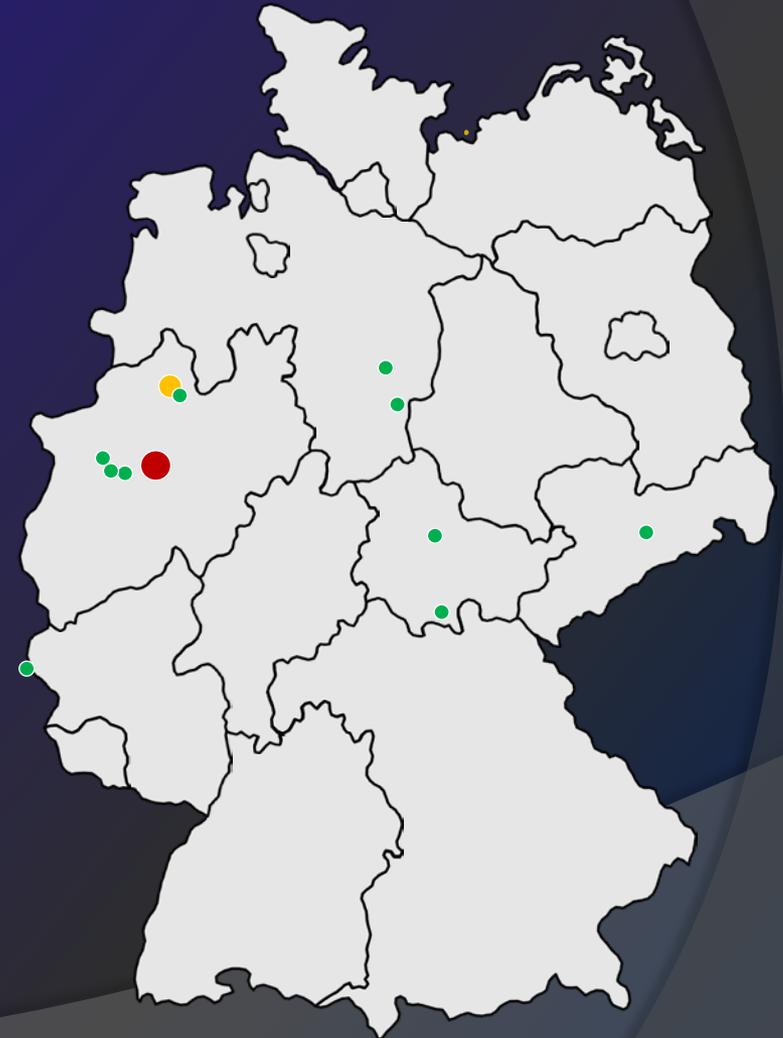
- Mining and adit construction
- Tunnelling
- Industrial assemblies
- Provision of staff

● Registered office and headquarters: Dortmund

● Niederlassung Ibbenbüren

● Projects (long-term):  
Bottrop  
Bochum  
Essen  
Hamm  
Goslar  
Cloppenburg  
Freiberg  
Erfurth  
Ibbenbüren  
Linz (A)  
Salzgitter  
Schalkau (Thür.)  
Vianden (L)

Ramagundam (Andhra Pradesh), India





# Thank you very much for your interest:

We hope that you too will become  
our partners in future!

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- Certification according to SCC\*\* and SCP as well as
- according to DIN EN 9001: 2006 (in preparation)
- Application of the IGZ collective tariff agreement

# **Sänger+Lanninger GmbH Service**

## **Drives, Working with Construction Materials, Injections and Redevelopment in Mining, Adit Construction and Tunnelling**

### **Provision of skilled staff on a temporary basis within national guidelines**

#### **Sänger+Lanninger GmbH Service – Experience is vital**

The retention of mine workings in hard coal mining calls for a wide range of methods that are geared exactly to each particular case of application. Towards this end, high demands relating to versatility and experiences are placed on the responsible company, in order to ensure that the most varied cases of application and situations can be tackled safely and successfully.

In this connection, Sänger+Lanninger can look back on more than 50 years of experience, which makes it a competent partner for executing work with construction materials, injections and redevelopment in mining. Furthermore it can also provide essential support when projects are being planned as well as in selecting suitable materials and machines.

#### **Backfills – high Supporting Forces are better**

The supporting force provided by an arch support does not always suffice at great depth, so that convergences and deformations of the support can arise prior to initial extraction. By installing backfilling consisting of construction material a support system is created by combining the support and backfilling, whose bearing force can amount to as much as eight times that of the arch support without backfilling depending on the construction material used. These high supporting forces are only attained providing that qualitatively high-grade backfilling is utilized.

Thanks to its many years of experience Sänger+Lanninger ensures that the above-cited supporting forces are attained by means of complete and void-free execution when installing backfill.

In this connection, the available machines enable processing to be executed either with materials supplied in big bags or provided in pneumatic form.

#### **Roadside Packs – so that the Road remains stable**

If requested Sänger+Lanninger assists you to plan roadside packs, helps in selecting suitable construction materials and subsequently sets up the roadside packs for you in the quality, necessary for a rock mechanical effect. Thus our knowledge and work can act as a component for conserving roads. The machines and equipment in our fleet cater for all kinds of construction material processing regardless of whether the material is supplied in big bags on the spot or either pneumatically or hydraulically over lengthy distances.

## **Enclosing Dams – so that Everything remains tight**

Extremely high demands are placed on enclosing dams. For instance, abandoned road sections have to be permanently separated from the mine workings and furthermore as far as possible the dams must not allow in any mine water or mine gas.

Success here hinges on the choice of construction material as well as the complete, faultless and in turn, absolutely tight production of the enclosing dam. Injections, which are subsequently carried out help to ensure that the entire structure, comprising the dam and the neighbouring rock, is tight rather than only the dam itself. Sängner+Lanninger possesses sufficient experience in creating enclosing dams and working out and executing subsequent injections.

## **Grouting Work – so that the Rock is improved**

The execution of injection operations to stabilize roads or to avoid caving belongs to Sängner+Lanninger's core activities. We rely on experience gained from several hundred grouting measures and deep-seated knowledge for producing the injection pattern best suited for the application in question. Depending on the requirement, grouting construction materials or cements are processed from sacks or bulk construction materials called up pneumatically or hydraulically or even synthetic resins. The injections are executed by the low or high pressure method depending on the crack and rock situation and the most suitable grouting pumps applied for this purpose. Apart from tackling consolidation grouting we also undertake sealing injections if required to prevent ingressing water or gas.

## **Rock Bolting Work – for the Rock can accomplish a Lot**

Should it be possible to transfer a major portion of the support function to the rock, it is easier to maintain the road or rather the mine workings than if the entire supporting force has to be accepted by the standing supports. Rock bolts can be installed to enable the rock fulfil this task. Sängner+Lanninger is glad to assist in the planning and execution of such rock bolting measures as well as effectively combining rock bolting and grouting measures in particularly stressed sectors.

## **Shotcreting Work – Sealing or solid Support from Outside**

Shotcreting activities represent a further sphere of involvement for Sängner+Lanninger. We possess the necessary experience for placing shotcrete by the wet or dry spraying method. Our staff apply shotcrete to seal against air leakages, to reduce gas emissions, to prepare for grouting measures and to strengthen supports in stressed roads or damaged supports. Regardless of which case of application is needed and which processing method is to be pursued, Sängner+Lanninger possesses sufficient know-how and owns an extensive fleet of machines. Sack material or construction material supplied in big bags or pneumatically or hydraulically can be processed.

## **Mechanical Engineering – for it also depends on the right Technology**

Processing of high-grade construction material represents the prior condition for a project's success. Correct processing in this case calls for mechanical engineering geared to the construction material in order to mix it in the required quality quite apart from the pump technology tailor-made for the case of application. Sanger+Lanninger has many years of experience at its disposal on this sector. It is aware of the limits of conventional machines and devises the mechanical engineering called for so that the construction material can be transported over the required distance in the necessary quality.

## **Consulting/Planning: Nothing's Impossible**

Construction material may be just a mixture of water and cement but it's also a powerful and versatile substance. In order to ensure that the construction material fulfils the demands that are placed on it, it is essential that the material's technical properties are observed as well as its rheological ones, mixing, processing as well as the diverse marginal conditions. Processing as well as the marginal conditions also exert a major influence on the outcome when synthetic resins are applied. Sanger+Lanninger relies on more than 50 years of experience, is familiar with essential products and processing methods and can thus be active in more than just a consultative role by working out custom-built solutions for existing cases of application.

## **Quality Assurance – for we know what we're doing**

Competent processing is the one thing; a functioning QA system represents the other prerequisite for successful work. Sanger+Lanninger processes the construction material and synthetic resins quite apart from checking and testing during the execution stage, whether the attained result corresponds with the planning.

## **Planning – Execution – Assessment**

The tricky conditions in hard coal mining call for applied technologies and suitable materials geared precisely to the given situation. As a consequence, high demands are set on the responsible contractor with regard to reliability and quality relating to execution. Sanger+Lanninger as a specialist company for rock improvements, redevelopments and construction material processing provides you with assistance during planning quite apart from executing the required work in a qualitatively high-grade manner while undertaking the relevant documentation and assessment.

## **Execution of Specialist Work**

- Redevelopment of surface breaks in old mining districts
- Redevelopment of conserved buildings
- Securing adits with prop and bar system (timber/steel support)
- Repair work
- Road enlargement
- Drill+blast adit excavation
- Sanger+Lanninger executes this work relying on experience and knowledge with the relevant recognized qualified staff in mining, adit construction and tunnelling as well as associated activities.

**Please get in touch with us!**