

**For all companies of the SMB Group,
all subsidiaries and
all construction sites in Germany and abroad
as well as all business trips**

SMB Comm.
no.:

.....

Construction
site:

.....

Signature BL*:

.....

* The signature of the site manager confirms that all safety precautions according to the safety plan have been adhered to on site and that the site manager has read and understood the safety plan.

Distributor: Customer
Project manager
Site manager
Internal

**Forms shall be identified by "SFB Safety Forms", "SS Safety Standards" and
"SA – Safety Instructions" and the respective name of the form.
The latest version can be found in the footer of the respective form.
All personal designations are to be understood as being gender-neutral.**

Table of contents

1. PROJECT INFORMATION.....	3
1.1 PROJECT ORGANISATION/CONSTRUCTION SITE ORGANISATION	3
2. COMPANY INFORMATION.....	4
2.1 ADDITIONAL COMPANY INFORMATION CAN BE FOUND IN SS009	4
2.2 COMPANY FORM	4
2.3 NUMBER OF EMPLOYEES	4
2.4 WORKING HOURS.....	4
3. RESPONSIBILITIES & POWERS	4
3.1 RESPONSIBILITY	4
3.2 EVALUATION.....	4
3.3 SAFETY INSTRUCTIONS	4
3.4 FIRST AID.....	5
3.5 FIRE PROTECTION.....	5
3.6 ACCIDENT NOTIFICATION	5
3.7 SPECIAL DUTIES OF THE EMPLOYEES	5
3.8 EMPLOYEE CONDUCT.....	5
3.9 BEHAVIOUR AT WORK/CHECKING BEFORE STARTING WORK.....	6
3.10 EMPLOYEE SUITABILITY	6
3.11 HANDLING CHEMICALS	6
4. PPE – PERSONAL PROTECTIVE EQUIPMENT	6
4.1 SAFETY HELMETS.....	6
4.2 SAFETY SHOES.....	7
4.3 SAFETY GOGGLES.....	7
4.4 EAR PROTECTION.....	7
4.5 HIGH-VISIBILITY VEST.....	7
4.6 WORKING MATERIALS.....	7
5. SAFETY MEASURES FOR THE RESPECTIVE JOB DESCRIPTIONS.....	8
5.1 WORKING ON LADDERS.....	8
5.2 WORKING IN THE EVENT OF A FALL HAZARD	8
5.3 WORKING ON MOBILE LIFTING PLATFORMS (FHARB), RISERS AND SCAFFOLDS	9
5.4 WORK ON ELECTRICAL INSTALLATIONS.....	10
5.5 ENVIRONMENT.....	11
5.6 GENERAL HAZARDS ON CONSTRUCTION SITES AND WORKING OUTDOORS	11
5.7 LOCKSMITH AND WELDING ACTIVITIES	12
5.8 WORKING IN CONTAINERS.....	14
5.9 WORKING IN PITS, DITCHES AND TRENCHES	15
5.10 WORKING IN EX AREAS – EXPLOSION PROTECTION.....	17

1. Project Information

Client/Customer:

Address and location of
the construction site:

Description of works and
activities:

Duration of the
construction site:

Start: CW

End: CW

1.1 Project organisation/construction site organisation

Project Manager,
(Engineering):

Mrs./Mr.

Tel.

Site manager and safety
representative on site:

Mrs./Mr.

Tel.

Safety specialist:

Mrs./Mr.

Tel.

Customer contact
person:

Mrs./Mr.

Tel.

Customer's safety
representative:

Mrs./Mr.

Tel.

2. Company Information

2.1 Additional company information can be found in SS009

2.2 Company form

Private limited company

2.3 Number of employees

The number and qualifications of the employees are recorded by the site manager in the personnel deployment list and are stored in the office container.

2.4 Working hours

Prefabrication depending on construction site: 7⁰⁰ a.m. –5³⁰ p.m. daily (break: 1x 30 min)

Main assembly depending on construction site: 7⁰⁰ a.m. –5³⁰ p.m. daily (break: 1x 30 min)

In principle, a 48-hour week, over period of 17 weeks is not to be exceeded!

Exceeding the working hours must be recorded without exception in advance and approved by the HR department.

3. Responsibilities & Powers

3.1 Responsibility

The employer, project manager, site manager and foreman are responsible for the safety and health of SMB employees.

3.2 Evaluation

The evaluation commissioner on the construction site is the site manager or an employee commissioned by the BL. In SMB GmbH, this includes: SFK offices, workshops, depots and warehouses, if necessary in cooperation with AM, SVP, BV, GL or external specialists.

- The evaluation must be completed before the start of construction.
- The hazard identification must be carried out with the help of the evaluation checklists and during the inspection of the construction site.
- When setting up the containers and determining the prefabrication areas, attention must be paid to the stability of the ground, the earthing of the containers, as well as to driveways, entrances and exits for emergency vehicles and escape and rescue routes.
- The ongoing evaluation is to be carried out monthly; no defects or detected defects must be entered in the form.

3.3 Safety instructions

Initial and ongoing safety briefings must be carried out by the customer in accordance with:

- SMB Safety and Environmental Protection Guideline
- General assembly activities
- Specific site conditions (e.g. pickling paste, working platform)
- Construction site regulations and SIGE plan

3.4 First aid

"First-aiders safety overview" must be posted publicly, for list of first-aiders, see personnel deployment list

Define locations of first aid kits

Type 1 for 1 – 5 employees

Type 2 for 6 – 20 employees

3.5 Fire protection

- Post emergency numbers
- Provide fire extinguishers
- Instruct behaviour of what to do in the case of a fire
- Adhere to smoking bans

3.6 Accident notification

Every incident or accident must be reported immediately to the SFK (safety specialist) of the SMB by means of an accident report. SFK reports the accident to the AUVA, the personnel office and management. Forms for accident reports are available in the construction site folder.

3.7 Special duties of the employees

Employees are all staff and workers who have a contractual relationship with SMB or one of its subsidiaries, all temporary employees from third parties and all employees of SMB subcontractors. This also includes the members of the management.

- Safety devices or protective measures which are prescribed for the purpose of reducing the risks for people and the environment must not be damaged, accepted or rendered ineffective.
- Only those plant areas may be entered in which the Contractor carries out its activities after having been instructed or after approval by means of a permit.
- The operation, use or maintenance of other operating equipment and resources is prohibited without exception.
- Construction work may only be carried out under the supervision of a suitable supervisor, with the necessary care and according to professional principles.
- If the supervisor is not permanently present on the construction site, a deputy must be appointed.

3.8 Employee conduct

- Employees may not be under the influence of any lingering substances prior to going on duty (e.g. impairment due to residual alcohol) during working hours.
- The consumption of alcoholic beverages and other narcotics during the entire working or business hours and during business trips is expressly prohibited.
- Employees who are under the influence of alcohol, medication or narcotic drugs must not enter the works premises or construction site.
- The private use of mobile telephones (WhatsApp, private mails, etc.) during working hours on construction sites is only accepted in emergency situations.
- This applies to the head office, all subsidiaries, branches and all SMB construction sites. In addition, the safety regulations and company rules on construction sites of the customer and various third parties must be adhered to and adhered to throughout the entire period of presence.

3.9 Behaviour at work/checking before starting work

- Pay attention to safety
- Provide yourself with sufficient personal protection
- Ensure clear work order
- Do not endanger others
- Pay attention to cleanliness and tidiness
- Pay attention to environmental protection, waste and residual materials
- Be more careful with water/waste water
- Work with caution with hazardous substances
- Try to reduce noise
- See also site folder, "Safety and environmental protection guidelines" of SMB

3.10 Employee suitability

- Employees are required to notify their employer of any pacemakers, implanted defibrillators and other implants
- Employees should be aware that they may be exposed to high electromagnetic fields that affect pacemakers.
- Employees who are known to the employer to suffer from physical weakness or infirmity must not be exposed to danger and must not endanger others.
- Only employees who are physically capable of performing such work (e.g. working at heights, etc.) may be employed.

3.11 Handling chemicals

- The overview of the hazardous substances used in the company can be found in the "Hazardous Substances Index" in the SHE folder.
- All safety data sheets are digitally linked to the hazardous substances index and are available from the SFK office.
- In particular, substances that present a risk according to the subdivided hazard classes of 2 or 3 should be avoided as far as possible and, if not otherwise possible, used with particular care.
- Before working with the pickling paste, every employee who has not yet received any instruction must be instructed on the relevant work instructions. This must be recorded in writing.
- Dangerous working materials such as pickling paste must always be stored in a lockable place, whereby care must be taken to ensure that only the daily requirements are available at the workplace when the working materials are used.

4. PPE – Personal Protective Equipment

Personal protective equipment such as respiratory protection, hand protection, eye protection etc. must be used accordingly.

4.1 Safety helmets

- On many construction sites, head protection (crash helmet or protective helmet) must be worn.
- Thermoplastic helmets may be used until the end of the wearing period specified by the manufacturer, provided they are in proper condition. The maximum four-year period of use (§ 69 para. 4 AAV, § 27 para. 3 Bau V) is irrelevant in these cases.
- According to AAV and BauV, the respective manufacturer's specifications are authoritative for the maximum permissible wearing period of CE-marked thermoset safety helmets.
- The helmet must be replaced after a strong impact or after a fall from a great height.

- For assembly work in steel construction, boiler construction and overhead line construction, for work in the area of cranes, construction work where there is a risk of head injuries, a protective helmet must be worn.

4.2 Safety shoes

- Always wear suitable non-slip and puncture-resistant safety shoes (S3) on the construction site.
- Safety shoes in accordance with EN ISO 20345 must always be worn!
- Safety shoes in accordance with EN ISO 20345 must always be worn to avoid falling accidents.
- Clean shoe soles regularly
- Pay attention to slippery surfaces and tripping hazards
- Work carefully and walk consciously

4.3 Safety goggles

- If work is carried out in the immediate vicinity during which materials (e.g. splinters) fly away or corrosive substances can escape, protective goggles must be worn.

4.4 Ear protection

- When using angle grinders or other work equipment which cause increased noise, suitable ear protection must be worn.
- Persons exposed to noises louder than 85 dB shall be tested every 5 years for their audiometric functions.

4.5 High-visibility vest

- At workplaces where forklifts, construction machinery and other vehicles are in use, it is mandatory to wear a warning vest or appropriate protective clothing.
- The activities must be coordinated and all employees must be instructed on the increased dangers.

4.6 Working materials

- Avoid skin contact with working materials and wear protective gloves if necessary.
- Working materials must be stored in suitable containers in accordance with regulations.
- Containers must be permanently marked with the product name, hazard symbol, risk and safety instructions.
- Filling or storing substances in drinking bottles or containers in which foodstuffs are normally stored is prohibited.
- Acetylene bottles must be stored in accordance with regulations.
- Cylinders containing different gases must be stored separately.
- Gas cylinders must not be stored together with flammable substances.
- Gas cylinders must be protected from strong heating.
- The use of spray cans is only permitted in well ventilated areas.
- Spray cans must also be kept away from heat and sources of ignition and protected from sunlight and temperatures above 50°C.
- The safety regulations according to Safety Data Sheet 91/155 EEC must be adhered to in order to ensure that the working materials are used in accordance with the regulations.

5. Safety Measures for the Respective Job Descriptions

5.1 Working on ladders

- Caution when getting on and off
- Ladders may only be used for their intended purpose and in accordance with the regulations; in particular, the correct selection, use and installation must be ensured.
- Single ladders must be installed in such a way that there is a projection of 1 m above the exit point and the angle of contact is approx. 70°.
- Unauthorised extension of ladders is prohibited.
- Stepladders may only be used with a spreader safety device.
- Work on ladders may only be carried out for short periods of time.
- Ladders must be checked annually for proper condition.
- If work in the vicinity of electrical overhead lines is required, it must be ensured that the safety distances are adhered to.
- Work may only be carried out on ladders if the carrying of tools and material is only necessary to a small extent.
- If the standing position is higher than 5 m for single ladders or higher than 3 m for stepladders, only brief work may be carried out in the gripping area.

The base of the ladder must be adapted to the surface, e.g:

- Rubber ladder shoes on solid ground
- Ladder shoes made of steel tips on soft ground
- Single rung ladders must not be climbed over the 3rd to last rung.
- Stepladders may not be climbed beyond the 4th to last step.
- Stepladders with extension-slide may not be climbed over the 5th to last rung.

5.2 Working in the event of a fall hazard

Protective gear

- If there is a risk of falling, proper fall protection must be used.
- A visual inspection of the harness, safety belt and fall arrester must be carried out before use, at the latest every 12 months a verifiable and documented inspection must be carried out.
- **Damaged protective equipment must be rejected and prevented from being reused**
- Personal fall protection devices, in particular rope and rail systems, must always be installed in such a way that the movement space is restricted as little as possible and that no additional danger is created by ropes.

Guards

- The chest, middle and foot guards must be secured against unintentional loosening.
- If guards are used as fall protection, the height of the chest guard must be a minimum of 1 m up to a maximum of 1.15 m.
- The foot guard must be 12 cm high and the distance between the guards (chest, middle and foot guards) must not exceed 47 cm.
- Under load, the guards must be pressed against the supports.
- The guards shall be designed so as to withstand a horizontal force of at least 0.3 kN at an unfavourable location.
- Chains must not be used as guards. Barrier tapes and flag cords are not permitted.

Danger of falling

- Floor openings, ceiling apertures, recesses and hatches must always be covered or defended in such a way that they cannot penetrate and cannot be moved.

- If fall arresters and barriers cannot be used for technical reasons, protective devices such as safety scaffolds, safety nets, roof safety scaffolds or roof protection panels must be used to catch falling persons and materials.
- If the effort required for the installation of fall protection devices and protective devices is disproportionately high compared to the effort required for the work to be performed, this type of protective measure may be omitted, but the employees must in any case be secured by safety harnesses and safety belts.

5.3 Working on mobile lifting platforms (FHARB), risers and scaffolds

- When working on lifting platforms, instruction must be given before starting work in accordance with SMB Safety Instruction SA006.
- When using or erecting SMB's own JUST scaffold, the assembly instructions SA001 must be used. Each scaffold must be approved in writing by the site manager before starting work. The release must be visibly attached to the scaffold.

General:

The use of personal protective equipment deemed necessary for the respective activity is mandatory when on the platform (basket): e.g. ear protection, safety goggles, face protection, dust mask, gloves, wet and cold protective clothing, safety shoes etc.

When working on risers, working platforms and suchlike, a safety harness must be worn and you must secure yourself.

The following items must always be worn:

- Safety shoes in accordance with EN ISO 20345, due to the permanent risk of injury from impact, falling objects, etc.
- Protective helmets according to EN 397, only protective helmets for working at heights with 4-point chinstraps or suitable protective helmets with chinstrap and jerk-suck fastener must be used. In contrast to the usual construction helmet, this one offers a larger field of vision upwards. The chinstrap ensures that the helmet remains in place on the head in the event of a collision, fall, catapult effect, etc.

Safety measures:

- If posts are used as scaffolding layers, they must be at least 20 cm wide and 5 cm thick, with a maximum wear of 5% in thickness.
- If other scaffold layers are used, they must be at least equivalent to the post covering.
- Scaffolds must be inspected by a competent person before they are used for the first time, after longer work interruptions, after storms, heavy rain, frost or other periods of bad weather.
- System scaffolds must be inspected at least once a month and other scaffolds at least once a week.
- Working on top of each other on scaffolds is only permitted if appropriate measures are taken against falling material, e.g. by attaching foot guards and nets.
- From a fall height of more than 2 m, foot bars must be fitted.

Rolling tower

- Mobile standing scaffolds may only be used on load-bearing, level and firm floors.
- Loose loads must be secured during travel and there must be no persons on the scaffold.
- If the distance to the wall or to the scaffolded object is more than 30 cm, guards must also be attached to the scaffold on the wall or object side.
- The employees must be instructed with regard to scaffolding construction and application.
- Before starting work, check whether work must be carried out near electrical overhead lines.

- Scaffolds may only be erected in the vicinity of live, non-insulated parts of electrical systems if a voltage-free state has been established and ensured or if other measures such as covers or barriers have been taken.
- If the safety distances cannot be maintained, the operator of the system must be informed. The operator must take the necessary safety measures[^].
- Employees who are deployed for work in the vicinity of electrical overhead lines must be instructed in writing.
- When working on scaffolding, only small tools and materials that are easy to transport may be carried.
- If scaffolds are erected in the vicinity of traffic routes, in particular in the case of inaccessible places, the danger area must be appropriately secured or marked.
- It must be ensured that unintentional starting and/or knocking over is prevented.
- In darkness and poor visibility, the scaffold must be marked with suitable warning lighting.

5.4 Work on electrical installations

Safety measures:

- All work on electrical installations may only be carried out by employees of an authorised specialist company.
- The hand tools must always be kept in a tidy condition.
- Measuring tools must be regularly maintained and checked in accordance with the manufacturer's guidelines.
- Do not work on live active parts of electrical installations.
- In principle, the safety regulations in accordance with the Electrical Protection Ordinance and the ÖVE regulations declared to be binding must be adhered to.
- When working on electrical systems, insulated tools must be used; these tools must be suitable for the voltage levels occurring and marked accordingly.
- If a system is activated by several persons, the activation must be confirmed in writing or verbally if necessary.
- Switches or switch drives must be securely locked, locking elements or dummy elements must be used and prohibition signs must be visibly attached in order to prevent them from being switched on again.
- Suitable, faultless and functioning test equipment must be used to check that no voltage is present.
- The absence of voltage must be tested at all poles at the place of work and at places where earthing and short-circuiting are to be carried out.
- If safety distances to active parts are not maintained, their voltage-free state must be established, but if the system parts must remain live, insulating covers must be fitted and the danger zone must be adequately and clearly marked.

Compliance with the 5 safety regulations is absolutely necessary and vital when working on electrical systems:

1. Switch off all poles and all sides
2. Secure against restarting
3. Check that there is no voltage
4. Earthing and short-circuiting
5. Protect against adjacent live parts

Depending on the hazard potential, insulated protective equipment must be used or, in particular, when NH fuses are removed or inserted:

- NH fuse handle with cuff
- Face shield
- Insulating mat
- Insulated foot protection

- Safety rod

5.5 Environment

Safety measures:

- Combustible waste must be collected in a non-combustible container with a tight lid and removed at the end of work and stored in a fireproof place.
- Suitable extinguishing agents must be made available at every construction site, taking into account the nature of the work processes, working procedures and working materials.
- Employees must be trained in preventive fire protection.
- The use of substances hazardous to fire and the performance of activities hazardous to fire must be coordinated on the construction site.
- Dangerous working materials must not be stored on traffic routes, passageways, staircases, escape routes or similar.
- Traffic routes, passages and escape routes must always be kept clear and must be safe to use.
- If fire and evacuation plans are prescribed by the authorities, appropriate escape plans must be drawn up or existing regulations complied with.
- On construction sites, first aid kits must be available in the prescribed condition and in sufficient quantity.
- First aid must be administered at every construction site in the event of injury or sudden illness.
- A washing area with cleaning and drying agents must be provided for every 5 workers who finish their work at the same time.
- In case of heavy soiling, warm running water must be available.
- In the case of severe exposure to dust, exposure to toxic, corrosive substances, etc., showers with cold and warm water must be provided for every 5 workers.
- If more than 10 workers are employed on a construction site for more than 2 weeks, washrooms in accordance with regulations must be provided. Exception: If there is a shower facility on the premises or accommodation, which can be reached on foot in 30 minutes or with a provided vehicle.
- At least one lockable toilet (with toilet paper and coat hook) must be available for every 20 male employees on each construction site or in the immediate vicinity.
- A urinal must be available for workforces consisting of 15 male employees or more.
- If more than 5 employees are employed by one employer for more than one week, a lounge must be provided for changing clothes during breaks and in bad weather.

5.6 General hazards on construction sites and working outdoors

Safety measures:

- In case of strong sunlight, workplaces should be moved into the shade as far as possible or the work area should be shaded (awning or shade) or in accordance with the SS004 sun protection safety standard, the necessary measures should be taken.
- Hygienically clean cold drinking water or other non-alcoholic beverages must be provided.
- Footpaths, traffic routes and traffic areas must be kept in good condition at all times. Especially in winter, footpaths, traffic routes and surfaces must be cleared of snow and ice.
- On pavements, traffic routes and surfaces, tripping hazards must be avoided. Storage must always be carried out in such a way that traffic routes, passages, escape routes, etc. are always free and can be used safely.
- In general, order must be maintained on the construction site and openings and pits must be properly secured.

- Work clothing must be selected in accordance with the weather conditions. Accordingly, rain jackets, windbreakers and winter protective clothing must be worn.
- Vaccinations such as flu and tick protection are recommended.
- Only work equipment in accordance with regulations may be used on a construction site.
- This equipment must be used as intended and must not be manipulated.
- When installing work equipment, ensure that it is stable.
- Necessary records of inspections of scaffolds, cranes, etc. shall be provided for inspection on site.
- The use of work equipment must be coordinated in such a way that no persons are endangered or injured.
- Construction site traffic and transport activities must be coordinated in such a way that no persons are endangered.
- Before the start of construction, the hazardous nature of the working materials and their interaction must be classified (safety data sheet).
- In particular, contact with eyes and skin must be avoided. Do not inhale vapours, dusts and spray mist.
- Do not eat, drink or smoke when working with dangerous substances.
- Only containers in accordance with the regulations may be used for the storage of working materials. These must be labelled with the product name, hazard symbol and hazard and safety instructions.
- If there are pipes on a construction site that are not marked, information on the media in them must be obtained before starting work.
- If dangerous substances are present in pipelines, protective measures must be defined and the employees instructed accordingly.
- An approval certificate must be obtained from the customer in any case.
- In principle, work processes must be coordinated in such a way that increased noise emissions are avoided.
- Before starting work, information must be obtained as to whether hot and/or cold media or surfaces are to be expected.
- Hot and cold surfaces must also be appropriately marked or secured during the construction phase.
- Welding work must be coordinated in such a way that persons working in the vicinity are not endangered.
- If x-ray examinations are carried out, the work area must be suitably secured in such a way that no persons are harmed.
- If natural lighting is not sufficient, artificial lighting shall be installed, ensuring that lighting is uniform and that there is no glare.
- Always use suitable aids and tools for work between machine parts.
- Loads must always be transported with suitable means of transport.
- Only tested lifting equipment may be used as intended (lifting and bearing loads), test badges must be present on the respective lifting equipment.
- When cranes are instructed, uniform signals must be defined and used.

5.7 Locksmith and welding activities

Safety measures:

- In the case of work equipment such as metal saws, jigsaws, angle grinders, etc., employees must be instructed in the use of the work equipment.
- A suitable breathing mask must be worn for grinding and polishing work.
- After clamping or mounting tools, a test run must be carried out.
- Hand-held electrical work equipment, cables, plugs and welding equipment must be checked for obvious defects before each use and maintained in a proper condition.
- Damaged work equipment must not be used.

- Work equipment must be serviced regularly in accordance with the manufacturer's guidelines.
- Only electrical equipment in accordance with regulations may be used.
- Electrical systems for the operation of the construction site and equipment must be inspected weekly.
- For work in boilers and vessels, only work equipment suitable for this activity and marked accordingly may be used (boiler equipment, safety extra-low voltage 42V, isolating transformer).
- When welding, the earth cable must be connected directly to the workpiece or to the support.
- When not in use, the electrode holder shall be isolated or suspended.
- Welding work must be carried out in well ventilated rooms.
- If welding work is carried out in boilers, tanks or other inadequately ventilated locations, suction must be used and adequate ventilation provided.
- If activities are carried out in boilers, containers or similar narrow components, warm documents must be used.
- When working in vessels and boilers, only work equipment which is suitable for these activities and marked accordingly (boiler equipment, protective low voltage 42V, isolating transformer) may be used.
- Blowing in pure oxygen is prohibited due to the increased risk of fire.
- Before starting grinding and welding, fire-hazardous materials must be removed from the working area or covered by suitable means, and extinguishing agents must also be provided.
- Spray cans must be kept away from heat and sources of ignition and protected from temperatures above 50°C.
- Work rooms in which acetylene cylinders are used must have an air space of 50 m³ per cylinder.
- The fittings of oxyacetylene welding equipment must be checked regularly for proper condition.
- Flame arresters must be installed directly after the tapping point or after the pressure regulator and must be checked annually according to ÖNORM.
- The non-return valves must be replaced after a flashback.
- Hoses must be at least 3 m long and must be constantly checked for perfect condition.
- Worn and fragile hoses must not be used.
- Hoses may only be fastened with hose clamps.
- The welding machine must not be put into operation as long as the hoses are wrapped around the bottles.
- The torch sizes corresponding to the gas throughput must always be used.
- Hot surfaces must be constantly monitored.
- Suitable protective equipment such as gloves must be used to prevent burns.
- Personal protective equipment must be used to reduce exposure to radiation, in particular that for welders, e.g. face protection, apron, leather gloves.
- In principle, work procedures must be designed in such a way as to avoid unfavourable movements and postures.

Accident prevention:

- To avoid cuts, protective gloves must be worn, depending on the work to be performed.
- For work where sparks, splinters and chips fly away, suitable protective goggles must be worn.
- Place the materials to be machined on a firm surface and secure them against slipping or clamp them firmly in a vice!

- If there is an increased risk of fire due to grinding or welding, a written welding order (release certificate) must be obtained, protective measures must be specified and their observance monitored.
- Due to the danger of catching, work gloves must not be worn near rotating machine parts.
- In general, tight-fitting work clothing must be worn.
- Persons with long hair must wear a hair net or cap.

Gas storage:

- Gas cylinders must be protected against falling over.
- When transporting gas cylinders, the protective cap must be screwed on.
- The oxygen fittings must be kept free of grease, oil and other flammable substances.
- After connecting the valves, the tightness must be checked.

5.8 Working in containers**Safety measures:**

- If a container contains working materials which are hazardous to health or fire or if there is a lack of oxygen, appropriate protective measures must be taken.
- This requires the appointment of a competent person; a suitable, competent person is someone who can assess the specific operational hazards and order the necessary protective measures in writing.
- A supervisor who is permanently present (e.g. the suitable, competent person himself or a trained employee) must personally ensure that the measures recorded in writing have been carried out and that safe driving is therefore possible.
- This supervisor must issue the driving permit in writing (container driving permit).
- Safety ropes, safety harnesses and breathing apparatus must always be kept in proper condition.
- Safety ropes and harnesses must be checked at least once a year.
- Respiratory protective devices shall be tested at least quarterly.
- If pipelines, containers, boilers and the like contain dangerous substances, the pipelines must be shut off and blind flanges or push-in valves fitted.
- In any case, it must be ensured that no persons are injured by escaping media.
- Suitable non-slip safety shoes must be worn. If possible, surfaces to be walked on must be cleaned. Walk carefully and consciously, paying constant attention to tripping hazards.
- When working in vessels and boilers, only work equipment which is suitable for these activities and marked accordingly (boiler equipment, protective low voltage 42V, isolating transformer) may be used.
- Employees must be protected against contact with electrically conductive parts by means of insulating underlays.
- If it is not ensured that dangerous vapours and gases are avoided, explosion-protected work equipment, in particular luminaires, must be used.
- If additional hazards are present, the appropriate protective equipment (body protection, gloves, goggles) must be used.
- A supervisor must be nominated who is permanently present during the work and who can prove that measurements are being carried out.
- The person entering the vehicle must be constantly monitored from outside, and there must be a means of communication, e.g. by eye contact, shouting or technical equipment.
- Furthermore, precautions must be taken for rescue in emergencies.
- The supervisor must be able to salvage the person who has been driven in alone or to call for help without leaving.

- Rescuers driving in must also be secured and supervised and measurements shall be verifiably made to ensure this, in particular by determining the lower explosion limit. If the measured value is not 50% below the lower explosion limit, boarding is prohibited.
- In principle, the work sequence must be designed in such a way that unfavourable movements and postures are avoided or reduced.

Access openings

- The openings must be of a minimum size
- Entry may only take place after the protective measure has been taken and checked.
- If no protection is provided, use gas masks, fresh air devices or respirators.
- If it is necessary to enter with breathing apparatus, the clear width of the opening must be at least 60 cm.
- If no breathing apparatus is required, the opening must be at least 45 cm.
- A larger opening is recommended to facilitate rescue in emergencies.
- In addition, there must be a clearance of at least 1 m above the access opening.

5.9 Working in pits, ditches and trenches

Safety measures:

- Earthworks must be carried out under the supervision of a suitable expert.
- Before commencing excavation work, it must be determined whether there are any pipes or other installations in the excavation area; a competent person must order the necessary safety measures.
- The walls of pits, ditches and trenches must be slanted or professionally installed according to the requirements.
- It must guarantee the conscientious execution of the work, which the employer or his representative must satisfy himself of.
- Only in the case of heavy, stable rocks may safety measures be dispensed with at depths of more than 1.25 m. The safety measures may not be used in the case of heavy, stable rocks.
- A protective strip of at least 0.50 m must be kept clear at the edge of pits, ditches or trenches. If this is not possible due to a lack of space, safety measures must be taken to prevent the edge from collapsing (e.g. due to overloading) and material from falling in.
- It is not permitted to undermine or excavate the earth walls without appropriate securing.
- Proper ladders must be used for getting into and out of pits, channels and trenches, which must protrude 1 m above the exit point.

Stability, weight and division of the floors:

- The steeper and higher the earth wall and the more unstable the type of soil, the greater the risk of collapse.
- One cubic meter of earth material weighs 1.4 to 2 tons! This corresponds to the weight of an elephant!
- Internal and external influences additionally impair the stability.
- The soils are divided into rock soils and loose soils according to their general composition.
- The subdivision of loose soils is into cohesive and non-cohesive soils.

Rocky ground:

- Heavy rock: only detachable by blasting work
- Light rock: strongly fissured, fragile, detachable by shearing

Loose soil:

- Gravel, sand, gravel, boulders

Cohesive soils:

- Clay, loess, marl, lette, topsoil

Influences which have a negative effect on the stability of the floor are e.g:

- Earth pressure
- Lateral loads (excavated material, building materials, machines, equipment)
- Vibrations (road traffic, construction machinery)
- Weather influences (rain, frost, dew periods)
- Water pressure (groundwater, slope water)
- Disturbances in the soil (old filled trenches, fillings, crossings)

Workspace widths in excavation pits:

The working area width depends on the slope angle and the excavation depth.

Working area widths: 0.4 m at slope angle flatter than 80°

0.6 m at slope angle steeper than 80°

Workspace widths in pits, channels and trenches:

The following minimum widths must be adhered to:

- up to 1.75 m depth: min. 0.60 m
- 1.75 m to 4 m depth: min. 0.70 m
- over 4 m deep: min. 0.90 m

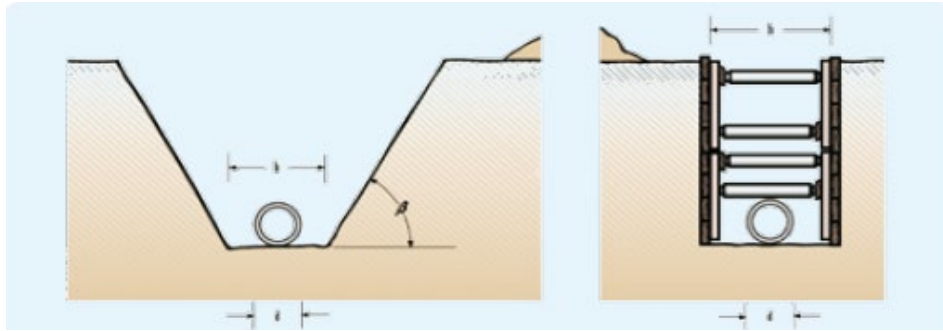
If no work is to be carried out in a stooping posture, the minimum width of 0.6 m may be undercut to a depth of 1.25 m.

Minimum widths of channels and trenches for pipelines**Dependence on pipe diameter**

Outer pipe diameter in (mm)	Depth steps (m)		
	> 1.25 to 1.75	> 1.75 to 4.00	> 4.00
up to 250	0.60	0.70	0.90
300	0.70	0.80	0.90
350	0.80	0.90	1.00
400	0.90	1.00	1.10
450	0.95	1.05	1.15
500	1.00	1.10	1.20
600	1.10	1.20	1.30
700	1.20	1.30	1.40
800	1.40	1.50	1.60
900	1.60	1.70	1.80
1000	1.70	1.80	1.90
1500	2.50	2.60	2.70
2000		3.10	3.20
2500		3.60	3.70
3000		4.10	4.20

The minimum widths refer to the clear dimension from shoring wall to shoring wall; in cases where no shoring is necessary, from earth wall to earth wall.

The provisions of ÖNORM B 2205 apply.



5.10 Working in EX areas – explosion protection

Definition

- Hazardous areas = areas in which the atmosphere can become explosive.

Obligation to notify

- The customer is legally obliged to inform us that an EX zone exists and this must be identified (marked, identified).
- If this has not been communicated and it is suspected that EX zones may be present, this must be clarified immediately with the customer/client and the project technician.

Special caution when working in areas with explosion hazards

- The legal regulation is that the customer/client must define the zones.
- The customer/client must determine and assess the explosion hazards and determine the resulting measures.
- For all work in the marked area, from zone 0 to zone 22, SMB site management must obtain a work permit, which must be issued and approved by the customer/client.
- Without a written work permit = release certificate, all work in areas with explosion hazards is prohibited without exception!
- The requirements and regulations on the release certificate must be complied with.
- Only EX-protected work equipment may be used in these areas.
- Private telephones are prohibited in these areas; only EX-protected mobile phones may be used.

Self-caused explosive atmospheres

In the case of work which is not subject to the explosion protection requirements of the customer/client, such as prefabrication or plant manufacture in the area of the construction site (container), the following things must be adhered to:

- Vapours of flammable liquids or gases heavier than air sink to the ground, where they can easily collect in dangerous quantities.
- When separating sprays containing highly flammable propellants are used, the formation of a hazardous explosive atmosphere must be expected even in small containers, boilers or cavities and must therefore be taken into account when designing extraction systems or ventilation measures.

Zone division (zoning)

Depending on the probability and duration of the occurrence of a potentially explosive atmosphere, the following zones are defined:

Zone 0:	A place in which an explosive atmosphere consisting of a mixture of air and flammable substances in the form of gas, vapour or mist is present continuously, for long periods or frequently.	Gases, vapours	e.g. gas pipeline
Zone 1:	A place in which an explosive atmosphere consisting of a mixture of air and flammable substances in the form of gas, vapour or mist may occasionally occur in normal operation.	Gases, vapours	Outside e.g. for stuffing boxes
Zone 2:	A place in which an explosive atmosphere consisting of a mixture of air and flammable substances in the form of gas, vapour or mist is not likely to occur in normal operation but will persist for a short period only.	Gases, vapours, mists	Outside at a certain distance
Zone 20:	A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, for long periods or frequently.	Dust	Containers, pipelines, sampling and filling stations, dust from leakages
Zone 21:	A place in which an explosive atmosphere in the form of a cloud of combustible dust in the air may occasionally occur in normal operation.	Dust	
Zone 22:	A place in which an explosive atmosphere in the form of a cloud of combustible dust in the air is not likely to occur in normal operation but will persist for a short period only.	Dust	

Further information can be obtained from the safety department of SMB Industrieanlagenbau GmbH, 8075 Hart/Graz.
In the data sheet AUVA M301 Explosion of gases and vapours.

In principle, however, it must be clarified before starting work whether the ventilation measures carried out are sufficient to prevent the formation of an explosive atmosphere in containers, boilers or recesses!

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Safety Plan

