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HÜGIN GROUP INTERNATIONAL



COMPANY PROFILE





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Dear Ladies and Gentlemen,

our company was founded in 1997. Over the years, which have been marked by valued added in the field of research as well as the constantly growing range of services to satisfy the needs of our clients, our company has been growing and developing at a steady rate.

We concentrated the branch-oriented segments and company affiliations in April 2008 to form the existing company Hügin Group International. An increasing degree of specialization makes it necessary to divide the areas of the company more precisely, with the result that we now have six divisions:

- Engineering Office for Fire Safety and Safety Planning
- Academy for Fire Safety Security and Civil Protection
- Fire Brigade and Fire Safety Service
- Institute for Fire Safety and Safety Research
- Acoustic Defence System
- Association for Border Observation

Safety is a complex system of interdependent components that are to be regarded in their totality as sensitive and are to be combined with a particular world picture.

For this reason safety means a constantly new challenge that is to be treated by us with a feeling of complete responsibility vis-à-vis people and the environment.

In complementary fashion we as Hügin Group International - HGI pass on our knowledge and experience of many years in order thus to be permitted to make an expert contribution to meeting the daily global challenge with respect to the protection and safety of people, environment, property and business.

For us safety is thus not only a composite of engineering-type methods of this discipline, but consists naturally of practice and the relevant human factor together with profitability.

Hügin Group International GmbH & Co. KG

Dipl.-Ing. Lothar Hügin



ENGINEERING OFFICE FOR FIRE SAFETY AND SAFETY PLANNING

The concentrated practical experience of many years means above all responsibility towards our clients. Our innovations contribute to the success of our clients' projects.

Our company stands for expert support, advice and the forging of new ideas in all aspects of holistic fire protection.

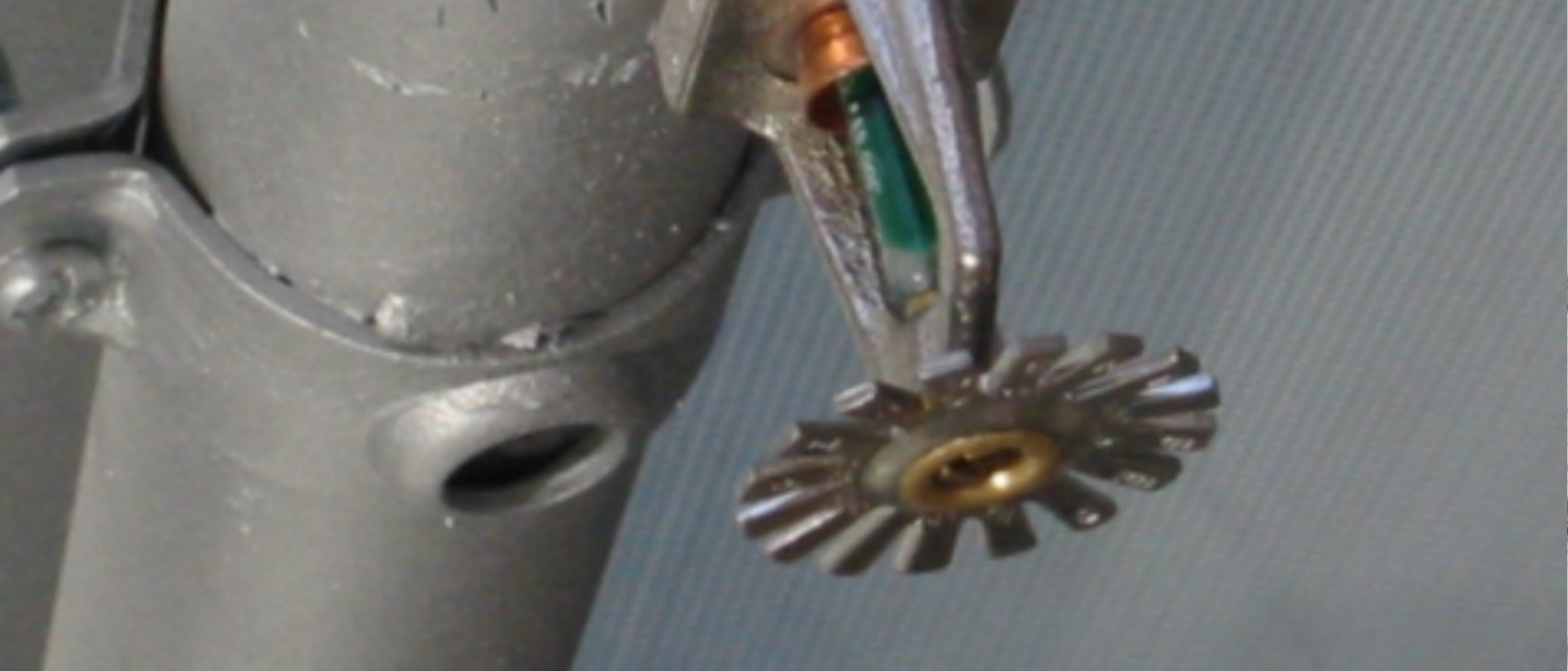
THE THREE DIVISIONS OF THE COMPANY ARE AS FOLLOWS:

1. Preventive fire protection
2. Engineering methods
3. Construction Task Force

PREVENTIVE FIRE PROTECTION

STRUCTIONAL FIRE SAFETY

- Fire protection concepts for buildings of every sort, from constructional to defensive
- Fire protection expertise of all sorts
- Smoke extraction concepts
- Firefighting water calculations
- Fire protection construction supervision
- Expert supervision of construction works until approval



OPERATIONAL FIRE PROTECTION

- Emergency and hazard control concepts
- Fire protection and emergency plans
- Firefighting plans
- Fire escape routes
- Escape and rescue plans
- Fire protection regulations (parts A, B and C)
- Duties of external fire protection officer in companies of all sorts:
 - Check the organizational and operational fire protection
 - Check the general constructional and plant-specific fire protection measures
 - Support the internal fire protection officer

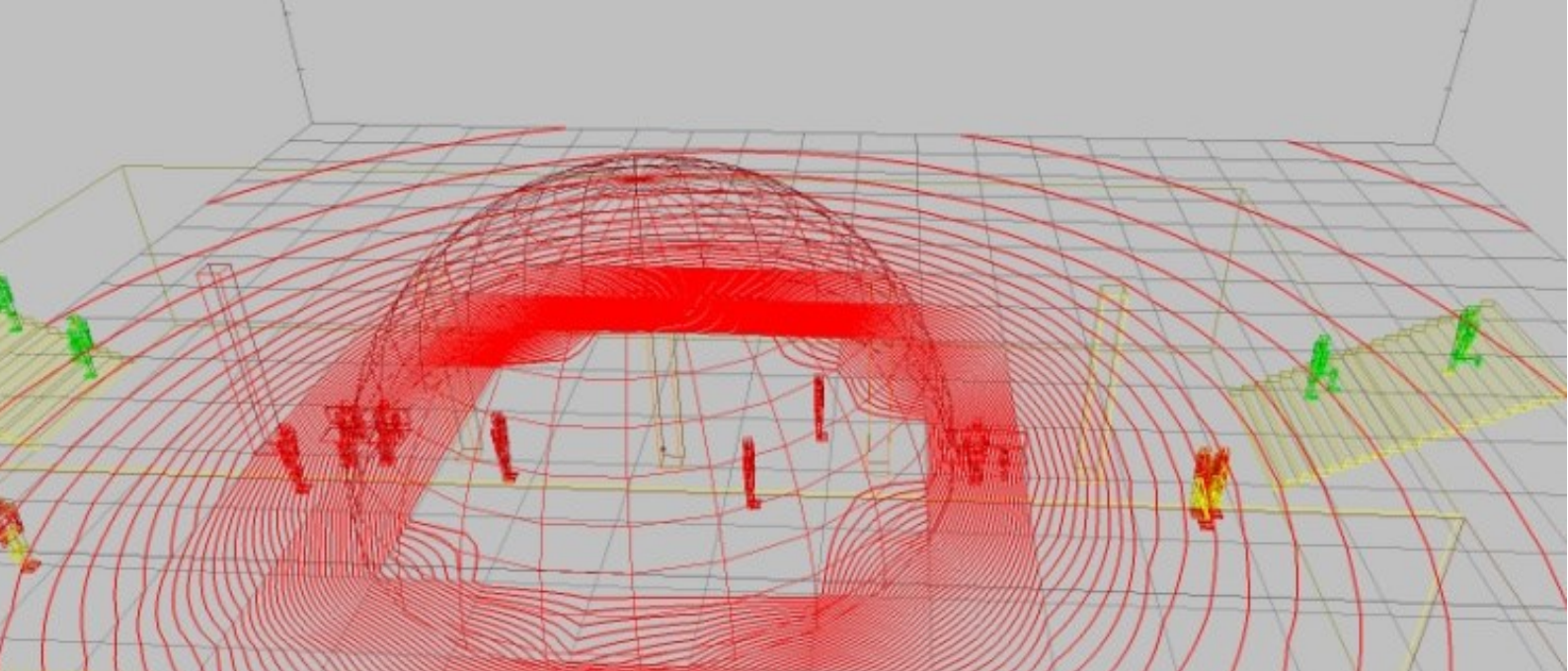
PLANT SPECIFIC FIRE SAVETY

We will plan the following for you:

- Firefighting systems
- Fire alarm systems
- Smoke and heat extraction systems
- Safety power supply systems and safety lighting

CONSTRUCTION SUPERVISION AND QUALITY MANAGEMENT

To prevent defective fire protection measures during the construction phase, regular on-site checks are advisable. Fire protection construction supervision guarantees, by means of systematic, spot-check or comprehensive ongoing checks of fire protection measures, the completion of a defect-free building project.



Defects identified are recorded and documented and the removal of defects is supervised on a spot-check basis or comprehensively, as required.

For the commissioning of a building/property you receive a conformity declaration so that you have a building/property that correctly conforms to fire protection specifications.

ENGINEERING METHODS

THE MOST UP-TO-DATE METHODS OF SIMULATING FIRE EVACUATION PROCEDURES AND EXPLOSION SCENARIOS WITH THE AID OF A COMPUTER

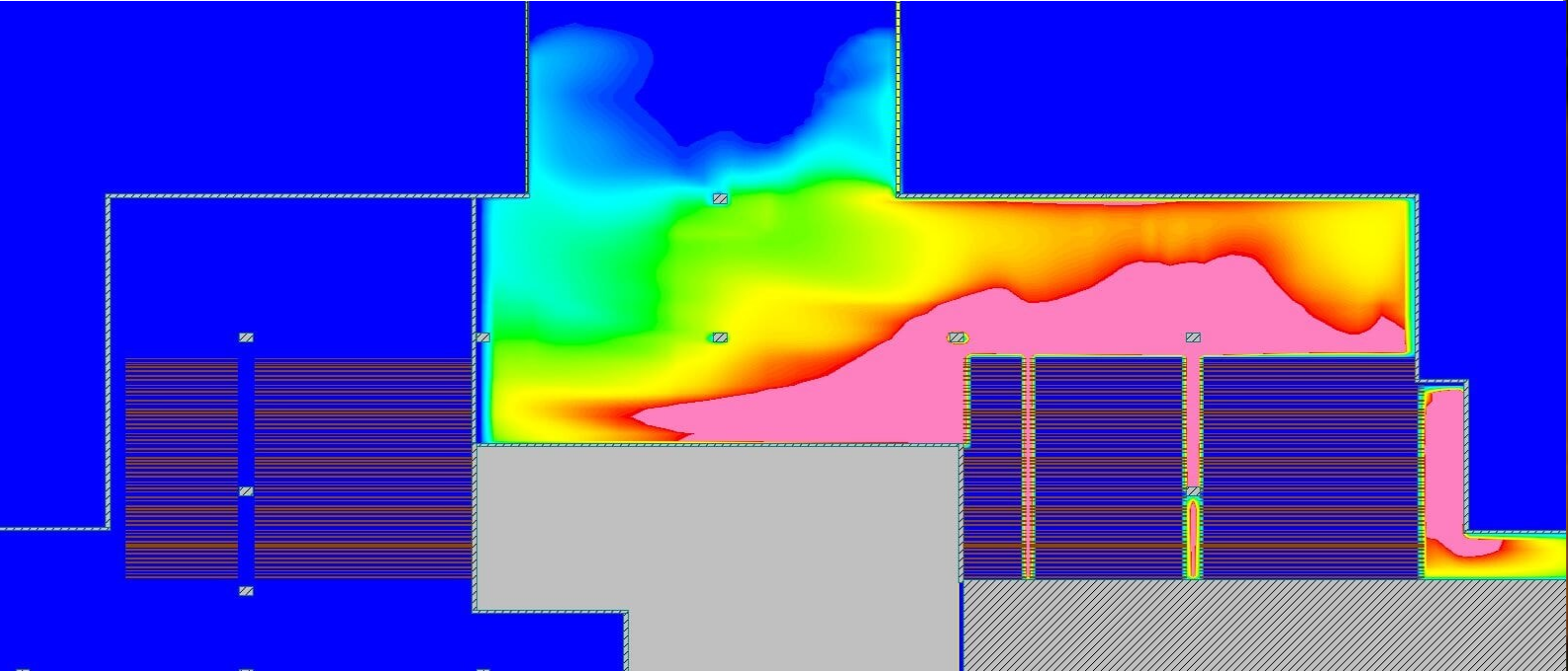
- Fire simulation calculations
- Evacuation simulations
- Explosion simulation calculations (gas and explosives)
- Hot smoke trials

SIMULATION OF FIRE SCENARIOS

The most advanced method of simulating area fires and smoke diffusion currently is field modelling. In this process methods of Computational Fluid Dynamics (CFD) are used to investigate temperature distribution, gas flow (convection current, compensation current, ventilation current) and other important variables for the spread of fire and smoke.

The simulation of fires in buildings or of smoke and heat diffusion is one of the more difficult tasks of numerical simulation. In addition to specialist knowledge of the physical-chemical process, an in-depth knowledge of the numerical procedures employed is also required.

Whereas standards and regulatory tools contain inflexible requirements, the fire event in buildings of any sort can be reproduced as realistically as possible by means of fire simulation. Computer simulations increase the leeway in the case of preventive structural fire protection. Factors such as smoke diffusion, heat transition and evacuation can be integrated into a fire simulation in detail.



The result is individual concepts that are able to take account of all eventualities.

Our simulations are employed only to determine the cause of the fire. Two questions are of paramount importance: how could the source of the fire reach these catastrophic proportions and was arson involved?

SIMULATION OF EVACUATION SCENARIOS

Based on the application of mathematical engineering methods, we use a computer-aided process to investigate the evacuation of buildings/people.

For this reason the area to be evacuated (e.g. football stadium, underground railway station, school, university campus) is reproduced in realistic detail on the computer and the sequence of the evacuation represented graphically (two- and three- dimensionally). In addition, a statistical evaluation, with details of, among other things, evacuation times, bottlenecks and congestion formations) is carried out.

The aim of the simulation is, among other things, to acquire information about the appropriate size of the escape and rescue routes and the number and width of doors and the maximum permitted number of persons in the building concerned.

SIMULATION OF EXPLOSION SCENARIOS

The calculation procedure is based on the Finite Elements Method (FEM). By means of this numerical computational process, the area to be assessed (e.g. within a building or entire urban districts) is laid out in a grid plan and local functions for the variables of the grid points to be calculated are determined.

These provide information about the explosion damage in buildings or human injuries as well as the degree of injury to individual parts of the body (e.g. ear drum, pelvis, thigh).

In addition, the extent of explosion damage/injuries in a particular area due to the explosion blast wave is represented.



By analysing simulation results it is possible to create, among other things, terror protection concepts for security agencies and catastrophe protection concepts for firefighters and catastrophe units.

HOT SMOKE TRIALS

We carry out hot smoke trials to check existing smoke and heat extraction facilities and smoke extraction concepts. The sequence and the results are visualized, validated and, if necessary, assessed by experts. A harmless and residue-free mist is produced via smoke generators, which is adjusted by means a gas burner that can be regulated to the appropriate temperatures.

CONSTRUCTION TASK FORCE

For the punctual opening of structural facilities we take over/support project and construction management. Taking into account the necessary individual legally binding building regulations acceptance criteria, such as the whole construction fire protection, firefighting facilities, fire alarm facilities, safety lighting, emergency power supply as well as facilities for smoke and heat extraction, we hold talks with the experts, the building supervision authority and the fire protection office and take care that the construction project is released for use.



1 Predigerseminar in Hofgeismar

- Fire protection concept,
- Fire protection construction management

2 Hotel Centrum in Melsungen

- Fire protection concept,
- Fire protection construction management

3 Apartment building in Kassel

- Fire protection concept,
- Fire protection construction management

4 Hotel Palmenbad in Kassel

- Fire protection construction management

5 Shopping mall „Schlossarkaden in Braunschweig“

- Support of experts
- Fire protection construction management
- Smoke experiments

6 Shopping mall „Europapassage in Hamburg“

- Support of experts
- Fire protection construction management
- Smoke experiments





1 Wintershall Zentrale in Kassel

- Fire protection concept,
- Support of experts
- Fire protection construction management

2 Regierungspräsidium in Kassel

- Fire protection concept,
- Support of experts
- Fire protection construction management

3 Estrella in Frankfurt

- Fire protection concept,
- Support of experts
- Fire- and evacuation simulation
- Fire protection construction management

4 Hessisches Staatstheater in Wiesbaden

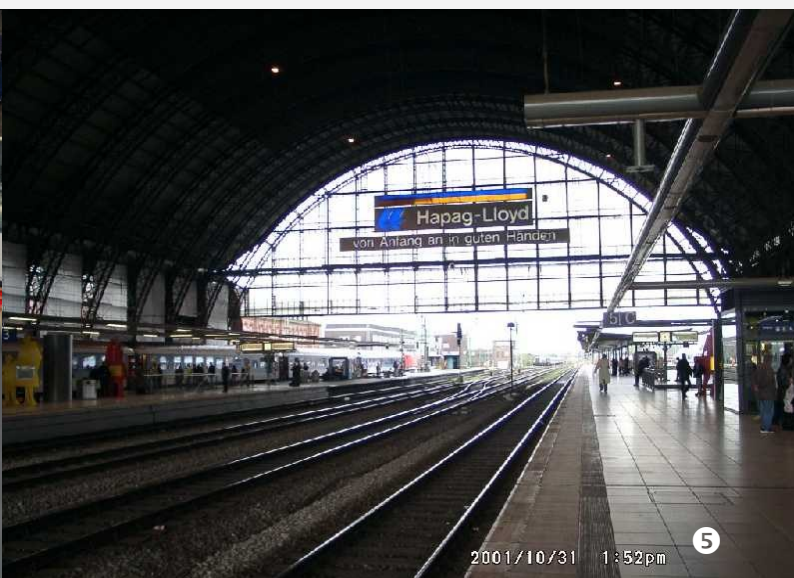
- Fire protection concept,
- Support of experts

5 Bremen Railway station

- Fire protection concept,
- Support of experts

6 Hamburg - underground passenger transport system

- Fire protection concept,
- Smoke extaction concept
- Fire- and evacuation simulation





- 1 Moschee in Algier
- Fire protection concept,
 - Fire- and evacuation simulation

- 2 Moschee in Algier
- Fire protection concept
 - Fire- and evacuation simulation

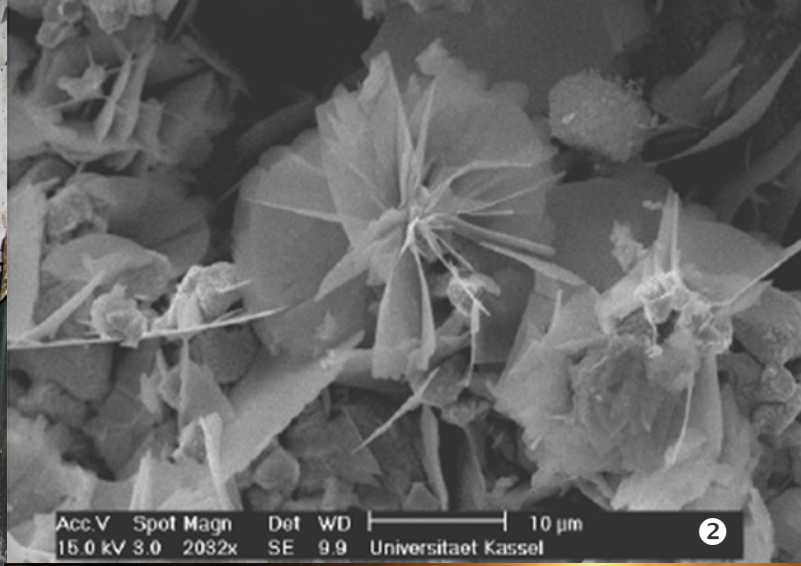
- 3 Aluminium factory in Abu Dhabi
- Fire protection concept

- 4 Arena in Abu Dhabi
- Fire protection concept

- 5 Fußballstadion in Babylon/Irak
- Examination of Fire protection concept– football stadium in Babylon / Irak

- 6 Bundeswehstudie im Kosovo
- Study on fire protection requirements for the deployment of the Bundeswehr - Kosovo





1 Fire investigation in Germany

- Fire cause investigation in a residence with evidence of arson

2 Fire investigation in Spain

- Fire cause investigation and evidence by means of a scanning electron microscope

3 Smoke experiments Airbus A380 industrial hall in Hamburg

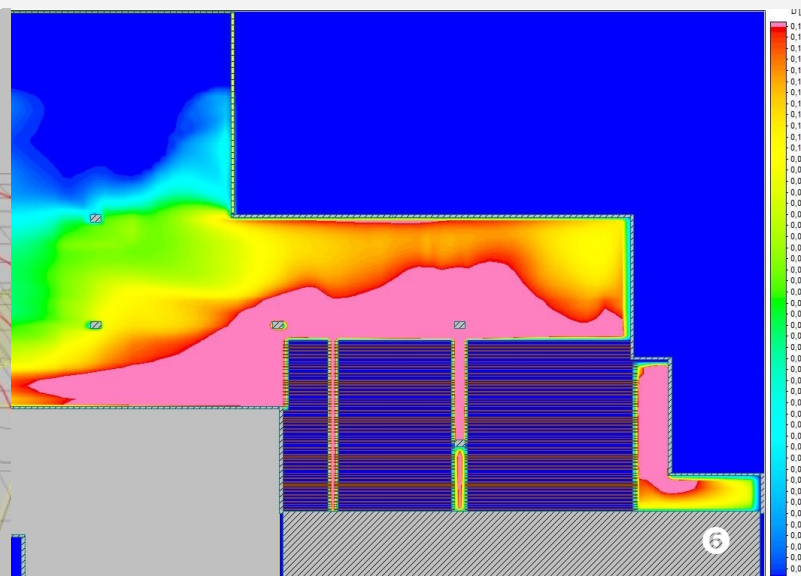
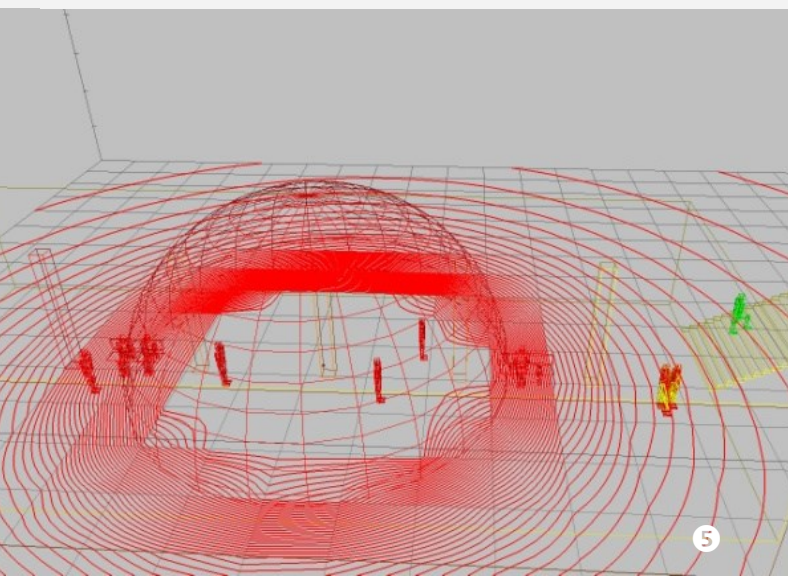
- Testing the smoke extraction plan

4 Smoke experiments Rheinufertunnel Düsseldorf

- Testing the smoke extraction plan

5 Explosion simulation in a subway

6 Fire simulation in banquet hall





AKADEMY FOR FIRE SAFETY, SECURITY AND CIVIL PROTECTION

OPERATIONAL FIRE PROTECTION

Our range of services:

- Fire protection instruction
- Training as fire protection assistant
- Further training as fire protection assistant
- Training as evacuation assistant
- Training as house fire fighter/self-help force in fire protection
- Training as fire protection representative
- Training as internal fire protection representative
- Further training as fire protection representative

CONSTRUCTION FIRE PROTECTION

Our range of services:

- Fundamentals for site managers
- Seminars for site managers and architects

Further Information available at:

www.huegin.de



FIREFIGHTING AND DISASTER CONTROL

Our range of services:

- HGI - F1 Firefighting-Basic further training course
- HGI - F2 Firefighting-Radio communication-further training
- HGI - F3 Protective breathing apparatus wearers/further training
- HGI - F4 Firefighting-Basic further training course
- HGI - F5 Firefighting team leaders/further training course

EMERGENCY MEDICAL HELP

Our range of services:

- First aid für patients
- Automatic external defibrillation

Further Information available at:

www.huegin.de



CRISIS MANAGEMENT

Our range of services:

- Organization and operational stages in disaster and crisis management
- Seminars from the field of safety management

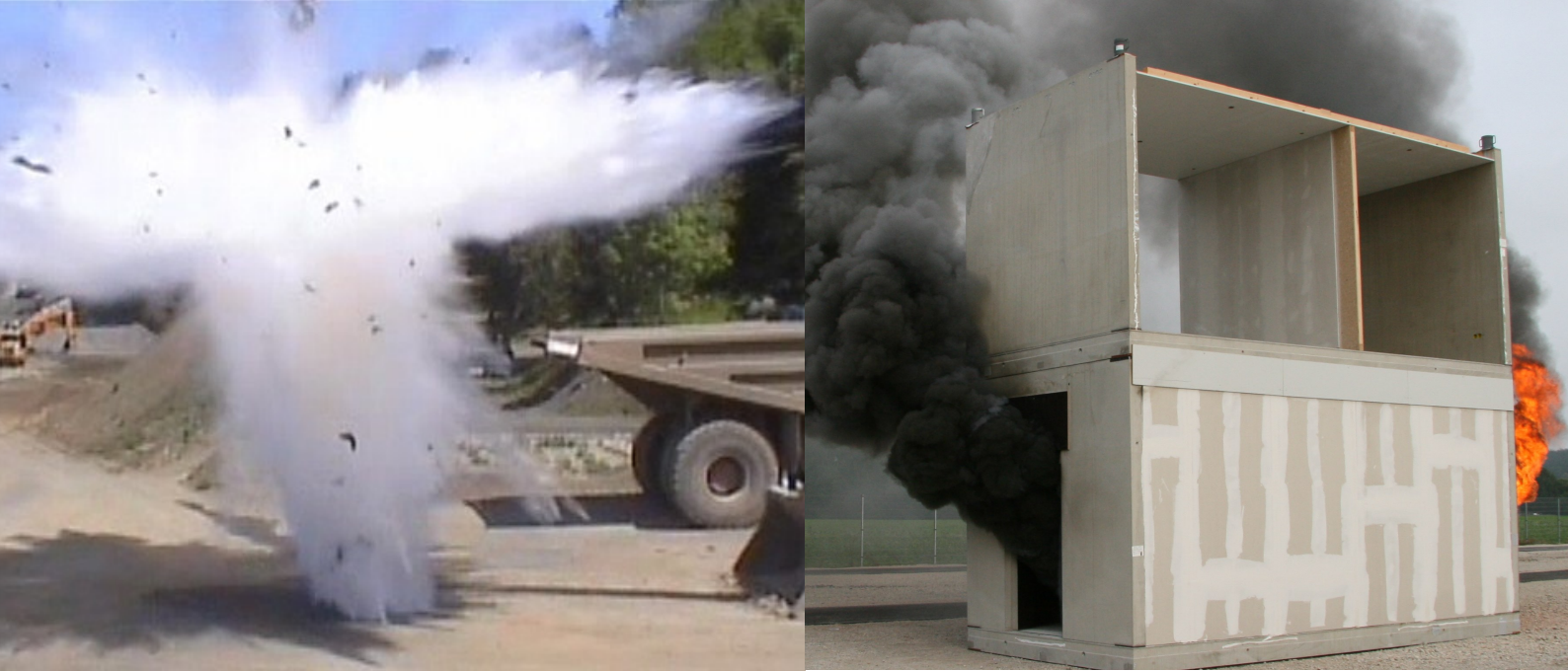
POLICE

Our range of services:

Practical and theoretical training with AS2D (Herbertzhorn)

Participants will be trained in the use of the long-distance acoustic defence system known as the Herbertzhorn and the technology relating to it and familiarized with the operation of it.

Further information available on request.



INSTITUTE OF FIRE PROTECTION AND SAVETY RESE- ARCH

FIRE PROTECTION, EXTINGUISHING AND SAVETY TECHNOLOGY

Various extinguishing processes have been developed and tested since 1997, among them the process of airborne firefighting using explosive extinguishing procedures. In the field of safety technology AS2D (Acoustic System of De-escalation and Defence) has been developed to market-ready product status.

Within the framework of his teaching activity the managing director of the Hügin Group International, Dipl.-Ing. Lothar Hügin, gives lectures at the University of Kassel in Faculty I4 (Civil and Environmental Engineering). In that Faculty theses for the Dipom, Bachelor and Master degrees about the “Institut für Brandschutz— und Sicherheitstechnologie” are regularly assigned and supervised.

The following is a selection of some of the work submitted:

- Study of cause variables for the development of an airborne explosive extinguishing procedure [M. Klitsch]
- Smoke diffusion in underground transport facilities [B. Munser]
- Fire protection analysis of a building smoke test [S. Krügner]
- Effect of fire smoke in private households [S. Klöpfel]
- Feasibility of building up an international nuclear firefighting force [D. Reinmold]
- Preparing a set of guidelines to calculate compensation measures in the event of failure of fire protection and safety infrastructure in special constructions [A. Bernat]
- Impacts and assessment of a terrorist attack in terms of building regulations using the example of a subway, taking into account the physical and evacuation aspects, and preparation of a basic document [M. Deubner]



FUTURE FORUM

The Future Forum of fire protection and safety technology is aimed at fire protection and safety authorities, businesses and other interested parties. The safety situation in the world is tenser than ever and people's need for fire protection and safety is greater than ever.

Fire protection and safety is a complex system of mutually dependent components, which are to be considered sensitively as a whole and combined with farsightedness. For this reason fire protection and safety always mean a new challenge that is to be handled with absolute responsibility towards people and the environment. Fire protection and safety not only represent an amalgam of appropriate engineering methods but are also based on practical reality, the respective human factor and economic efficiency. It is our task and objective to implement responsibly and conscientiously the highest safety standards in accordance with state-of-the-art knowledge.

With our Future Forum we would like to link all fire protection and safety experts and technologically interested players with each other more cohesively as well as to present forward-looking technologies and application procedures both theoretically and practically.

For further information see: www.zukunftsforum-kassel.info



FIRE BRIGADE AND FIRE SAFETY SERVICE

NOISELESS — COMPETENT - EFFECTIVE

Our Technisches Einsatzkommando (TEK) (Technical Operation Unit) for leadership and management activities from extraordinary situations to crisis situations. There are special cases that require rapid intervention with a high degree of precision and expert competence, such as for example public buildings that are not completed on time with the resulting inadequate construction fire protection and the warning of authorities about inappropriate functionality of necessary safety technology (matrix ventilation, RWA, smoke protection doors etc.), which can occur as a result of a crisis, such as flooding of a building or after a fire, and prevent an immediate opening in accordance with building regulations.

The TEK for compensation measures is a special unit of Hugin Group International and becomes active if it is the only course of action available. Our reputation is based on a variety of large projects which demonstrate that we, as a result of knowledge of complex systems such as that of fire protection gained through many years' experience, adopt absolutely responsible compensation measures and appropriately and efficiently ensure the safety and protection of people, buildings with respect to operators, authorities and firefighting teams and use our considerable experience to implement these measures in the approved way.

The concept has been developed by us and already successfully used in several projects (such as shopping malls and universities in Berlin, Hamburg, Frankfurt and so on) on areas between 20,000 m² and 80,000 m².

Our TEK is a qualified team that can be on the scene at short notice and, within a short period, identify the appropriate fire protection and operational measures, have a fire protection plan for the area ready with a max. of 24 and work out the appropriate compensation measures to be implemented in agreement with the building supervisors and firefighters and thus guarantee the operation and opening of the project concerned. The use of TEK can save the client additional costs, sometimes many millions, in the case of shopping malls and universities which plan or need to open on time.

Our established operation unit will handle any problem it faces, all over Germany and within hours, with discretion, transparency and unparalleled efficiency.



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1 - 7 Training of safety personnel to become firefighting personnel in order to support a works firefighting force



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- 1 Training in the use of eyxtinguisher „IFEX 3000“
- 2 Extinguisher training with trainees from Abu Dhabi
- 3 „Construction fire protection“ seminar with firefighters in Dhaka (Bangladesh)
- 4 Extinguisher training with trainees from Abu Dhabi
- 5 Fire protection instruction of personnel from every sort of construction facility
- 6+7 abseil training



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ACOUSTIC DEFENCE SYSTEM

FOREWORD

In times of business globalization, criminal and terrorist activities have increased. Furthermore, the gap between rich and poor continues to widen with more and more countries affected. The peaceful co-existence worldwide is threatened and increasingly violence is reported.

The “Institute of Fire Safety and Safety Technology“ of our company Hügin Group International has managed to develop a highly efficient system. In close collaboration with Professor Dr. J. Herbertz¹, a leading and awarded scientist in acoustic, noise and vibration engineering, we have developed and approved a pneumatic transducer. After the death of Prof. Herbertz the system “Herbertzhorn” was legally protected as a trademark and concretized in the following fold concept „AS2D“ (Acoustic System of De-escalation and Defence)

The various possible modes of operation of this special defence system by:

- internal security
- protection of critical infrastructures and borders
- Maritime piracy
- protection of large-scale facilities allow innovative protection options.

New models of non-lethal security systems became necessary to avoid the mandatory use of lethal weapons against unrest in crisis areas.



GENERAL REMARKS ABOUT THE AS2D

The AS2D is a long distance sound defense system that produces an extremely loud and painful tone even at relatively great distances. It is based on the principle of a whistle (pneumatic system).

People can be kept at a distance of up to 200m (pain threshold of the human ear is 120 dB).

In close proximity (less than 40m) a longer period of presence (>10 seconds) is intolerable. Interpersonal communication is impossible.

The aim of our research was to produce a sound painful for the human ear. This sound is in a frequency range of 1.5 to approx. 2.2 kHz and corresponds to the frequency of the human ear.

The AS2D produces an acoustic pressure level of up to just below 190 dB.

The physical limit is about 192 dB (depending on the air pressure conditions), with in accordance, the sound of the AS2D the physical limit is reached.

A louder sound is not possible.

In physical terms the AS2D is 1000 times more intensive than the engine made a jet starting up (approx. 130 dB), that is, the reason why the acoustic pressure level is not linear but logarithmic. Even with ear protection the sound of the AS2D cannot be masked because the sound penetrates the body. In close proximity (below 40m) this means that the sound (even with ear protection) has an effect on the sense of balance.

The strength of the sound power (effective output) of a AS2D is approx. 13,500 Watt.

In order to be able to produce this extremely loud tone each AS2D requires 280 to 300l of air per second, where the necessary operating pressure is between 2.2 and 3.4 bar. The different operating pressure depends on the air pressure, the relative humidity and the temperature of the area of operations.



CAPABILITIES AND FIELDS OF APPLICATION:

- Keep taboo areas clear of violent rioters and criminals
- Keep rioters and offenders at a distance
- Interrupt and disturb the communication of interferers and violent offenders
- Cancellation, interruption and hindering of violent action sequences by interferers and offenders by creating disorientation, confusion and distraction
- Protection of vulnerable objects

TECHNICAL DATA:

- Energy source: pneumatic
- Input power: > 20,000 Watt
- Sound power: 13,500 Watt
- Sound pressure level: up to 188 dB
- Frequency: 1.5 to 2.2 kHz
- Air consumption 300 l/sec
- Operating pressure: 2.2 to 3.4 bar
- Manual and automatic control
- Camera surveillance and distance measurement
- High performance compressor
- Pivoting range: horizontal 360 degree; vertical -15 degree up to + 75 degree
- Operable temperature range: -10°C to + 45°C (basic configuration)
- Operable temperature range: < -10°C und > 45°C (special-purpose solutions)
- Protected against dust and sand



FOR INTERNAL SECURITY

The AS2D is a new operational tool that considerably extends the 'instrument box' of the police. The use of it is substantially less harmful than the use of firearms and thus it is an instrument particularly suitable to the requirements made of the state to use appropriate force. Equipping the security authorities with the AS2D will clearly increase and improve the operating options in difficult situations and lead to an improvement of the quality of police ability to control situations.

FOR THE USE IN VIOLENT CONFRONTATIONS, PLUNDERING AND RIOTS

A phenomenon that is well known in many cities: On certain days of the year or on the occasion of certain political events there can be violent demonstrations that are associated with equally violent affrays, riots and looting. This then leads to violent confrontations between security forces and the rioters. Non-participants are often involved in these confrontations, the consequences of which can be severe physical injuries, including death, and extensive material damage. In these situations the police often use water cannons in order to keep the rioters at a distance. The use of the AS2D is a clear alternative to the use of water cannons. Unlike the water cannon the AS2D does not require 'time out' to refill and is continuously ready for operation. The use of the AS2D thus serves to clear the streets and public places and keep them clear of rioters and criminals as well as keeping both at a distance.

The effect on violent troublemakers from the use of several AS2D, as with water cannons, can be increased according to operating conditions.



FOR THE USE IN HOSTAGE-TAKING, THREAT SITUATIONS AND RAMPAGE

Another alternative is the use of the AS2D in hostage and threatening situations in enclosed spaces or out in the open.

With the help of the portable variant it is possible to set up a AS2D in the immediate vicinity of the hostage takers.

Unlike with the use of the Herbertzhorn in the case of the previously mentioned violent affrays, the use of the AS2D in close proximity will come as a complete surprise to the hostage takers. The sound and the volume of the sound will cause shock and disorientation and incapacitate them. This effect can be used by special units of the police for an assault on the hostage taker without killing him. The sound and volume induce shock, disorientation and inability to act. The effect of this may enable special units of the police to intervene in a hostage situation without any loss of life.

In hostage and threatening situations the unexpected use of the AS2D compels perpetrators in the vicinity to stop their activities or at least makes it very difficult for them to continue these activities, as they may be disoriented, in a state of panic, confused or distracted.

CABIN PROTECTION AGAINST GUNFIRE

We can also, on request, equip the vehicle with VR4 or VR 4+ (Euro Standard DIN EN 1522-1; ballistic level) to protect it from handguns and other small weapons and explosives of a certain size. The protected area of the cabin: roof, floor, windscreen, side doors. Possible weak points in the doors are reinforced with overlapping protective material.

OPTIONS

We deliver the AS2D complete systems (incl. vehicle) or partial systems (without vehicle). In the latter case the complete system can be delivered and mounted on-site on the desired vehicle.



PROTECTION OF CRITICAL INFRASTRUCTURES AND BORDER PROTECTION

The current worldwide security situation requires national and international observation and planning guidelines in order to protect critical infrastructures and border protection.

Especially in times of international crises it is important for the joint elaboration to ensure the proper functioning and protection of important government and private institutions.

For example, nuclear power plants may be mentioned here, together with oil refineries and other energy and water provision facilities. Other potential targets include numerous state and private political, economic and social institutions. It is precisely in times of numerous international crises that undisturbed functioning of important state and private institutions is important for working out national and International solutions. In this sense protection of such property becomes increasingly important.

With our AS2D we are also able to protect objects far before the use of firearms. “Sound walls” are initiated around the jeopardized objects by manual operation or by means of electronic monitoring systems to prevent a planned attack circular around the object to be protected.

Strategically the AS2D fulfils a dual function in property protection. It has a considerable effect on the perpetrator (see above), foils, disturbs, interrupts and complicates communication among the criminals and enables the security forces to take appropriate counter-measures.

At the same time the AS2D has come to the attention of the people and is thus developing a warning and protection function.

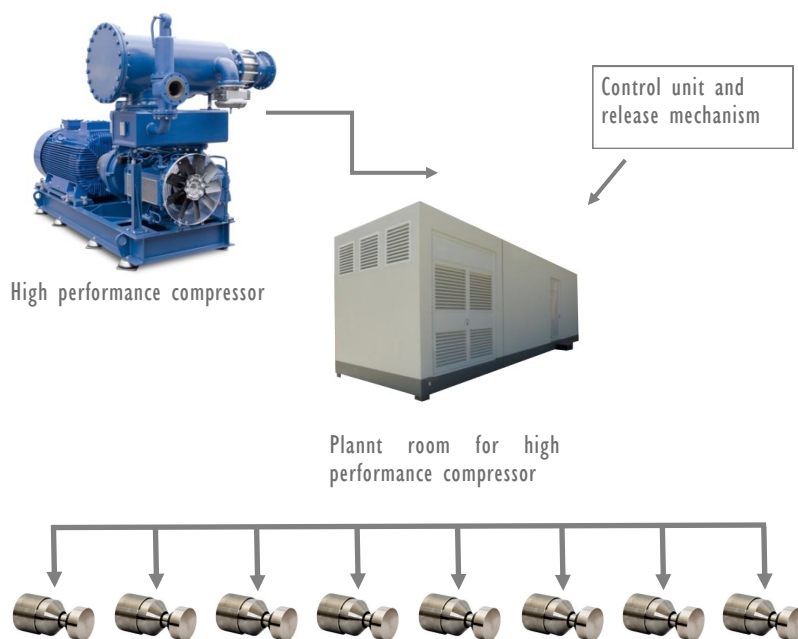
EXAMPLES OF APPLICATIONS:

- Facilities in the enrgy industry e.g. nuclear power plants, hydroelectric plants, refineries, oil platforms.
- Critical entry points at airports
- Public buildings, such as government and embassy buildings in crisis countries



- Military installations
- Complete border control in combination with other systems (on this see www.eusa-security.com)
- Protection against terrorist attacks
- Coastal protection

CONSTRUCTION STRUCTURE:



The basic protection consists of at least 2 AS2D. e.g. to secure a checkpoint with an acoustic power of at least 27,000W.

Per high performance compressor-unit up to 8 AS2D with an acoustic power of 108,000W can be operated on a defence line of approx. 250 m. Per plant room up to 4 high performance compressor-units can be built in, with a max. acoustic power of 432,000W and a defence line of approx. 1,000m.



MARITIME PIRACY

With this system the AS2D is firmly attached to a vessel. e.g. speedboat, coastal patrol vessel, corvette or frigate. Instead of a AS2D several defence systems are combined and controlled from the bridge of the ship.

OPTIONS:

As module systems (20ft containers) on the Abeking & Rasmussen 25 M SWATH@A&R with at least 3 AS2D:

- Sound power 40,500 Watt
- Air consumption 900 l/sec.

As additional installations on marine vessels, e.g. corvettes, frigates etc. with up to at least 8 AS2D:

- Sound power 67,500 Watt
- Air consumption 1,500 l/sec.



PROTECTION OF BUILDINGS AND AGAINST BURGLARY

- Protecting schools and shopping malls etc. by supporting the defence system within the structure of the building
- Protection against burglary in buildings, e.g. industrial facilities, public institutions

The AS2D strategically has a dual function in protecting buildings:

- Its effect on the perpetrator (see above) is to frustrate, disrupt, interrupt and impede communication of the perpetrators and enable the security forces to take appropriate counter-measures
- At the same time, as the Herberthorn becomes familiar to members of the public, it develops a warning and protection function

TRAINING

This training is carried out by highly qualified and experienced trainers of good standing from the police, the military and the field of technology.

We will train your specialists either on-site or in our training centre in Kassel. Where various application techniques of the AS2D will be presented and practised.

The training consists of a theoretical and practical part, including maintenance of the entire AS2D.



TRAINING

TRAINING CONTENT:

- General physical principles of the sound
- Tactical principles for the use of the system
- Basic training in the use of the AS2D (vehicle)
- Basic training in the use of the mobile AS2D
- Exercises in various operational scenarios of the AS2D
- Maintenance of the system and vehicle

MAINTENANCE AND EMERGENCY SERVICE

Routine maintenance work can be carried out by the customer's own trained staff. Local specialist operatives, also trained by us, carry out regular inspections.

Moreover, our specialist engineers, technicians and police trainers can be contacted via the central emergency service of the Hügin Group International at any time.

Our specialist are usually on-site within 24 hours.

„The AS2D has been tested under precisely controlled conditions on human subjects. This test was performed and documented by the head of ENT of Klinikum Frankfurt Höchst, private lecturer Dr. med. Carsten Dalchow. The results of the scientific evaluation gave no detectable, significant hints for health risk on the probands.“



REFERENCE LIST (EXTRACT)

HIGH-RISE BUILDINGS

- Wintershall Central in Kassel
- Government presidium in Kassel
- Estrella in Frankfurt
- La Grande Mosquée d'Alger in Algier

RETAIL OUTLETS

- Schlossarkaden in Braunschweig
- Alstertalzentrum in Hamburg
- Europa Passage in Hamburg
- City Point in Kassel
- Allgäu Forum in Kempten
- Ettlinger Tor in Karlsruhe
- Hürth Park in Hürth

HOTELS OR ACCOMMODATION FACILITIES

- Predigerseminar in Hofgeismar
- Hotel Erbgericht in Rathen / Dresden
- Hotel Centrinum in Melsungen
- Hotel Palmenbad in Kassel
- Hotel Augustabad in Neubrandenburg

ASSEMBLY FACILITIES

- Hotel La Strada in Kassel
- Multifunktionsarena in Gießen
- Eissporthalle Kassel

RAILWAY STATIONS

- Central Station Bremen
- Central Station Gelsenkirchen
- Central Station Göttingen
- Central Station Hamburg
- Central Station Nürnberg
- Central Station Paderborn
- Central Station Regensburg
- Central Station Schwerin

UNDERGROUND PEDESTRIAN PASSAGES

- Central Station Berlin S21
- Suburban train Hamburg Jungfernstieg
- Suburban train Hamburg Reeperbahn



REFERNECE LIST (EXTRACT)

TUNNELS

- Rheinufertunnel in Düsseldorf
- S21 in Berlin - North ring connection
- S21 in Berlin - South ring connection

SIMULATION CALCULATIONS

- Suburban train S 7 in Wolfratshausen
- S21 Central Station Berlin Berlin
- Suburban train between central station Hamburg und station Altona
- Hbf Hagen
- Central station Hagen
- La Grande Mosquée d'Alger in Algier
- Hotel LaStrada in Kassel
- Estrella in Frankfurt

PROJECTS ABROAD

- La Grande Mosquée d'Alger in Algier / Algerien
- Bundeswehr study in Kosovo
- Laboratory building/Sonatrach in Oran / Algerien
- Football stadion in Babylon / Irak
- Aluminium factory in Abu Dhabi / VAE
- Arena of Crown prince United Arab Emirates Mohammed Bin Zayed in Abu Dhabi / VAE
- Earthquake-proof buildings in Teheran



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