

ASE TECHNOLOGY GROUP

SAFE TECHNOLOGIES FOR THE INDUSTRY AND INFRASTRUCTURE

ASE TECHNOLOGY GROUP

Our mission is delivering safe technologies and solutions for industry and economic infrastructure.

ASE Technology Group is an evolution of experience and a constant expansion of engineering knowledge. We place importance on research, development and expanding competencies to offer a professional support to our clients. ASE Technology Group includes: ASE ATEX, ASE EXPERT, Biproraf Projects Office, PROJMORS Maritime Projects Office, EKO-KONSULT, Elmech and several smaller innovative entities.

Due to a connection between the knowledge and experience, analytical and design skills as well as supervision, ASE TECHNOLOGY GROUP is able to realise the largest and most technically difficult industrial facilities and infrastructures, which is confirmed by references from many industrial plants in Poland.



FUNCTIONAL STRUCTURE ASE TECHNOLOGY GROUP



BIPRORAF



Design and Investment
Support Office

PROJMORS



Maritime Construction
Projects Office

ASE ATEX



Equipment deliveries and completion
Technical devices and systems Industrial
IT systems

ASE EXPERT



Technical expertise and consulting
Conferences and publications
Trainings

 **EKO KONSULT**[®]
ASE TECHNOLOGY GROUP



Safety analyses
Environmental consulting
Technical consulting

elmech



UPS equipment and devices for energy
conversion, charging, supervision and
battery monitoring





Complete offer
of the ASE Technology Group
- Lithuania, Estonia, Latvia

SQUADRON



Simulations of emergency
rescue scenarios
Unmanned aerial vehicles (DRONES)

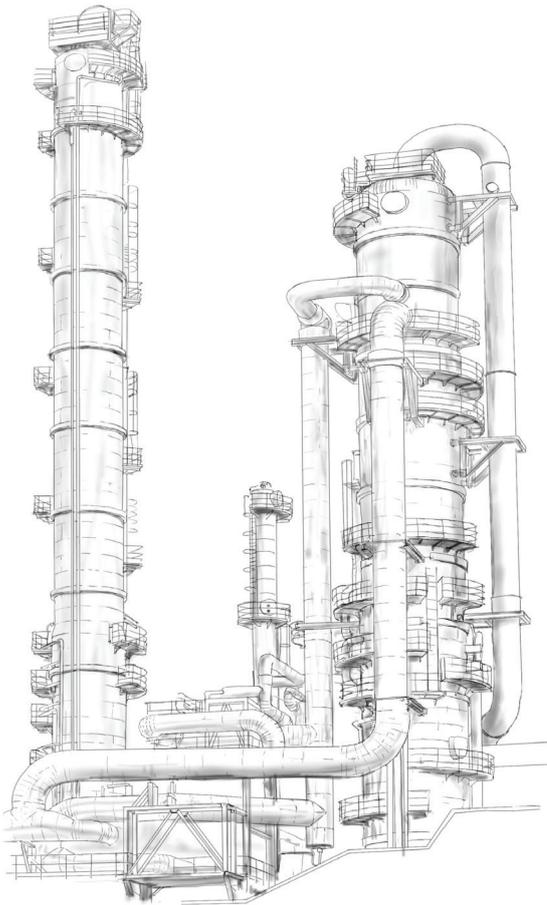
MIEP

Marine Infrastructure & Engineering
Projects Ltd



Projects associated with the oil & gas
industry within the maritime sector
- Western Africa

BIPRORAF - Design and Investment Support Office



An engineering company with over 40 years of experience. Since 2011 BIPRORAF has operated within the ASE GROUP.

We offer multidisciplinary design services:

- civil engineering
- architectural
- technological
- process
- automation
- mechanical
- sanitary
- electrical

We provide investment support and preparation in the scope of:

- ✓ developing concepts and expert opinions
- ✓ obtaining documents and decisions necessary for the design
- ✓ building an investment schedule
- ✓ performing investor's or inspector-type supervision

We provide comprehensive "turn key" project implementation
- PROJECT MANAGEMENT - Procurement

FIELDS OF ACTIVITY:

- ✓ Oil & Gas
- ✓ Power & Energy
- ✓ Architecture & Design

The sectors of our operation:

- oil and chemical industry
- gas sector
- power sector
- trans-shipment - warehouse terminals
- facilities with increased technical and explosive safety requirements

BIPRORAF - Oil & Gas

➤ Refinery and chemical facilities

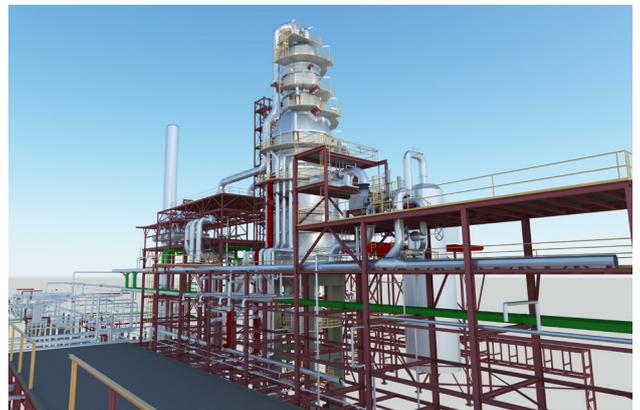
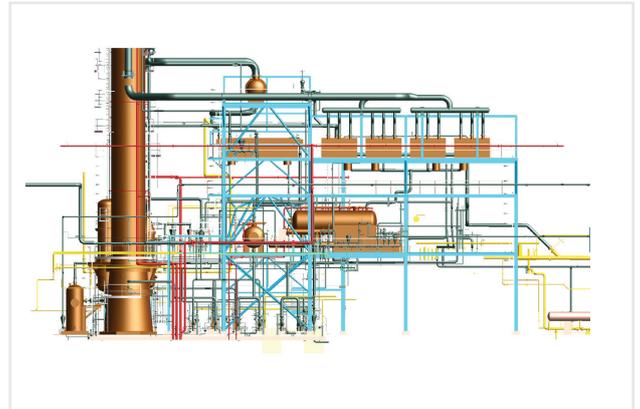
- new systems designing
- system modernization, revamping
- process optimizations

➤ Gas systems

- liquefied petroleum gas stations (LPG)
- unloading-filling stations
- LPG terminals
- LNG systems
- road tanker filling stations

➤ Fuel terminals. Fuel Depots

- tank designs
- pump stations
- transmission pipelines
- tank infrastructure
- technical opinions and analyses
- warehouse - trans-shipment depots for oil-related products and chemicals



BIPRORAF - Power & Energy

Internal BIPRORAF unit set up in response to increasing demand of the power market.

Selected areas of operation:

- adapting facilities to explosive zones
- automation of technological processes
- adapting facilities to fire-protection requirements
- explosion damping and isolation system designs
- development of an Explosion Protection Document
- optimization projects
- oil management
- comprehensive execution
- stock-taking
- increasing the safety level
- technical supervision of equipment
- multi-disciplinary and execution projects
- strength analyses of operating machines
- restoring the documentation of existing facilities (3D scanning)



We ensure:

- ✓ Process-investment partnership
- ✓ Engineering / Deliveries and execution
- ✓ Consulting

State of the art technologies for the distributed generation

HYBRID POWER PLANT

- ✓ A local cogeneration source with a power from 0.5 MW to 200 MW for industrial infrastructure
- ✓ Powered by gas or LNG

PHOTOVOLTAIC POWER PLANT

- ✓ A local power source from 1 MW to 20 MW for industrial and commercial infrastructure
- ✓ Location
 - Roofs of industrial facilities
 - Ground
 - Carports (car park roofs)



We provide:

- General execution
- Project/ Project evaluation
- Supply logistics
- Economic and environmental analysis
- Concepts
- Installing devices on DC and AC sides
- Connection to the grid and agreements
- Tests and commissioning
- Warranty service, inspections



BIPRORAF - Architecture & Design

BIPRORAF department, which specializes in designing, modernizing and adapting buildings and interiors.

We specialize in:

- designing public utility buildings
- designing office buildings and areas
- modernizing and adapting buildings and interiors
- fit-out of industrial buildings
- furniture designs



Our scope of activity includes:

- developing concepts
- preparing designs
- execution of modernization
- interior arrangement
- supervision



PROJMORS - Design Office for Maritime Construction

Hydroengineering and maritime construction

PROJMORS implements projects for domestic and foreign end-users in Europe, Africa, the Middle East and the Far East. It has been a part of the ASE TECHNOLOGY GROUP since 2015.

PROJMORS is registered within FAO Rome and UNIDO Vienna, is a member of the Chamber of Construction Design in Warsaw, a member of FIDIC through SIDIR, as well as the official expert for the Ministry of Environmental Protection and the Ministry of Transport.

We cooperate with numerous institutes, design firms, manufacturers, investors and contractors in Poland and abroad. We own the I degree "NATO SECRET" and "CONFIDENTIAL" ICT Safety Certificate.



We offer multidisciplinary design services for:

- hydroengineering
- maritime construction
- infrastructure
- architecture
- technology



Investment support and preparation, in the scope of:

- ✓ developing concepts and expert opinions
- ✓ obtaining necessary documents and decisions
- ✓ building an investment schedule
- ✓ performing investor's and inspector-type supervision

We provide comprehensive „turn key” project implementation - PROJECT MANAGEMENT - Procurement



As a leading design and consulting office we provide services for domestic and foreign customers in the field of:

- consulting, engineering, construction supervision
- investment general contractorship
- comprehensive designs of maritime and riverine ports and shipyards
- technical-economic assumptions and investment schedules



Our selected credentials:

- Vistula Spit navigable channel
- PDH Project, Zakłady Chemiczne Police S.A.
- LNG Port in Swinoujscie
- North Port Fuel Terminal in Gdansk
- Deep-water Container Terminal in Gdansk
- Nigerdock II, Lagos Nigeria
- Onshore large-format facilities - e.g. Military Aircraft Maintenance Hangar





EKOKONSULT - Design Consulting Office

Environmental protection within an investment process

- ✓ Impact reports regarding planned investments
- ✓ Environmental impact predictions
- ✓ Integrated permits
- ✓ Public consultations
- ✓ Environmental consulting
- ✓ Environmental elaborations in accordance with standards of international financial institutions

Environmental protection within a company

- ✓ Ecological audits and reviews
- ✓ Post-investment analyses
- ✓ Adaptation programs

EKO-KONSULT Design-Consulting Office:

Performs analyses, studies, expert opinions, programs and plans in the field of environmental protection managements, including, i.a.:

- environmental impact reports,
- environmental impact predictions,
- environmental audits and reviews,
- integrated permit applications.

Publishes a *Problemy Ocen Środowiskowych* (Environmental Assessment Issues) quarterly magazine and books in the field of modern instruments for environmental protection management instruments.

Conducts trainings in the field of environmental protection for people employed in public administration and corporate environmental protection services.

More information:
www.ekokonsult.pl

C&T ELMECH

A manufacturing company from Pruszcz Gdanski with over 30 years of experience in engineering and manufacturing power electronics equipment for the industry, power sector and the military.

Possess copyright and innovative solutions in the field of widely-understood uninterruptible power supply and devices improving power quality, its managements and storage.



In addition, thanks to our R&D department the company is constantly developing and improving its products, following the changing market needs. Chargers for electric vehicles and power storages are among the innovative solutions launched by the company.

We offer the following solutions:

- Xinus active filters for improving power quality
- DC and AC UPS
- DC power supplies
- Voltage converters
- Voltage inverters
- House-load switchgear
- Frequency converters
- Xillar system form managing small and large battery parks



ASE ATEX

ASE ATEX offers the execution of specialist and comprehensive protections for facilities, which require special work conditions.



Power Industry



Chemical Industry



Offshore Industry



Food & Brewing
Industry



Paper & Furniture
Industry



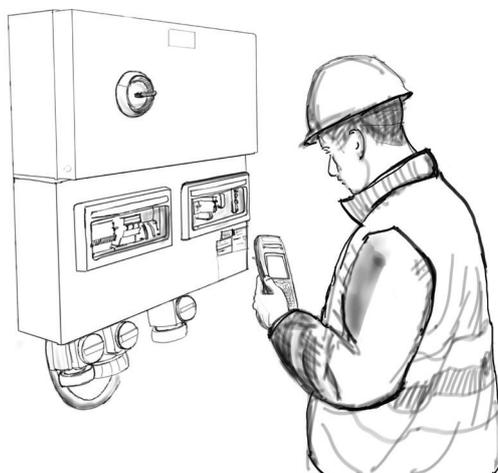
Oil & Gas
Industry

We provide industrial companies with suitable solutions in respect of:

- ✓ Industrial automation
- ✓ Tanks technologies
- ✓ Safety systems
- ✓ Explosion-proof electrical equipment
- ✓ Explosion protection and devices
- ✓ Electrothermic
- ✓ IT systems for industry
- ✓ Maritime solutions
- ✓ Manufacturing of Ex equipment certified by IECEx and ATEX

Inspector-Ex

Inspector-Ex is a modern and efficient system designed for persons responsible for equipment inspections and maintenance. The system may be used in areas with explosive atmospheres.



SYSTEM TASKS:

- ✓ passporting
- ✓ inspections
- ✓ reports

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[1000009] Czujnik przepiętnia na wysypie - 73ECC50CL8300aas			
		Data utworzenia:	2017-10-24 11:10:25
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		Identyfikacja instalacji:	PRZENOŚNIK TEDO 73ECC50AF1
Nr ewidencyjny:	1000009	Sektor instalacji:	GÓRA PRZENOŚNIKA
Strefa Ex:	Strefa 22	Zabezpieczenia:	i
1. Nazwa urządzenia	Czujnik przepiętnia na wysypie - 73ECC50CL8300aas		
2. Typ urządzenia	asdas		
3. Rodzaj urządzenia	MOTOREDUKTOR Z SILNIKIEM		
4. Numer fabryczny	E602C4040E33a		
5. Rok produkcji urządzenia	2011		



50 000

DEVICES IN INSPECTOR-EX
IN POLAND



OVER 15

LARGE PLANTS

System benefits:

- decreasing operating costs of devices in Ex zones
- inspection automation in Ex zones
- identification and passporting of devices
- reliable verification of devices and their condition
- decreasing labour intensity of inspections
- extending time intervals between inspections
- controlling device operating times
- clear inspection reports
- smaller amount of soft-copy documentation
- documenting the status of ensuring explosion safety

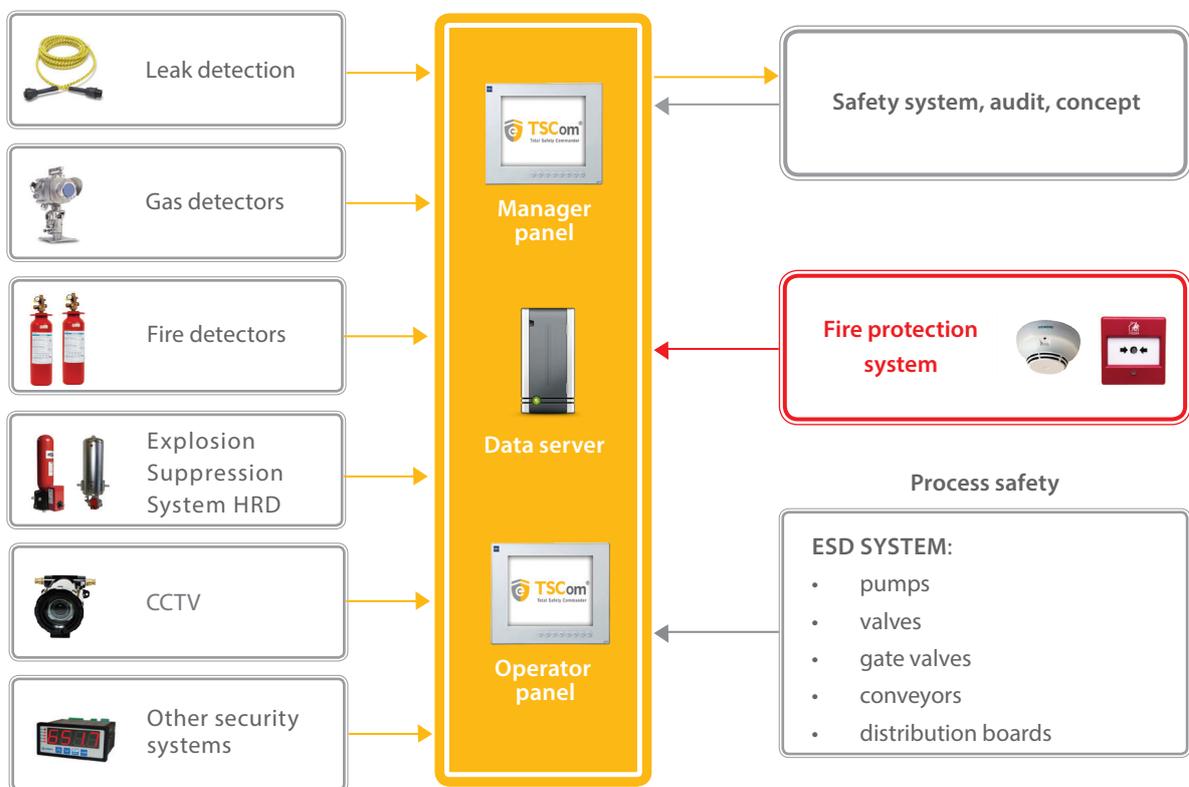
The IT department at ASE offers equipment, adaptation and rolling out of applications, technical support and training.

Total Safety Commander

Integrator of safety systems

- ✓ One place, one screen, all safety systems integrated
- ✓ The platform for supporting safety management systems of industrial facilities
- ✓ Proven product for industry
- ✓ Continuous monitoring and improvement of the reliability of key safety functions of industrial facilities and their effective implementation in case of adverse or catastrophic event
- ✓ Designed for efficient fulfilment of the requirements of SEVESO III in respect of the need for safety management system and other industry recommendations
- ✓ TSCom can be implemented step by step, which makes it possible to achieve better assurance and reassurance conditions for industrial facilities

Industrial safety systems



EyeCGas[®]

Camera for detecting emissions of volatile organic compounds.

- Detection and imaging of organic gases
- Real-time detection
- Digital video and photo documentation
- GPS location
- Industrial execution to O&G
- IP65, Tamb - 20°C to + 50°C
- No periodic calibration requirement
- Anti-glare cover
- Execution of Ex II3G Ex nL IIC T6 (for zone 2)



To help find sources of such impurities, Opgal created the EyeCGas FX thermal imaging camera. Thanks to advanced, modern algorithms and the most state-of-the-art optical sensors, it detects even small amounts of toxic substances, including:

- ethylene,
- methane,
- butane,
- propane
- and other volatile organic compounds.

The EyeCGas FX system automatically notifies the personnel when a leak is detected.

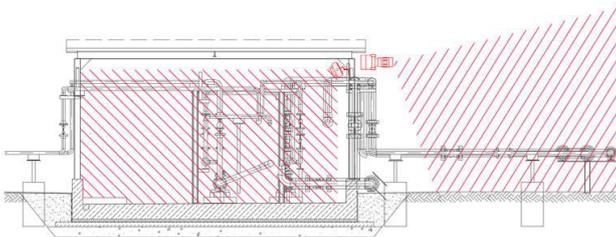


WHAT YOU SEE



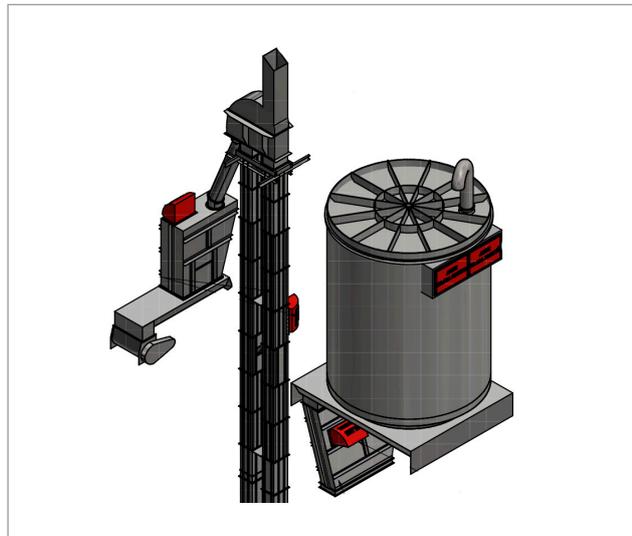
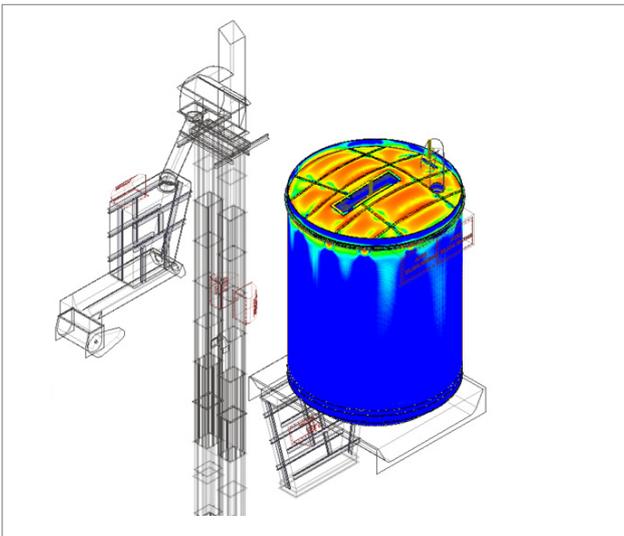
WHAT I SEE

Safety Systems Department



Comprehensive support in the field of:

- Consulting
- Solution selection
- Engineering
- Equipment deliveries
- System implementation
- Servicing



Individual approach in the form of specialist solutions:

- Safety system audits
- Adapting facilities to applicable safety standards
- Developing safety system concepts
- Determination and verification of SIL levels for detection systems
- Creating safety system architecture for plants with large volumes of hazardous substances, subject to the SEVESO Directive

Fire safety and ex-safety system integrator

➤ **Monitoring and detection:**

- SSP - Industrial fire alarm systems
- Explosive and toxic gas detection
- System installation - leak detection
- Early stage detection of smouldering and sparks
- Temperature monitoring - flame detection
- LDAR - CEMS - emissions monitoring

➤ **Counteraction systems:**

- SUG - fixed fire-extinguishing devices
- Water and foam suppression systems
- Spark detection and suppression
- HRD - explosion damping and isolation
- Explosion isolating flaps and valves
- Explosion offloading - decompression flaps

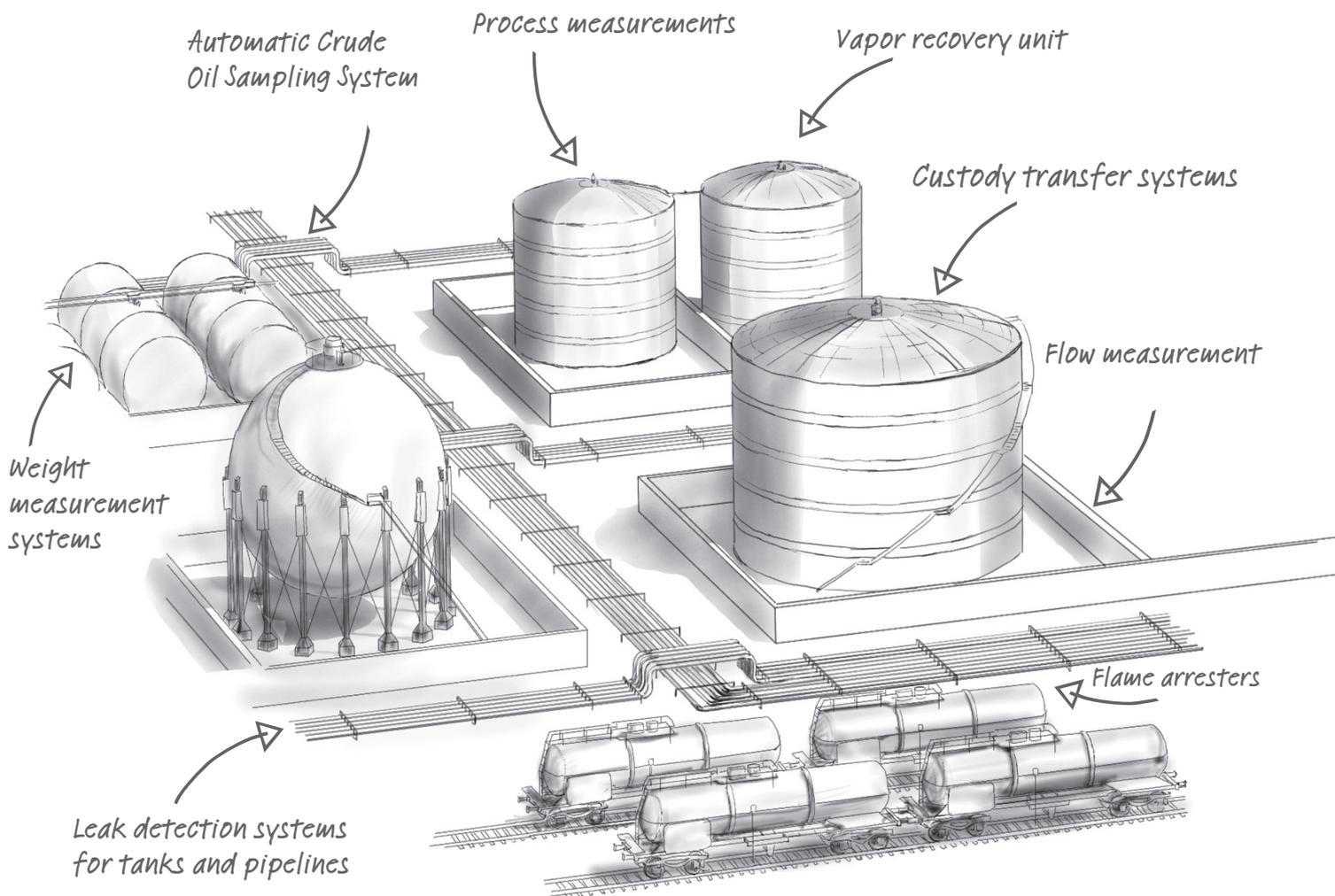
➤ **Specialist solutions:**

- SIL1 - SIL2 - SIL3 fire and gas detection systems
- Wireless detectors
- Open path detection - ultrasonic detection
- Aspirating detection systems for Ex zones



Tank Technologies

- ✓ Comprehensive solutions and services for tank applications
- ✓ Over 1000 tanks equipped
- ✓ Projects related to automatic sampling from pipelines, drainage of tanks and recovery of petroleum vapours
- ✓ Maintenance, technical and metrological audits, consulting and training
- ✓ Industrial safety and support during construction and renovation of storage tanks
- ✓ Custody measurement systems for storage tanks
- ✓ Comprehensive equipping of storage and process tanks
- ✓ Safety systems for tanks and tank terminal pipelines



Ex-proof electric equipment

Comprehensive services in the field of selecting and completing devices as per the applicable rules and standards regarding operating devices in explosive areas. Full design and documentation support in the course of project implementation, in the field of distribution and control equipment, and lighting systems.

➤ Electroinstallation, control and distribution Ex equipment

- Exe and Exi distribution and click boxes
- Control stations
- Exd and Exe electrical switchgear
- Earthing monitoring systems
- Packing boxes, reducers, adapters
- Sockets, plugs, connection and protection elements
- Emergency and isolating switches
- Optical-acoustic signalling



➤ Ex lighting systems

- Fluorescent tube, LED fixtures
- Illuminators and floodlights
- Emergency and evacuation lighting fixtures
- Sight glass fixtures and sight glasses
- Central batteries



➤ Interfaces and system solutions for Ex I&C

- IS signal barriers and separators
- Distributed I/O systems
- HMI terminals and operator panels, computers, PC
- Fieldbus Foundation™ systems
- CCTV systems and Ex cameras
- Wireless Ex systems
- Exp vented casings



Electric Heating Systems

ASE engineers provide support at every EPC project stage (analysis, selection and completion of heating systems, design, delivery, assembly, commissioning and servicing).

➤ Complete heating systems for the industry

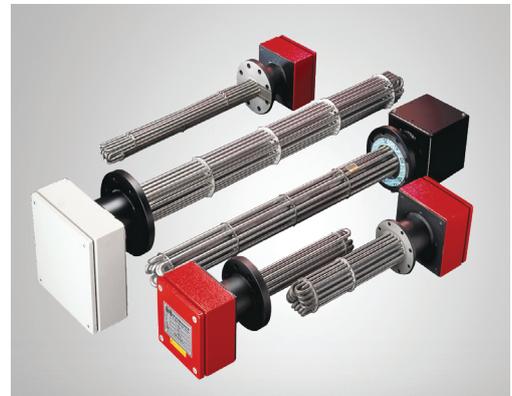
- Heating of pipelines with fittings, tanks and control and measurement instruments and automation
- Anti-freeze protection, process temperature maintenance, technological media heating

➤ Process heating

- Electrical flow heaters
- Radiator heaters,
- Immersion heaters, cartridge heaters
- System design according to the user's requirements
- Liquid and gas media heating systems
- Temperature adjustment, regulation and control systems
- Heating jackets/panels and thermostats
- Heaters for control and measurement instruments and automation casings
- Heating of rooms, media in tanks, tubs and other structural elements of machines and devices

➤ Heat pipes and accessories

- Self-regulating, zone and stable-resistance heat pipes in polymer and mineral insulation
- Accessories for the complete heating installation
- Devices and elements for temperature regulation and control systems



ASE EXPERT

We provide analysis and expert evaluation, training and competence in the field of industrial safety.

Process Safety Analyses



- Audits
- Safety Review (SR)
- Preliminary Hazard Analysis (PHA)
- Hazard and Operability Study (HAZOP)
- Layer of Protection Analysis (LOPA)
- What-If
- Fault Tree Analysis (FTA)
- Event Tree Analysis (ETA)
- Failure Modes and Effects Analysis (FMECA)
- Cause-Consequence Analysis (CCA)

Functional Safety Management



- Audits
- SIL determination
- Safety Requirements Specification (SRS)
- Conceptual and detailed design
- SIL verification

We can help you following the entire IEC 61511 functional safety life cycle

Explosion safety / ATEX, IECEx



- Audits
- Preliminary ATEX audits
- Technical ATEX audits
- Hazardous areas classification
- Explosion risk assessment
- Customer-specific analysis and reports
- Explosion Protection Document
- Verification and certification for Ex installation (mechanical and electrical equipment)

Fire Protection / OSH



- Fire protection, health and safety audit OSH
- Fire safety analysis
- Fire safety instructions
- Assessment of implementation of the requirements of health and safety OSH



ASE SAFETY ACADEMY SPECIALISED TRAINING SYSTEM

ASE Safety Academy (Akademia Bezpieczeństwa) is a system of specialist and certified trainings in the scope of ex-proof prevention, developed by experienced specialists - practitioners associated with ASE, a Polish leader in the field of ex-proof safety. IECEx recommends the ASE Safety Academy, acknowledging it as an *IECEx Recognised Training Provider*.



 **7 000**

trained participants in the years
2012-2017

 **OVER 20**
TYPES OF TRAININGS

- Ex-proof safety
- Process safety
- Functional safety
- Fire safety
- Environmental protection



IECEX recommends training with the ASE Safety Academy

The IECEx international certification program is a response to the globalisation trends in industry. It facilitates the free flow of goods and services, while maintaining a high level of explosion safety.

IECEX recommends the ASE Safety Academy, acknowledging it as an *IECEX Recognised Training Provider*. The international verification body recognised that during the training courses held at the ASE Safety Academy the participants receive the knowledge necessary to obtain the IECEx Certificate of Personnel Competence.

The ASE Safety Academy runs the following training programs that meet the IECEx competence requirements:

- ✓ **Personnel safety in explosion hazard zones**
Unit 000 – Basic knowledge and awareness to enter a site that includes a classified hazardous area
- ✓ **ATEX – anti-explosion technology**
Unit 001 – Apply basic principles of protection in explosive atmospheres
- ✓ **Classification of explosion hazard zones**
Unit 002 – Perform classification of hazardous area
- ✓ **Operation of explosion-proof equipment**
Unit 004 – Maintain equipment in explosive atmospheres



Startups in the ASE Technology Group



Marine Infrastructure & Engineering Projects Ltd

- ✓ Concept engineering
- ✓ Project feasibility study
- ✓ Technology acquisition
- ✓ Project management
- ✓ Project engineering
- ✓ Equipment and material procurement and deliveries
- ✓ Management and supervision of construction projects
- ✓ Commissioning

ASE BALTIC

- ✓ Industrial I&C
- ✓ Safety systems
- ✓ Electrothermic
- ✓ Ex-proof electrical engineering
- ✓ Industrial IT Systems



SQUADRON

- ✓ Unmanned aerial vehicles
- ✓ Trainings
- ✓ Anti-drone systems
- ✓ Simulators
- ✓ Virtual Reality



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