



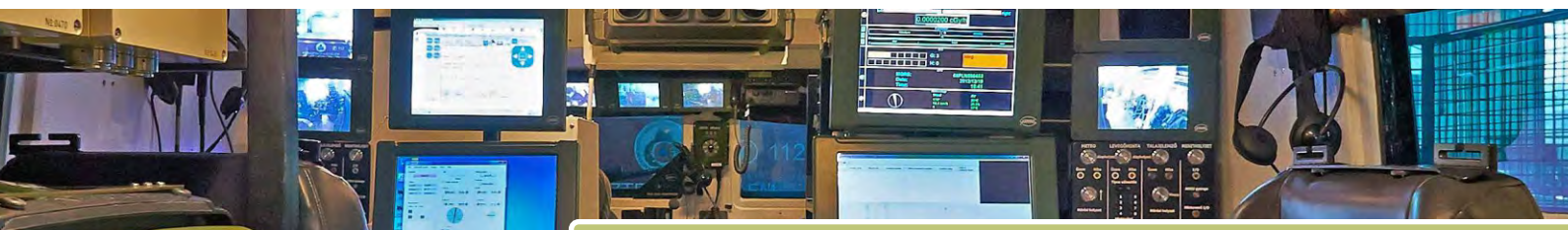
Personal Protective Equipment



Decontamination Systems



Special Vehicles



Measuring Instruments



Nuclear Devices and laboratories



Precision machining, OEM production

GAMMA Technical Corporation

Dear Reader,



It is my great pleasure to introduce the activity and product line of the GAMMA Technical Corporation, a significant defence equipment manufacturer company, with the widest defence product portfolio in Hungary.

GAMMA was founded in 1920 and with several decades of experience Gamma's products are mainly made for military, civil protection and radiation protection applications.

Our extensive product range consists of radiation detection and measuring instruments, integrated CBRN/HazMat reconnaissance systems, monitoring and early warning networks, meteorological instruments, as well as reconnaissance and first response vehicles, personal respiratory protective equipment, decontamination and field deployable supporting equipment, special purpose vehicles and trailers, simulation and training systems. The company has developed the Hungarian "KOMONDOR" Light Armoured Vehicle Family, too.

Our company has always been involved in the R&D of innovative technological solutions, where our intention is to pay special attention to the demand of our Customers. With all our expertise, we are open to support our partners in the planning and realization of any kind of projects in our fields of activity.

In the followings, we are glad to give you some information about GAMMA, a short summary of our product portfolio and capabilities what we think and hope to be of interest to you.

Please take the time and download our presentation and the product catalogues of our company using the links on the back of this catalogue. More details about the products can be found at our webpage (www.gammatech.hu).

Should you need any further information please do not hesitate to contact us, we will always be at your service with pleasure.

Yours faithfully,

Attila Zsitnyányi

CEO
GAMMA Technical Corporation



Long term thinking ... another 99 years together!

1920 Foundation of **GAMMA** Zrt. Juhász brothers - mechanical and optical instruments.

1930-39 Development of complex military devices - mechanical gun director computer (Gamma-Juhasz), Barabas telescope, light telephone, theodolites.

1939-45 Expansion of production - special requirements of the army.

1945-49 New product lines - precision accessories, microscopes, projectors, geodesic instruments, DUFLEX camera.

1949 State property, new name: Gamma Works - new profile: nuclear detectors and instruments, industrial measurement and control, geophysical well-logging systems.

1955 NBC devices, nuclear diagnostic products.

1994 The company is reprivatized under the former name of Gamma Technical Corporation. Additional development in the field of NBC defense, environment protection instruments and nuclear medical instruments.

1998 Core business: radiation measurement, scintillation crystals and probes, meteorological and monitoring systems.

2007 Strategic partnership with RESPIRÁTOR company. New product lines: PPE, decontamination systems

2008 Moving to a new location after 88 years.

2010 New product line: light armoured and special vehicles.

2015 Integration of **RESPIRÁTOR** Zrt.

2017-19 Expansion of production

2019 New product line: simulation and training systems by **ARTIFEX** Ltd

1928 The ancestor of the **RESPIRÁTOR** company is founded by the German AUER Co. and the Hungarian Defence Treasury in order to supply the army with respiratory protective devices from domestic production.

1938-45 The company is owned by the Hungarian Defence Forces.

1945 State property with the same field of activity.

1963 The company becomes part of Medicor Works, the activity is expanded with production of medical instruments and equipment.

2007 New ownership and management from GAMMA.

2015 Merging into GAMMA Technical Corporation.



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GAMMA Technical Corporation's Divisions

- Personal Protective Equipment division
- Measuring Instruments division
- Nuclear Devices division
- Field Deployable Supporting Systems division
- Special Vehicles division
- Simulation and Training Systems division
- Precision machining
- Test laboratories
- Defence (Military & Civil Defence) division

Group of companies



Main GAMMA Group members:

- GAMMA Technical Corporation (development and production)
- CBRN Hungary Ltd (trading)
- TESTLAB Ltd (accredited test laboratories)
- MLR Tech Ltd (nationwide monitoring networks)
- Artifex Ltd (Simulation and training systems)
- Hungarian Defence Holding (trading)
- TechInvest Ltd (incubator)
- GAMMA Park Ltd (facility management)
- Inter-Mentor Ltd (facility management)
- Mentorex Ltd (facility management)

GAMMA's core competences

We are developing, manufacturing and implementing:

- | | |
|---|---|
| <ul style="list-style-type: none"> • Scintillation crystals, detectors • Radiation reconnaissance devices • Radiation measuring instruments • Fixed and portable radiation portal monitor systems • Local and countrywide monitoring networks and early warning systems • Monitoring stations • Data acquisition software • Meteorological instruments • Custom devices • Personal respiratory protective equipment • Filter canisters • Protective suits • Decontamination systems • CBRN reconnaissance and first response vehicles | <ul style="list-style-type: none"> • Special purpose vehicles and trailers • Light Armoured vehicles • Field camp equipment • Simulation and training systems |
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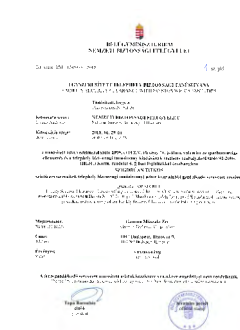
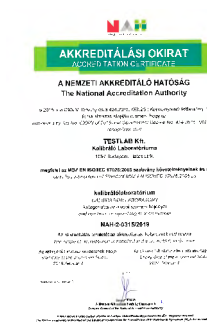
Our services:

- Component manufacturing
- Precision machining
- Training and Simulation
- OEM production
- Engineering and design
- Software development
- Prototyping
- Quality testing
- 7/24 maintenance services
- Contract assembly
- Commercial representation

Licenses, certifications and authorizations

We have all the necessary licences, certifications and authorizations for our R&D, design, production, maintenance, repair, calibration and trade activities, such as:


- ISO 9001:2015 certificate
- AQAP 2110 certificate
- Conformity of Production of vehicles (COP)
- Activity licence for the production of defence-related goods, performing defence-related services, foreign trading of defence-related goods or services
- Accreditation certificate for gas detector calibration laboratory
- Secondary verification authorization for dosimeters for radiation protection and radioactive surface contamination meters
- Operating license for isotope laboratory for calibration
- Certificate of maintenance and repair of measuring equipment and devices of ABOS 3 safety class in radiation protection control systems at Paks NPP NCAGE Code



The Personal Protective Equipment (PPE) division is based on the former RESPIRÁTOR Company that had been founded in 1928 with the purpose of manufacturing respiratory protective equipment and had been operating in this field as an independent firm until 2015 when it merged into GAMMA.

The production of RESPIRÁTOR® NBC and industrial filter canisters is therefore based on almost 90 years of experience and track records. During this period we have made serious efforts in design and development of Respiratory Protective Equipment to provide solutions for personnel in the military, law enforcement, first responder, firefighting and industrial sectors.

In addition to respiratory protective equipment, our company also produces filtering type chemical protective suites and firefighter protective suites.

The line of Personal Protective Equipment continues to be manufactured and marketed under the Respirátor® brand. 



The Individual Protective Suit sets are recommended for wide range of applications

Our **Individual NBC Protective Suits** are designed to form an effective barrier against BW and CW agents in liquid, vapors and gaseous form. The suit is supplied as a full protective clothing kit which is comprised of the following components: jacket with integrated hood, trousers, protective rubber gloves, cotton glove liners, protective socks and a carry case.

The disposable **Chemical Splash Cover Poncho** is a C-proof plastic splash cover, a complement to any NBC suits if drops of chemical warfare agents are being spread from above.

Our **Firefighter Protective Suits** are consisting of a multi-layered jacket and trousers. Their base fabric and color are the same, providing equal protection of the covered body surface up to the specified maximum heat stress, during the specified maximum duration.

Filters for the Industry, Disaster Management, Military, Law Enforcement and Safety Forces

The **R18 NBC filter** provides protection against all known Chemical Warfare Agents according to AEP-73 NATO requirements, like hydrogen cyanide, cyanogen chloride, chloropicrine, sarin and other nerve agents, mustard gas, arsine, phosgene. The efficiency of the HEPA filter is over 99.99% against highly toxic liquid and solid particles, biological and radioactive aerosols, bacteria, viruses. Storage time in original packing: 10 years.



The **A2B2E2K2 Hg P3 RD combined, reusable, class-2 industrial filter** provides protection against organic gases and vapors with a boiling point over 65°C, inorganic gases and vapors (except carbon monoxide), sulphur dioxide and other acidic gases and vapors, ammonia and organic ammonium derivatives, mercury, liquid and solid aerosols according to EN 14387:2008 standard. Storage time in original packing: 6 years.



The **Reaktor P3 D combined filter** is designated for single use against radioactive iodide including radioactive methyl iodide and radioactive particles in accordance with DIN 58621 standard. Storage time in original packing: 3 years.



The filters are CE marked (CE 0121) with threaded connection (40x1/7" cord thread) according to EN 148-1.

Emergency escape hoods are filtering devices for self-rescue with inner mask and combined filter

The industrial **Escape Hood ABEK1P3** is fitted with a high-efficiency combined ABEK1P3 filter and provides minimum 15 minutes time for escaping from the contaminated areas in case of industrial accidents, catastrophes. Certified according to DIN 58647-7, Class "S".



The **Smoke Hood COP3** is an emergency escape respirator fitted with COP3 filter, intended for self-rescue from fire incidents where smoke, odorless carbon monoxide and other toxic gases generated by the fire may be present. Certified according to EN 403, Class "M".

GAMMA Technical Corporation started its operation with manufacturing precision measuring tools in the 1920s, thus measurement has always been in the focus of our interest ever since.

As part of our core competencies, the Measuring Instruments division offers a versatile range of hand-held, on-board and stationary instruments, including complex radiation protection and emission-monitoring systems for governmental bodies, isotope labs and nuclear facilities, as well as gas detectors, radiation level and contamination meters, meteorological sensors, isotope identifiers and portable sample analyzers, for a wide range of applications.

GAMMA has 60 years of experience in the field of manufacturing radiation measuring devices and scintillation crystals. Our line of radiation portal monitor systems includes fixed, vehicle-mounted, mobile and portable devices with optional isotope identification capability.



Highly customizable intelligent scintillation detectors for versatile applications



Area monitors



Portable, shielded analyzers for food and other bulk samples

Laboratory and portable instrumentation



Handheld radiation level and contamination meters



Handheld radioisotope identification devices



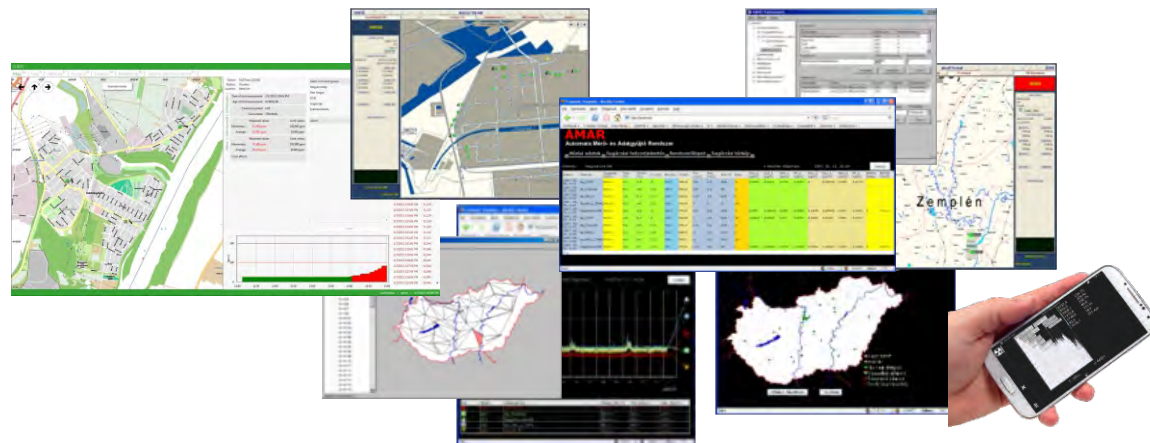
Explosion proof gas transmitters

Product ranges:

- radiation measuring instrumentation
- radiation portal monitors
- TIC gas detectors
- on-board CBRN monitoring systems
- monitoring and early warning systems
- hand-held and portable stand alone instruments
- environmental monitoring and early warning systems



Monitoring stations and software



Aerial reconnaissance systems



On-board CBRN systems



First responder vehicles



CBRN rece vehicles



detailed catalog:
http://gammatech.hu/downloads/cat/Gamma_environment_monitoring

One of GAMMA Technical Corporation's main activities are manufacturing stationary and mobile monitoring stations and implementing local, as well as nationwide monitoring networks and early-warning systems, including the central data acquisition system components.

We have customized our systems for disaster management, CBRN defence, environmental protection, radiation protection, air and water quality monitoring, radioactive particle monitoring, emission monitoring, meteorological and agricultural applications.

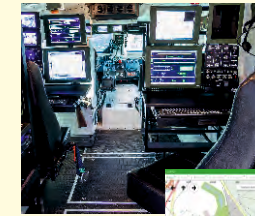
As our company had the pleasure to implement one of Hungary's largest monitoring networks, a telemetric and public alarm system that is operated by the National Directorate General for Disaster Management, just as several other smaller-scale monitoring systems, we gained vast experience in planning, implementing and maintaining monitoring systems, including the cooperation with the competent authorities during these project phases.

With all our expertise, we are open to support our current and prospective partners in the planning and realization of any kind of monitoring projects from local to countrywide scale.



Data center, management and control

- communication
- data acquisition, processing
- data displaying, visualization
- dispersion modeling
- control of information broadcasting



Management area

data flow

The structure of a monitoring system

The following components may constitute an environment and safety-monitoring system:

- data central(s),
- monitoring stations,
- alarm units, warning and information broadcasting subsystems.

These components are available in different versions depending on the size of the protected area and the purpose of the system.

Affected area



Information broadcast, warning

- sirens
- local displays
- Web, SMS, email, etc... publication

The purpose of a monitoring system

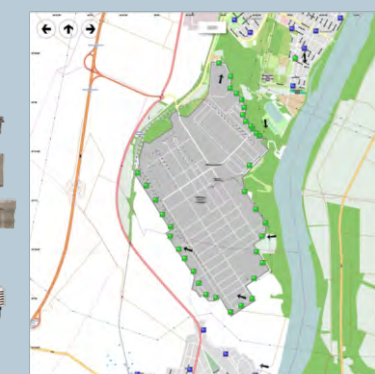
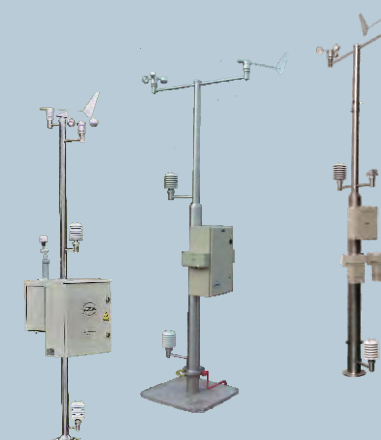
- provides information about the environmental conditions of an area
- sends an automatic warning in case of predetermined changes of the environmental parameters
- provides a tool to interact immediately with people affected by the environmental change



Surveyed area

Monitoring stations, instruments

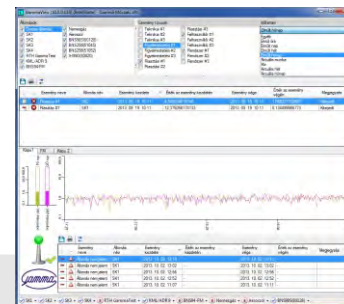
- fixed or mobile stations, vehicles
- detectors
- explosion proof versions



Our line of Radiation Portal Monitors consists of the numerous available types of the BNS-94 portal monitor family, optimized for checking persons, vehicles, cargoes, packages, etc. The BNS-94 product family includes mobile and fixed versions as well. Typical places of application cover border stations, customs checkpoints, security systems, nuclear facilities, metal processors, harbours.

The BNS-94 systems are capable of the followings:

- highly sensitive, continuous measurement of gamma radiation
- compensation of background radiation
- energy selective measurement to distinguish between natural, medical and industrial radiation sources
- optional indication of neutron radiation
- optional isotope identification



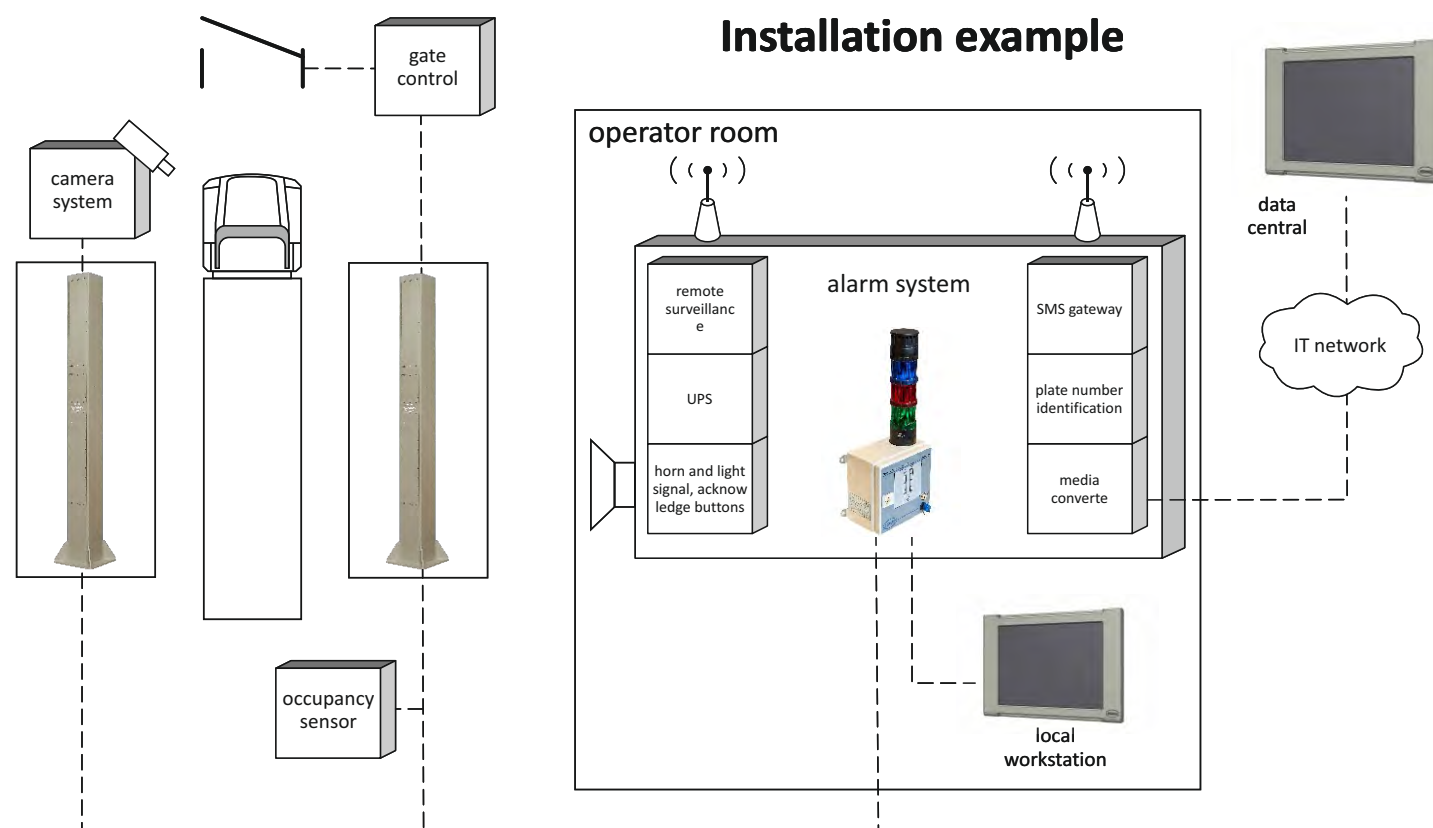
Wide range of accessories:

Gate control, camera system, license plate identification, remote surveillance, text messages, email alert, data and event logging, occupancy sensors.

Wired or wireless connection between system components (optical, ethernet, RS-485, 3G/4G, ...).



Installation example



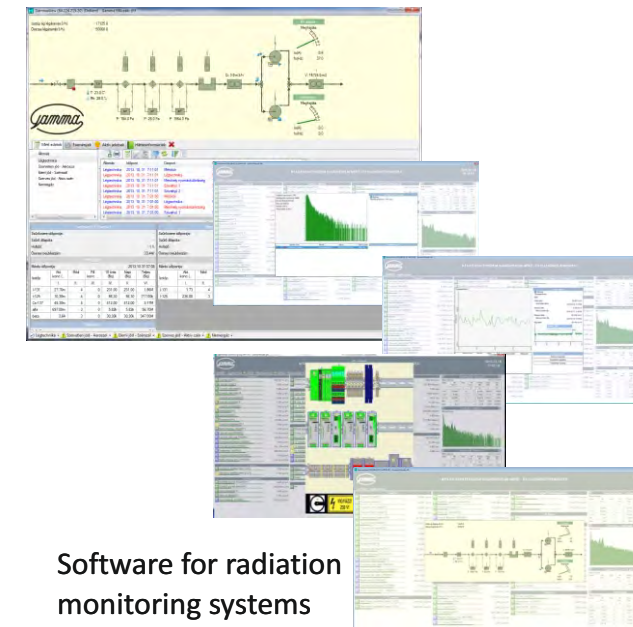
standard types	measurement applications	scope of inspection	installation	features
BNS-94	gamma, neutron	trucks, trains, cars	fixed	1 horizontally installed detector in one pillar
BNS-94H	gamma	trucks, trains	fixed	1 vertically inst. detector in one pillar
BNS-94H+	gamma	trucks, trains, cars, motorcycles	fixed, mobile	1 vertically inst. detector in one pillar
BNS-94ZG	gamma	trucks, trains, cars, motorcycles	fixed	1 or 2 detectors in one pillar
BNS-94PS	gamma	persons, baggage	fixed	lightweight
BNS-94P/L	gamma, neutron	persons, baggage	fixed	above doorways or conveyors
BNS-94PM	beta, gamma	persons, baggage	mobile	wheeled, parallel checking of floor and wall contamination
BNS-94PHK	beta, gamma	persons	fixed	built-in hand and foot contamination control
BNS-94FM	gamma, neutron	trucks, trains, cars, persons	mobile	prepared for mounting onto vehicles, mobile, with stand
BNS-94M	gamma	trucks, trains, cars	fixed	mobile detectors with tripod, built-in alarm unit and battery pack
BNS-94MH	gamma	trucks, trains, cars	mobile	detectors can be operated either on fixed stands and / or tripods
BNS-94B	gamma, neutron	persons, baggage	portable	handheld, baggage size, ad hoc hidden checkpoint
BNS-94V	gamma	trucks, trains, cars	fixed	large volume plastic detector



The Nuclear Devices division is eager to provide solutions for customers working in the fields of nuclear power, radiation protection, radiochemistry or industrial irradiation.

We produce measuring instruments to equip complete nuclear laboratories with radiation monitoring systems and analytical capabilities. We offer single, custom made scintillation crystals and probes, as well as turn-key solutions for emission, environmental, area and contamination monitoring applications.

We are ready to serve customers' needs with our expertise in the field of nuclear measurement techniques, whether for a complex monitoring system or a unique device to perform a special measurement task.



Software for radiation monitoring systems



Scintillators for nuclear measuring applications in metal canisters



Scintillation detectors for measuring and analysing ionizing radiation



Alpha, beta surface contamination monitoring in high gamma radiation



Shielded carriers



Measuring alpha, beta and gamma radiation emitting materials in gaseous or liquid substances



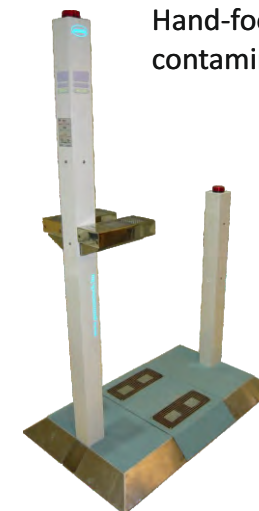
4π gamma measuring system



Integrated instrumentations for low background measurement



Hand-foot-clothing contamination detectors



Gamma and neutron dose rate meters



Isotope identification instruments

Product ranges:

- laboratory measuring systems
- in situ measuring systems
- radiation protection devices
- emission monitoring systems
- software



detailed catalog:
http://gammatech.hu/downloads/cat/Gamma_nuclear_devices

NDI Intelligent scintillation detectors for measuring and analysing ionizing radiation

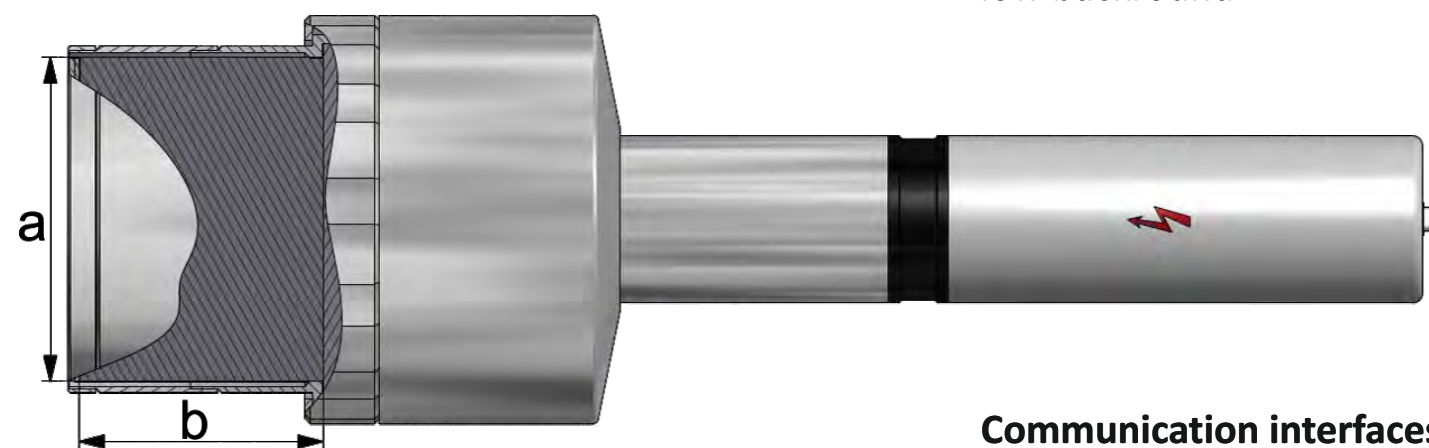
- simultaneous alpha, beta, gamma and neutron radiation measurement
- measurement evaluation of multiple types of radiation via phoswich scintillator
- customized embedded software on request
- no consumables
- high sensitivity
- high stability
- long endurance
- built-in high-voltage power supply
- LED spectrum stabilization
- no regular maintenance required



Wide range of configurations

Scintillator sizes [mm]

- a. 6 (0.25") ... 127 (5")
- b. 0.1 (0.04") ... 300 (12")



Special electronics

- spectrum stabilization
- coincidence
- low background

Communication interfaces

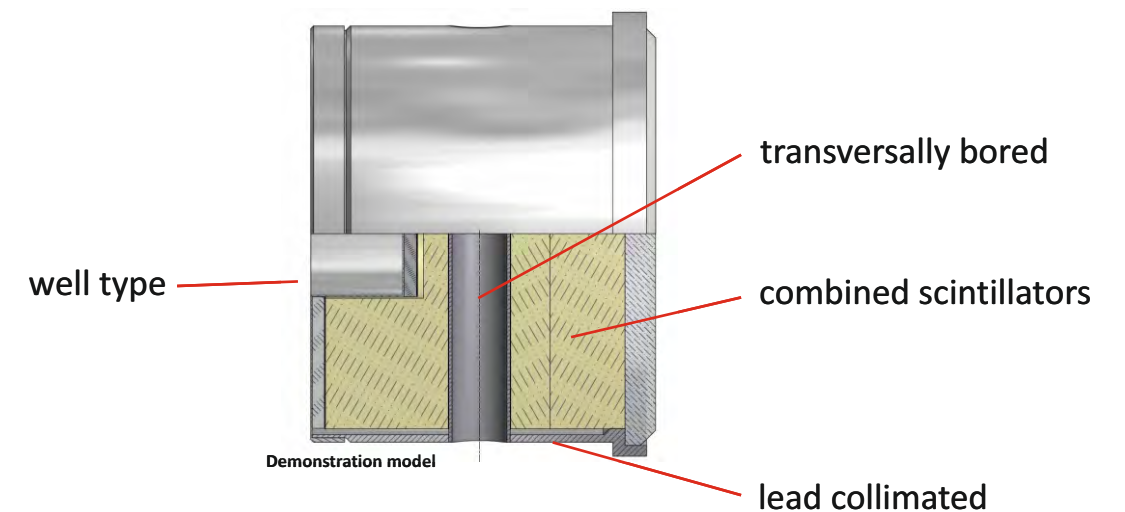
RS-232, RS-485,
USB, Bluetooth, etc.

Scintillator materials

NaI(Tl), CsI(Tl), CsI(Na), BGO, ZnS(Ag), etc.

Scintillators for nuclear measuring applications in metal canisters

- wide range of scintillator materials
- scintillators in grooved or flanged canister
- rectangular and cylindrical canister
- scintillators with diameter from 0.25" to 5" and thickness up to 12"
- well-type and transversely bored crystals
- compound scintillators for simultaneous α , β , n counting and γ spectrometry
- unique scintillators according to special customer requirements



Versions:

- S...../H: heat-resistant
 - S...../R: with built-in reference source
 - S...../L: built-in LED for stabilization
 - S...../Q: rectangular base
 - S...../C: lead collimated
- Other sizes, housing and scintillator materials are available on customer request.



The Field Deployable Supporting Systems division deals with systems, equipment and devices which are applicable for supporting the tasks of the principle functions of military troops and disaster management first responders under campsite and field conditions.

Major groups of such systems consist of equipment and devices designed for CBRN decontamination of vehicles and technical means, as well as personnel decontamination and showering, which solutions are available as containerized, trailer-based or vehicle-mounted configurations, according to the customer's request.

Another significant range of products is formed by containerized kitchens, field kitchen trailers and mobile/portable cooking equipment and kits, which create the basis of field catering supplies.

Likewise, a notable part of the product portfolio involves field accommodation solutions – based on 20'-containers, pneumatic or solid-frame tents and combinations thereof – together with complementary devices, such as tent heating and mobile air conditioning units.



Personnel decontamination containers

Casualty decontamination systems



Product range:

- decontamination systems
- field camp systems
- accessories
- special containers (C2, CBRN)



AC and air heater modules



Water supply modules



Personnel decontamination systems



First responder decontamination sets



detailed catalog:
http://gammatech.hu/downloads/cat/Gamma_decontamination_systems

The Special Vehicles division leads, coordinates and supervises most of company projects, which are related to automotive activity.

Nowadays, besides military, the special civilian and law enforcement organizations (police, counter-terrorist units, disaster management units, special reaction units, etc.) also require mobile capabilities which allow them to reach almost any possible location in time and in security, together with the necessary equipment.

Our main task is to provide this by using up-to-date engineering tools like 3D modelling, simulations and customer centric solutions. Refurbishing obsolete systems, building new vehicles, doing system integrations are just some examples of how we can satisfy customers with mobile laboratories, rapid reaction vehicles, light armoured vehicles, mobile decontamination systems, kitchen trailers, etc.



Our capabilities:

- system integration into / and refurbishment of existing vehicles, superstructures
- development and production of special purpose vehicles / trailers
- development and production of superstructures
- vehicle development and production



During the vehicle development and production phases and the implementation of modernization and conversion tasks we always put into the focus the complete satisfaction of our customers and the application of innovative solutions and materials in an economical way.



Process

The work of the division is supported by the teams of experienced, qualified mechanical and electrical engineers. Using up-to-date computer simulation and 3D designing tools they are not only preparing the manufacturing documentations but supporting the initial planning and designing tasks and carrying out the scaling duties for feasibility studies.

Combining these skills with ongoing consultation with clients at all stages of the development we can always offer a unique and customized solution. Coating and safe shaping are just a few of the characteristics that we always keep in mind during production.



Realization

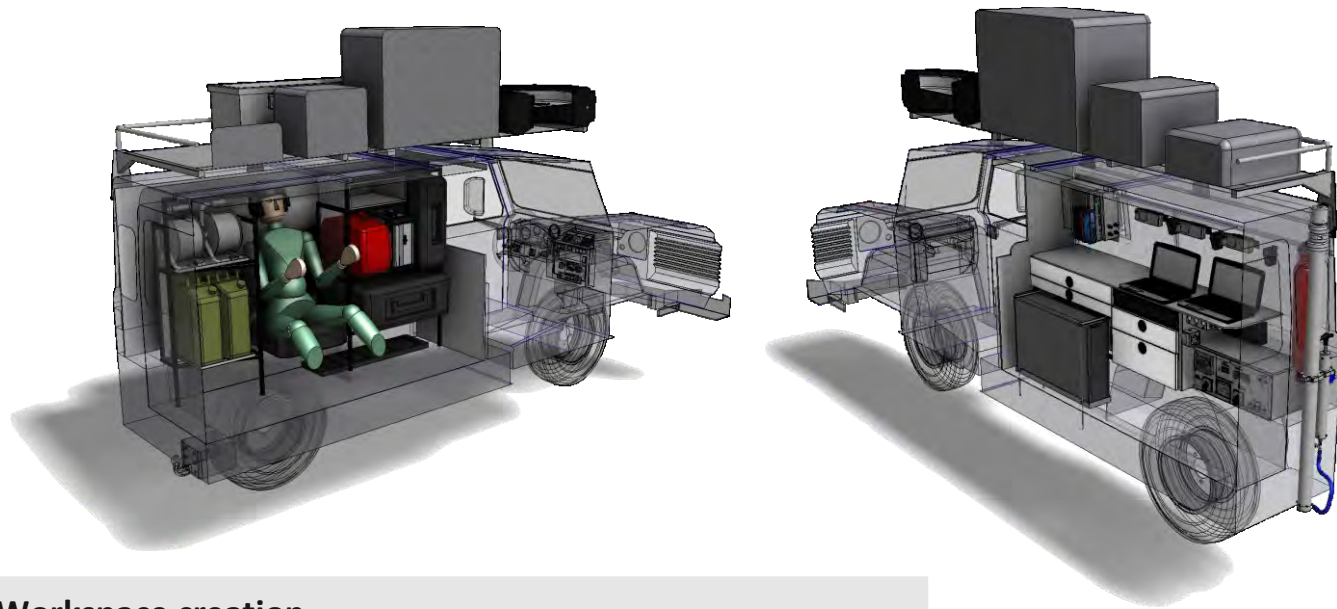
Thanks to our well-equipped workshops and skilled professionals we are not only designing, but also realizing our products. We have vast experience and numerous of references in the design and production of:

- functional interior elements
- complete vehicle interiors, including sealed, isolated and easy to clean ones
- integrated systems
- special purpose trailers, trucks, vehicles, platforms



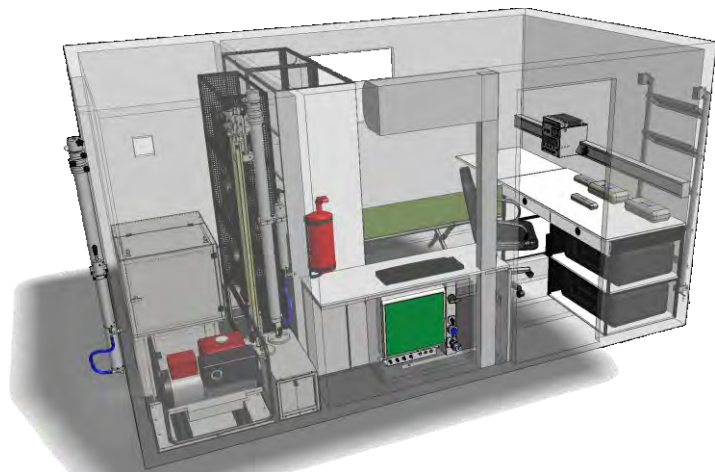
When realizing system integration into/and refurbishment of existing vehicles' superstructures we always pay high attention to the continuous consultation with our customers to meet their requirements and to use innovative and economical solutions.

We are offering solutions for our customers that save money as they don't have to replace the existing vehicle to update and improve its capabilities. We modernize or refurbish them according to current requirements by installing, integrating state of the art elements and systems.



Workspace creation

We are committed to create ergonomic, practical and well organized mobile workspaces where the operator has easy access to all equipment and control devices and can work under normal conditions despite the small available space.



System integration, installation

We are capable of replacing your obsolete systems with new ones. Having been building mobile laboratories and special vehicles for years, we have extensive experiences in integrating different detection, decontamination, evaluation, surveillance and monitoring systems.



In cooperation with our trusted partners we are not just refurbishing existing systems but developing and producing complete, integrated superstructures.

You just need to choose the base vehicle you want to use and set your requirements, everything else is our job. We design the superstructure body (box system or any other solution) and the equipment integration.

After finalizing the design with the customer we can realise the vehicle in short time even in small series.



We can offer:

- customized, flexible solutions
- ergonomic, user friendly design
- high quality materials
- up-to-date systems and solutions
- quick reaction to demands, even for unique, special pieces
- variety of vehicle superstructures adapted to individual requirements



Based on the experiences we have gained during the last decades, we are able to produce a wide variety of special trailers. It means that beyond the integration of the desired systems we manufacture the trailer itself, too, which gives us flexibility in designing and provides maximum practicality in realization.

All products have the required certificates and comply with traffic regulations.



Personnel decontamination trailers



Communication trailers

Our company undertakes the designing, manufacturing and commissioning of special, customized trailers and capable of realizing the modification and modernization of existing vehicles. We offer several designs, including braked and unbraked, single and double axle versions, fitted with civilian or adjustable military towing equipment, open close and curtainsider ones.

We manufacture trailers with built-in power supply for autonomous operation capability, as well as versions powered by external supply.

Typical examples:



Field kitchen trailers

Casualty decontamination trailers

Surveillance/lighting trailers

We can offer:

- role-specific design
- variety of towing and coupling solutions
- wide range of integrated systems
- flexible solutions according to customers' needs
- quick reaction to demands, even for unique, special pieces



Battalion level decontamination trailers

The KOMONDOR light armoured vehicle, developed by GAMMA Technical Corporation, is an MRAP vehicle with a high level of protection, which at the same time provides great maneuverability and off-road capability.

As the design and final configuration of the vehicle is widely variable the KOMONDOR family is a unique, multipurpose platform, which can be used for almost any purpose by any possible customers.

Our company is open and ready to develop and construct any vehicle that is suitable for your individual demands.

We are also open to support customers, who wish to make their own light-armoured vehicles based on our technology through technology transfer.

Multifunctional solution, agile and protected

- wide range of interchangeable specialized modular superstructures
- quick reaction to demands, even for small series, special pieces
- flexibility to individual requirements
- competitive price
- wide range of available subsystems



more backup info, pictures, video links:
<https://www.facebook.com/rdoKomondor>



detailed catalog:
http://gammatech.hu/downloads/cat/Gamma_komondor_MRAP

The KOMONDOR armoured vehicle family

Multipurpose armoured vehicles, providing multiple variations of utilization by being suitable for modification for interservice battle, special services and tasks.



4x4 WD vehicles with monocoque armour body



6x6 WD vehicles with monocoque armour body



4x4 or 6x6 WD vehicles with half armour body

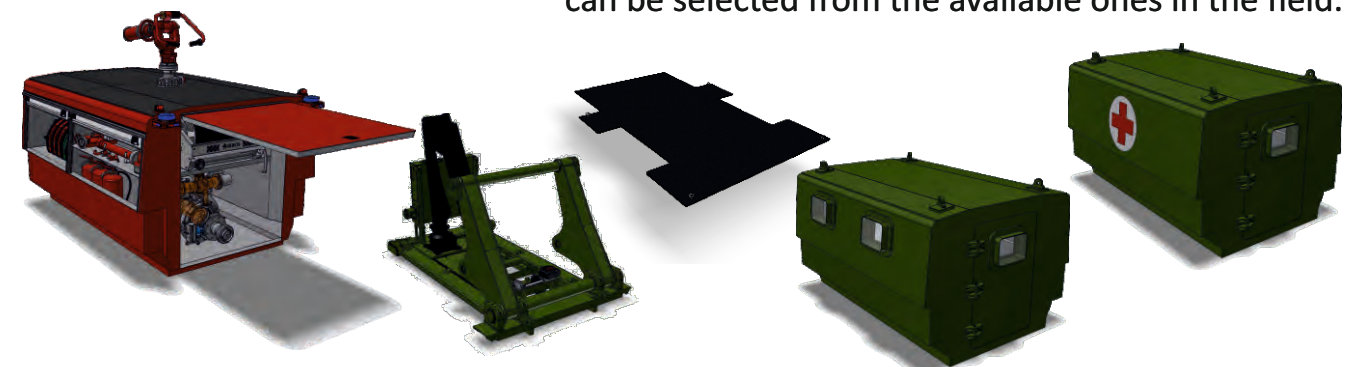
Unique and cost effective solution: interchangeable superstructure modules



Thanks to the interchangeable, specialized superstructure modules, fewer base vehicles have to be kept in the inventory.

During trainings or transportation tasks a single carrier vehicle can deliver two specialized superstructure modules with the help of a trailer

The mission specific superstructure modules can be selected from the available ones in the field.

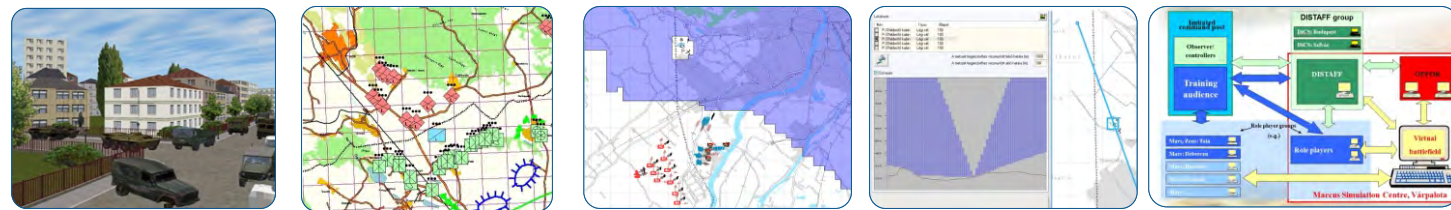


In case of the malfunction of the base vehicle the specialized superstructure module can be deployed within a short time using another carrier.

The Simulation and Training division is run by a GAMMA Group company, namely the Artifex Simulation and Training Systems Ltd. Their multidisciplinary engineering and scientific staff with a history of long term support to the military training industry is headquartered in Budapest, Hungary. Artifex has been a well-established defence contractor of the Hungarian MoD since 1989, which is currently using more than 15 of their simulation systems. Artifex's ongoing commitment to develop quality software is reflected in its quality management system, certified according to ISO 9001 and AQAP 2110.

Having been in the simulation and training industry for more than twenty years, Artifex provides its customers the following benefits:

- long-term and well founded IT expertise in cutting edge technologies
- independence, responsiveness, cost effective and highly flexible operations
- considerable experience in working with military personnel, with an understanding of the technical and training needs of the military
- using very effective and proven methods in integrating IT, system engineering, simulation principles and GIS into state-of-the-art training systems, simulations and other applications

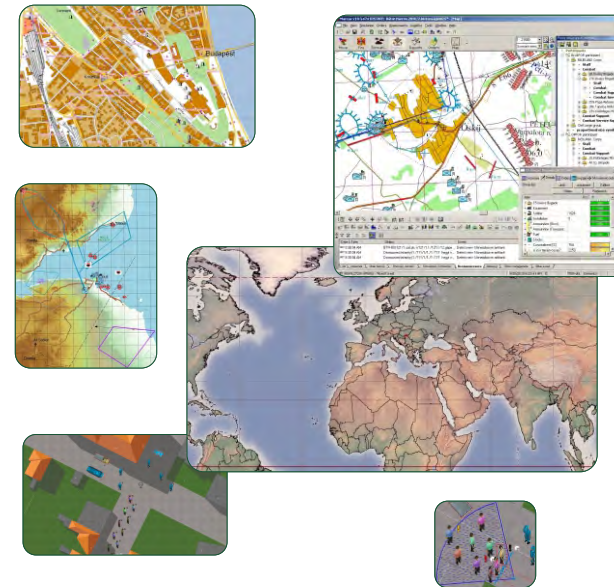


Expertise:

- providing integrated training solutions:
 - training need analysis
 - training systems development
 - training support
 - simulation instruction
- applied modeling, principles and simulation theories
- applied built-in GIS and real time expert systems
- real time visualization
- software development based on customer requirements

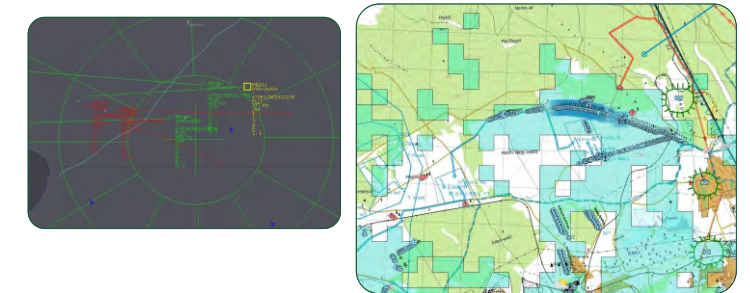


MARCUS CAX simulation



Modeling of:

- Land battle warfare and homeland security
- Naval warfare and joint operations (assaults and air assaults)
- Logistics support advanced operations
- Air warfare and Air defence simulation
- Peace keeping and disaster relief, military – civilian cooperation
- Police and Fire brigade advanced operational level services simulation
- CBRN operations and contamination prevention
- Electronic warfare modelling, including modules for cyber defence
- Critical infrastructure security
- Anti-terrorism operations
- Migration operations, refugee control and SAR operations



KRONOS Virtual simulator



KRONOS is a reconfigurable platoon level 3D virtual tactical simulator.

KRONOS provides an environment where mounted or dismounted infantry, tank and antitank units can exercise their jobs in a team or as an individual in a realistically visualized world. Squad and platoon leaders and their subordinates can be trained how to cooperate in a combat.

Operation concept:

Trainees have dedicated PC workstations with a user interface specific to their vehicle and weapon system, that are controlled with joystick and keyboard. During combat the trainee can observe the surroundings through his prisms and binoculars just like in reality. Shots and explosions can be seen in the terrain; realistic sound effects can be heard. The operation of the modelled weapons and equipment requires the execution of every essential handling steps of the real weapons and equipment (not just a „shooting game“)

The Defence division provides full access for governmental organizations to any products of our departments.

Our specialist, expert colleagues, with decades of professional experience, stay at the disposal of our partners, ready to find solutions to their problems and also to provide the best tools and systems to face their challenges.



Providing solutions for governmental bodies



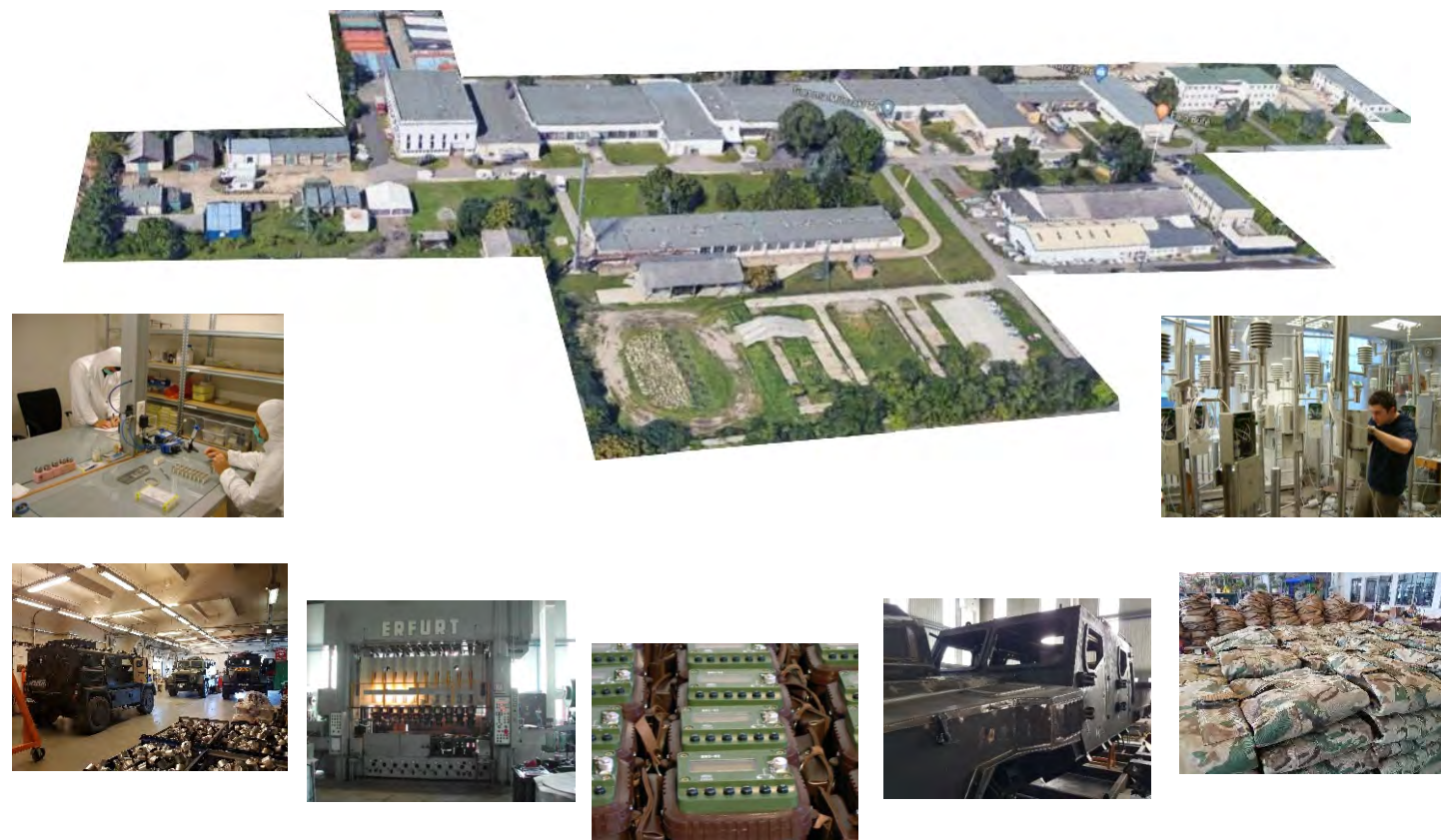
Single door service for defence related government organizations:

- military and defence related equipment production and development
- system integration
- 3rd party product representation, maintenance, repair
- localised production
- OEM production
- main and subcontracting

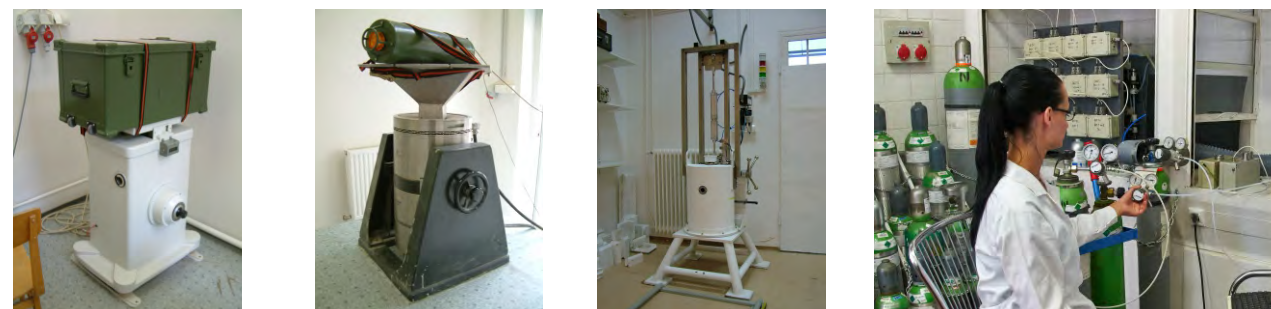


The technological facilities necessary for the fulfillment of our production tasks are also available for other producers.

Owing to the available technologies (CNC precision machining, sheet processing, pressing, welding, painting, antistatic and/or clean room assembly, etc.), human resources, experiences and infrastructure (12.000 m2 workshops, warehouses, offices, laboratories, on a 52.000 m2 land), we are ready for customized, OEM, single piece manufacturing or for fulfilling your batch production orders.



Our special laboratories are ready for quality testing and for supporting maintenance, repair and production procedures.



The parts manufacturing/precision machining plant of GAMMA has wide experiences and extensive production capacities in the field of processing metals and plastics. Precision machining is operated as an independent production unit, its processes and machinery are constantly developed in order to maintain the high productivity level and impeccable quality of workpieces.



Along with manufacturing complete instruments and subassemblies, as a part of our local support GAMMA specializes in the assembly, commission, maintenance, repair and overhaul of 3rd parties' products.

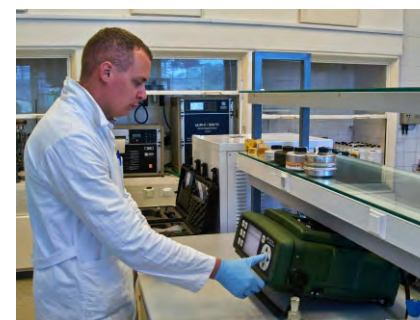


Since 1920 our company has not only obtained great experiences in production but it has always been trying to meet new challenges and making efforts in research and development. Our intention has always been to pay special attention to the requirements of our partners and to develop customized, innovative and advanced products and solutions for them.

GAMMA specializes in a “design to production” method with core competencies in several fields, such as mechanical engineering, electrical engineering, and software development.

Our extensive range of expertise (including CBRN protection, radiation measuring instruments, integrated systems, small series production, rugged devices, monitoring and early warning networks, special and armoured vehicles) helps us bringing your ideas to life.

Our special laboratories (chemical, nuclear, shock and vibration test, etc.) are run by our R&D department. Facilities are available for R&D, type testing (operational and military technological tests), periodical checking and calibration tasks.



Laboratories:

- test labs (environmental, climatic and mechanical tests)
- calibration labs for ionizing radiation measuring instruments
- chemical and chemical calibration labs
- climatic and environmental resistance test labs
- prototype testing labs



Electrical engineering

Software engineering

Customer Centric Engineering

- R&D concepts:**
- modularity
 - high quality
 - growth potential
 - innovative solutions
 - communality concept
 - platform independent solutions

Mechanical engineering

Chemical laboratories at our company:

The primary function of the chemical calibration lab is the adjustment and calibration of gas transmitters measuring toxic and explosive gases. The workstation is evolved within the climatic test lab where the compensation of the gas transmitters' temperature dependence is carried out at the same time. A separate lab is used for measuring the weight and breathing resistance of filter canisters, testing the filter penetration against liquid aerosols (paraffin oil) and solid aerosols (sodium-chloride), as well as for testing the protection capabilities of industrial and military filter canisters against gases, vapors and chemical warfare agents (chloropicrine, hydrogen cyanide).

In our chemical labs we use reference materials (gas mixtures). Gas mixers are used to produce a wide range of concentrations for multi-point calibrations and special measurement ranges.



Calibration labs for ionizing radiation measuring instruments:

Apart from the R&D tasks the function of the labs is the adjustment and calibration of radiation measuring devices of GAMMA, as well as other manufacturers. Reference gamma fields are available in Gy/h, Sv/h and R/h units and we have more than 70 radiation sources in our inventory. We are accredited for the secondary verification of the calibration of our instruments.

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Attila ZSITNYÁNYI, CEO

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