

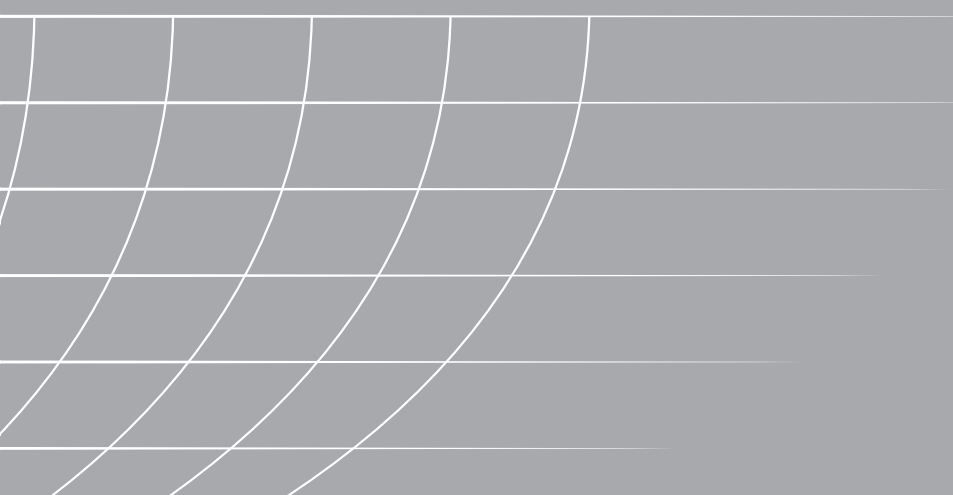


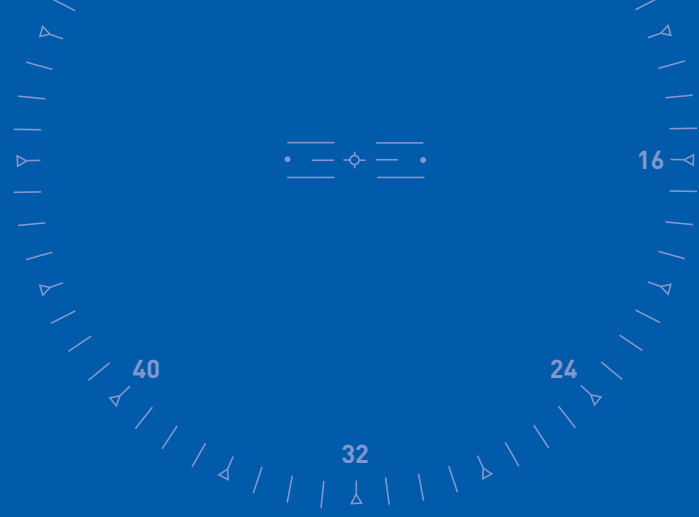
ARTILLERY

INDIRECT FIRE SUPPORT



KMW
KRAUSS-MAFFEI WEGMANN





Artillery today.

A new generation of artillery is emerging in the 21st century to counter threats and carry out missions via specific deployment strategies, as well as modern artillery systems whose mobility, firepower, automation, and protective capacities far exceed those of their predecessors. Thus the salient characteristics of today's artillery are its modularity, versatility, and interoperability. As a worldwide market leader, we at Krauss-Maffei Wegmann are helping to widen the application domain and deployment options of classic artillery. This also involves reinforcing our core indirect firing support capabilities with customized deployment options (Naval Fire Worx®) and an intelligent military field camp defense solution (Smart Camp Defense®) with a view to meeting the current and future needs of military forces worldwide. We also provide today's military establishments with comprehensive and reliable service solutions that ensure seamless availability of military deployment systems and that provide invaluable support for key operations such as logistics, maintenance, repairs, upgrades, and training. These solutions are implemented on the basis of an extensive portfolio of outstanding products that enable our customers worldwide to translate individualized and efficient artillery systems into versatile systems of systems (SoS) in such a way that all relevant elements interoperate smoothly via standard interfaces.



KMW-Artillery Power Package®

a complete, turnkey solution consisting of: 12 high performance PzH2000 howitzers, or the autonomous Artillery Gun Module (AGM), Command vehicles, reconnaissance vehicle and the high performance ACCS fire control system.



KMW-Smart Camp Defense® is a field camp solution that integrates autonomous and airportable AGMs as well as PzH2000 howitzers for wide ranging indirect fire support; as well as mobile and protected systems such as the Boxer.



KMW-Naval Fire Worx® is a modern shipsupported artillery system that in the coming years will allow for the deployment of artillery from vessels.



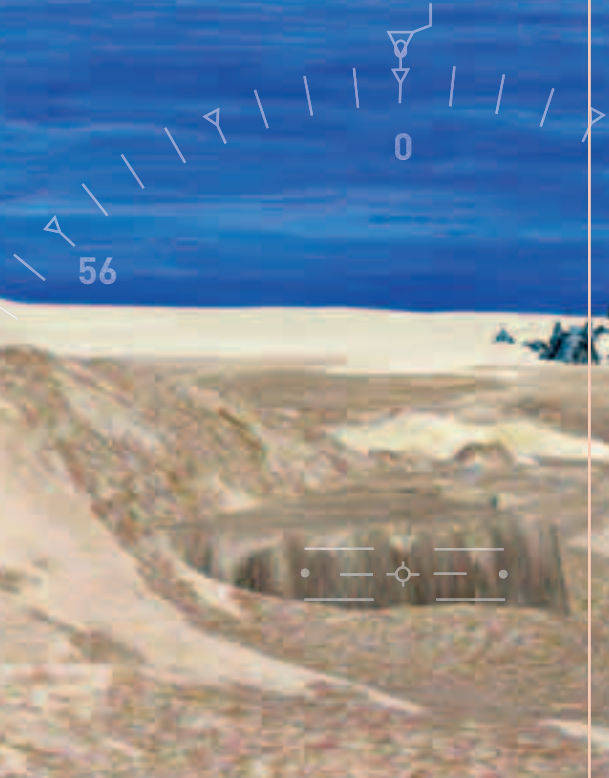
The Multiple Launch Rocket System (MLRS), is a mobile artillery system that packs considerable fire power and whose modular rockets allow troops to fire at various types of targets at long distances.



Our **Global Customer Support Center® (GCSC)** provides comprehensive worldwide servicing for all of our products on a 24/7 year round basis.



KMW: Excellence in Full Spectrum Indirect Fire



EFFICIENCY



COMMAND

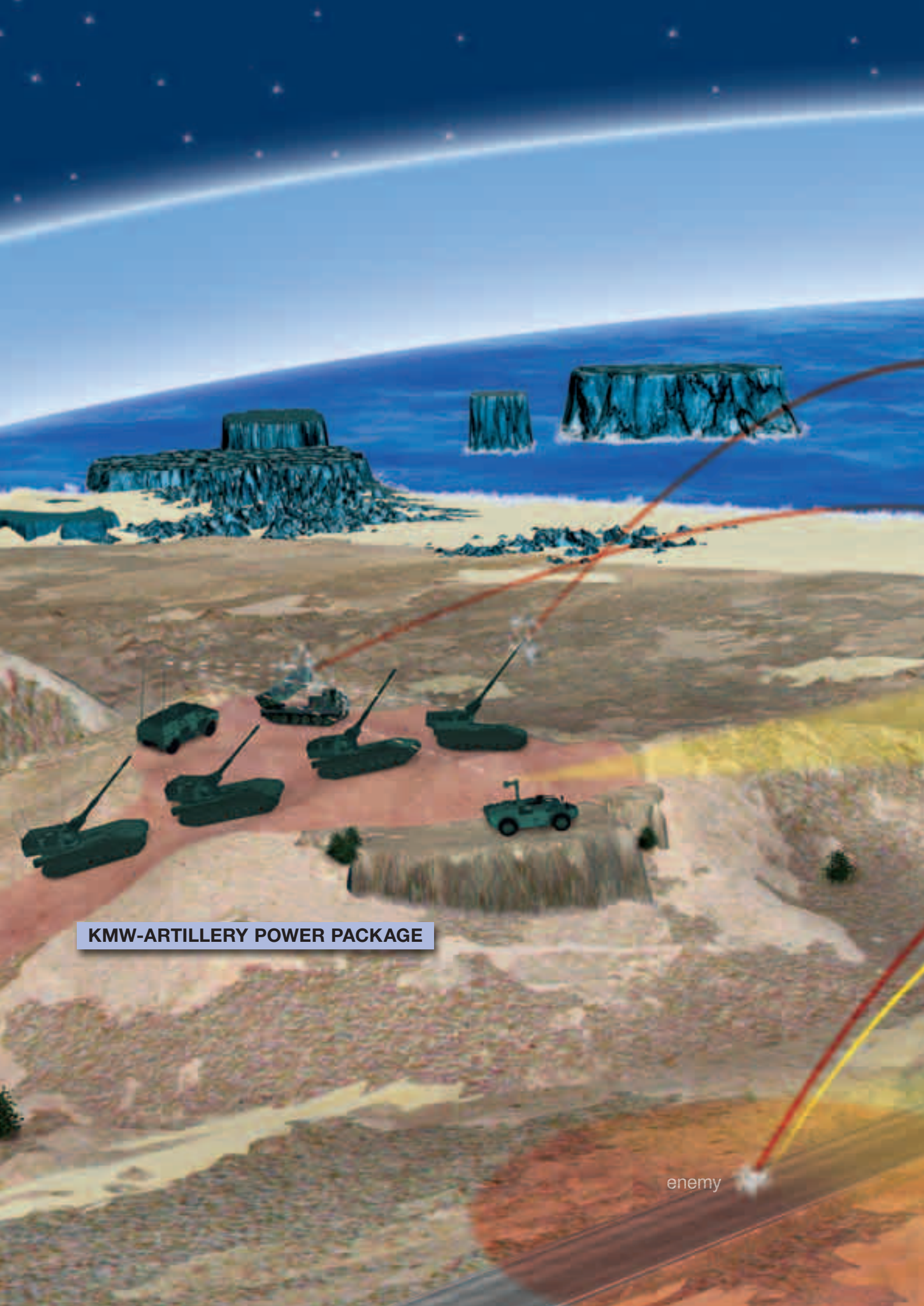


RECONNAISSANCE



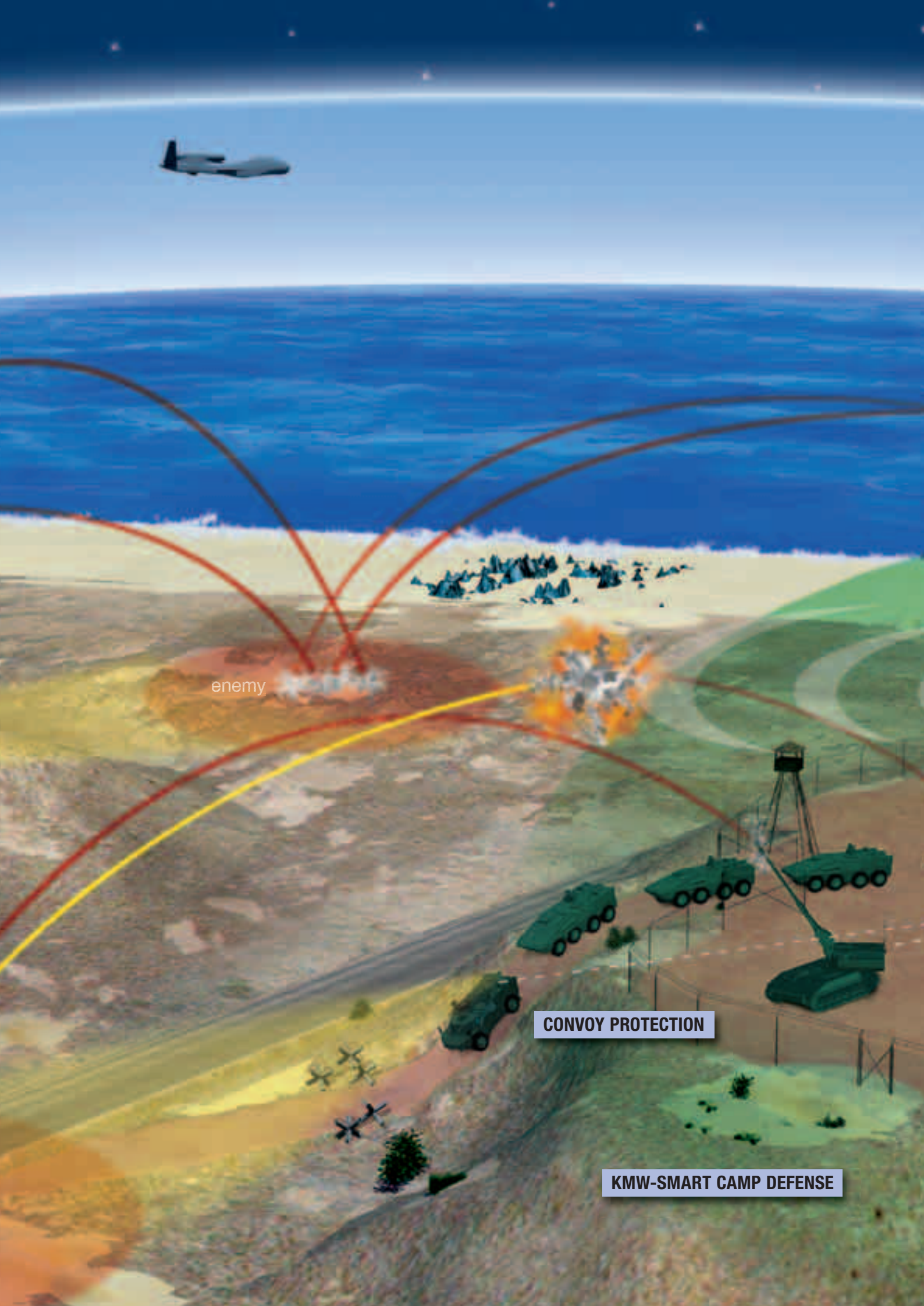
INTEGRATED SYSTEM SOLUTION





KMW-ARTILLERY POWER PACKAGE

enemy



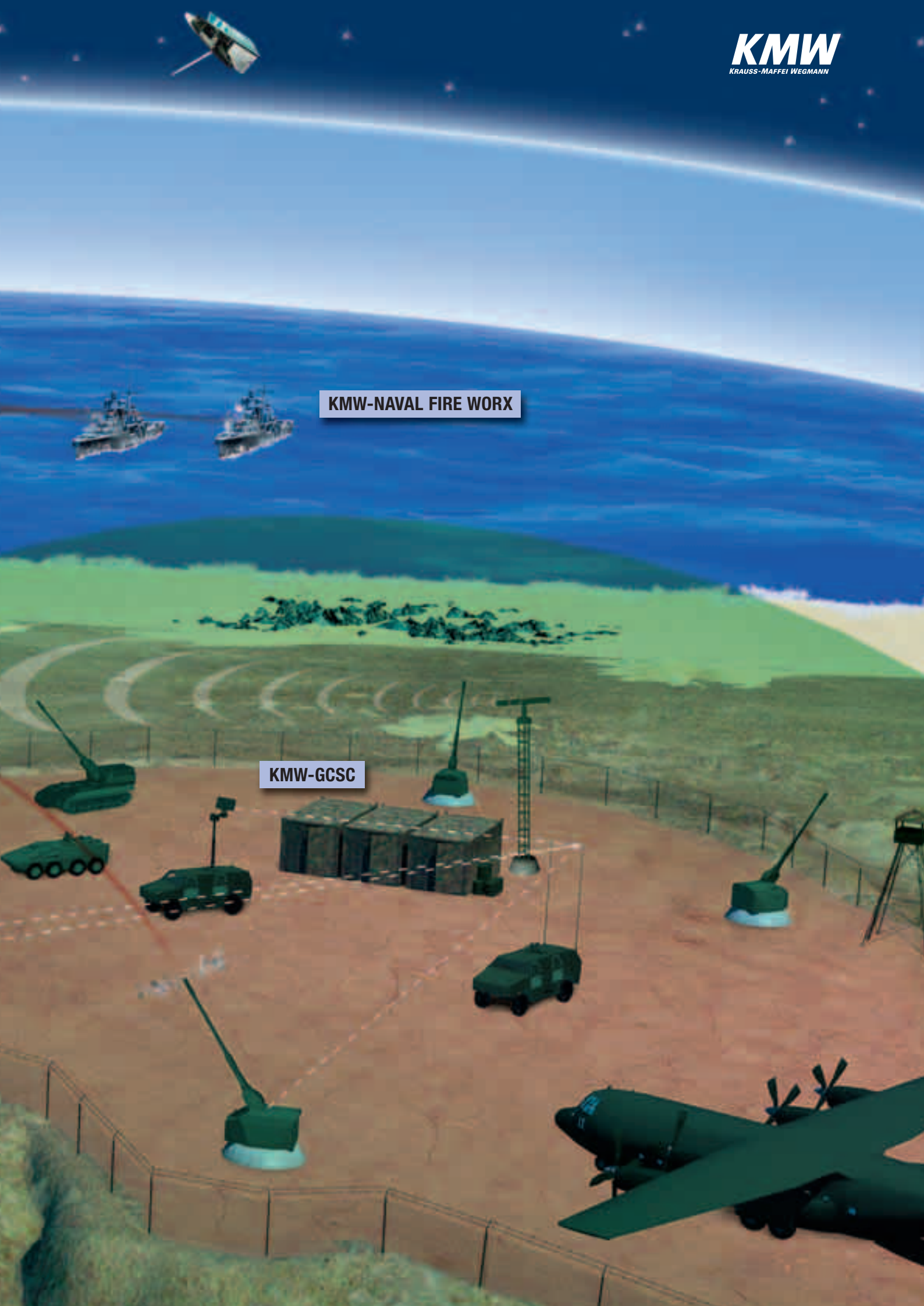
enemy

CONVOY PROTECTION

KMW-SMART CAMP DEFENSE

KMW-NAVAL FIRE WORX

KMW-GCSC



EFFICIENCY

PzH2000

PzH2000 armored self propelled howitzer

The outstanding technology deployed in the PzH2000 armored self propelled howitzer makes it the most modern and successful system of its kind currently available. The PzH2000 offers unmatched deployment versatility thanks to the following features: an almost automatic firing mechanism that integrates 60 on-board projectiles; a modern and precise 155 mm/L52 weapons system; the fact that the PzH2000's firing, navigation and fire control system is completely autonomous; and the weapon's outstanding system stability.

Unmatched efficiency and precision

The PzH2000 meets all NATO requirements for a modern self propelled artillery system and supports all projectiles referred to in the JBMOU (Joint Ballistics Memorandum of Understanding). The PzH2000 fully meets a 30 km range with NATO standard high explosive projectiles, as well as 40 km range with range-optimized projectiles. The PzH2000's stable weapon platform and accurate gun laying system allow for outstanding targeting accuracy results, even when projectiles are fired at a rate up to 10 rounds per minute. The PzH2000 has an onboard fire control system that integrates the NATO Armament Ballistic Kernel (NABK) for autonomous handling of firing commands.

The PzH2000 is currently deployed in a number of international missions, including in Afghanistan, where Dutch forces have been using the PzH2000 for quite some time. Germany, Greece, Italy and The Netherlands have chosen the PzH2000 as their standard artillery system.





Firepower

The PzH2000 fires up to 10 projectiles per minute or 20 projectiles per 120 seconds, via an electrically driven and digitally controlled automatic loading system that allows to operate all 60 projectiles combat load.



Precision

The PzH2000 offers extremely high accuracy thanks to its extremely precise navigation system, a digitally controlled and electrically driven weapon system, and an extremely stable weapon platform.



Protection

The PzH2000's highly robust armor all the way around the weapon protects against artillery fragments, AP and bomblets, and also provides NBC protection and effective protection against nearby threats.



Mobility

The PzH2000 offers outstanding mobility at eye level with battle tanks, as well as shoot and scoot capability.

Technical data

Transport weight	49 t
Battle weight	55 t (MLC 60)
Speed	60 km/h
Driving range	> 420 km
Engine performance	736 kW
Crew	3 (+ 2 replacements)
Main gun	155 mm/L52 caliber
Protection	Bomblet and artillery fragment armor AP on all external surfaces; NBC
Rate of Fire	8-10 rounds per minute
Range	> 40 km



EFFICIENCY

AGM/DONAR

Artillery Gun Module

We are at present successfully testing our fully automatic and unmanned Artillery Gun Module (AGM), which combines airportability with the advantages and performance parameters of the PzH2000 in terms of range and precision in the 155 mm/L52 caliber domain. The AGM can be installed in tracked or wheeled vehicles in accordance with customer specifications, and thanks to its low system weight, can be transported in an Airbus A400M.

Efficiency and versatility

The AGM meets the need of today's international military forces for outstanding versatility and modularity, and rapid deployability and firepower for crisis and military deployment regions. The system's integrated fire control system allows for two-way communication and provides a C3I interface to the command and control systems of all participating units.



Firepower

Fires more than 6-8 rounds per minute via an electrically driven and digitally controlled full automatic firing and loading system, with 30 rounds onboard.



Versatility

The AGM is interoperable with all wheeled and tracked vehicles, as well as with stationary installations.



Mobility

An airportable system, thanks to its modularity and low weight.



Autonomy

The AGM is an optimally autonomous solution thanks to its onboard fire control system with an integrated NATO Artillery Ballistic Kernel (NABK), V0 management system, GPS supported inertial navigation system.





Technical data

Caliber	155 mm/52
Range	> 40 km
Rate of Fire	More than 6 rounds per minute
Module weight	approximately 12.5
Crew	2 (outside the module)

40

32



EFFICIENCY

NAVAL FIREWORX

Advanced Naval Gun System

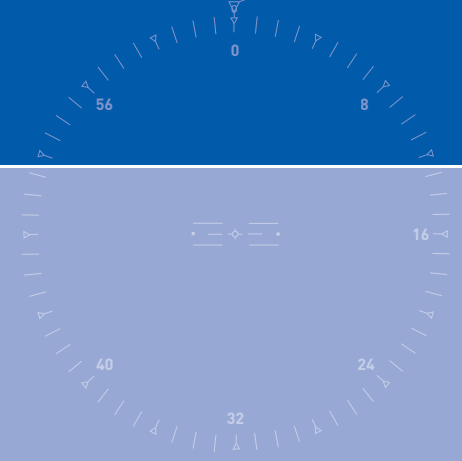
The Naval Fireworx advanced naval gun system, which was developed in close cooperation with leading naval equipment vendors, provides a highly efficient artillery solution for frigates and corvettes. Thanks to the extensive array of NATO compatible ammunition supported by the Naval Fireworx, the solution allows naval forces to fight battles on the open sea and in coastal areas in a completely new way.

Greatly enhanced maritime efficiency

The innovative Naval Fireworx is based on two outstanding technologies: proven PzH2000 technology; and the autonomous Artillery Gun Module (AGM), which offers outstanding performance parameters.

Technical data

Caliber	155 mm/52
Range	> 40 km
Rate of fire	More than 6 rounds per minute
Module weight	approximately 12.5 t



Fire power

Fires > 6 rounds per minute via an electrically driven and digitally controlled automatic firing and loading system that uses a master stock of rounds stored onboard the ship.



Autonomy

The Naval Fireworx is an optimally autonomous solution thanks to its fire control system with an integrated NATO Artillery Ballistic Kernel (NABK), V0 management system, GPS supported inertial navigation system.



Interoperability

We are currently developing a parts of a fire control solution for integration into the artillery systems of German frigates in the coming years, thus reducing development risk and optimizing development cost for complex artillery systems.



MLRS / MARS

Multiple Launch Rocket System

Our Multiple Launch Rocket System (MLRS) is based on a US Army project that several EU countries realized under license and that was procured in the US. MLRS fires surface-to-surface rockets and the Army Tactical Missile System (ATACMS). Without leaving the cab the three man crew can fire up to twelve unguided missiles in less than 60 seconds. MRLS has been implemented in more than 16 countries worldwide and is also used by NATO forces. MLRS/MARS allows target-tailored ammunitions to be fired over a 10 to 40 km range. Both, MLRS/MARSII optimization and the procurement of the Guided Multiple-Launch Rocket System (GMLRS) give artillery units now a reach of more than 70 km with accuracy that greatly reduces collateral damage.

New technology

We are working closely with leading vendors to modernize MLRS and improve its battlefield effectiveness even further through integration into the European Firing Control System (EFCS), with an improved position navigation system, as well as an optimized version of the GPS navigation system for the Explosive Resistant GPS Receiver (ERGR). The artillery head comprises a SMART detonating artillery shell and a penetrating splitter explosive head (UNITARY) with a delay and approach detonator. Finally, MRLS will also be upgraded by a new Electrical Launch Drive System (ELDS).



Firepower

Fires 12 rockets per minute using a broad range of rockets and target dependent optimized subammunition.



Versatility

Broad application domain thanks to the system's compatibility with many different kinds of ammunition with ranges between 10 and 70 km.



Mobility

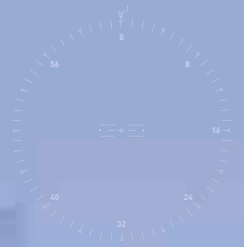
Outstanding mobility with excellent range, as well as shoot and scoot capability.

Technical data

Length	6.9 m
Width	2.9 m
Combat weight	26.6 t
Engine performance	373 kW
Crew	3
Weapons	Rocket launcher with 12 launching tubes



COMMAND



GFF4

Command Post version

The Command Post version of the GFF4 is the perfect embodiment of our expertise in the armored vehicle domain. Our latest version of the GFF4 platform will provide tomorrow's infantry with a highly innovative multifunction wheeled vehicle that is optimally adaptable to local needs and conditions. The vehicle also offers outstanding performance and is airtransportable in the A400M.

Powered by ACCS

The GFF4's cabin integrates a ballistically protected safety compartment for the driver and crew that protects against ballistic threats such as mines, and is particularly effective against improvised explosive devices (IEDs). The motor and gearing also have ballistic protection. The GFF4 provides an additional (20 kW) power generation unit that supplies onboard equipment during operation, and also allows for offline operation of the NBC ventilation system and air conditioning unit.



Technical data

Length	7.60 m
Width	3.05 m
Vehicle height	2.55 m
Battle weight	25 t
Engine performance	331 kW
Crew	up to 10 crew members
Armor	Anti-mine protection. Heavy MG and anti-artillery armor on the entire surface of the vehicle
Additional protection	Protects against bomblets and medium caliber weapons
Weapons	MG 7.62 mm/12.7 40 mm grenade machine gun

ACCS

Artillery Command and Control System

Our innovative Artillery Command and Control System (ACCS) is an autonomous digital guidance and weapon deployment system for rocket and tube artillery that supports the command and control process at all firing levels of an artillery battalion. The ACCS is integrated into the battalion's radio data network (RDN) and connected to the onboard fire control system of the PzH2000 and the MLRS, and the FENNEK reconnaissance vehicle. The ACCS makes battlefield recommendations that take account of current weapon status and ammunition availability. The ACCS features identical hardware, multiple redundancy at all command levels, and extremely user friendly MMI navigation.

Artillery Systems Cooperation Activities (ASCA)

This feature makes the ACCS an optimized artillery management system that provides information on current positions, statuses and ammunition levels regarding all weapon system elements. ACCS also carries out all target management functions, provides field decision support, and integrates an interface with other national and international C3 systems such as via ASCA interfaces. The ACCS framework and its software architecture can be modified to meet the needs of specific customers and can be integrated into any vehicle. The ACCS also enables integration of a terrain analyzer, which allows for determination of positioning areas, firing positions, covered locations, optimal reconnaissance positions, route planning and UAV starting routes.

DINGO 2

Command Post version

The DINGO 2 is a complete, combat tested and relatively lightweight command and control vehicle that is highly mobile and extremely well protected. This vehicle also integrates our artillery command control system (ACCS), thus creating a complete and optimized integrated solution. The DINGO 2 provides you with an innovative, modular and armored wheeled vehicle that has been successfully deployed in numerous international settings and is air-portable in the C-160 TransAll.

Powered by ACCS

Like the GFF4, the DINGO 2 integrates a ballistically protected safety compartment for the driver and crew that protects against ballistic threats such as mines and improvised explosive devices (IEDs). The DINGO 2 was designed to be part of a vehicle family comprising the Command Post version as well as variants for transport, patrol, ABC, ambulance and other applications. The Dingo 2's modularity makes this product family optimally versatile while at the same time reducing user costs and risks.



Technical data

Length	> 5.45 – 6.80 m
Width	2.30 m
Height	2.50 m
Combat weight	12 t
Engine performance	160 kW
Crew	5-8 persons
Protection	Anti-mine protection. Heavy MG and anti-artillery armor on entire surface of the vehicle
Additional protection	Protects against bomblets and medium caliber weapons
Weapons	MG 7.62 mm/12.7 40 mm grenade machine gun

ACCS Framework (GUI)

Ammunition Requirements Analysis	Availability Analysis NABK for tuba/missile	EO Target Reconnaissance UTM Polar GEO REF WGS 84/ED 50	C2 and Fire Control Software for PzH 2000 Optionally: MLRS and Mortar
Backup Function with level-of-echelon change concept	ASCA Interface international artillery radio transmission protocol	Partner PC redundant system concept (PC1/PC2)	Integrated GIS geo information system
VHF Radio GE: SEM 80/90 NL: RT 9500 A GR: TRC 9300B TRC 9200	HF Radio T41D HRM: 7400	Satellite	WAN ISDN Modem LAN SatCom

Event-based Data Exchange

Database SQL Server

Communications

RECONNAISSANCE

FENNEK FO/JFST

Forward Observer / Joint Fire Support Team

The outstanding reconnaissance capabilities of the FENNEK FO/JFS (Forward Observer/Joint Fire Support Team) version are based on modern observation and reconnaissance technology (BAA). A thermal imaging device, CCD camera, and remote laser range finder are all located in a swivelling, telescopic sensor head that can also be placed on a remotely controlled stand-off tripod. A remote laser range finder and BAA operating panel allow the coordinates of targets to be determined, processed and automatically passed to a digital position map. The FENNEK FO vehicle uses an artillery guidance system to transfer target information to the command centre. Both, targeting control and corrections are supported by the ADLER II artillery control system, which integrates the KMW MILEUS® ADLER II fire support system. MILEUS® generates target priorities, and manages the entire target list.

Mobile Dominance

The German Army is currently developing a variant of the Joint Fire Support Team (JFST), which consists of a Forward Observer (FO) and a Forward Air Controller (FAC). FENNEK JFST represents a unique solution with respect to performance, long-range BAA, and the voice/data communication link to both the Air Force and the Navy. A laser designator allows FENNEK JFST to mark targets and helps Air Force laser-guided ammunition find their targets.



Sensors

IR thermal imaging, CCD camera, remote laser range finder, laser designator.



Mobility

Outstanding mobility on even the roughest of terrain; extremely long range; can operate autonomously for five days without being detected.



Protection

Self protected via armor and ABC elements, as well as by a remote controlled weapon station; 40 mm grenade machine gun and an MG 50 (or 7.62 caliber).

Technical data

Length	> 5.58 m
Width	2.55 m
Height	1.79 m
Combat weight	11 t
Engine performance	177 kW
Protection	Anti-mine protection. Heavy MG and anti-artillery armor on entire surface of the vehicle



DINGO 2 BÜR

Ground radar version

The DINGO 2 BÜR combines our outstanding vehicle expertise with radar technology to form a state of the art reconnaissance system wherein the extremely well armored DINGO 2 vehicle serves as a carrier platform for a new type of ground radar that reliably detects movement on and above the ground and is specially designed to detect asymmetric threats.

Synergy brings success

The DINGO 2 ground radar system delivers outstanding performance thanks to its numerous transmitter and receiver modules, which are made of special high frequency materials. The BÜR is based on latest generation AESA (Active Electronically Scanning Array) technology, which provides heretofore unattainable detection and monitoring capabilities. The system's non-delayed electronic beam scanning allows for the realization of multiple reconnaissance tasks concurrently and delivers far greater reconnaissance efficiency than radar that scans mechanically.

Like all other DINGO products, the DINGO 2 BÜR can be readily transported in a C-160 Transall, C-130 Hercules or A400M aircraft.



Sensors

Latest generation Active Electronically Scanning Array (AESA) radar technology.



Mobility

Outstanding mobility thanks to the unit's all-wheel drive for rough terrain and airportability via a C-160 Transall, C-130 Hercules or A400M aircraft.



Protection

Protected against ballistic projectiles, artillery fragments, mines, and improvised explosive devices (IEDs).



INTEGRATED SYSTEM SOLUTIONS

SMART CAMP DEFENSE

A highly efficient camp defense system

Our Smart Camp Defense® solution is a modular, upgradable, and efficient system for the protection of field camps against attacks. The version described here mainly integrates our own systems, to which other weapons and sensor systems must be added in certain cases. The core element of the Smart Camp Defense solution is our Artillery Gun Module (AGM) (or the PzH2000), which, depending on the size and specific needs of the camp concerned, can be deployed in conjunction with four to six weapon systems for comprehensive protection of the field camp and the units operating outside of it. We are also developing a highly effective air defense system for field camps that will allow for detection of mortar, rockets and the like while in flight, generation of an alarm for field camp personnel, destruction of the projectile, and neutralization of enemy forces via a counter battery. This system will be based on PzH2000 or AGM fire power together with the effect of a 155 mm explosive projectile. We are also developing a firing control solution for this system.

Modular, flexible and network

The FO/JFST version of the FENNEK vehicle can be used as a mobile reconnaissance and surveillance unit in conjunction with our BÜR ground radar solution. In addition, a COBRA (Counter Battery Radar) can be integrated into our field camp defense system so as to allow for detection of potential rocket, artillery and/or mortar attacks on the camp.

Our Puma infantry fighting vehicle or a modular Boxer troop transport vehicle can also be used for defensive operations in the field camp environs. These vehicles can be stationed in the camp, and in case of an attack assembled into a convoy under indirect firing support, thus allowing for their use as mobile field camp defense units.

Another highly beneficial feature of our Smart Camp Defense® solution is our Global Customer Support Center (GSCS), which delivers supply logistics services for all weapons systems, thus ensuring outstanding resource availability.



ARTILLERY POWER PACKAGE

An integrated artillery solution

The KMW Artillery Power Package is a homogenous and complete battalion solution based on 12 PzH2000 armored self propelled howitzers or 12 Artillery Gun Modules (AGMs), consisting of the following elements: three batteries for each two groups, with two firing systems each; one Firing Direction Center per battery; three reconnaissance vehicles or command/utility vehicles; and tactical battalion command centers. Command vehicles such as the GFF4 or DINGO 2 integrate an ACCS. In addition to these two vehicles, the DINGO 2 and FENNEK also make ideal reconnaissance, command, and control vehicles.

Complete battalion solutions for specific requirements

We provide a complete battalion solution comprising between six and 12 observation and reconnaissance FENNEK FO/JSFT vehicles, as well as a DINGO 2 BÜR ground radar vehicle. You can also include a supply vehicle in the Artillery Power Package for purposes such as ammunition resupply. The ACCS allows for trouble-free and efficient communication, transparent management and prioritization of all target related messages, as well as prompt and efficient defense against identified enemies. Additional reconnaissance equipment can be integrated in the ACCS fire control system. Another option is to integrate a Multiple Launch Rocket System (MLRS) with the Artillery Power Package with a view to substantially ramping up

battalion fire power. The Artillery Power Package comprises an efficient and comprehensive solution from a single source. We also provide worldwide logistics support for the product's weapons systems and command vehicles in the form of on-demand maintenance, repairs, and overhauling, as well as technological upgrades.



Weapons systems

Superior fire power and field camp defense via the PzH2000 and/or AGM.



Sensor system

Far reaching reconnaissance and monitoring of the battalion environment via the FO/JFST version of the FENNEK vehicle, or via the DINGO 2 with onboard BÜR ground radar.



Command systems

Modern and mobile artillery command and communication capabilities for wheeled vehicles such as the GFF4, DINGO 2 or Boxer.



Supply system

Ammunition supply and reloading vehicles.

Bataillon

2 x tactical operations center

Batterie

1 x Fire Direction Center
3 x DINGO 2 or GFF4

Batterie

1 x Fire Direction Center
3 x DINGO 2 or GFF4

Batterie

1 x Fire Direction Center
3 x DINGO 2 or GFF4

1 x FENNEK
FORWARD OBSERVER

1 x FENNEK
FORWARD OBSERVER

1 x FENNEK
FORWARD OBSERVER

1 x FENNEK
FORWARD OBSERVER

1 x FENNEK
FORWARD OBSERVER

1 x FENNEK
FORWARD OBSERVER

2 x PzH2000
or 2 x AGM

2 x PzH2000
or 2 x AGM

2 x PzH2000
or 2 x AGM

2 x PzH2000
or 2 x AGM

2 x PzH2000
or 2 x AGM

2 x PzH2000
or 2 x AGM

INTEGRATED SYSTEM SOLUTIONS

GCSC

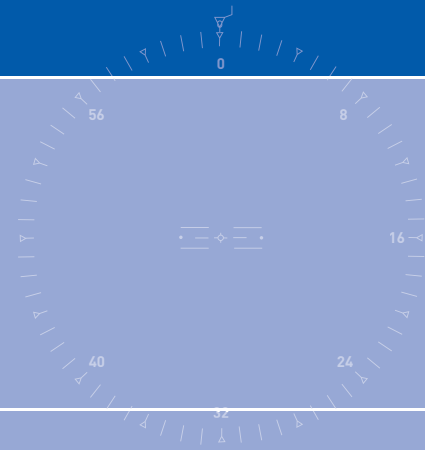
Global Customer Support Center

Our Global Customer Support Center (GCSC) provides integrated after sales service and support for your entire vehicle fleet and supply chain, including logistics, replacement parts, inspections, maintenance, repairs, upgrades, device integration and weapon system upgrades and modifications. The GCSC also offers various training systems and training courses.

Integrated service management

Our team of highly qualified specialists provides after sales service on a 24/7 year round basis, in accordance with your specific requirements. Extended warranties are also available. The GCSC ensures fleet availability and readiness, and helps you substantially reduce your upkeep costs and achieve highly efficient budgetary control over the entire product life cycle. Via the GCSC, we can also realize all of your stock and supply management processes, which means that spare parts will always be available when and where you need them worldwide.

We currently provide support for more than 6000 vehicles and weapon systems in over 20 countries around the world, including for ISAF missions in Afghanistan, KFOR in Kosovo and UNIFIL missions in Lebanon.



Global presence

Extensive Customer Relationship Management (CRM) and customer service, including for crisis and military deployment regions.



Fleet and spare parts management

Guaranteed mission readiness and fleet maintenance based on customer specific service agreements.



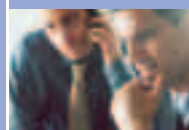
Inspection, maintenance repairs and upgrades

We maintain and optimize your battle readiness, via measures such as upgrades modifications, and device integration.



Training and simulations

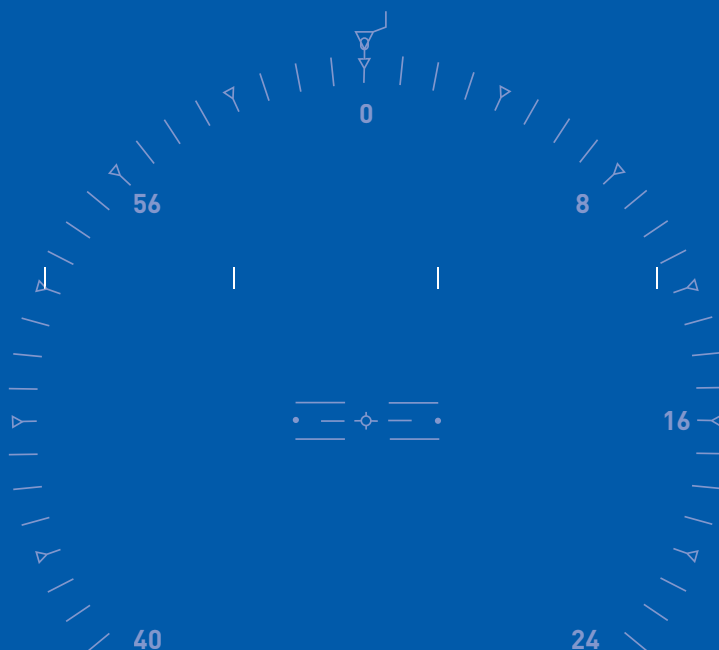
We offer intensive training courses for your maintenance teams and crews, tailored to your exact needs, as well as modern simulation systems and centers.



Helpdesk

24/7 year round telemaintenance services.







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