PzH 2000

Combat Proven Artillery Superiority

KNDS

/ Modern, reliable, precise

Fire support for modern armies

The PzH 2000 tracked, armored, self-propelled howitzer (SPH) is a key element in combined arms warfare, operating on a highly technological battlefield along with main battle tanks and infantry fighting vehicles. The KNDS self-propelled howitzer is an adaptable weapon system for deployment in both conventional operations and in asymmetric combat for use as indirect fire support.
PzH 2000 has been operating efficiently for more than 25 years, including being deployed by the Royal Netherlands Army and German Bundeswehr in Afghanistan and by the Ukrainian Army in Ukraine. The system has also proven its leading status during the international Operation MEDUSA and other combat assignments as it provided reliable support for the ISAF troops needing precise indirect fire. Furthermore showed outstanding accuracy and unrivaled resistance to enemy fire within the russian-ukrainian war. Therefore, the PzH 2000 is regarded as the absolute benchmark of modern tube artillery. Currently, around 400 systems have been manufactured and delivered by KNDS.

The PzH 2000 used by the Royal Netherlands Army operating in Afghanistan – fulfilling its mission precisely, even while operating in difficult environmental conditions.

Superior range, reliability, mobility and protection is characteristic for the PzH 2000.

The PzH 2000 delivers highest fire power under full protection for the crew and the weapon system.

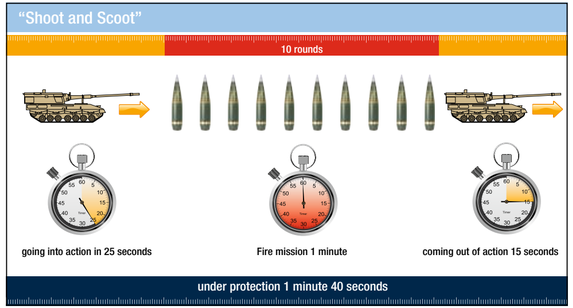
The PzH 2000 satisfies all international requirements for a modern tube artillery system. It can be regarded as a top-of-the-line product of the German defense industry.

The PzH 2000 prevailed in the most difficult environmental conditions. It has proven itself in use in varied environments from the hot and dusty Yuma desert to the icy Finnish winter.

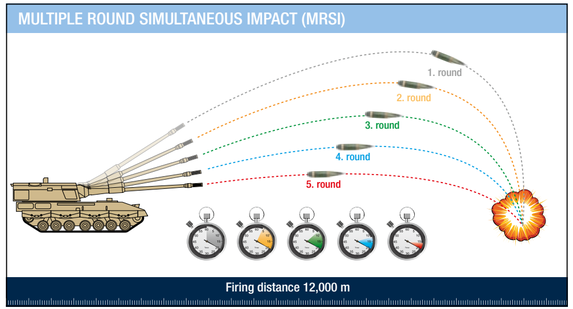
Since September 2006, the PzH 2000 has been used in combat operations. Both the Royal Netherlands Army as well as the German Bundeswehr deployed the PzH 2000 in Afghanistan for reinforcing and supporting their troops. The PzH 2000 is currently being used by the Ukrainian army to defend the Ukraine.

Through its superior range, high automation and its large onboard ammunition reserve, precise and reliable fire support is immediately available 24 hours a day, 7 days a week.

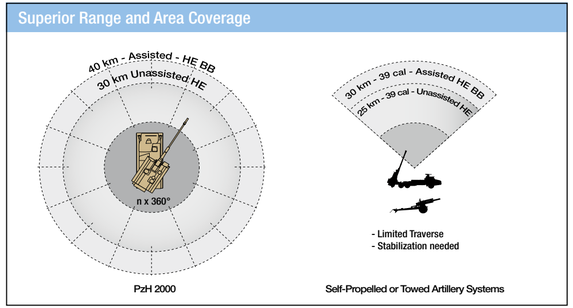
/ Artillery Superiority



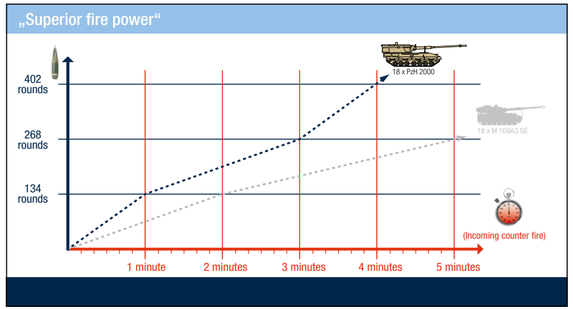
Fire and movement
The PzH 2000 has the ability to perform its firing mission and change position immediately afterwards due to the combination of an effective automated loading and firing process, completely autonomous navigation and fire control systems, and the capability to be ready for action within 25 seconds. The resulting "Shoot and Scoot" performance (move – firing position – 2-3 fire missions – move) increases the system's availability, hinders enemy air reconnaissance and enables avoiding counter-battery fire.



Optimal first-round effect
The PzH 2000 can fire up to five projectiles at different elevations that impact on target at the same time. This enables an extremely high-fire concentration on target area within a very short time during the first fire action, thus denying the enemy the possibility to improve its protection or change position.



Accuracy in any direction
The superior range of the 155 mm/52 cal. ordnance, combined with its stable platform, enable the PzH 2000 to fire in an automatic mode over 360° without limitations. This ensures a noticeably larger fire coverage with the standard HE ammunition than is possible with 39 cal. ordnance. The extended range ammunition further expands this capability, the effect being multiplied by maintaining the same accuracy, firing rate and reliability. The howitzer is able to engage many targets in different directions in a short time without time-consuming maneuvers. This is particularly important when few weapon systems are available and targets are scattered over a large surface.



Efficient fire support
The PzH 2000 is capable of delivering unlimited fire power at both upper and low firing angles. The high firing rate and the direct and automatic access to the entire projectile magazine have an immediate influence on the efficiency of the ordnance in terms of fire power.

They enable:
- carrying out the firing action within a short time
- engaging several targets in the available time
- obtaining a high fire concentration on the target from the very beginning of engagement
- preventing the target from improving its protection
- mobile and moving targets can be engaged with a high firing density before they can avoid detection

/ Key components

Ordnance
The 155 mm/52 cal. internally chrome-plated and laser-hardened barrel of the PzH 2000 is a state-of-the-art design that respects the Joint Ballistic Memorandum Understanding and enables firing the entire range of NATO-standard ammunition.

Protection
Both the chassis and the turret are made of armored steel. The steel body, the internal anti-spall liner and the additional add-on passive roof armor enable a protection level previously unknown in artillery systems, which showed an outstanding performance in the Ukrainian war.

Charges
The propelling charges are stored in the turret, which can accommodate both conventional bags as well as modular charges. A tight door separates the magazine from the firing compartment.

Mobility
The small barrel overhang and the 735 kw (1,000 hp) engine enable a superb tactical and operational mobility. This makes the PzH 2000 an ideal companion vehicle to MBTs and IFVs within the framework of mechanised operations.

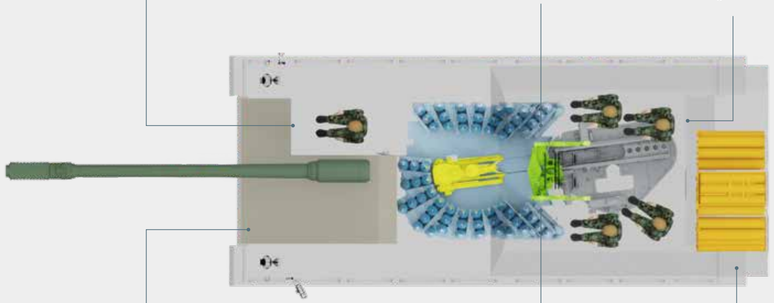
Projectile magazine
The combat significance of the system is further enhanced through the large projectile magazine accommodating 60 projectiles. The projectiles need to be handled manually only when replenishing the magazine. Afterwards the round is ready for fire without any risk of accidents or improper handling.

Projectile transfer arm with pneumatically-driven flick rammer
Thanks to the electric motor and pneumatic rammer, the working load of the crew is drastically reduced. Furthermore, there are no hydraulic systems within the fighting compartment. This translates into higher reliability, simplified procedures and improved safety for the crew.

Driver
Modern controls enable the driver to precisely bring the vehicle to the assigned firing position by day and night while remaining under armor protection.

Gunner and loaders
The working positions of the gunner and the two loaders in the turret basket rotate with the weapon in order to reduce the risk of accident. Additional security measures optimize operating security and ensure that no crew member is behind the recoiling weapon during the firing action.

Commander
The commander has a fire control system available with integrated ballistic kernel, v0-management, navigation device and communications to receive target coordinates and instructions regarding the type and number of rounds to be fired. In this way, the PzH 2000 can also be employed as a single firing unit.



Air cooling and heating and fire suppression system
A cooling/heating control system regulates the temperature in the firing compartment and in the propelling charges magazine, enabling employment even under adverse climate conditions. The engine and firing compartment are further fitted with a fire suppression system.

Fully automatic projectile handling
Manual handling of the projectile is not required, significantly increasing the firing rate and the capability for sustained fire action. The fully-automatic projectile handling system has no restriction in either azimuth or elevation.

Propelling charges magazine
The propelling charge magazine contains 288 modular charges, or the equivalent in bag charges. The magazine is fitted with an integrated cooling system in order to increase accuracy.

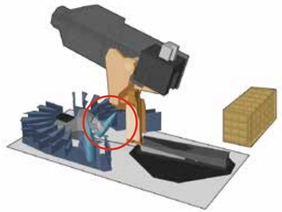
/ Rapid and efficient

Always ready to fire

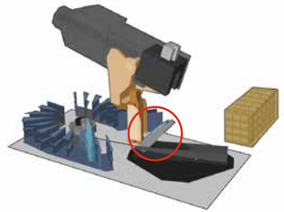
The key element of the PzH 2000 is its electrically-powered, digitally-controlled, fully- automatic projectile loading system with a pneumatically driven flick-rammer. The system rams the projectiles into the barrel with elevation-angle dependent ramming pressure, ensuring control over the entire gun firing range. The only required manual function is the loading of the charges.

This approach provides a guaranteed high firing rate and a better endurance for the loaders, who benefit from the reduced physical workload. Furthermore, it is possible to select various types of projectiles from the entire magazine (60 projectiles) during a fire mission. In addition to the fully-automatic modes of operation, degrade modes all the way to manual operation are possible so that high rate of fire and reaction capability can be maintained.

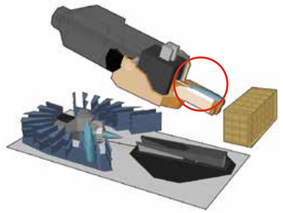
1. From the magazin the projectile feed mechanism extracts the projectile that is selected by the firing control system and hands it over to the projectile feeder rail with integrated fuze setting device.



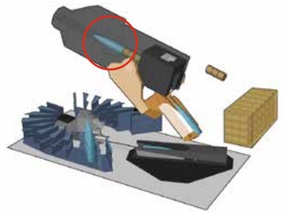
2. While the projectile feeder rail drives to the appropriate turret position, the projectile fuze is set by a fuze setter. The projectile is then lifted through an opening in the floor of the fighting compartment to the flick rammer in the projectile transfer arm, while the latter is in a vertical position.



3. The projectile transfer arm with the pneumatic flick rammer carrying the projectiles aligns itself with the position of the ordnance and pushes the projectile forward so that at any elevation it will pass through the firing chamber to reliably chamber itself.



4. After the manual loading of the charge and breech closure the ordnance is ready for fire.



3 rounds
in 10 seconds
Burst fire

10 rounds
in 1 minutes

20 rounds
in 3 minutes

30 rounds
in 5 minutes

40 rounds
in 7 minutes

50 rounds
in 9 minutes

60 rounds
in 10 minutes

The automatic projectile flow handles the entire projectile load of more than 2.5 metric tonnes and enables a safe and quick implementation of the firing mission over a long time period by a constant firing rate.

/ Ergonomic and protection for the crew

Combat proven for modern armies

The PzH 2000 has been conceived in line with the most demanding requirements for efficient and safe deployment. The safety and combat capability of the crew are emphasised as the decisive element. The armor is undisputedly top class compared to other modern systems – so the crew remains unharmed even in the event of drone attacks.

Modern technology, the well-considered ergonomy and the automatic ammunition flow optimize the loading and firing sequence and thus minimize the risks to the crew.

In action by day or night and under extreme environmental conditions, the security of the crew is always guaranteed as is the completion of the mission.

Endurance, protection and ergonomy

- The high level of automation results in safe operation and reduced workload during fire action and ammunition resupply
- Automatic projectile loading with no manual handling
- The crew rotates with the turret. The seats are accommodated within a safety cage
- Charges are stored in a protected compartment separated from crew space
- All electric drives – no hydraulics in the crew compartment
- Crew protection against direct fire, bomblets and fragments
- Integrated NBC protection system
- Integrated cooling / heating and fire protection system
- Able to operate with a crew of three

/ Force multiplier

The combination of all elements

A large magazine and rapid reloading, stable weapon platform, high accuracy, automated ammunition flow and the resulting high firing rate, excellent mobility, autonomous navigation and fire control turn the PzH 2000 into a true force multiplier. Units supported by the PzH 2000 with indirect fire are able to perform their assigned missions more efficiently, being able to rely on a powerful asset.

Thanks to its capability to engage targets over 360°, the PzH 2000 can deliver accurate fire with no delay to support units engaged in operation at large distances from each other and in opposite directions.

Rapid in firing position – in close-in or dispersed firing positions the howitzers deliver their effect on targets.

Force multiplier for modern armies

- Combat load of 60 projectiles with fuze ready to fire
- Automatic ammunition flow with high firing rate
- Suitability for use as a single firing unit (autonomous navigation and firing control)
- MRSI – Multiple Rounds Simultaneous Impact (up to 5 rounds impact in less than 2 seconds)
- Long range and area coverage
- Capability to fire over 360°
- Rapid and precise target change
- Excellent endurance and reliability
- Can be operated by two soldiers in a static position
- Replaces up to four conventional artillery systems such as the M109

/ Rapid in action – rapid preparation into action

Accuracy and effectiveness in combat

Thanks to its suitability for air transport in aircraft such as the C-17 Globemaster III and the An-124, the PzH 2000 can be rapidly deployed throughout the world and be set up for action shortly after arrival.

On a conventional battlefield the howitzer remains in a concealed position in order to avoid enemy reconnaissance until receiving its firing orders. As soon as firing orders are received the PzH 2000 is moved to a firing position and is able to begin its firing sequence within 25 seconds. And only 15 seconds after completing the firing action the vehicle can be on the move again, thus avoiding any enemy counter-battery fire. Reaction capability can be maintained.

Mobility and capability for action

- Rapid engagement of targets on the move
- Rapid target change (180° in less than 30 seconds)
- Conceived for mechanised operations to provide high mobility, even on difficult terrain
- Rapid reloading (60 rounds in less than 12 minutes) without the need for a dedicated resupply vehicle
- High endurance and consistent high firing rate
- Fully-automatic projectile handling
- Certified for air transport in the C-17 Globemaster III and the An-124

The PzH 2000 is compatible for air transport in the C-17 Globemaster III

/ A precise all-rounder

Efficient and well-proven

The PzH 2000 has been in service for more than 25 years with nine nations, and was deployed by the Royal Netherlands Army and German Bundeswehr in Afghanistan and by the Ukrainian Army in Ukraine. The system has acquired an impressive international reputation due to the reliable support it provided ISAF troops through accurate indirect fire, as displayed during several operations.

Combat proven and trustworthy

- Proven and reliable for more than 25 years
- Around 400 PzH 2000 systems in service in seven NATO and two non-NATO nations
- Several 100,000 rounds successfully fired
- System-tailored according to the requirements and desires of the customer
- On-site maintenance
- Professional technical support and maintenance/repair by KNDS within customer countries since 1996
- Possibility for co-production and integration of nation-specific components

Accurate on-target fire support for the ISAF troop.

Along with Allied Forces, the PzH 2000 fulfills its mission.

/ NATO forces deploying the PzH 2000

A synonym for international success

The German Army is not the only army having learned to appreciate the excellent performance of the PzH 2000 – Croatia, Greece, Hungary, Italy, The Netherlands, Lithuania, Ukraine and also Qatar have acquired the PzH 2000 as their future artillery system. Today, around 400 systems are successfully in service with NATO and other countries.

- Interface of the KNDS fire control system with the national C2I-system
- JBMoU for 52-caliber tube artillery
- Integration of the NATO Armaments Ballistic Kernels
- Integration of modern ammunition, such as SMArt
- Outstanding MRSI capability
- “People First” system design

- Interface of the KNDS fire control system with Qatar ACCS C2I-system
- JBMoU for 52-caliber tube artillery
- Integration of the NATO Armaments Ballistic Kernels
- Outstanding MRSI capability
- Engagement of maritime targets
- Single system deployed as a firing unit

- Interface of the KNDS fire control system to the Greek ACCS C2I-system (KNDS development)
- Engagement of maritime targets
- Single system deployed as a firing unit

- Co-production in Italy with Oto-Melara and IVECO
- Interface of the KNDS fire control system with the Italian C2I-system

- Interface of the KNDS fire control system with the Dutch AFSIS C2I-system
- Combat proven in Afghanistan

/ For driver, crew and maintenance personnel

On-site and efficient training

Crew training includes, among others, the implementation of firing missions in automatic and degraded modes, the reloading of the magazine and efficient problem-solving procedures. Several different simulators and driver trainers are available. Maintenance personnel can use their simulation computers to learn and perfect their handling of malfunction messages and system failures.

Synergic effects

- Cost-efficient on-the-job crew training
- Realistic train-as-you-fight concept
- Significant cost reductions in terms of ammunition, servicing and maintenance
- No tube wear and tear
- Several different levels of upgrades for simulators are available, from turret trainer up to retrofit for operational howitzers (the short barrel trainer can be installed in about six hours)

The specially developed training modules with appropriate training software enables a realistic implementation of the complete artillery training process, ranging from initial training to gun drill exercises up to networking several PzH 2000s.

Thorough training is the precondition for successful operations.

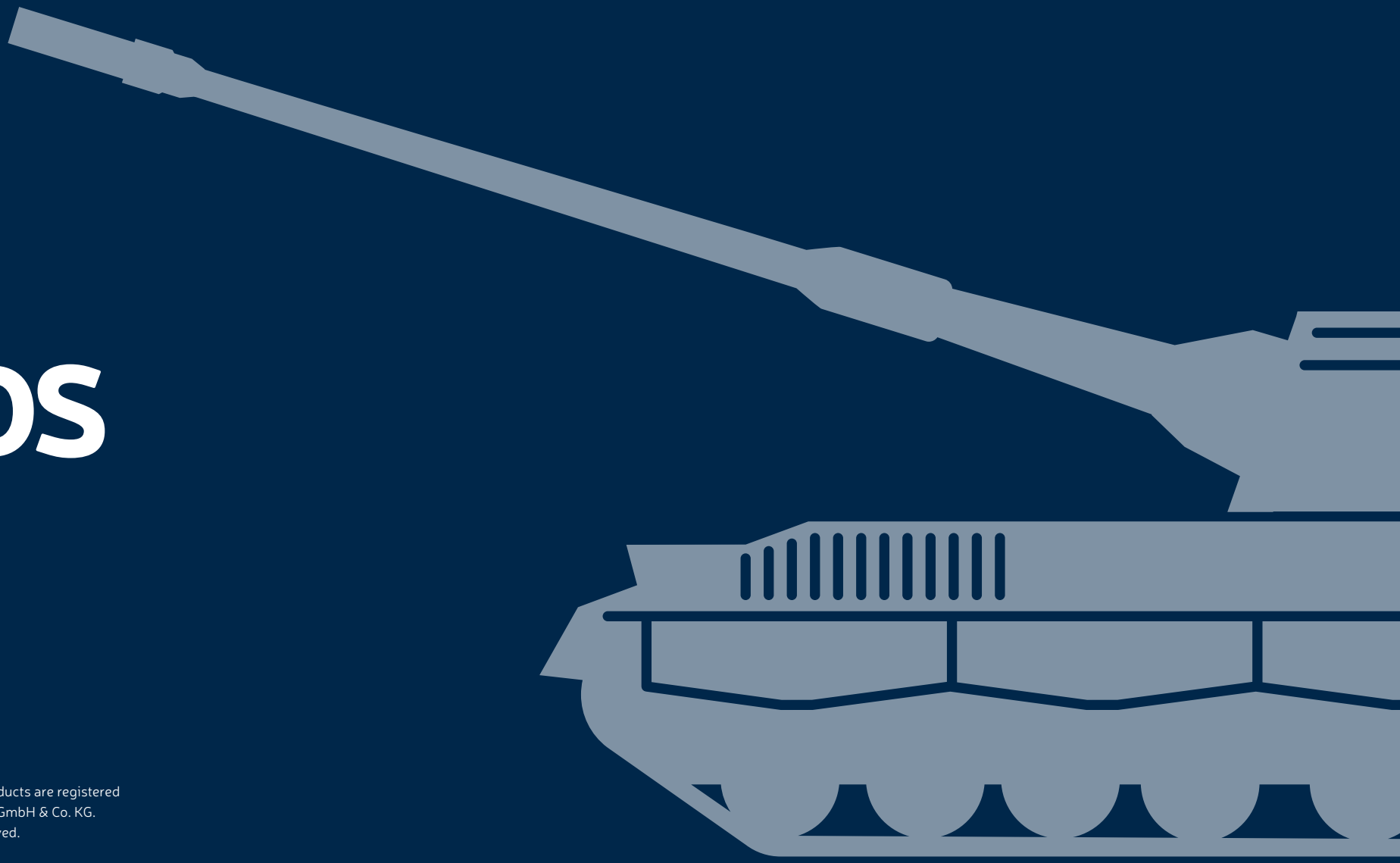
/ An investment for the future

Effective protection in changing times

Cost efficiency and the increasing sophistication of conflict solution approaches are the driving trends of our times. It is easy to integrate further developments of ammunition and protection in this future-ready PzH 2000 system from KNDS. Even today, the system is already the artillery system prepared for tomorrow.

Flexibility and growth potential

- Capable of autonomous operations as a single gun for extended periods
- Capable of firing all NATO projectiles and charges
- Integration of future ammunition
- Effective in providing fire support to convoys and mobile operations
- Comprehensive on-site, in-service support
- Optimized counter-battery capability available
- Upgrade potential for fully-automatic loading, integration of new ammunition and fuze, interface with command and control system
- Improvements of survivability and self-defence capability



KNDS

KNDS Deutschland
GmbH & Co. KG

Krauss-Maffei-Str. 11
80997 Munich, Germany
Fon: +49/89/8140 50
Fax: +49/89/8140 4900
Mail: info@knds.de
Web: www.knds.com

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