

**RESPONSIVE WITH
PROVEN DEFENSE SOLUTIONS**

At **Hanwha**,
we embrace innovations and pursue
opportunities to build a better future.

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Milestones

Since our founding in 1952, Hanwha has grown into a Fortune Global 500 company. We have led the industry and demonstrated world-class capabilities in each of our businesses.

1952-1963

FOUNDATION

After the Korean war, Hanwha played a critical role in reconstructing our devastated country. In 1952, Hanwha Corporation (formerly Korea Explosives Co.) was established to help the construction of the nation's new infrastructure by producing industrial explosives.

1964-1980

BUSINESS EXPANSION

As the nation's economy grew, Hanwha began expanding business with aggressive strategic investments in key industries including petrochemicals and materials (now Hanwha Solutions), machinery, energy and finance.

1981-1995

THE SECOND FOUNDATION

Hanwha continued to diversify its business portfolio through a number of strategic acquisitions. We established a solid foundation for the company's chemicals, finance and services & leisure (Hanwha Solutions and Hanwha Hotels & Resorts).

1996~2006

BUILDING MOMENTUM

When the 1997 Asian financial crisis affected South Korea severely, Hanwha overcame these challenges through radical innovation and company restructuring. We sought new opportunities in the crisis and emerged as the 2nd largest insurance carrier (Hanwha Life) in South Korea.

2007-2014

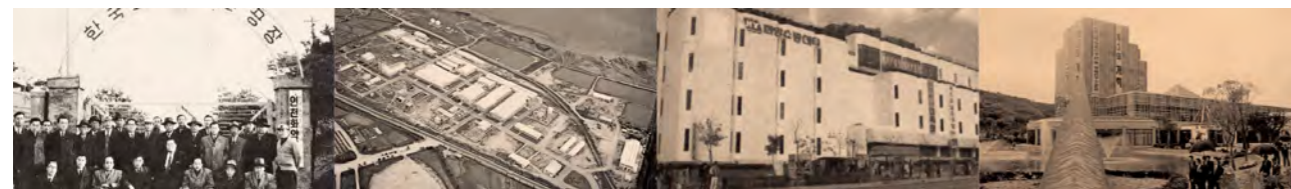
ACCELERATING GLOBAL BUSINESS

As the 21st century began, Hanwha accelerated global expansion by diversifying businesses such as solar energy (Hanwha Solutions) and building a robust network of overseas operations. We secured South Korea's top position in the chemical, aerospace (Hanwha Aerospace) and defense sectors (Hanwha Corporation, Hanwha Defense and Hanwha Systems), with the largest acquisitions and mergers in the country.

2015-Present

DISCOVERING NEW GROWTH ENGINES

Hanwha is enhancing its global leadership position across eco-friendly energy, space and finance industries. Using our proven leadership in solar energy, we are expanding our investment in hydrogen. We launched the Hanwha Space Hub to pioneer the space industry while entering the urban-air-mobility (UAM) market. In addition, we are actively seeking opportunities in growing sectors such as Fintech.



1952 Korea Explosives Co. (now Hanwha Corp.) is founded

1965 Korea Hwasung Industrial (now Hanwha Solutions) is founded

1976 Sungdo Securities (now Hanwha Investment & Securities) is acquired

1986 Hanyang Stores (now Hanwha Solutions) is acquired

1994 Hanwha R&D Center is built



2002 Hanwha acquires Korea Life Insurance (now Hanwha Life)

2012 Hanwha acquires Germany-based Q.CELLS and Hanwha Q CELLS (now Hanwha Solutions) is launched

2015 Hanwha Impact, Hanwha Techwin and more companies are launched

2020 Hanwha Solutions is formed through the merger of three Hanwha affiliates.

Today

Our business expertise and synergies in manufacturing & construction, finance, and services & leisure, have made us the 7th largest business enterprise in South Korea. Our focus, well-executed strategies, and our aggressive investments have helped us to successfully overcome the toughest challenges in key industries in chemical, aerospace & mechatronics, solar energy, and finance. We're now building the foundation for sustainable development and a brighter future for all.

\$60.7^B

TOTAL SALES
(AS OF 2021(E))

Top 7

BUSINESS ENTERPRISE IN
SOUTH KOREA
(TOTAL ASSET BASIS
AS OF END OF 2020)

469

GLOBAL NETWORKS
(AS OF END OF 2020)

80

DOMESTIC AFFILIATES
(AS OF END OF 2020)

70

YEARS OF HISTORY
(FOUNDED IN 1952)

Business Area

Each of our businesses in manufacturing & construction, finance, and services & leisure seek global leadership. Our affiliates compete successfully in their respective markets. By quickly anticipating and responding to changing market environments, we have led the industry and demonstrated world-class capabilities in each of our businesses.



DEFENSE

As the nation's leading defense company, **Hanwha** is enhancing global competitiveness through active engagement in the global markets based on innovation and integrated capabilities in defense industry.



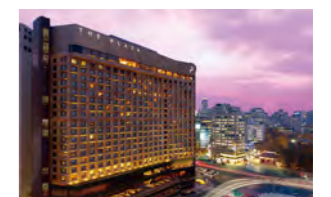
MANUFACTURING &
CONSTRUCTION

Hanwha is at the forefront of the global manufacturing and construction business engaged in aerospace, mechatronics, civil engineering, power plants and petrochemical industry.



FINANCE

Hanwha offers a complete financial service platform with insurance, securities, asset management, and banking products to create value for individual and institutional customers.



SERVICES & LEISURE

From first-class shopping experiences to luxury hotels and resorts, **Hanwha** is dedicated to helping customers enjoy richer and more fulfilling lives.

Responsive with Proven Defense Solutions

Hanwha's Defense Business has contributed significantly to improving South Korea's military defense capabilities for more than 45 years since 1974. We have successfully developed and produced various types of weapon systems in the area of PGM & Ammunition, Land Systems and Defense Electronics.

With unsparing investment and R&D efforts, Hanwha is continuously expanding its portfolio to become a sustainable and trustworthy leader in the global defense industry.

BUSINESS AREA



We provide total convergence land systems solutions including artillery, armored vehicles and air defense systems. It boasts the world's highest-level range and fire rapidity. We contribute to develop core technologies for complex weapon systems that can be tailored to meet customer's requests through strong mobility, high lethality and modular designs.

- Artillery System
- Armored Vehicle
- Air Defense System
- Unmanned System



We specialize in defense electronics and system integration capabilities. This includes solutions for C4I-SR, avionics, combat management systems and EO/IR systems, the combination of which covers ground, naval and air domains.

- Naval Combat Management Solutions
- ISR Solutions
- C4I Solutions
- Avionics Solutions



We focus on core technologies for precision-strike capabilities of diverse tactical and cruise missiles. Through our own investment efforts, we continue to develop smart and intelligent ammunition as well as to improve the performance of conventional ammunition.

- Rocket
- Laser
- Navigation
- Ammunition



RESPONSIVE WITH
PROVEN DEFENSE SOLUTIONS

Hanwha Defense

Technology Leadership

Hanwha Defense is continuously innovating to incorporate our core technologies into new weapon systems that exceed customer expectations and are designed for the future battlefields. Based on our technologies and experience in performing large-scale national projects and synergies with our business partners, we are carrying out projects that are focused on future-oriented defense capabilities. This is accomplished by strengthening each specific field of work which covers from design, program management, testing, integrated logistics support, reliability, maintainability, and safety.



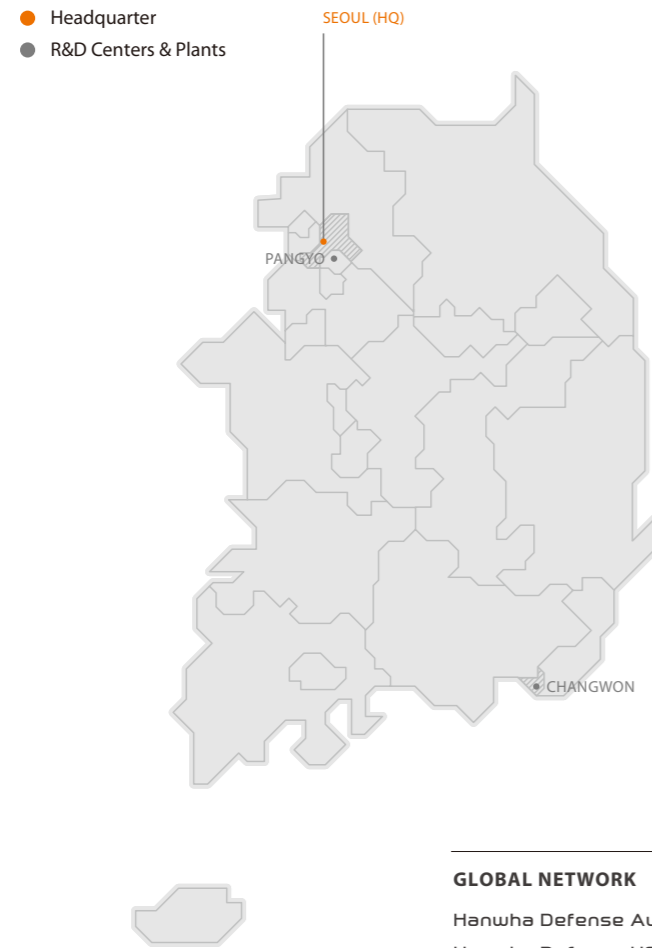
Manufacturing Excellence

Our engineering knowledge and production know-how come together along with the excellent human resources and leading-edge systems to ensure the delivery of world-class quality products. Striving to build mutual trust with our customers, our culture emphasizes that quality always comes first. As such our task is founded upon our core principle; customer's value is the top priority. Our continuous efforts to improve manufacturing efficiency and investment in facilities equipped with state-of-the-art machines further enhance product reliability and cost effectiveness.



Business Operation

Hanwha Defense operates two state-of-the-art research facilities and two plants. We are strengthening our competitiveness in technology and mass production through these facilities.



GLOBAL NETWORK

Hanwha Defense Australia
Hanwha Defense USA

Headquarter



SEOUL (HQ)

R&D Centers



PANGYO/CHANGWON

Plants



CHANGWON I



CHANGWON II

Global Presence

Hanwha Defense is providing world-class solutions that satisfy customers around the globe.



K9 THUNDER



K10



K77



KAAV



TARANTULA (6x6)



BARRACUDA (4x4)



K200A1



M-SAM

BUSINESS OVERVIEW

Hanwha Defense has been building a world-class portfolio of land systems such as the K9 Self-Propelled Howitzer, the REDBACK Next Generation Infantry Fighting Vehicle, and the BIHO Self-Propelled Gun & Missile Air Defense System. We also have secured unmanned and automated solutions thanks to our technological expertise in research and development.

- 16 Artillery System
- 22 Air Defense System
- 28 Armored Vehicle
- 42 Unmanned System

ARTILLERY SYSTEM

Hanwha Defense has developed a diversified portfolio of artillery systems to bolster national defense.



- 18 K9 THUNDER
- 20 K10 ARV
- 21 EVO-105
- 22 M-SAM
- 23 KVLS
- Sea-Star

Self-Propelled Howitzer

K9 THUNDER

The K9 THUNDER meets the requirements of 21st century warfare, based on the following targets: Deep fire support with its longer firing range; technical superiority to overcome numerical inferiority with its higher rate of fire and accuracy; and sustainable fire support in all kinds of combat environments thanks to its higher mobility and protection.



FEATURES

- Thousands of the K9 currently operated globally
- Longer firing range and compatible with NATO 155 mm standard ammunitions with 23 L combustion chamber volume conforming to JBMoU
- A burst rate of fire of 3 rounds can be achieved in less than 15 seconds, with a maximum rate of fire from 6 to 8 rounds a minute for three minutes. Sustained rate of fire is from 2 to 3 rounds a minute for one hour
- 1,000 hp diesel engine delivering a power-to-weight ratio of 21 hp and hydro-pneumatic suspension system support to its missions in diverse environments and terrains
- K9 protects the internal crew and on-board equipment against 155 mm shell fragments, 14.5 mm armor piercing shells and anti-personnel mines
- In NBC warfare situations, its sustainable mission is guaranteed by its air purification system and on-board crew gas masks
- K9 has been tested and demonstrated in the most difficult terrains around the world for performance, firing capability, mobility and logistics support
- All ILS Elements are being optimized based on the field data that have been collected and analyzed every 3 years since K9 was developed and deployed
- **Hanwha Defense** provides full system support throughout the life cycle for maintenance of K9 through proven ILS package

SPECIFICATIONS

GENERAL		FIRE POWER	
Cannon length	155 mm, 52 caliber	Vertical obstacle	0.75 m
Number of crew	4~5	Trench	2.8 m
Combat weight	47 ton	Fording	1.5 m
Dimension (LxWxH)	12x3.4x3.5 m	Cruising range	Over 360 km
Fire control	Automatic		
Ammunition loading	Automatic		
Engine	MT881Ka-500, 1,000 hp (21. hp/ton)	Range	Over 40 km
Transmission	×1100-5A3 (Automatic)	Firing rate	Burst 3 round / 15 sec Maximum 6~8 rounds/min for 3 minutes Sustain 2~3 rounds/min for 1 hour
PERFORMANCE		First round	Emplacement within 30 seconds Movement within 60 seconds
Max. speed	67 KPH	On-board ammunition	48 rounds
Ground clearance	Over 0.42 m		
Gradient	60 %		
Side slope	30 %		



Ammunition Resupply Vehicle K10 ARV

The K10 Ammunition Resupply Vehicle fulfills the requirements of the substantially increased amount of ammunition used in modern warfare to supply the K9 THUNDER so that it can meet its tactical requirements of a higher firing rate and Shoot & Scoot. It has a fully automated resupplying capability to maximize the efficiency of artillery forces, and shares the same chassis, power-pack and suspension with K9 for efficiency in logistics support and tactical movement.

FEATURES

- Fully automated Ammunition Handling & Inventory Management and rapid re-supply of ammunition
- Mobility & Survivability equal to K9 and ILS interchangeability with K9

SPECIFICATIONS

GENERAL

Weight	Empty	41.5 tons
	Combat loaded (Max.)	47.0 tons
Dimension (LxWxH)		8.5x3.4x3.7 m
Ground clearance		0.42 m
Power system	Engine	1,000 hp
	Transmission type	Automatic

AMMUNITION STORAGE CAPACITY

155mm projectile		104 rounds
Charge and fuses	Propelling charge	504 units
	Fuse	128
Primer		105
Cal. 50 ammunition		500 (5 boxes)



105 mm Wheeled Self-Propelled Howitzer EVO-105

EVO-105 delivers modernization of any towed howitzer with cost effectiveness, high performance and integrated logistic support solution. With improvement in mobility and automated gun laying capability, EVO-105 will significantly improve war fighting capability of the armed force over the conventional towed artillery system.

FEATURES

- Precision Strike by enhanced accuracy and speed with Automatic Fire Control System, Inertial Navigation Unit, and electronic/hydraulic driven automatic gun laying system.
- Shoot & Scoot by minimized maneuver and laying time
- Longer mission sustained by improved survivability
- Enhanced efficiency by operation conveniences for soldiers
- Easily Deployable: C-130 and Landing ship, train etc

SPECIFICATIONS

GENERAL

Number of crew	5
Dimension (LxWxH)	9.0x2.5x3.2 m
Road speed	More than 80 km

FIRE POWER

Range	11.3 km (M101A1), 18 km (KH178)
Rate of fire	10 rounds/min (Max.), 3 rounds/min (Continued)
Elevation/Traverse range	-5° ~ +65°, -90° ~ +90°
Gun laying system	Automatic

Medium-Range Surface to Air Missile Launcher M-SAM

The M-SAM is a vertical launcher loaded with 8 rounds of medium-range surface to air missile that can be fired in rapid and continuous succession. A single hydraulic cylinder can raise the launch canisters vertically to the desired direction and trajectory.



FEATURES

- Accurate fire targeting on aerial threats with a range of 40 km and altitude of 20 km
- Capability to operate the vehicle and launcher separately due to modular design
- Vertical cold launch system
- Remote operation via wired/wireless data link

SPECIFICATIONS

GENERAL

Combat weight		32 tons
Crew		2
Max. speed		90 KPH
Slope	Gradient / Side slope	60 % / 20 %
Obstacle	Fording	0.76 m

FIRE POWER

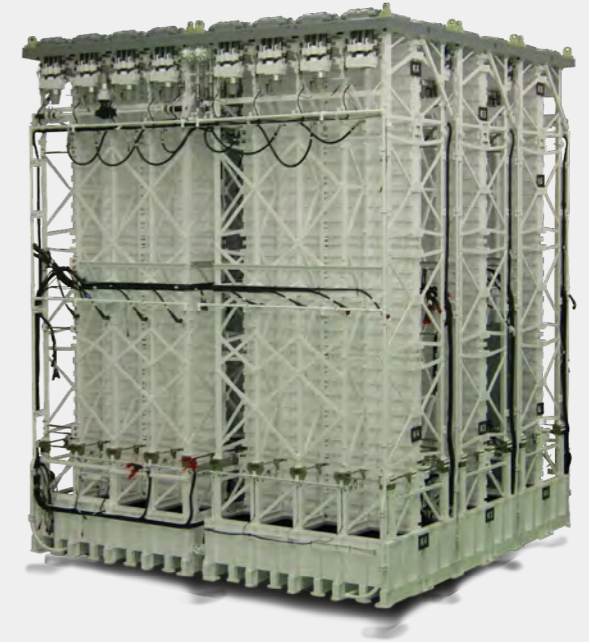
Missile	Max. range	40 km
	Max. altitude	20 km

LAUNCHER

Firing mode	Cold launch
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Korean Vertical Launcher System KVLS

The KVLS can launch multiple guided missiles (anti-submarine and anti-air) vertically from the naval ship on which it is mounted. The system serves as the standard in vertical launch systems for warships used by the Korean Navy.



Ship-to-Ship Missile Launcher Sea-Star

The slanted launcher mounted on the deck of a naval ship fires anti-vessel missiles capable of precisely striking enemy ships that are within the target range of 150 km.



AIR DEFENSE SYSTEM

Hanwha Defense's high-end technology, developed through hands-on experiences, plays a pivotal role in the Republic of Korea's advanced air defense systems.

- 26 BIHO
- 28 BIHO II
- 29 AAGW
- CHUNMA



Self-Propelled Gun & Missile Air Defense System BIHO



The BIHO consists of mounted missiles that provide combat capabilities against enemy aircrafts. The 30 mm twin guns combined with portable surface to air missiles offer maximum fire power and the capability to defend against low-altitude attack.

FEATURES

- Hundreds of the BIHO delivered, fielded and operated by Republic of Korea Army
- Real-time firing control, precise tracking and driving with advanced FCS provides excellent hit/kill probability
- Detection radar and electronic & optical tracking system for auto-targeting and tracking
- Tracking, targeting and firing time of only 6~13 seconds
- Equipped with one 30 mm air defense gun that fires 1,200 rounds per minute and the SINGUNG anti-aircraft missile with infrared tracking. Combined, they deliver high hit/kill probability and strong destroying power
- Built-in test function for self-test and failure detection

SPECIFICATIONS

GENERAL

Combat weight	26.5 tons	
Crew	4	
Power system	Engine	520 hp
	Transmission	Automatic
Max. speed	60 KPH	

FIRE POWER

Gun	Caliber	30 mm (twin)
	Rate of fire	1,200 rounds/min
	Effective range	3 km
Missile	Ready to fire	4 missiles
	Effective range	6 km

SURVEILLANCE OF TRACKING SYSTEM

Detection radar	Type	Pulse doppler
	Frequency	X-band
	Detection range	21 km
EOTS	Sensor	TV-visible ray Thermal image - infrared ray
	Tracking range	7 km
Distance measurement	Laser Range Finder (LRF)	

Next Generation Air Defense System

BIHO II

The BIHO II is an advanced short range air defense solutions for the defense of maneuvering forces and vital assets to neutralize air threats ranging from UAV to cruise missiles.

The BIHO II is a stand-alone operation system equipped with 3D AESA radar, EOTS, gun and missiles that cover a short effective range of 6 km and medium effective range of 15 km.



FEATURES

- Modular & flexible design
- From short range to medium range air defense coverage
- Multiple sensors for range and accuracy
- Stand-alone combat operation or inter-network operation
- Wide coverage up to 25 km & gun firing capability on the move
- Enhanced detection capability from small drone to aircraft with 3D AESA radar and EOTS

SPECIFICATIONS

GENERAL

Total weight	30 tons
Crew	3
Max. speed	100 KPH
Operational range	800 km

WEAPON SYSTEM

Gun	Caliber	30 / 40 mm	
	Rate of fire	600 / 200 rounds/min	
	Ammunition	AP / HE / ABM	
	Effective range	3 km	
Missile	Quantity	Max 8	
	Effective range	SAM	6 km / more than 10 km
		ATGM	3 km

SURVEILLANCE & TRACKING SYSTEM

Radar	Rotating radar	
	Type	AESA
	Frequency	X-band
	Detection range	35 km (RCS 2 m ²)
	Multi target tracking	40
FOV	Az : 360° (1 Hz)	
	El : -5° ~ 55°	
EOTS	TV	Thermal
	FOV	Az : 360° El : -10° ~ 75°
Auto-searching function	O	
Tracking range	3 km (UAV) / 7 km (Fighter)	
Laser pulse rate	15 Hz	

Anti-Aircraft Gun Wheeled Vehicle System

AAGW



The AAGW is a low-altitude, anti-aircraft gun system that boasts 30 mm twin air defense guns capable of efficiently defending escalated operation areas. It can effectively replace outdated air defense guns (e.g., the Vulcan and the Oerlikon 35 mm Cannon), respond to new threats including UAV and small drones, while supporting troops on the move.

FEATURES

- Interoperable with air defense Command, Control and Alert (C2A), Local Air Defense radar, and anti-aircraft fire control system at airbases
- Wheeled-type vehicle enables close-proximity field support for moving troops

SPECIFICATIONS

GENERAL

Combat weight	26.5 tons
Crew	4
Power system	Engine 420 hp
Max. speed	90 KPH

FIRE POWER

Gun	Caliber	30 mm (twin)
	Rate of fire	1,200 rounds/min
	Effective range	3 km

TRACKING SYSTEM

EOTS	Sensor	TV-visible ray
		Thermal image - infrared ray
	Tracking range	7 km

Surface to Air Missile System

CHUNMA



The CHUNMA is the short-range surface-to-air missile system. With its ability to target and destroy low-altitude aircrafts amid mountainous terrain, the CHUNMA represents a dramatic advancement of the Korean military's anti-aircraft defense system.

FEATURES

- Guidance system equipped with a visual field guidance mode (CLOS) and an infrared angle instrument
- Advanced detection, tracking and Day Light TV (DLTV)

SPECIFICATIONS

GENERAL

Combat weight	26.5 tons
Crew	4
Power system	Engine 520 hp
	Transmission Automatic

FIRE POWER

Missile	Max. speed	More than Mach 2.6
	Effective range of fire	9 km

SURVEILLANCE AND TRACKING SYSTEM

Detection rader	Frequency	S Band
	Detection range	20 km
Electro-Optical Tracking System (EOTS)	Frequency	16 km
	Tracking range	KU Band

ARMORED VEHICLE

Hanwha Defense has a wide range of armored vehicles each designed to be extremely mobile and flexible in response to the future battlefield environment.

- 32 REDBACK
- 34 K21
- 35 K21-105
KAAV
- 36 K200 Series
- 37 NBCRV
120 mm Self-Propelled Mortar Carrier
- 38 TIGON
- 39 BARRACUDA
- 40 KMRAP



Next Generation Infantry Fighting Vehicle

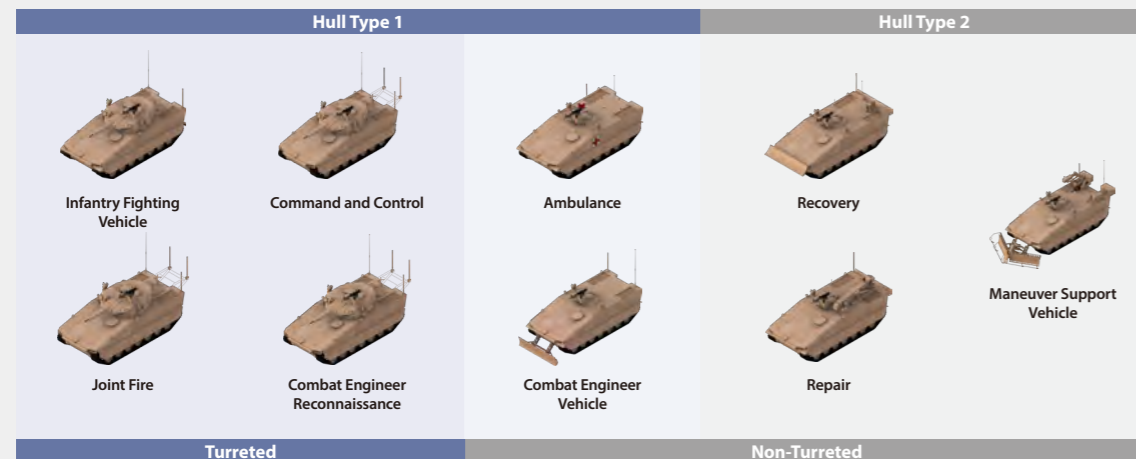
REDBACK

REDBACK, the next generation infantry fighting vehicle, shall meet customers' requirements by offering enhanced firepower, protection, and mobility.



FEATURES

- Superior fire power
- Best-protected IFV in its class
- Powerful 1,000 hp engine
- High maneuverability while incurring low crew fatigue
- Superior situational awareness



SPECIFICATIONS

GENERAL		FIRE POWER	
Combat weight	43 tons	Main armament	30 mm cannon
Crew	3	Aux. armament	7.62 mm MG
Dismounts	6-8	RWS	12.7 mm
Engine	1,000 hp	ATGM	Integrated
Suspension	In-arm-hydro-pneumatic	Active protection system	Integrated
PERFORMANCE			
Max. speed	70 KPH		
Cruising range	560 km		
Trench	3 m		
Gradient	60 %		
Side slope	30 %		

Infantry Fighting Vehicle K21

The K21 Infantry Fighting Vehicle (IFV) is a world-class infantry combat vehicle equipped with a high level of firepower, survivability, and maneuverability.

The K21 is capable of performing rapid, three-dimensional movements in the digitalized battle environments of the future.



FEATURES

- Hundreds of the K21 delivered, fielded and operated by Republic of Korea Army
- Armed with powerful fire power of main 40 mm cannon, 7.62 coaxial machine gun and anti-tank guided missiles
- Improved hit precision by making use of gyroscope/electronic optical training system (firing available during maneuver)
- Off-road driving capability equivalent to main tank by making use of power system of 750 horsepower and ISU
- Stable waterborne operation system with airbag and trim vane

SPECIFICATIONS

GENERAL

Combat weight	25.7 tons	
Crew	12 (3+9)	
Power system	Engine	750 hp
	Transmission	Automatic
Suspension	In-arm hydro-pneumatic suspension unit (ISU)	
Electrical systems	Aux. power supply	8 kw
	Generator	28V DC, 400A
	Battery	12V DC, 100Ah; 4 batteries

PERFORMANCE

	Road	70 KPH
Max. speed	Cross-country	40 KPH
	Water	6 KPH
Acceleration capability (time to 32 KPH)	8 sec. or less	
Cruising range	450 km	
Ground clearance	0.48 m	
Gradient	60 %	

FIRE POWER

Main armament	40 mm cannon
Aux. armament	7.62 mm MG
ATGM	Option
Traverse	360° (continuous)

Medium Recovery Vehicle



Medium Tank K21-105



The K21-105 Medium Tank has a 105 mm turret mounted on the proven K21 chassis. It has strong firepower and maneuverability that enable the vehicle to better perform a variety of tactical operations including amphibious capability.

FEATURES

- 105 mm main weapon firing all NATO standard ammunition
- High accuracy, fully stabilized, computerized day/night fire control system
- Advanced light design, delivering high tactical and strategic mobility

SPECIFICATIONS

GENERAL

Combat weight	25 tons	
Crew	3	
Max. speed	70 KPH	
Cruise range	450 km	
Gradient / Side slope	60 % / 30 %	
Vertical obstacle / Trench	0.8 m / 2.5 m	

FIRE POWER

Main armament	105 mm tank gun	
Aux. armament	7.62 mm coaxial machine gun	
Fire control system	Gunner's sight	Day and night
	Commander's panoramic sight	Auto target tracking

Korea Amphibious Assault Vehicle KAAV



The KAAV is an amphibious troop transport vehicle that can be utilized for assault shipping at sea to combat support on land. It has been highly valued for its versatility, maneuverability, and for increasing the survival rate of troops.

FEATURES

- Hundreds of the KAAV delivered, fielded and operated by Republic of Korea Army
- Amphibious operation for landing troops from ship to shore
- Operation in all terrain and all weather conditions (day & night, sea & river, hill & mountains)

SPECIFICATIONS

GENERAL

Crew (dismounts)	24 (3+21) persons	
Max. speed	Land	72 KPH
	Water	13 KPH
Cruising range	Land	480 KPH
	Water	7hrs
Combat weight	23 tons	
Water-jet pumps	2 propelling capacity of 52.5 tons/min	

FIRE POWER

Armament	Cal.50 MG + 40 mm AGV	
Ammunition storage	Cal.50 1,300rds	
	40 mm 360rds	

Armored Personnel Carrier K200 Series



Armored Personnel Carrier
K200A1

The K200 series has been mass produced and fielded to transport troops and logistics. With its strong power-to-weight ratio, the K200 series ensure high mobility in rough terrain while incurring very low life cycle cost.

FEATURES

- High maneuverability among equivalent classes of vehicles with a 350 hp diesel engine and automatic transmission
- Operates amphibiously without special preparation by propulsion of track
- Easy and low-cost maintenance

SPECIFICATIONS

GENERAL

Combat weight	13.5 tons
Crew	12 (3+9)
Suspension	Torsion bar

FIRE POWER

Main armament	12.7 mm machine gun
Aux. armament	7.62 mm machine gun

PERFORMANCE

Max. speed	70 KPH	
Max. water speed	6 KPH	
Acceleration (Time to reach 32 KPH)	10 sec. or less	
Cruising range	480 km	
Slope	Gradient	60 %
	Side slope	30 %
Obstacle	Vertical obstacle	0.64 m
	Trench	1.68 m

Nuclear, Biological, Chemical Reconnaissance Vehicle NBCRV



The new NBCRV performs mission was designed to increase the survivability of troops while maintaining combat capabilities. The vehicle is equipped to monitor, detect, identify and measure nuclear, biological or chemical attacks from enemy and issue an early warning.

FEATURES

- The automatic remote chemical warning system provides early warning alerts when chemical contamination is detected
- The onboard Central Data Processing System collects and analyzes data to provide critical information

SPECIFICATIONS

Nuclear, biological and chemical protection system

- CBMS (Chemical and Biological Mass Spectrometer)
- SCADS (Stand-off Chemical Agent Detector System)
- IPS (Integrated Protection System)
- DWSS (Double Wheel Sampling System)
- Contaminant indicator injector
- VDR (Vehicular Dose-rate gamma/beta Radiation meter)
- VWOS (Vehicular Weather Observation System)
- BSC (Bioaerosol Sampling Collector)
- TDV (Thermal Driver's Viewer)
- CDPS (Central Data Processing System)

120 mm Self-Propelled Mortar Carrier



The 120 mm Self-Propelled Mortar is an 120 mm rifled mortar that is mounted on the K200A1 armored tracked vehicle. It is powerful, accurate, and its automated fire control system guarantees rapid response fire that supports the troops and helps to maximize their survivability.

FEATURES

- Effective fire power of 8 rounds per minute and 12 km of maximum range
- Great fire power support through rapid response fire
- Outstanding mobility with a max. speed of 70 KPH

SPECIFICATIONS

GENERAL

Combat weight	14 tons
Crew	4 (1+3)
Max. speed	70 KPH
Cruise range	480 km

ARMAMENT

Main armament	Max. range	12 km
	Max. rate of fire	8 rounds/min
	Continuous rate of fire	3 rounds/min
Fire control system	Automatic	
Ammunition feeding type	Semi-automatic	



Command Post Vehicle
K277A1



Light Recovery Vehicle
K288A1



20 mm Vulcan Vehicle
K263A1



Smoke Generation Vehicle
K221

Armored Wheeled Vehicle

TIGON

Multi-purpose Armored Wheeled Vehicle Capable of Various Tactical Operations. With advanced technology, Hanwha has developed the TIGON Armored Wheeled Vehicle. This vehicle can mount with various weapon systems for optimal offensive capabilities. Defensively, the vehicle armor is reinforced to provide superior protection. The TIGON can also carry up to 11 crews and it comes standard with a powerful engine and auto transmission for high maneuverability.



FEATURES

- Modular design concept for wide variation of vehicle
- Adaptable for various weapon systems (manned/unmanned turrets)
- Various weapon systems applicable (manned/unmanned 90 mm turrets)
- Improved protection capability by applying add-on armor
- Outstanding maneuverability with a max. speed of 100 KPH and cruise range of 900 km
- Equipped with independent suspension to provide excellent off-road driving capability
- Optimized mission execution by waterjet system
- Ergonomic design that minimizes battlefield fatigue
- Highly efficient power package with a low noise level
- Excellent maneuverability in extreme desert conditions (High temperature/Sand dune)



8 x 8 105 mm Cannon

SPECIFICATIONS

GENERAL

Combat weight	21 tons
Crew	11(3+8)
Engine	525 hp
Suspension	Independent

PERFORMANCE

Max. speed	Road / Water (Option)	100 KPH / 8 KPH
Cruising range		1,000 km
Trench crossing		1.2 m
Turning radius		9.5 m
Tire		14.00 R20

ARMAMENT

Main armament	12.7 mm MG or RCWS
Aux. armament	7.62 mm MG

OPTIONS

Armament	Up to 90 mm cannon
Water operation	Water jet
Aux. driving system	CTIS, ABS
Survivability systems	Automatic fire suppression system, CBRN protection, tactical tire
Aux. equipment	Driver's thermal periscope, CCD camera, winch, battle management system, communication system



12.7 mm RCWS



12.7 mm MG



30 mm RCWS



90 mm Cannon



4x4 Armored Wheeled Vehicle **BARRACUDA**

The BARRACUDA 4x4 Armored Wheeled Vehicle has a capability of effectively performing various missions including; security keeping, riot control, and reconnaissance.

FEATURES

- Steel armored hull protecting against 7.62 mm armor-piercing ammunition
- Tactical run-flat tires that can maintain a speed of 25 KPH for 70 km

SPECIFICATIONS

GENERAL

Combat weight (Max.)			12.5 tons
Crew			15
Max. speed			100 KPH
Cruising range			1,000 km or more
Slope	Gradient / Side slope	60 % / 30 %	
Obstacle	Vertical obstacle / Trench	0.5 m / 1.2 m	

OPTIONS

Armament	12.7 mm machine gun or 12.7 mm RCWS		
Survivability systems	Cupola, gun shield, slat fence, smoke launcher		
Aux. systems	CCTV, public speaker, searchlight, radio, blade, winch, and beacon light		



Korea Mine Resistant Ambush Protected Vehicle **KMRAP**

Korean anti-mine vehicle guarantees safety of crew in explosions from various sources including mines and improvised explosive devices (IEDs).

FEATURES

- Underbody substructure with STANAG LV 2 protection
- Steel armored hull with STANAG LV 2 protection
- Modular design enable extension of hull

SPECIFICATIONS

GENERAL

Combat weight (Max.)			19 tons
Crew			12

PERFORMANCE

Max. speed			110 KPH
Cruising range			More than 600 kms
Slope	Gradient / Side slope	60 % / 30 %	

PROTECTION

Crew protection system	Anti-mine seat		
Tactical tire	3-piece run-flat tire		



Police



Medicine



Tactical (RCWS)



Anti-Tank

UNMANNED SYSTEM

Hanwha Defense is dedicated to R&D for the future battlefield environment. Combining our integrated system with field specific core technology, we deliver comprehensive modern combat systems to lead the fourth industrial revolution in the defense sector.



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Multi-Purpose Unmanned Ground Vehicle MPUGV

MPUGV supports infantry squad in various combat situations. Basically, MPUGV lightens the physical load and increases situational awareness for dismounted forces. It is equipped with advanced RCWS, UAV conducting communication relay, air surveillance and payload over 000 kg while maintaining full speed and operating range. Because of these features, MPUGV can provide additional fire power, situational awareness capability and resupply ammunition or other materials following designated routes.

FEATURES

- Improving operation capability of dismounted forces by decreasing physical burden of the squad
- Enhanced survivability using advanced RCWS
- Improved situational awareness through diverse communication relay
- Full speed and operating range guaranteed with payload over 000 kg
- Autonomous casualties evacuation to rear support area

SPECIFICATIONS

GENERAL	
Dimension (LxWxH)	2900x1500x1600 mm
Weight	1,800 kg
Max. payload	000 kg
Max. speed	00 km/h
Armament	5.56 mm RCWS, can be extended to 7.62 mm MG / 12.7 mm HMG / 40 mm AGL
EO/IR System	CCD (Day) / IR (Night) Camera, Laser rangefinder



Unmanned Ground Combat Vehicle UGCV

UGCV is the medium-size combat robot controlled by operating control station or portable remote control unit device. It has an autonomous system, so it can follow-up other vehicle or come back to assemble areas automatically. It uses a hybrid electronic system; thus it can drive over 500 km using engine and battery both. This robot can be operated solely in the forward edge of armored cavalry unit or as a part of combined arms unit. It can conduct movement and contact in the most dangerous area of operation before mounted/dismounted troops, increase situational awareness by reconnaissance /surveillance mission and lead the main force. Depending on tactical situation, it can engage enemy troops or soft skin vehicles.

FEATURES

- Reduce crew risk and enhance operational effectiveness with relatively long remote control range and silent mobility
- Equipped with advanced target acquisition sensor and modular remote control weapon station

SPECIFICATIONS

GENERAL	
Dimension (LxWxH)	4600x2500x4550 mm
Weight	6.27 ton
Drive type	HEV / 6x6 independent wheel
Slope	Gradient / Side slope 60 % / 30 %
Turning radius	0 m (Turn-in-place)
Max. payload	200 kg
Max. speed	60 KPH
Operating	>500 km (including engine charge) / >1Hr @30 KPH (Batt. only)
Active safety tele-operation (LOS)	6 km
Surveillance	4 km (Detection) / 2 km (Recognition)

Explosive Ordnance Detection and Disposal

EODD Robot

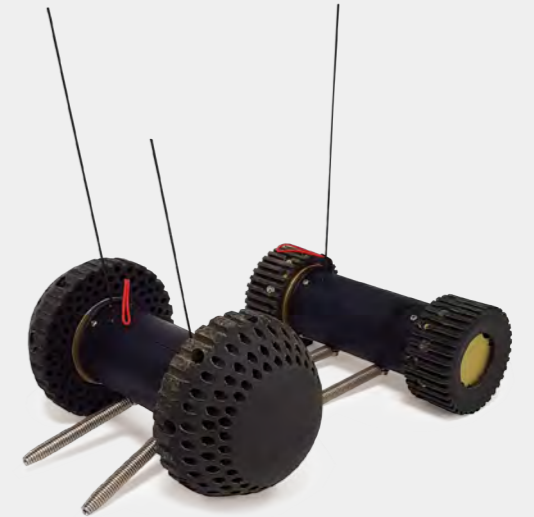
The EODD is a small unmanned robot system designed to explore passages and detect potential mine and improvised explosive devices. It can also be deployed to carry out remote attacks and defensive operations, as well as perform reconnaissance and surveillance in urban and mountainous terrains.



Smart Grenade

SG Robot

SG robot is a micro UGV under 1 kg weight and portable by individual infantry. As a new concept UGV, it is equipped with mission equipment (EO/IR) along with HE or tear gas grenade enabling to carry out surveillance and precision fires simultaneously.



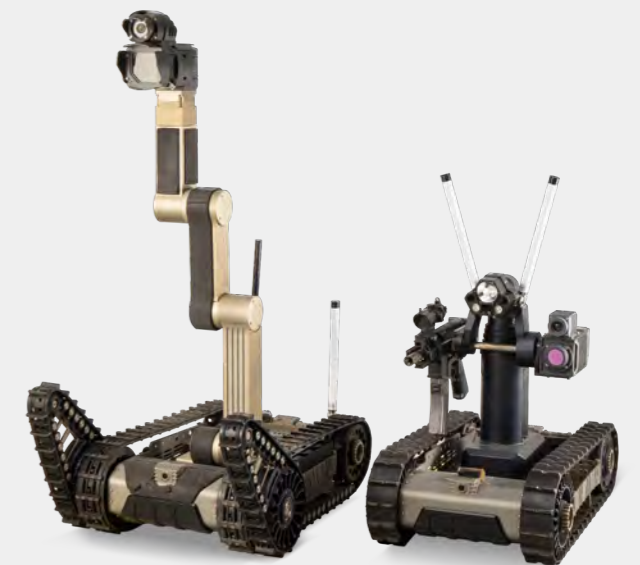
IED Disposal Robot

The IED detection and disposal robot is portable and can be operated by a soldier. The robot consists of a mobile robot platform for off-roading, multi degree of freedom robotic arm and a terminal device.



Small Surveillance Robot

The robot is a premier surveillance and inspection solution that relieves soldier fatigue, particularly during ambush operations, and enables efficient mission executions through systematic, analytical surveillance.



RCWS Advanced Weapon Station

Remote Controlled Weapon Station (RCWS) is a state-of-the-art weapon system with remote capabilities. It is equipped with day/night detection and tracking, stabilization control. The RCWS can be mounted on various platforms such as sentry guards, main battle tanks, light armored vehicles, navy vessels, etc.



FEATURES

- Day/night detection & auto tracking, remote shooting capabilities
- Modular design that can be configured and customized as per customer requirement
- Mounted on various platforms including tank, armored vehicles, and naval vessels, etc.
- Over 1 million hours of operation / Over 95% Operation Readiness Rate (ORR)

SPECIFICATIONS

GENERAL		
Dimension (W×H×D)		920(W) X 650(H) X 1,650(D)m (with gun) 920(W) X 650(H) X 830(D)m
Weight	Weapon system	135 kg (without gun and ammunition)
Weapons and calibers		7.62 mm, 12.7 mm, 40 mm
Ammunition	Load	Load 400 rounds (12.7 mm) 48 rounds (40 mm)
Driving system	Range	2+2 axis drive system
	Range of travers	n x 360°
	Range of elevation	-20° ~ + 60°
	Slew rate	Travers/Elevation : 60°/s
	Sight system	Day camera
	Thermal imager	7.5 km / 3.5 km / 2.0 km (cooled optional)
	Laser ranger finder	5 km

* STANAG 4347 good transmission conditions

RCWS Dual Weapon Station

Mounted with the K4 or K6 armored surveillance and strike system, an amphibious assault vehicle can remotely control the system and smoke grenade launcher through its operation system. Targets are automatically tracked even during stops and maneuvers for accurate shooting.



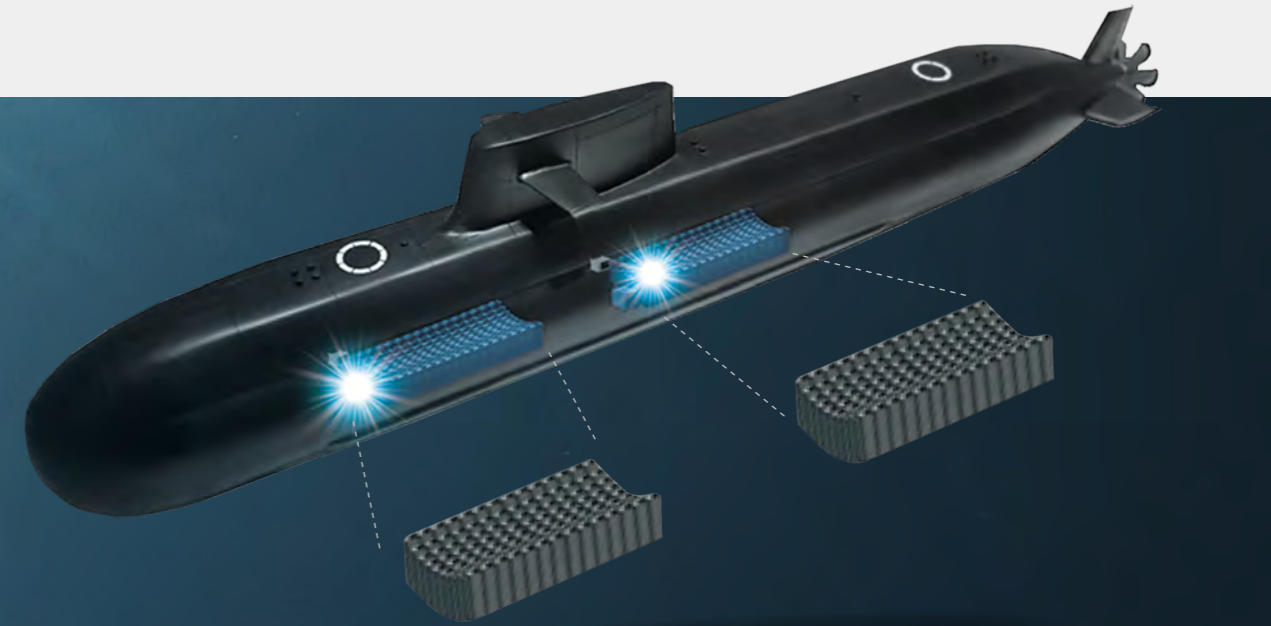
RCWS Naval Vessels

Equipped with the K6 armored surveillance and strike system on its exterior, this ship-based weapon station is remotely controlled from the steering room for automatic target tracking and shooting during maritime maneuvers.



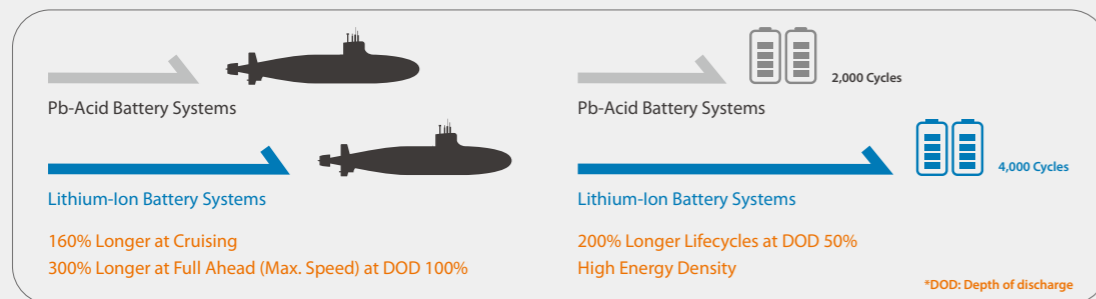
Lithium-Ion Battery Systems for Submarine

Next Generation Lithium-Ion Battery System can extend underwater time by replacing conventional lead-acid storage batteries. The battery system is constructed by connecting cells in series and parallel based on 6 layered safety architecture.



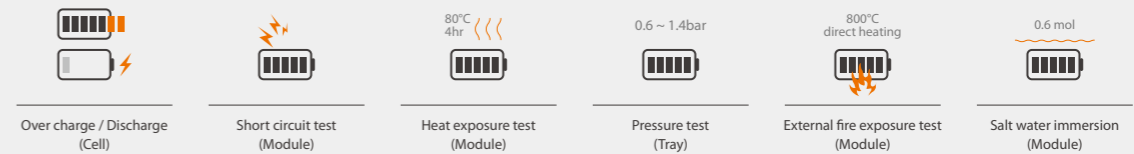
FEATURES

- Guarantee the safety by adopting can-type lithium-ion battery with built-in mechanical safety device inside the cell
- Maximize the energy capacity through the optimized parallel configuration
- Longer Underwater Time & Longer Lifecycle
- Data monitoring, fault diagnosis and corrective actions from cell to lithium-ion battery systems
- Implementation of short circuit risk mitigation architecture through module power relay assembly and fault current limiter



SAFETY

Safety Test



Module Reliability Test, Performance Test

Electric performance, shock, temperature, humidity, EMI/EMC, etc.

LBTS (Land Based Test Site) Test

- Parallel operation and safety function test at LBTS
- Signal interface test in real-time of management devices
- Short circuit testing according to the actual system integration

