

SSAM

TURKISH DEFENCE INDUSTRY PRODUCTS

SSM

**UNDERSECRETARIAT FOR DEFENCE INDUSTRIES
MoND, TÜRKİYE**

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TURKISH DEFENCE INDUSTRY PRODUCTS





“We are proud to share the indigenous products produced by our defense industry with our friends and allies all over the world.”

PROLOGUE

Prof. İsmail DEMİR
Undersecretary for Defence Industries

Our industry has now transformed into a structure which ensures the participation of over 1.000 enterprises, various SMEs, research institutes, and universities, and which mobilizes the entire brain and production power of Turkey. It has now reached a production potential of over 5 billion dollars and an export capacity of nearly 1.65 billion dollars. It has become a unique sector with the largest R&D and technology investment in Turkey with just about 1 billion dollars per annum.

As a result of all this work and effort, Turkish Defense Industry modernizes the armed forces and law enforcement rapidly with indigenous products it develops and with said competence, has come to a position wherein it is ready to establish various collaborations.

We are proud to share our indigenous products produced by Turkish Defense Industry particularly in recent years on the path set out on with the main mission of improving the modern defense industry and the modernization of the Turkish Armed Forces 30 years ago with our friends and allies all over the world.

Undersecretariat for Defence Industries International Cooperation Department (ICD)

About SSM Undersecretariat for Defence Industries (SSM)

Undersecretariat for Defence Industries (SSM) is the sole procurement authority under the Ministry of National Defense, TÜRKİYE. SSM's major function is putting into effect the decisions taken by the main decision making body "The Defense Industry Executive Committee" which makes the critical decisions related to the defense industry. SSM aims to build a defense industry that welcomes private entrepreneurships and allows balanced collaboration with international partners.

Over the last 30 years, since its establishment, the Undersecretariat for Defence Industries (SSM) has made significant achievements in building the blocks for a modern national defence industry in Turkey. As a result of considerable dedication and efforts, today SSM is carrying out over 400 defence projects budgeted nearly 30 billion USD.

www.ssm.gov.tr

About SSM International Cooperation Department

SSM International Cooperation Department mainly deals with improving international collaboration and promoting defence exports. In this context, the prominent responsibilities of the Department are as follows:

- Developing and executing Turkey's international defence industry cooperation and export strategy,
- Promoting and creating opportunities for development, co-production and export of defence industry products within the international collaboration framework,
- Building and promoting lasting, win-win partnerships (e.g. joint ventures) between Turkish firms and foreign companies,
- Supporting and participating High Level Military Dialog and Defence Industry Cooperation Meetings within the bilateral cooperation context,
- Conducting multilateral cooperation activities with international organizations like NATO, OCCAR, ASEAN, etc.,
- Planning foreign delegations' visits to Turkey for face-to-face meetings or site survey,
- Determining the exhibitions that will be participated nationally, developing programs for these exhibitions, attending the meetings in the program and monitoring related action items.

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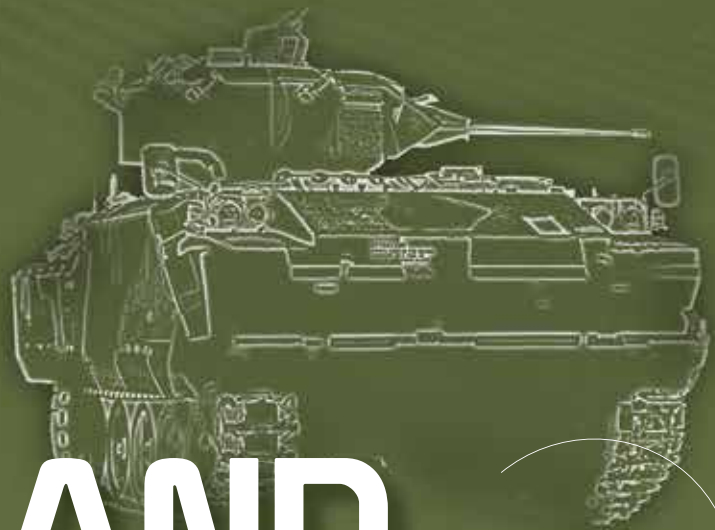
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**SECURITY OF THE LAND
ACROSS THE GLOBE**



**LAND
PLATFORMS**



ALTAY

ALTAY MAIN BATTLE TANK



In March 2007, the Undersecretariat for Defense Industries (SSM) of Turkish Ministry of Defense (MoD) has commissioned Otokar as the prime contractor for ALTAY Project, which covers the design, development, production, test and qualification of the Turkish National Main Battle Tank (TNMBT) prototypes. Under the terms of this contract; Otokar is responsible from the system design, prototype production, integration, testing, and qualification of ALTAY MBT. The concept design of ALTAY tank started in 2009.

The first Stage of the Project, Conceptual Design Stage, was successfully completed in 2010. It was subsequently followed by the Preliminary Design, in which the details of the design were significantly defined. This second stage was successfully completed in the last quarter of 2011 and Critical Design activities started. On November 15th of 2012 the First Prototype Ceremony was executed in Otokar with the participation of Prime Minister of Turkey.

Durability tests have been successfully performed with the first preliminary prototype tank, Mobility Test Rig (MTR) which was produced at this stage. Additionally, MTR tank has been exhibited in May 2013 in Istanbul during the IDEF 2013 Exhibition.

Firing tests have been carried out in Şereflikoçhisar firing area with the second preliminary prototype tank, Firing Test Rig (FTR) which was also produced during the Detailed Design Stage. Stage III Prototype Development and Qualification activities started in May 2013. The first prototype tank for qualification, PV1 has been manufactured within this stage and functional tests are being executed. The second prototype tank for qualification, PV2 manufacturing is almost completed. System Qualification tests of these prototypes will start in the upcoming months.

ALTAY, being a 3rd+ Generation Main Battle Tank bears latest technologies and caters for various tactical requirements of modern armies for 21st Century. ALTAY's outstanding performance resulting from its excellent mobility, superior firepower and survivability features will obviously make ALTAY a key element in modern battlefield and peacekeeping operations.

The high mobility requirements of the battlefield characterized by various roles and tough terrain conditions compel a reliable propulsion system. ALTAY achieves the required performance with its new generation 1500 HP engine and transmission. The 120 mm 55 caliber high performance smooth-bore gun developed for ALTAY produces significantly increased effective range and lethality and it is supported with a new generation fire control system which also provides hunter-killer capability. ALTAY accommodates an optimized overall protection to withstand new generation CE and KE threats, and this is accomplished by latest technology composite and reactive armour modules. ALTAY is equipped with a new generation Battlefield Management System (BMS) which generates, executes and deploys all the orders, messages, alerts and tactical-logistic status data from single tank to higher unit levels on the battlefield efficiently.

Over the past several decades, the mission and role of main battle tanks on the battlefield have changed dramatically. Therefore, the existing 3rd generation tanks remained inadequate due to absence of the competitive systems like remote control weapon system, auxiliary power unit, add-on ballistic and mine protection, life support system, 360 degree situational awareness system, and they had to go through upgrading or modernization programs to integrate some of these systems on the existing platforms. On the contrary, ALTAY had a unique design advantage since all kinds of today's and future missions and threats of urban warfare and classical tank to tank battle are considered starting from the concept design and an optimized design accommodating all the features needed in the modern battlefield is obtained.

As a result, ALTAY fulfills the requirements of modern battlefield to maximum extend with its superior mobility, excellent fire power, battlefield management system, integrated logistic support and balanced protection system. Additional features for urban warfare and mission adaptable/modular design of ALTAY are its advantages over the 3rd generation tanks. ALTAY will be the most advanced main battle tank among the new generation tanks of the world by 2017.





ACV FAMILY

The Armoured Combat Vehicle15 (ACV15) is a heavily armoured vehicle in the 13-15t class that is able to operate alongside tanks in a combined arms team. The platform design allows integration of different subsystems to meet different roles. The Advanced Armored Personnel Carrier (AAPC) chassis forms the base vehicle for all other members of the ACV family, which includes an IFV available with a variety of weapon stations and turrets up to 90mm, command post, ambulance, repair and recovery and 120mm mortar carrier. The ACV15 is a fully tracked (five road wheels), low-silhouette vehicle capable of high-speed operations in desert conditions, cross-country and on road. The hull is constructed of ballistic aluminium plate. The engine and the driver and commander's compartments in the forward area utilise about half of the space, while a weapon station opening located on the right middle section, and the personnel compartment in the rear, utilise the remaining half. ACV 15 is an amphibious vehicle and also has a mine protection.

ACV 15



ACV-19



ACV-19

The Armoured Combat Vehicle19 (ACV19) is a family of 15-19t class vehicles derived from the successful FNSS ACV15. Besides offering performance improvements, the ACV19 offers commonality with the ACV15 family. The primary differences between the ACV19 and ACV15 are a longer hull with six road wheels, heavy-duty final drives and more aggressive suspension. The AC19 offers a larger volume under armour and more payload capacity than the ACV15, and mobility equal to or better than a MBT. The ACV19 chassis can carry high payloads such as two-man turrets or 120mm mortars, and still provide the same performance as a standard ACV15 without a turret. ACV 19 is also amphibious and has mine protection like ACV15.



LAWC-T LIGHT ARMORED WEAPON CARRIER CONCEPT

The Light Armored Weapon Carrier Concept (LAWC-T) platform was developed by FNSS Savunma Sistemleri A.Ş. to meet the requirements for a new agile armored combat vehicle that can be configured to meet many different mission requirements such as: anti-armor, fire support and reconnaissance roles. The vehicle can be fitted with a variety of turrets/weapon stations depending on the customer's requirements such as manned and unmanned turrets fitted with rapid firing cannons from 25-40mm, as well as Anti Armor (ATGM) turrets mounting a variety of missiles.

LAWC-T has a ballistic protection of NATO STANAG 4569 Level 4, providing immunity against 14.5mm heavy machine gun ammunition. The well-sloped glacis plate and the vertical hull sides allow additional armor to be fitted if required. The Standard mine protection meets STANAG 4569 Level 3a.

LAWC-T





TRACKED VEHICLES

LAND PLATFORMS

TULPAR

TULPAR is designed as a multi-purpose vehicle platform with its significant ballistic and mine protection and superior firepower to support new generation main battle tanks in battlefield and also for providing fire support for infantry.

TULPAR's high power to weight ratio, all-terrain high-performance suspension, and automatic track tensioning system offer superior mobility in diverse terrain and climatic conditions.

TULPAR is the future of armoured combat vehicles with its technical and tactical characteristics including ease of maintenance, large internal volume and infrastructure that allows the integration of different mission equipment and weapon systems, modular protection structure suitable for integrated active protection system, electronic infrastructure, low silhouette and transportability with A400M.

Thanks to its large internal volume, high payload and flexible architecture, TULPAR has sufficient growth potential to meet the future protection needs and mission requirements.

GVW: 32 tons (Growth potential up to 42 tons)

Crew Capacity: Up to 12



TULPAR



M113



M113 FOV CAPABILITY & SUSTAINMENT PROGRAM

The sustainability solution meets all of the M113 Family of Vehicles for mobility upgrades with the only differences in the specific mission modules required by a variant to meet its mission. Therefore, M113 variants will all be based on a common mobility platform providing significant saving in logistics such as spare parts inventories and a common maintenance policy. The FNSS solution is the lowest cost alternative that fully meets the requirements for a modern reliable M113 FoV'. Configuration significantly improves ease of operation, safety, reliability, performance and durability over the M113A1 and A2. FNSS Solution (M113A4) delivers significant improvements on mobility and survivability compared to older M113 FoV' consisting of modern diesel engine and Allison X200-4B automatic transmission. Reliability and durability have been greatly improved with the installation of the FNSS developed ACV power pack. The configuration of M113A4 is NATO certified qualified by the original M113 vehicle manufacturer and in service with the Turkish and several other armies of the world.



MAIN BATTLE TANK MODERNIZATION

ASELSAN has completed the prototype phase of the upgrade programme for the Leopard 2A4 MBTs of the TLF. This prototype configuration, entitled 'Leopard 2 NG' (Next Generation) is a state-of-the-art upgrade solution, going far beyond any existing MBT, and will meet all the requirements of any Leopard 2 mid-life upgrade. Beginning in the second half of 2011 the prototype MBT has entered the testing and qualification phase with the TLF.

In Leopard 2 NG upgrade configuration ASELSAN replaced all of the electronic, electro-optic, electro-mechanical and electro-hydraulic systems of the MBTs with newly developed state-of-the-art systems, leading to increased performance and reduced total Life Cycle Costs. Leopard 2 NG is equipped with Aselsan's Next Generation Fire Control System, which is based on two independent periscopes - one for gunner and the other for commander - each can perform all tank fire control functions, and also can take over each other's fire control functions.



LEOPARD





X200-4(B) / X200-4C ELECTRONIC TRANSMISSIONS

Allison X200-4(B) cross drive automatic transmission. 4 forward 1 reverse speeds, hydraulic power type braking, hydrostatically controlled-ininitely variable type steering. Up to 400 NHP (298 kW) net input power and 18 tons max. vehicle weight.

X200-4(B) X200-4C



X1100-5



X1100-5 TRANSMISSION

Allison X1100-5 cross drive automatic transmission. 4 forward 2 reverse speeds, hydraulic power type braking, hydrostatically controlled-ininitely variable type steering. Up to 1.500 GHP (1.120 kW) input power, 3.000 rpm max. input speed and 70 tons max. vehicle weight.



X1100-5A3 TRANSMISSION

Allison X1100-5A3 cross drive automatic transmission. 4 forward 2 reverse speeds, hydraulic power type braking, hydrostatically controlled-ininitely variable type steering. Up to 1.500 GHP (1.120 kW) input power, 3.000 rpm max. input speed and 70 tons max. vehicle weight.

X1100-5A3





KAYA II



MINE RESISTANT TROOP CARRIER

KAYA II has been specially designed and developed as a Mine-Resistant Personnel Carrier to provide high protection against mine and ballistic threats besides its superior mobility.

The exceptional protected mobility of KAYA II is proven in most diverse terrain and climatic conditions. KAYA II can transport up to 10 personnel including the driver and commander within its monocoque hull.

GVW : 14500 kg
Crew Capacity : Up to 10



Otokar

MINE RESISTANT TROOP / CARGO CARRIER

KAYA Mine Resistant Troop / Cargo Carrier is specially designed to provide mine and ballistic protection for the troops on all terrain conditions, while offering high mobility, ease of handling and outstanding crew comfort.

KAYA Mine Resistant Troop Carrier which has a crew capacity of 12 is designed with mine and blast protected seats to increase troop protection.

Thanks to the modular design of KAYA, the vehicle can be configured as mine resistant cargo carrier.

GVW : Up to 13000 kg
Crew Capacity : Up to 12



Otokar

KAYA



HEDGEHOG



BMC 350-16 Z MINE RESISTANT AMBUSH PROTECTED VEHICLE KIRPI / HEDGEHOG

Hedgehog MRAP Vehicle is designed and produced to serve (provide) troop carrying in combat environment, security, weapon carrier, command & control systems, mine detection and disposal.

Having monocoque body, its crew and engine compartment are protected against mine, ballistic and IED threats. Manual or automatic weapon stations can be fitted. It can carry total 13 personnel. Equipped with 350PS-engine, 6-speed full automatic transmission, permanent 4X4 drive with high/low speed transfer case, and two-speed planetary gear reduction axles sprung by the combination of parabolic leaf springs, telescopic shock-absorbers and anti-roll bars. Vehicle can climb 60% gradient, pass 30% side slope and 120cm deep water, and has max speed of 105km/h and cruising range of 800km. Fitted with A/C, CTIS, Run-flat tires, and automatic fire suppression system.



BMC

2.5 TON TACTICAL WHEELED VEHICLE

Usage Purpose of the product: Cargo and troop carrying, vehicle mounted platforms for various missions such as communication, mortar carrier, command & control and EOD systems, mobile repair workshops, ambulance.

Technical specifications: GVW is 10Ton; payload is 2.5Ton with cargo & troop carrier body. Equipped with 185PS-engine, 5-speed full automatic transmission, 4x4/4x2 drive with high/low speed transfer case and 2-speed ratio portal axles sprung by the combination of coil springs, telescopic shock-absorbers, anti-roll bars and oscillation rods. Air type brake system is installed. Vehicle can climb 70% gradient, pass 30% side slope and 80cm deep water, and has max. speed of 100km/h, ground clearance of 42cm and cruising range of 1000km. The bonneted type steel driver cabin is fitted with 3-seats, roof hatch and rifle racks. Vehicle can be transported within C130 Aircraft.

BMC



BMC EFE





PARS



PARS 6X6 WHEELED ARMoured COMBAT VEHICLE

FNSS has developed a new generation of 6x6 Wheeled Armoured Combat Vehicle with a special emphasis on mobility, protection, payload and growth potential. One of the most significant features of the PARS vehicle is situational awareness. A unique feature is that the vehicle commander and driver sit side-by-side. For enhanced visibility, there are two thermal cameras and two optical cameras at the front and rear. PARS's centralised engine location, made possible by the suspension design, provides for a very adequate passage to and from the rear of the vehicle. Other features are; front and rear axle steering, all-wheel drive, ABS, CTI, and run flat inserts, self-recovery winch, integrated survivability suite, independent, hydro-pneumatic suspension and hydraulic ramp. PARS 6x6 can also carry a variety of weapon stations to increase the fire power of the vehicle.

FNSS Savunma Sistemleri A.Ş.

PARS 8X8 WHEELED ARMoured COMBAT VEHICLE

FNSS has developed a new generation of 8x8 Wheeled Armoured Combat Vehicle with a special emphasis on mobility, protection, payload and growth potential. PARS is designed not only to have a high level of ballistic and mine resistance, but also carry a variety of weapon stations and provide a high internal volume, which allows for a full complement of infantry soldiers with all of their equipment. One of the most significant features of the PARS vehicle is situational awareness. A unique feature is that the vehicle commander and driver sit side-by-side. For enhanced visibility, there are two thermal cameras and two optical cameras at the front and rear. PARS 8x8 is high mobile, comes from its newly developed independent air suspension system. The vehicles are equipped with independent suspension at all wheel stations, providing commonality between each station, thereby reducing logistics and improving life-cycle costs. PARS's all wheels are steerable which provides a very tight turning radius. PARS's centralised engine location, made possible by the suspension design, provides for a very adequate passage to and from the rear of the vehicle. Depending on the customer request, different configurations and different protection levels can be applicable to PARS 8x8.

PARS



FNSS Savunma Sistemleri A.Ş.

ARMA 6X6

ARMA 6X6 WHEELED ARMoured VEHICLE



ARMA is a new generation modular multi-wheeled vehicle with superior tactical and technical features. Thanks to its superior mobility, high mine and ballistic protection and wide range of weapon integration options, ARMA is capable to serve modern armies in the real battlefield, peace keeping and human relief operations in most difficult terrain and climatic conditions.

ARMA 6x6; is available in various types of configurations such as Personnel Carrier, Infantry Fighting Carrier, Command Post, Ambulance, CBRN reconnaissance, Driver Training and Reconnaissance with optional amphibious capability.

GVW: 18500 kg
Crew Capacity: Up to 10
Transportable with C130

Otokar

ARMA 8X8 WHEELED ARMoured VEHICLE

ARMA is a new generation modular multi-wheeled vehicle with superior tactical and technical features. Thanks to its superior mobility, high mine and ballistic protection, medium and high caliber weapon system integration options; ARMA is capable to serve modern armies in the real battlefield, peace keeping and human relief operations in most difficult terrain and climatic conditions.

ARMA 8x8; is available in various types of configurations such as Personnel Carrier, Infantry Fighting Vehicle, Mortar Carrier, Mobile Gun Carrier, Short and Medium Range Air Defense, Command Post with optional amphibious capability.

GVW: 24000 kg
Crew Capacity: Up to 12
Transportable with C130

Otokar

ARMA 8X8



UNIMOG U 4000

MERCEDES-BENZ UNIMOG U 4000 2,5 TONS TACTICAL VEHICLES



It is predominantly used as personnel carrier and also can be used as integrated with shelter carrier, mobile repair vehicle, radar systems and mixing(jamming) apparatus. Gross vehicle weight is 7.5 tons. motor horse power is 177, there are 8 forward and 6 reverse gears optional with manual or automatic gearbox. Transition(shifting) in all speeds is possible to 4x4 and 4x2 drive options. Axles are of portal type having a suspension system with helical springs and with telescopic shock absorbers. Moreover there are front and rear stabiliser. Capable of climbing 100% slope and has moving capacity in statik state is 38°, in dynamic situations it has 16.5° side slope angle . Its angle of approach is 41° angle of departure is 45°. Its ground clearance is 42 cm capable of running in 80 cm water without equipment and 120 cm with equipment. It is compatible with railway gauge and can be transported with C130 and A400M aircrafts.



KRS 90 VACUUM RUNWAY SWEEPER VEHICLE

It is produced for Airports of Air Forces. It is a sweeper vehicle with 9m3 capacity built on Mercedes-Benz Axor 2529 CD 6x2 chassis. Motor power of vehicle is 286 PS and power of the superstructure engine is 280 PS. There are 9 forward and 1 reverse gear in chassis vehicle's gear box. Gross vehicle weight of the vehicle is 25.000 kg. Sweeper superstructure driven by closed circuit hydraulic system has a sweeping width of 3500mm its cleaning capacity is minimum 70.000 m2/h in 20km/h operating speed. Moreover its fan absorption capacity is minimum 540 m3/min. Additionally, there are magnets vehicle's front and also blowing equipment at right and left sides of sweeper superstructure.



KRS 90



20.000 LT. AIRCRAFT REFUELER TANKER

Produced for the purpose of supply fuel to aircrafts located in Airports of Air Forces. Maximum loaded weight of the Mercedes-Benz Axor model chassis vehicle is 30 tons and equipped with 286 PS engine and 9 forward and 1 reverse gear box. The vehicle drive train is 6x4. Superstructure: Made from aluminum alloyed materials and has a tank with 4 pieces of jetties, 20.000 Lt active capacity and with bottom filling unit. Its pump capacity is 2500 L/ min. Its electrical equipment is manufactured in accordance with NFPA - 407 Standard. Command control cabinet has been manufactured by reducing weight by utilizing aluminum carcasses.



BATTLE TANK CARRIER

Max. speed at fully load	: 60 km/h (software limited)
Gradeability	: 30% slope
Side slope mobility	: 20% slope
Fording capability	: 75 cm
Range	: ~1100 km (with fully loaded)
Turning circle radius	: 13,5 m
Operating temperature	: -32 °C / +55 °C
Vehicle:	
Wheel configuration	: 6x6
Engine type	: DT12 17 / 480 hp
Engine controller	: With speed limiter
Max. Power	: 353kW (480hp) at 1900 Rpm
Max. Torque	: 2250Nm (229kpm) at 1100-1450 Rpm
Cooling system	: Closed circle water cooled
Charging system	: With alternator
Batteries	: 2x12 V, 180 Ah





5 TON TACTICAL WHEELED VEHICLE

Usage Purpose of the product: Cargo and troop carrying, recovery, artillery carrying, artillery towing, fuel tanker, water tanker.

Technical specifications: GVW is 26Ton and payload is 10Ton with cargo & troop carrier body. Equipped with 380PS-engine, 6-speed automatic transmission, permanent all wheel drive with high/low speed transfer case and two-speed planetary gear reduction axles sprung by the combination of parabolic leaf springs, telescopic shock-absorbers and anti-roll bars, bogie system at rear. Air type brake system is installed. Vehicle can climb 60% gradient, pass 30% side slope and 80cm deep water, and has maximum speed of 100km/h, ground clearance of 40cm and cruising range of 1000km. The steel driver cabin is fitted with 3-seats, roof hatch and rifle racks.

BMC 235



EJDER YALÇIN



4X4 TACTICAL WHEELED ARMoured VEHICLE

EJDER YALCIN 4x4 satisfies military units' and security forces' today's requirements in urban and cross-country terrains. EJDER YALCIN 4x4 is a fast, mobile, agile, modular, multi-functional, easily maintainable combat vehicle and is compatible with any weather condition and terrain. With its extreme payload capacity, a different variety of weapon systems can be integrated. EJDER YALCIN 4x4 is an ideal platform for;

- Command and Control Vehicle,
- Combat Vehicle,
- CBRN Vehicle,
- Weapon Carrier Vehicle,
- Internal Security Vehicle ,
- Armoured Ambulance,
- Reconnaissance and Surveillance Vehicle,
- Border Security Vehicle,

- Crew : 9-11
- Range : 600 km
- Climbing/Side Slope : 70%/30%
- Approach-Departure angle : 40°
- Max.Speed : 110 km/h
- GVW : 12,000 - 14,000 kg
- Max.Payload : 2,000 - 4,000kg
- Max.Output : 300 HP @ 2100 Rpm



6X6 TACTICAL WHEELED ARMoured VEHICLE

EJDER 6x6 has a powerful design that satisfies today's battlefield requirements and threats. EJDER 6x6 is fast, mobile, amphibious(without any special preparation), agile, modular,multi-functional, easy maintainable combat vehicle and is compatible with any weather condition. EJDER 6x6 is suitable for use as Reconnaissance, Command Control, Fire Support and Military Ambulance Vehicle. It has superior ballistic and mine-blast protection quality. Ballistic protection can be increased by add-on armour sets. EJDER 6x6 is the leading vehicle for long-running service performance with its low life-cycle cost.

- Crew : 12
- Cruising range : 800km
- Gradient/Side slope : 70%/40%
- Side slope : 40%
- Approach-Departure angle : 40°
- Max speed : 110 km/h
- GVW : 18,000 kg (optional 21,000 kg)
- Max.Payload : 2,500kg



EJDER





WHEELED VEHICLES

LAND PLATFORMS

ARMORED 4X4 TRUCK

EJDER 4x4 Truck is an indigenous design of NuroI Makina and has high mobility by its fully independent suspension system. It is suitable for using both urban and rural areas. Ejder Truck's cabin has high ballistic protection .

Because of the EJDER Truck based on EJDER Chassis, which is indigenously designed by NuroI Makina, required variances can be done easily, so EJDER TRUCK has wide range of application area , it can satisfy both military and civilian requirements .

- CBRN Vehicle,
- Weapon Carrier Vehicle,
- Command and Control Vehicle,
- Armored Ambulance Vehicle
- Reconnaissance Vehicle
- Military Personnel Carrier Vehicle
- Logistic Vehicle
- Internal Security- Armored Police Carrier Vehicle ,
- Command and Control Vehicle
- Armored Money Carrier Vehicle ,
- Prisoner Carrier Vehicle,
- Fuel Carrier Vehicle ,

Speed	: 110 km/h
Cruising Range	: 600 km
Gradient	: 30 %
Side Slope	: 20 %
Obstacle Climbing	: 50 cm
Trench Crossing	: 75 cm

EJDER



BMC 380 10 TON TACTICAL WHEELED VEHICLE



Usage Purpose of the product: Cargo and troop carrying, recovery, artillery carrying, artillery towing, fuel tanker, water tanker.

Technical specifications: GVW is 26Ton and payload is 10Ton with cargo & troop carrier body. Equipped with 380PS-engine, 6-speed automatic transmission, permanent all wheel drive with high/low speed transfer case and two-speed planetary gear reduction axles sprung by the combination of parabolic leaf springs, telescopic shock-absorbers and anti-roll bars, bogie system at rear. Air type brake system is installed. Vehicle can climb 60% gradient, pass 30% side slope and 80cm deep water, and has maximum speed of 100km/h, ground clearance of 40cm and cruising range of 1000km. The steel driver cabin is fitted with 3-seats, roof hatch and rifle racks.



20.000LT AIRCRAFT REFUELER

Usage Purpose of the product: Used for refueling of military aircrafts and helicopters.

Technical specifications: Chassis vehicle GWV is 30 ton; fitted with 3-seat-capacity steel driver cabin, 300PS-engine, 9-speed gear box, in 6x4 drive configuration, suspension system with leaf spring, shock absorbers and anti-roll bars; rear axles in bogie system. Vehicle has driver cabin fitted with independent cabin heater and A/C, can be equipped with ABS brake system and retarder. Superstructure has 20.000lt -capacity aluminum tank, pump capacity of 600 GPM (2271lt/min), fuel filter in API standards, hoses with automatic reels, fuelling nozzles/adapters, automatic fire extinguishing system, and grounding systems. Superstructured vehicle is in NFPA standards and can be transported by C-130 Aircraft.



BMC 827



LAND ROVER DEFENDER



LAND ROVER DEFENDER

Otokar manufactures Land Rover Defender model 4x4 tactical vehicles under Land Rover license in parallel with customer needs. Thanks to its varied body styles and wheelbases, Defender has the optimum seating and load flexibility for military usage. With adaptable and robust design features, vehicle forms very suitable platform for various conversions. Otokar manufactures special bodies on Defenders for field ambulance applications, command vehicles, troop carriers, search and rescue vehicles, field workshop vehicles or weapon platforms. Defender is equipped with 2.2 lt turbo diesel engine specifically tuned for off-road capability which has an outstanding performance with a maximum torque of 360Nm's.





4X4 TACTICAL WHEELED ARMoured VEHICLE

COBRA is a distinguished armoured vehicle with superior mobility and survivability and always ready for the mission.

The optimized body angles of COBRA's monocoque hull provides a remarkable ballistic protection to the crew and the critical mechanical components.

COBRA is a multipurpose platform that can be adapted for various roles and missions; including personnel carrier, weapon platform, NBC reconnaissance, ground surveillance radar, forward observer, ambulance and command post variants with optional amphibious feature.

As a combat proven platform; COBRA is in active duty with armed forces throughout the world and operated in diverse terrain and climatic conditions.

GVW : 6300 kg
 Crew Capacity : Up to 9
 Power to Weight Ratio : 30 HP/ton



Otokar

COBRA



COBRA II



4X4 TACTICAL WHEELED ARMoured VEHICLE

COBRA II 4x4 Tactical Wheeled Armoured Vehicle is a modular platform with superior technical and tactical characteristics which is developed over existing COBRA Vehicle.

Besides outstanding mobility, COBRA II provides higher ballistic and mine protection, increased payload capacity and internal volume.

With its wide range of weapon integration and mission equipment options COBRA II can serve various types of missions including urban and peacekeeping missions with optional amphibious feature.

The vehicle provides a remarkable performance in a wide range of challenging terrains and climatic conditions.

GVW : 12000 kg
 Crew Capacity : Up to 10



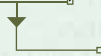
Otokar

4X4 TACTICAL WHEELED ARMoured VEHICLE

URAL armoured personnel carrier is a versatile modular platform and an innovative feature set, that fulfils the requirements of even the most demanding missions. An all-around armoured hull fully protects the personnel against various threats; and thanks to the vehicle's ample interior space, ergonomic full-size seats, parabolic spring suspension and biggest tire size in its class, URAL provides superior personnel comfort as well.

Top-notch powertrain components assembled onto a high strength chassis maximize vehicle's off-road performance, whereas elastic components between the body and the chassis help minimize the cabin vibrations on different terrains. Optimized modular body construction design enables many configurations and assembly of various weapons/equipment required by diverse missions, hence complementing 'single vehicle for multi operations' philosophy.

GVW : 6500 kg
 Crew Capacity : Up to 10



Otokar

URAL



ZPT



ARMoured PATROL VEHICLE

The Otokar Armoured Patrol Vehicle is a versatile 4x4 armoured vehicle with its high maneuverability, unique stability and superior terrain capability. With a crew capacity of up to 8 personnel including the commander and driver; APV is provided with various options to be used for many missions required by paramilitary and security forces.

APV is available in various types of configurations such as Personnel Carrier, Police Vehicle, Patrol Vehicle, Ambulance, Workshop, Command Post variants.

GVW : 4100 kg
 Crew Capacity : Up to 8



Otokar



EJDER TOMA



EJDER RCV (RIOT CONTROL VEHICLE)

Ejder TOMA is a para-military type vehicle meeting the requirements of Security Forces for fast and effective dispersion of the riots. EJDER TOMA has better road and off-road performance and ballistic protection than present TOMA's. EJDER TOMA is the first and indigenous TOMA that is designed and produced as armored. Its water cannon can use water, water-dye, water-foam and water-tear gas mixtures. Self-Protection System ,hydraulic bulldozer, gas nozzles ,fire-extinguishing nozzles and such equipments are provided.

Max Speed	:110km/sa
Range	:750km
Climbing/slide slope	: 30/30%
Tires	: Run-Flat
Fuel Depot	: 300 lt
Water Tank	: 5000 lt
Maximum Tork	: 1100 Nm (1.200 dd)



ILGAZ 4X4 INTERNAL SECURITY VEHICLE

ILGAZ 4X4, satisfies the operational requirements of military units and security forces in rural and urban areas. It is a dynamic, agile, modular, versatile, easy care and low maintenance security vehicle. By its great features, ILGAZ4X4 is an ideal platform for various applications such as "Interior Security"

Crew	: 9 personnel (2 front+ 7 back)
Range	: 400 km
Gradient	: %60
Slide Slope	: %30
Suspension	: Front: Double wishbone
Back	: 4 wishbone with helical and damper
Fording	: 0.7 m
Max.Speed	: 110 km/h
Max.Output	: 272 HP @ 3.600 Rpm

ILGAZ



TOMA

RCV (RIOT CONTROL VEHICLE)



TOMA is equipped with the advance technology to meet the primary requirements of security forces. It is a very effective vehicle in suppressing and controlling riot activities, therefore in active use of Turkish National Police and The Turkish Gendarmerie as well as the security forces of Azerbaijan, Libya, Zimbabwe, Georgia and Kazakhstan. Depending on the chassis type, TOMA can have 4x4, 4x2, 6x4, 6x2 or 6x6 transfer types. TOMA has a ballistic protection design that protects the vehicle cabin, fuel tank, power supply and air tank.

- Run-Flat Tires
- 10-26 ton operational weight (different water tank capacity options)
- Self Protection systems
 - Armoured Cabin
 - Back and front gas nozzle system
 - Glass protection
 - Fire extinction system
 - Ballistic protection at critical systems
- Announcement,siren and light systems
- Bulldozer
- Water, foam and teargas tanks
- Different combination of water, gas and foam





ARMORED AMPHIBIOUS ASSAULT BRIDGE

The AAAB System is a bridge and ferry system designed for the armies' fast and safe transport through the rivers in the battlefield. With its diesel engine, automatic transmission, pneumatic suspension and hydraulic brake system, the AAAB system can climb up to 50% gradient and move on 30% side slope. The system has an 8x8 drive system with a central tire inflation system. The AAAB system has two water pump jets that provide the water operations and 360° movements in the water. The system can operate in water currents up to 2.5m/s. As a ferry, the AAAB system can transport MLC 21 tracked vehicles. By deploying the ramps, which are carried by a hydraulic crane, and joining two systems, MLC70 T vehicle can be transported. By coupling three systems from ramp to ramp MLC100 W vehicle can be transported through a river. As well as the role as a ferry, 12 AAAB systems can be coupled and constructed as a 150m long bridge for crossing of vehicles up to MLC100 W. As nationally designed and developed amphibious bridge system in Turkey, the AAAB system has some additional specifications among its kind. It can carry 4 ramps on a single system.

AAAB



AZMİM



AMPHIBIOUS ARMORED COMBAT EARTHMOVER

ACE is an amphibious, armored, tracked, combat earthmover to be used for preparation of the river banks in crossing over operations. It is capable of performing Bulldozing, Rough Grading, Excavating, Hauling, and Scraping operations. As compared to standard work machines, ACE has the capability to take in ballast from the soil ground to its ballast canister when necessary and discharge it at the end of the operation. One of the most important features ACE has is that it is amphibious and has the capacity for 2 crews. ACE has modern electronic systems like day and night cameras, multi-function LCD monitor and air-condition.



DISCREETLY ARMoured STATION WAGON

Discreetly Armoured Station Wagon combines the ultimate on and off road performance with a ballistically tested armoured body to build to military standards with the view of Land Rover Defender 110 Station Wagon.

The vehicle provides an ideal solution for the many VIP's, executives and other public and military figures who are under threat of attack. Vehicle provides a reliable and protected transport for UN-missions and other peace keeping activities.

GVW: 3600 kg
Crew Capacity: Up to 5



DISCREETLY ARMoured SW



GLOBİKA



GLOBİKA UNMANNED LAND VEHICLE

In the design process of GLOBİKA, Unmanned Land Vehicle, cutting edge software programs are used while composite material is selected for body production. Further, GLOBİKA is environmental friendly with its electric driven engines. GLOBİKA is a robot platform that is able to be controlled remotely over a control center, to reach the target points assigned by the center without any aid, to convey the images taken by the fixed and moving cameras installed to the center, and to be able to act either manually or autonomously. The sizes of GLOBİKA are 2m in length, 0,95m in width, and 1.2m in height and the weight is 250 kg. It is electric driven and can be used in 3 different modes, namely autonomous, manual and training modes. On GLOBİKA, there are surveillance and drive cameras featuring pan/tilt and zooming while performing instant image transfer. Required payloads can be placed on the vehicle. GLOBİKA is able to render service for 8 hours.





TOMA RIOT CONTROL VEHICLE



TOMA is equipped with the advance technology to meet the primary requirements of security forces. It is a very effective vehicle in suppressing and controlling riot activities, therefore in active use of Turkish National Police and The Turkish Gendarmerie as well as the security forces of Azerbaijan, Libya, Zimbabwe, Georgia and Kazakhstan. Depending on the chassis type, TOMA can have 4x4, 4x2, 6x4, 6x2 or 6x6 transfer types. TOMA has a ballistic protection design that protects the vehicle cabin, fuel tank, power supply and air tank.

- Slope: %30
- Run-Flat Tires
- Self Protection System
- Water, Tear Gas, Dye, Foam Tanks



INTERNAL SECURITY VEHICLE - PERSONNEL CARRIER

ISV Internal Security Vehicle is designed and developed for various public security missions. ISV is the right solution for personnel carriage in risky territories with its high level of armor protection. Thanks to its high and imposing appearance, ISV attracts attention in the crowd and discourages groups by generating a psychological effect on them. Through the high seating position gives a better view of the riot scene, increases situation awareness and helps anti-riot tactics planning. The lean and flat outer body panels prevent rioters from climbing on the vehicle, and the inclined roof top does not allow flammable and flaring materials, like Molotov cocktail stick on the roof.

ISV is available in various types of configurations such as Armoured Personnel Carrier, Command Control and Water Cannon variants.

- GVW : 18000 kg
- Crew Capacity : Up to 16



ISV



ISV

INTERNAL SECURITY VEHICLE - WATER CANNON



Zırhlı İç Güvenlik Aracı, farklı iç güvenlik görevleri için tasarlanmış ve geliştirilmiştir. Yüksek ve heybetli görünümü, kalabalıklarda fark edilmesini sağlarken, kargaşa esnasında kalabalık üzerinde cesaret kırıcı bir psikolojik etki yaratır. Otokar Zırhlı İç Güvenlik Aracı'nın Su Topu versiyonu, sürücü ve operatör için zırhlı bir ön kabin ve arkaya yerleştirilmiş su topu sisteminden oluşur. Aracın arkasında su topu sistemini çalıştırmak üzere yardımcı bir motor bulunur. Su tankı, yardımcı motor ve sistem parçaları, araç dışından atılan objelere karşı yüksek sertlikte çelik ile koruma altına alınmıştır.

Zırhlı Personel Taşıyıcı, Komuta Kontrol ve Toplumsal Olaylara Müdahale aracı gibi farklı görevlere uygundur.

Muharebe Yüklü Ağırlık: 18000



BOMB DISPOSAL ROBOT

UKR-Bomb Disposal Robot which can perform under harsh enviromental conditions and is designed to replace the human role in dangerous operations.It can dispose bombs, perform under vehicle control ,indoor and outdoor investigation.Images from 4 different cameras can be sent to control station and operator.

- Pan tilt camera system enables 360 degree viewing
- UKR has got 6 axis manipulator.
- Left and right water balls,laser marker and LED lighting system.
- UKR can be controlled remotely up to 50m indoors and up to 200m outdoors through Joystick and LCD display.
- UKR can climb on a 40 degrees elevation.
- Operation time is minimum 2 hours.



UKR





KAPLAN - EXPLOSIVE ORDNANCE DISPOSAL RO

KAPLAN Explosive Ordnance Disposal (EOD) Robot is a genuine product for disposal of explosives from a safe distance under demanding conditions. Equipped with the latest technology, KAPLAN EOD's core competencies are its strength, endurance and ease of control.

KAPLAN enables the bomb squads to examine a suspicious object from at least 500 meters and is equipped with a versatile robotic arm for detailed inspection and disposal of explosives. The agile vehicle platform provides enhanced mobility on various terrains such as snow, mud, rock piles and steep slopes and stairs. Vehicles suspension system ensures a smooth drive on most difficult terrains.



KAPLAN

KAPLAN

IMPROVISED EXPLOSIVE DEVICE (IED) DETECTION ROBOT



KAPLAN Improvised Explosive Device (IED) Detection Robot is a genuine product for detection of explosives from a safe distance under demanding conditions. KAPLAN IED Robot is equipped with a state of the art IED Detection Kit, which includes a Ground Penetrating Radar and a Magnetic Detector.

The system provides an integrated surveillance camera that enables high resolution and real time monitoring of the route through the remote Control Station. KAPLAN IED Detection Robot also has the capability of establishing a safe route and precision marking of the detected threats and explosives with its integrated marking system.



REMOTE OPERATED EOD/IEOD

- Up to 1km range Remote Operated Robot Vehicle for EOD and IEDD applications
- Tracked mobile platform for all kinds of terrain with high climbing ability and movability.
- Integrated 6 axis robotic manipulator for dearming and disruption.
- High precision surveillance camera system with day/night vision and zooming function.
- Wireless and cable operation up to 1 km with cripted data and video communication system.



EOD/IEOD



ROBAS



REMOTELY CONTROLLED UNMANNED GROUND VEHICLE

ROBAS is a remotely controlled unmanned ground vehicle which can perform 3-D mapping under harsh environmental conditions. Using its thermal camera, it can operate at night besides day - time operation. ROBAS is designed to fulfill military based surveillance missions in regions where the use of troops is dangerous.

- Controllability Limit 1 km (RF link)
- Environment: Asphalt, Stabilized Road, Land, Stairs
- Obstacle Overjump: 80 cm
- Max Speed: 10 km/hour
- Endurance Time: 4 hour
- Range: 25 km



An aerial photograph of a large cargo ship sailing on the open ocean. The ship is viewed from an elevated angle, showing its deck, superstructure, and the wake it leaves behind. The entire image is overlaid with a semi-transparent blue world map, with the ship's path highlighted in a lighter blue. The text 'SECURING THE SEAS' is positioned in the upper right quadrant, enclosed within a white circular graphic element.

SECURING THE SEAS



NAVAL PLATFORMS

MILGEM


**PATROL AND ANTI-SUBMARINE WARFARE SHIP
(MILGEM- MİLLİ GEMİ - NATIONAL SHIP)**

Design of the MilGem Project began in 2004, aimed at the indigenous design and construction of anti-submarine warfare and offshore patrol vessels. Management of the design and configuration of the project is under the responsibility of the Turkish Navy, which is heading up the project with the maximum and efficient use of local capabilities.

The operational capabilities of the ship are geared towards anti-submarine, surface and anti-air warfare and surveillance, and defence against asymmetric threats.

Prototype Ship TCG-HEYBELİADA has gone into service under the Turkish Navy on 27 September 2011 and the second ship TCG-BÜYÜKADA has gone into service on 27 September 2013. Third and Fourth Ships are under construction.

The MilGem corvette is a displacement-type mono-hull vessel, designed to meet specific requirements of the Turkish Navy in terms of speed, sea-keeping and stability. The structural design of the hull was made by the Turkish Navy and optimised by Istanbul Technical University, following the standards of Turkish Lloyds and in line with national / international naval structure and survivability standards.

The ship is equipped with 4 diesel-generators with 600kW output power each; while the design of the auxiliary power system is based on high reliability and survivability.

MilGem is equipped with a sophisticated Integrated Platform Management System (IPMS) to maintain continuous and reliable operation, reduce reaction times and simplified ship management.

Extensive studies have been conducted and all necessary precautions taken to reduce the magnetic, acoustic, radar and IR signatures of the ship.

Technical Specifications :

Length	: 99 m
Beam	: 14.4 m
Draught	: 3.9 m
Displacement	: 2.400 t
Speed and Cruising Range	: 29+ Knots, 3,500 nm @ 15 Knots
Complement	: 85 (max. capacity 120)
Main Propulsion System	: 1 Gas Turbine, 2 Diesel Engine 2 shafts and 2 CP Propellers.
Total Electrical Power	: 4 * 588 kW
Total Power	: 32 MW
Complement	: 108

Armament:

8 x SSM (Harpoon Block II)
1 x 76mm gun
2 x 12.7mm Aselsan STAMP
4 x 324mm (2-twin) torpedo tubes
1 x Point Defense Missile System (Mk49 RAM)
1 x 10-ton helicopter platform and hangar
Sea Sentor Torpedo Decoy System
KALKAN Decoy Control System/Mk137 Launcher

Sensor Suite:

SMART-S Mk2 Air/Surface Search Radar	
Navigation Radars	: Alper LPI and Sperry Vision Master
Hull Mounted Sonar	: Locally developed Yakamoz Medium Frequency Sonar
Combat Management System	: Based on the locally developed GENESIS CMS
ESM/ECM	: Aselsan ARES-2N
Electro-optic System	: AseI FLIR-300D
Laser Warning Receivers	: Aselsan LWR System





FAST AMPHIBIOUS SHIP (LCT)

The new generation of Landing Craft Tank (LCT) is a fast amphibious vessel with its landing and high maneuver capability. Primary roles of LCT are amphibious operations and marine/vehicle/tank transfer. Its secondary roles are providing fast humanitarian and rescue aid to disaster areas.

Technical Specifications:

- Overall Length : 79.85 m
- Beam : 11.7 m
- Displacement : 1156 tons
- Draught (fore) : 0,96 m
- Draught (aft) : 2.22 m
- Max. Speed : 18 knots
- Astern Speed : 7 knots
- Endurance : 400 nm
- Main Engines : 2 x 2.320 kW diesel engine
- Sea States : 4 (full operation), 5 (limited operation)
- Complement : 21
- Weapons
 - 2 x 25 mm stabilized gun (STOP)
 - 2 x 12.7 mm machine gun
- Transport Capacity
 - 200 tons (standard), 420 tons (max.) of load / 260 marines / 3 Tanks (M-60 (56600 kg)) / 12 ZPT/ZMA / 18 UNIMOG / 18 Dodge / 8 MAN / 8 REO / 30 JEEP / 8 MAGIRUS / 2 TIR
- Deck Area : 411 m2

LCT



LST



AMPHIBIOUS SHIP (LST)

The new generation Landing Ship Tank (LST) is a fast amphibious vessel of upper- intermediate size with landing capability and significant armament power. LST plays the major role of power projection with transporting huge quantities of fire support elements/ marines/vehicles/tanks in order to conduct amphibious operations. It is also used for providing fast humanitarian and rescue aid, emergency health services to disaster areas.

Technical Specifications:

- Overall Length : 138.75 m
- Beam : 19.6 m
- Displacement : 7254 tons

- Draught (fore) : 1.882 m
- Draught (aft) : 4.75 m
- Max. Speed : 18.5 knots
- Endurance : 5000 nm
- Main Engines : 4 x 2880 kW diesel engine
- Sea States : 5 (full operation), 6 (limited operation)
- Complement : 496
- Crew : 129
- Joint Group Headquarters : 17
- Marines: 350
- Transport Capacity
- 1200 tons of load or various vehicles/tanks (on vehicle deck and on open deck)
- Helicopter (15 tons)
- 4 x LCVP
- Weapons
- 2 x Phalanx CIWS
- 2 x 40 mm gun
- 2 x 12.7 mm stabilized machine gun (STAMP)
- Deck Area (Total : 1790 m2)
- Open Deck : 690 m2
- Vehicle Deck : 1100 m2





TUZLA CLASS PATROL BOAT

Tuzla Class Patrol Boats conduct patrol, security and ASW tasks and also provide protection and deterrence against asymmetric threats in and around critical straits, harbours, bases and at their approaches.

Tuzla Class Patrol Boat is designed and integrated with modern technology weapons, sophisticated, reliable, easy to maintain and cost effective navigation systems which enable her accomplish her task efficiently. The flexible system design makes it possible to fulfill the Navy's and Coast Guard's wide range of operational requirements.

• Missions

Anti-Submarine Warfare/Anti-Surface Warfare/Anti-Air Warfare/Operations Against Asymmetric Threats/Coastline, Waterway and Port Protection/Oil and Gas Field Protection/Illegal Immigration Patrols/Intelligence Gathering/Anti-Smuggling/Anti-Piracy/Search and Rescue/Fisheries Inspection/Training

- Length Overall 56.90 m.
- Beam (Moulded) 8.90 m.
- Maximum Draft 2.53 m.
- Displacement 400 tonnes (+/- 5%)
- Maximum Speed 25+ knots
- Range up to 1000 nm
- Endurance 3 days
- Full Operations up to Sea state 4
- Limited Operations up to Sea state 5
- Survival up to Sea state 7
- Hull and deckhouse All welded mild Steel - AH-36 Grade
- Accommodation 3 Officers/9 Petty Officers/3 Cont. Sergeants/17 Privates
- Engines 2 x MTU 16V 4000 M90 each 2720 kW (3650 bhp) at 2100 rpm
- Gearboxes 2 x ZF 7641 Gearboxes
- Propellers 2 x Otto Piening 5 bladed FPP
- Weapons
 - 1 x 40/70 mm Oto Melara Twin compact gun (600 rounds/min), with emergency remote control capability
 - 2 x 12.7 mm Stabilized Machine Gun with IR imaging and remote control capability
 - ASW Rocket Launcher
 - Surface to Air Missile System (optional)
 - Surface to Surface Missile System (optional)
 - Depth Charges

PATROL BOAT



FAC

42 M FAST ATTACK CRAFT



Design, Missions and Capabilities

42m Fast Attack/Response/Patrol Craft is designed by RMK Marine to carry out surveillance, patrolling, intelligence gathering, search and rescue and interdiction tasks both in international and coastal waters.

Fast Attack/Response/Patrol Craft is designed as a multi-role platform capable of combatting in both surface and anti-air warfare conditions.

The design of the craft is optimized in order to reduce the radar cross sectional area.

Its aluminum structure enables it to reduce infra-red, and magnetic signatures, all of which decreases the possibility of detection.

With its specifically designed stern-ramp, Special Forces can be rapidly deployed from the craft with an organic RHIB.

COAST GUARD SEARCH AND RESCUE VESSEL

RMK Marine has built four Coast Guard Search and Rescue Vessel (CG SAR) for Turkish Coast Guard in accordance with NATO/International standards.

The CG SAR Vessels designed to provide effective functionality in search and rescue, patrolling, anti-smuggling, reconnaissance and surveillance, anti-pollution and external firefighting within the territorial waters and exclusive economic zones (EEZs).

The CG SAR vessels are equipped with visual landing aids for day and night landing - takeoff operation for up to 10 tons helicopters. CG SAR has also telescopic hangar for AB-412 type helicopter.

The Vessels are equipped with floating barriers for oil spill containment; that are composed by modular inflatable booms and suitable for rough sea operations. CG SAR Vessels are also fitted with antipollution system for neutralizing with nozzles able to deliver 200 liters of dispersant upon a 10.000 square meters surface while the vessels are proceeding at 16 knots speed.

The Vessels are capable for JP-5, fuel-oil, fresh water and lubricating oil replenishment stations (RAS) and vertical replenishment (VERTREP) in cruise.

Main Dimensions (Length, Breadth, Draft)	: 88.6 m, 12.2 m, 3.6 m
Displacement	: 1700 tons
Speed and Range	: 22 kts, 3000 nm @ 15 kts
Propulsion	: 2 x 5200 Kw, 2 x Shafts, 2 x CP Propeller, Bow Thruster (300 kW), Fin stabilizer
Generators	: 2 x 900 kW, 380 V AC 50 Hz
Emergency Generator	: 1 x 212 kW, 380 V AC 50 Hz
Complement	: 92
Weapons	: 1 x 40 mm Gun, 2 x 12.7 mm M.Gun
Miscellaneous Control	: External Fire Fighting System (2x1200m ³ /hour), Prewetting System, Pollution and Prevention Systems, 2 x RHIB Boat

CGSRS





ONUК MRTP16®

The advanced composite "Fast Intervention Craft" ONUК MRTP16 is the evolution of the proven ONUК KO-01 deep V hull of the legendary "Kaan 15" Class ONUК MRTP15 Fast Intervention Craft of the Turkish Coast Guard. The Onuk KO-02 hull and structure is very substantial improvement over the well proven ONUК KO-01. ONUК MRTP16 is developed as a versatile Multi Role Tactical Platform (MRTP) for increasingly tough requirements of the law enforcement and naval forces to control the littoral and coastal waters.

Internally, the advanced machinery systems and arrangement result in a vessel with greatly enhanced operability, maintainability and accommodation standards.



MRTP 16



MRTP20



ONUК MRTP20®

Designed for superiority in brown waters the advanced composite "Improved Fast Intervention Craft" ONUК MRTP20 built on the KO-03 hull, is the third generation of the ONUК MRTP series. Targeting to exceed the increasingly tough requirements of the naval and law enforcement forces to control the littoral and coastal waters, the ONUК MRTP20 combines speed, sea keeping and weapon/load carrying capability with a well proven robust structure designed for an extreme professional use.

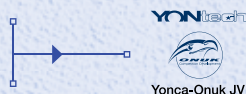
As all ONUК MRTP platforms, the advanced machinery systems and arrangement result in a vessel with greatly enhanced operability, maintainability and accommodation standards.



ONUК MRTP-24/U SOC

Designed to be ultimate special operation / seal craft, the advanced composite ONUК MRTP24 SOC built on the KO-04b hull tank tested to 72 knots, is the fourth generation of the ONUК MRTP series. Targeting to exceed the increasingly tough requirements of the Special Forces and seal teams operating in hostile environments, the ONUК MRTP24 SOC carries a substantial firepower and combines speed, sea keeping, and load carrying capability with well proven robust structure designed for an extreme professional use.

With its high speed, superior sea keeping, extended range, sophisticated and extensive weapon / systems, the ONUК MRTP24 SOC is an operationally proven, state-of-the-art Special Operation Craft.



MRTP 24/U



MRTP24 FAC



ONUК MRTP24 FAC

Designed for the utmost superiority in brown waters, the advanced composite ONUК MRTP24 FAC, built on the KO-04 hull tank tested to 85 knots, is the fourth generation of the ONUК MRTP series. Targeting to exceed increasingly tough requirements of the naval and law enforcement forces to control the littoral and coastal waters, the ONUК MRTP24 FAC carries a crouching firepower and combines speed, sea keeping, and load carrying capability with a well proven robust structure designed for an extreme professional use.

With its very high speed, superior sea keeping, extended range, sophisticated and extensive weapon/systems, the ONUК MRTP24 FAC is also an efficient and economical solution for anti-piracy operations. This is the reason why we called it "Kangal" class, after the name of world famous dog "Anatolian Shepherd" and can be used escorting and protecting the commercial vessels.



SÜRATLİ KARAKOL VE HÜCUM BOTU

ONUК MRTP34 is developed as a versatile multi role platform for the increasingly tough requirements of the naval and law enforcement forces to control the littoral and the coastal waters.

Internally, the advanced machinery systems and arrangement result in a vessel with greatly enhanced operability, maintainability and accommodation standards.

PRIMARY ROLES

Mastery of the littoral can not be presumed. It does not derive directly from command of the high seas. It is an objective which requires our focused skills and resources. ONUК MRTP34 "Fast Patrol / Attack Craft" has been designed for this purpose, capable of carrying out a wide range of littoral and coastal water law enforcement-naval duties and open sea rescue, including;

- Patrol / Escort / Fast attack
- Anti-piracy
- Anti-terrorist protection of the coastal and offshore installations
- Surveillance / Covert surveillance
- Search and Rescue
- Anti Smuggling
- Pollution Control

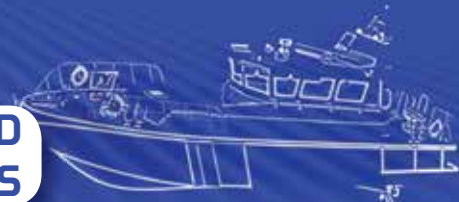


MRTP 34



FAST PATROL BOAT

Type	:	Fast Attack Craft
Length Over All	:	LOA 52,00 [m]
Length Waterline	:	LWL 45,25 [m]
Breadth Moulded	:	B 8,85 [m]
Design Draught	:	d1 1,75 [m]
Crew	:	person 41
Propulsion	:	- 3 X waterjets
Speed	:	max ~ 60,0 [kn]
Gun	:	76.0 [m]
2 x Aselsan Stamp	:	12.7 [m]
Aselsan Stop	:	30.0 [m]
Atmaca or Harpoon	:	2X2 or 2X4
"Class	:	
Turkish Lloyd"	:	High Speed Naval Craft



MULTI- ROLE PATROL CRAFT

This vessel is not designed as a small vessel, but it is intended as “compact”, and as such the Ares110 Hercules packs a lot of punch for its weight. With High speed and range options, this vessel can out-class and out-run, many larger vessels and still keep the small, fast boats used by smugglers and pirates, in its sights.

Technical Specifications:

LOA	: 33.00m
Beam	: 7.50m
Draught	: 1.42m
Max. Speed	: Up to 47 knots



ARES 110 HERCULES



SNR-17



FLUVIAL PATROL AND INTERVENTION BOAT

The Fast Patrol Boat SNR-17 is capable of carrying out different duties. Primary objective is fluvial and coastal patrol on the water border. Secondary objectives are anti-smuggling, anti terrorist/pirate activities, patrol against illegal immigration and environmental protection.

4 persons can accommodate in SNR-17. There is also a saloon for 6 people. The propulsion system consists of 2 main engines, 2 reduction gears and 2 FPPs.

Principle Dimensions & Performance

LOA	: 17.26 m
B	: 4.55 m
T	: 1.15 m
Displacement	: 25 ton
Continuous Speed	: >28 knots
Endurance	: >200 Nm

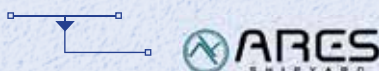


UNDERWATER OFFENCE TEAM BOAT

Type	: Fast Special Operation Craft
Length Over All	: LOA 25,75 [m]
Lenght Waterline	: LWL 21,25 [m]
Breadth Moulded	: B 5,78 [m]
Design Draught	: d1 <1,20 [m]
Crew	: person 5
Navy Commando	: person 16
Main Engines	: 2 x 2600 HP
Propulsion	: 2 X waterjets
Speed	: +50 [kn]
Weapons	: (Stop) 25 mm
“Class	
Turkish Lloyd”	: +1N5 Y HSC-N OC3 +M PATROL BOAT



ARES 125 FAMB



FAST ATTACK MISSILE BOAT

ARES 125 FAMB series have been designed for naval and law-enforcement duties such as fast attack missile operations, coast guard duties, anti-smuggling operations, anti-terrorist protection of offshore and coastal infrastructure, surveillance and special operations forces insertion/extraction. These aluminum construction boats have over 50 knots speed capability.

Length Overall	: 38.00 m
Beam	: 8.30 m
Hull Draught	: 1.63 m
Displacement	: 165 Tons
Max. Speed	: 50 Knots +
Classification	: DNV, BV, TL / High Speed Naval Craft

MULTI-ROLE FAST PATROL BOAT

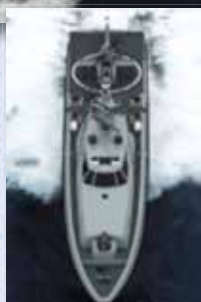
ARES 58 FPB series have been built for littoral/coastal waters naval and law-enforcement duties such as offshore patrolling and escort, search and rescue operations, coast guard duties, anti-smuggling operations, anti-terrorist protection of offshore and coastal infrastructure, surveillance and interception, border patrol, customs duties and anti-human trafficking. These FRP composite construction boats have over 40 knots speed capability.

Length Overall	: 18.00 m
Beam	: 5.00 m
Hull Draught	: 0.90 m
Max. Speed	: 40 Knots
Classification	: TL, BV / HSC

ARES 58 FPB



ARES 150 SOF



SPECIAL OPERATIONS FORCES SUPPORT SHIP

ARES 150 SOF series have been designed for naval, law-enforcement and special operations forces support duties such as special operations forces insertion/extraction, fast attack operations, coast guard duties, offshore patrolling and escort, search and rescue operations, anti-smuggling operations, anti-terrorist protection of offshore and coastal infrastructure, surveillance and covert surveillance. Their operational capability has been highly developed thanks to the helipad designed on deck.

Length Overall	: 46.00 m
Beam	: 8.70 m
Hull Draught	: 1.85 m
Displacement	: 248 Tons
Max. Speed	: 45 Knots +
Classification	: DNV, BV, TL / High Speed Naval Craft



FAST PATROL BOAT

KND 30 FPB series have been built for naval and law-enforcement duties and open sea rescue operations such as littoral patrolling and escort, coast guard duties, search and rescue operations, anti-smuggling operations, protection of offshore and coastal infrastructure, surveillance, border patrol and customs duties. They have been equipped with powerful water jet propulsion system in order to increase their maneuverability and operational capability in shallow waters. The boats have high water supply capacities supporting 20 personnel and have a speed capability of 30 knots.

Length Overall	: 30.10 m
Beam	: 6.30 m
Hull Draught	: 1.50 m
Displacement	: 108.5 Tons
Max. Speed	: 30 Knots
Classification	: BV, TL / Patrol Boat

KND 30 FAST PATROL



ARES 42 HECTOR



MULTI-ROLE PATROL CRAFT

ARES 42 HECTOR series have been successfully in service for Turkish Coast Guard Command. These boats have been built for littoral/coastal waters naval, law-enforcement duties and rescue operations such as coast guard duties, offshore patrolling and escort, anti-smuggling operations, protection of offshore and coastal infrastructure, surveillance, interception, border patrol and anti-human trafficking. These aluminum construction boats have 35 knots speed capability.

Length Overall	: 12.99 m
Beam	: 3.99 m
Hull Draught	: 0.99 m
Displacement	: 15 Tons
Max. Speed	: 35 Knots
Classification	: TL / HSC

SEISMIC RESEARCH VESSEL



SEISMIC is designed to perform 2D/3D seismic researches as well as geophysical, geological, geotechnical, bathymetric, hydrographic, oceanographic and hydroacoustic researches and to realize the research projects of the other disciplines related to earthquakes, general geology, practical geology and environment geology and to do sampling and data collecting about the subject research areas. She has a helicopter platform. She is fitted with 4x4 streamer systems and hull/system infrastructure is ready for 8x8. She is equipped with 1 (one) Remote Operated Vehicle (ROV) which can do oceanographic sampling and measuring, diesel electric propulsion system, Class I Dynamic Positioning System, 4 x 2650 kW generators, 2 x 3700 kW azipull thrusters with nozzles and 1 x 1000 kW bow thruster.



RATSHIP-RESCUE AND TOWING SHIP

RATSHIP is designed for rescue and subsea operations and to support submarine rescue operations. She will be capable of rescuing and towing the broken down, wrecked and ran ashore ships, offshore towing, subsea repair and wreck removal via diver, ROV and ADS, torpedo recovery, providing emergency life support to the personnel of disabled submarine up to 600 meters depth, supporting personnel rescue operations, fire-fighting, rescuing personnel from the air vehicles which landed/fell to the sea, removal of personnel/material from the subject vehicles as well as wreck removal of the subject vehicles. She is equipped with Class I Dynamic Positioning System, 2 x 3500 kW main engines, 2 x controllable pitch propellers, 1 x 550 kW bow thruster, 1 x 770 kW retractable type thrusters and 2 x 1000 kW aft tunnel thrusters.

KURYED



MOSHIP



MOSHIP-SUBMARINE RESCUE MOTHER SHIP

MOSHIP is designed to provide emergency life support to the disabled submarine, to evacuate the crew up to 600 meters depth, to rescue or tow the damaged or disabled ships. She has the capability to rescue the personnel in disabled submarines up to 600m depth in maximum 72 (seventy two) hours with US Submarine Rescue Diving Recompression System (SRDRS), NATO Submarine Rescue System (NSRS). In addition to these basic duties, she is capable of doing subsea repair work, wreck removal and offshore towing via divers, ROV and ADS. She is equipped with diesel electric propulsion system, Class II Dynamic Positioning System, 4 x 3500 kW generators, 2 x 3500 kW azipull thrusters, 2 x 1000 kW bow thrusters and 1 x 1450 kW retractable type thruster.



UNMANNED SURFACE VEHICLE (USV)

LEVENT is a high speed, multi-purpose Unmanned Surface Vehicle (USV) developed for performing various maritime applications remotely. The state-of-the-art system is modular and can be easily equipped with different payloads. LEVENT can be used in various missions such as reconnaissance, surveillance, target acquisition (RSTA), intelligence, maritime security, patrol, target towing and logistics. The system is easily controlled through the network enabled Command & Control Station which also permits integration of the system to the ships network and external C2I systems. The station provides real time video and onboard sensor feedback from the boat providing commands for the operation of the USV.

LEVENT





TCG YARBAY KUDRET GÜNGÖR (A-595)

The ship, built to support the Turkish Navy ships. She can simultaneously supply F-76 fuel, fresh water and cargo by onboard Replenishment at Sea system, from both starboard & port. Helo apron is suitable for helicopters day & night landing/take-off. She has JP-5 storage of 10 tons and transfer system. She has an accommodation capacity of 229 people, cruising range of 6000 miles at 14 knot's and endurance of 90 days. Turkish Navy operated the vessel since 1995.



YKB (A-595)



GMK-C



AUTONOMOUS UNDERWATER SURVEY VEHICLE

GMK-C is one of the leading AUVs among its counterparts with its easy deployment from any kind of platform, easy operation and maintainability, modular structure, high controllability, tethered and untethered operation mode. Besides its mine detection capability the vehicle is light, small and robust. GMK-C has a user friendly mission management system and very long endurance time. It enables users to operate with 5-axis motion (Surge, heave, roll, pitch, yaw)



NATIONAL AUV (AUTONOMOUS UNDERWATER VEHICLE)

Performs and supports mine countermeasure tasks on harbours and shoreline areas. Performs hydrographic and oceanographic surveys. Collects and stores video, sonar and environmental data, delivers through acoustic, hard-wired and wireless communication channels, operates at tethered, untethered modes, follows a prepared mission plan also manual guidance of an operator should the AUV system be used for military purposes and once it's taken inventory of Turkish Armed Forces, integration into mine countermeasures ships/submarine rescue ships will be possible.

- | | | |
|--------------------------------------------------------|------------------------|-------------------------------------------|
| Technical Specifications: | • Dimensions | : Length 2.4 m, Width 0.7 m, Height 0.4 m |
| • Weight in Air : 270 kg | • Maximum Cruise Speed | : 8 knot |
| • Operational Depth : 1000m untethered / 300m tethered | • Maximum Survey Speed | : 6 knot |
| | • Nominal Speed | : 3 knot |

AUV



GELİBOLU



GELİBOLU-ROV: REMOTELY OPERATED VEHICLE

GELİBOLU-ROV is a Work Class ROV which can perform different tasks related to marine applications such as submarine rescue, deep sea survey, observation for seismic research, collecting samples from underwater etc. with its high power thruster system, robust and functional robotic arms, small and lightweight structure.



GLOBİDA

GLOBİDA UNMANNED SURFACE VEHICLE

GLOBİDA; Unmanned Surface Vehicle is made of composite body, resistant to impacts and mariner environment. With 4 m length, 1.25 m width and 1.40 m height, GLOBİDA is able to serve for 10 hours. It is driven by gasoline. The vehicle can be controlled either manually or autonomously over a control center. Thanks to its capability of transferring instant images via an integrated camera installed, navigation is easy. GLOBİDA is used in various fields such as protection of coast lines, prevention of trafficking and following marine pollution.



LDG LOGISTIC SUPPORT SHIP



Logistic Support Ship have replenishment at sea capability and it supplies fuel, water, food and cargo to other ships/combatants.

Technical Specifications:

- Overall Length : 105.42 m
- Beam : 16.8 m
- Displacement : 8628 tons
- Draught (fore) : 5.75 m
- Draught (aft) : 6.09 m
- Max. Speed : 12.5 knots
- Endurance : 9500 nm
- Main Engines : 2 x 1520 kW diesel engines
- Sea States : 2 (full operation), 5 (limited operation)
- Complement : 70
- Weapons : 2 x 12,7 mm stabilized machine gun (STAMP)
- Helicopter Capacity : 1 helicopter (15 tons)
- Loading Capacity
- 4000 tons of F-76
- 330 tons of F-44
- 590 tons of fresh water
- 108 m3 of cargo



COMBAT MANAGEMENT SYSTEM FOR FOR SURFACE COMBATANTS

GENESIS Combat Management System program has been initiated by the Turkish Navy to modernize Perry class frigates' obsolete systems. Successfully concluded in 2012 by HAVELSAN, this program comprises development and production of hardware and software components of the new Combat Management Systems for 8 frigates, system integration and testing, training and lifetime maintenance. All of those services have been provided by the local means.

The Turkish Perry Class frigates with GENESIS Combat Management System onboard, conduct successful local and blue water operations in all over the world oceans. HAVELSAN also undertakes the integration of new systems (such as Multi Link Data Processor, SMART-S Mk.2 3D Air Radar, Harpoon G/M Block II, Mk.41 VLS and ESSM) with GENESIS CMS.

GENESIS Main Features

- Modern, reliable and proven high performance
- Open architecture consoles and display systems
- Tactical tracking capacity of over 1000 targets
- Enhanced sensor data fusion and weapon engagement capability
- Automatic Threat Evaluation
- Link 16/22 Ssystem Integration opportunity



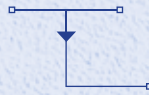
GENESIS





SAR 33 MODERNIZATION

Modernization of 5 SAR 33 Boats that belongs to Turkish Coast Guard has been realized to reach a maximum speed of 26+ knots. Within the context of the project, replacement of the main engines, propulsion system, diesel gen-sets, auxiliary system, furniture in living area, of shell plating, 1 MC announcement system and their equipments and bridge consoles have been carried out by Istanbul Shipyard.



SAR 33



SAR 35

SAR35 MODERNIZATION



Modernization of 4 SAR 35 Boats that belongs to Turkish Coast Guard has been realized to reach a maximum speed of 26+ knots and a good seakeeping capability. Within the context of the project the main engines and the propulsion system are renewed.



SUBMARINE MODERNIZATION

- Design, Engineering and Integration Services,
- Consultancy Services,
- Procurement of Materials/Equipments/System and Local Content Maximization
- Infrastructural Studies,
- ILS Management



SUBMARINE MOD.



The image features a satellite in space, centered in the lower half. The satellite has a central body with a circular lens or sensor and four large, rectangular solar panel arrays extending outwards. The background is a deep blue gradient with a faint, glowing world map. A white graphic element, consisting of a curved line and a horizontal line with an arrowhead, points towards the text.

MASTER OF THE SKIES



AEROSPACE



ATAK



ATAK ADVANCED ATTACK AND TACTICAL RECONNAISSANCE HELICOPTER

T129 ATAK is a new generation, tandem two-seat, twin engine helicopter specifically designed for attack and tactical reconnaissance purposes. T129 ATAK incorporates totally new system philosophy with new engines, avionics, electro-optics and weapons, modified airframe, uprated drive train and new tail rotor. T129 ATAK with the best of class power to weight ratio incorporates multi weapon asymmetric loading capability.

T129 ATAK has been optimized to meet and exceed the “high and hot” performance requirements for harsh geographical and environmental conditions in day and night conditions.

- Day & night all environment capability; effective, precise weapon systems that provide combat superiority with low visual, aural, radar and IR

signatures, high level of crashworthiness and ballistic tolerance providing high battlefield survivability.

- Excellent situational awareness through good visibility arcs and fully integrated mission and communication systems.
- Eased crew workloads through superior performance, agility and platform stability and handling qualities.
- Reduced Preparation Time augmented by off-board Mission Planning System.
- Low operating cost through effective design.

T129 ATAK Helicopters are in use of Turkish Land Forces since Q2 2014.

Technical Specifications:

- Engine : 2 x LHTEC CTS-800 4A (1014kW / 1.361shp each).
- MTOW : 5.000 kg (11.023 lb).
- Max. Cruise Speed : 281 km. / 152 kts.
- HIGE & HOGE : 15.000 ft & 13.850 ft.
- Service Ceiling : 15.000 ft
- Endurance : 3 hrs
- Armaments : 500 rounds 20mm. Gun, 76x Rockets 70 mm (2.75”), 16x CİRİT Guided Missile 70 mm (2.75”), 8x MIZRAK Anti-Tank Missile, 8x Stinger Air-to-Air Missile.



HÜRKUŞ

HÜRKUŞ (NEW GENERATION BASIC TRAINER)

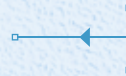
HURKUS, designed and developed for the global civil and military trainer requirements, is a Advanced Trainer Aircraft with EASA CS23 certification, featuring next generation glass cockpit, unique high tandem seating configuration, best in class pilot view, OBOGS and high power engine to meet the requirements of demanding missions.

Following the completion of ground and taxi tests, HÜRKUŞ performed its maiden flight on August 29, 2013.

Hürkuş B (advanced variant with integrated military avionics) contract was signed between SSM and TUSAŞ on 26 December 2013. In scope of the HÜRKUŞ B project, 15 aircraft (40 more aircraft optional) will be manufactured and delivered to TurAF.

Technical Specifications:

• Max. Cruise Speed	: 310 KCAS (574 km/hr)
• Max. Climb Rate (Sea-level)	: 4370 ft/min (22 m/s)
• Max. Service Ceiling	: 34700 ft (10577 m)
• Max. Endurance (15,000 ft)	: 4:15 hrs
• Max. Range (15,000 ft)	: 798 nm (1478 km)
• g Limits	: +7 / -3,5g


TAI


UNMANNED AIR VEHICLE SYSTEM

ANKA, advanced Medium Altitude Long Endurance (MALE) class Unmanned Aerial System, performs day and night, all-weather reconnaissance, surveillance, target detection / identification and intelligence missions with its EO/IR and SAR payloads, featuring autonomous flight capability including Automatic Take-off and Landing. ANKA incorporates a heavy-fuel engine and electro-expulsive Ice Protection System with an Advanced Ground Control Station and dual datalink allowing operational security and ease. The system is expandable with a Transportable Image Exploitation Station, Radio Relay and Remote Video Terminal.

SYSTEM FEATURES:

- Fully autonomous operation
- Dual-redundant flight control system
- Dual-redundant automatic take-off and landing system
- Dual-redundant electrical power generation
- Dual-redundant high data rate digital datalink
- Electro-expulsive ice protection system
- A400M / C-130 Transportable
- Easy-to-Maintain

CONTROL STATION FEATURES:

- NATO compliant ACEIII type shelter
- STANAG 4586 compliant
- Redundant command and control consoles
- Mission planning, management, simulation and playback capabilities

TARGET DRONE SYSTEMS

TAI Target Drone Systems, consisting of Air Vehicle, Payloads, Ground Control Station, Launcher and Ground Support Equipment, are aerial systems simulating enemy aircrafts and missiles for air to air, ground to air, anti-aircraft gunnery and missile systems' tracking and firing trainings. Indigenously designed conventional type TURNA and jet-engined high speed type SIMSEK are cost-effective modular systems providing high maneuverability and operational ease.

TECHNICAL SPECIFICATIONS

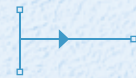
	TURNA	ŞİMŞEK
• Service Ceiling	: 12.000 ft	15.000 ft
• Endurance	: 90 min	60 min
• Max. Speed	: 180 kts	400 kts (in dive)
• Range	: 50 km LOS	100 km LOS
• Payloads	: IR/Heat Source Passive RCS Generator Miss Distance Indicator Sleeve	Passive RCS Augmenter Passive IR Signature Miss Distance Indicator Counter Measure Dispenser System Tracking Smoke Generator Smoke Generator Tracking

Control : Full Autonomous Navigation / Mission Planning with Portable / Shelter GCS

ANKA



- User-friendly MMI
 - External C41 Interfaces
- Technical Specifications:
- Wing Span : 17.3m
 - Length : 8m
 - Endurance : 24 hrs
 - Operational Altitude : 30,000 ft



TAI

ŞİMŞEK



TAI

ARI-1T



ROTARY WING MINI UNMANNED AERIAL SYSTEM

ARI-1T Rotary Wing Mini Unmanned Aerial System is a military grade, compact and lightweight platform capable of performing surveillance and reconnaissance missions. The system can operate autonomously according to a mission plan which can be loaded before or during flight. The system is equipped with both IR and Day TV cameras to provide a real-time stabilized video stream to the Ground Control Station. The system consists of two Air Platforms, one Portable Ground Control Station and one Ground Data Link System.



MINI UNMANNED AERIAL SYSTEM

Aselsan's Mini Unmanned Aerial System is a compact, lightweight, fixed wing aircraft system and composed of autopilot, payload and ground control station. The Intelligence, Reconnaissance and Surveillance missions can be accomplished with the 2-axis stabilized gimbal which is designed in order to fulfill all the tactical requirements and has a modular design which enables the user to swap between different camera (EO/IR) on the field easily. The fully autonomous system can be launched by hand and recovered by parachute or on its fuselage. The one man portable system consists of two Airplanes (including payload and autopilot) and one Ground Control Station.



EFE – MINI UAV



EFE - MINI UNMANNED AERIAL SYSTEM

EFE provides longer endurance and observation times than its competitors. This system is very user friendly with very short assembly and disassembly time.

EFE System and all the sub-units are designed by VESTEL . EFE autopilot have been developed as part of the VESTEL autopilot family and incorporates many features of larger systems.

All structural parts in the aircraft are produced by VESTEL and all sub-components can be replaced without the need for any adjustment.



**KARAYEL TACTICAL UNMANNED AERIAL VEHICLE
(KATAPULT PARACHUTE)**

KARAYEL UAV System is an autonomous reconnaissance and surveillance platform and indigenously designed, developed and manufactured by VESTEL Defence Industry. With its capable Payloads on board KARAYEL can not only detect a target but also able to mark it with its laser designator. KARAYEL can take off, land and fly a designated mission fully autonomously without assistance from a pilot. Payload capacity and variations are available for both civil and military applications. KARAYEL UAV System is the first TACTICAL TURKISH UAV System developed in accordance with NATO STANAG 4671.

Propulsion Engine : 1x80 HP Mutual (Opposed Cylinders)
 Propeller : 2 Blade, constant speed, natural composite
 Dimensions Wing Span : 10,5 m
 Length : 6,5 m
 Propeller : 1,45 m diameter
 Weights : Maximum Take-Off Weight 550 kg
 Payload : 70 kg
 Performance : Cruise Speed 60-80 knot
 Endurance : > 10 hours
 Operation Altitude : > 18000 ft
 Data Link Class : LOS
 Radius : > 150 km

Power : Electric Power 2,8 kW
 Runway Fully Autonomous or Manual
 Launcher Fully Autonomous or Manual
 Runway Fully Autonomous
 Navigation : Fully Autonomous or Manual
 Parachute : Fully Autonomous and Controllable
 Coloured Day Camera IR Night Camera, Laser Range Finder Laser Pointer

KARAYEL



BAYRAKTAR



BAYRAKTAR TB2 TACTICAL UAV SYSTEM

Prototype Tactical UAV System has been demonstrated in 2009 with autonomous taxi, take off, cruise, landing and back to hangar return features. System has been developed with high level of reliability with its advanced military and aerospace grade triple redundant avionics, system dynamics based INS-GPS and fail safe sensor fusion techniques. Tactical UAV System is capable of fully autonomous landing just with its internal avionics. First system with 6 planes have been delivered to Turkish Armed Forces as of 2014.

Wing Span : 12 Meters
 Weight : 600 Kg
 Range : 150 Km
 Endurance : > 10 hours
 Operational Altitude : > 18000 ft
 Payload : EO, Thermal Camera, Laser RF, Laser Illuminator, Designator
 Flight : Fully Autonomous,
 Semi-Autonomous, Emergency Home Return
 Take Off : Runway Auto Take Off
 Landing : Runway Auto Landing (without external sensor aid)



SOLAR POWERED, UNMANNED AUTONOMOUS AIRSHIP

Otonom Teknoloji's main objective is to provide unmanned and autonomous solutions, products and services to improve the way of solving high effort and time driven problems.

With its R&D project "Solar Powered Unmanned Airship, Tepegöz", Otonom Teknoloji has developed the capability to design and manufacture customized aerostats and airships for long surveillance missions. One of the first results of the on-going R&D projects has been the solar-powered "Doruk Aerostat System". Since the design and production techniques have all been developed by Otonom Teknoloji, the possibilities of having different aerostats and airships meeting the custom mission needs are many.

Otonom Teknoloji aims to differentiate its sphere of activity to where it can make a difference and major impact in terms of improving cost efficiency and effectiveness by developing state-of-the-art unmanned and autonomous solutions for contemporary public and environmental safety problems.

The capabilities include:

- Aerostat and Airship Design, Production and System Integration
- Unmanned and Autonomous System Design, Development and Integration

TEPEGÖZ



- Embedded System & Software Design and Development
- Sensor Data Processing
- Smart Power Management
- Command & Control
- Navigation Management
- Digital Communications



MINI İHA

MINI UAV SYSTEM



As an indigenous solution, Mini UAV System is operational since 2007 and has been heavily used as a short range ISR asset by Turkish Armed Forces at battalion level. With its advance and military spec avionics, more than 50,000 flight sorties have been recorded. Initially exported to Qatar Armed Forces, Mini UAV System can operate under harsh geographic and meteorological conditions. Along with autonomous flight modes, real-time image mosaicking and stabilization feature helps to increase the situational awareness of the user.

Wing Span	: 2 Meters
Weight	: 5 Kg
Range	: 15 Km
Endurance	: 60 Minutes
Operational Altitude	: 3,000 Feet
Payload	: EO or Thermal Camera (2 Axis Gimbal)
Flight	: Fully Autonomous, Semi Autonomous, Emergency Home Return
Advanced Features	: Automatic Spin Recovery, Stall Control, Energy Management, Target Lock, Real-time image stabilization and mosaicking etc.
Take Off	: Hand Launch
Landing	: Belly Landing or Parachute

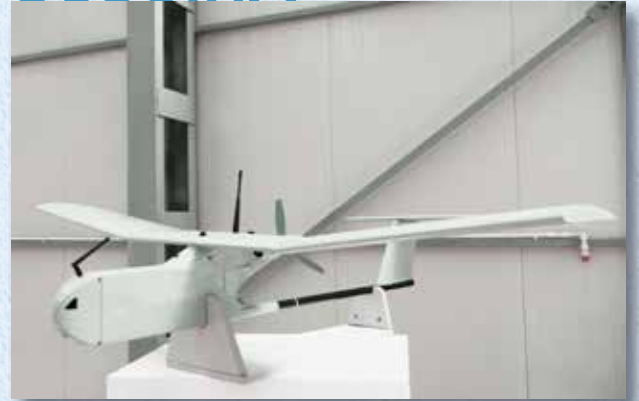


BAYKAR

MINI UNMANNED AIR VEHICLE

GLOBİHA Mini Unmanned Air Vehicle is made of light composite material, capable of ensuring high strength, flying by electric motor, providing easy handling by dismantling and easy installing in 10 minutes. The approximate weight is 3.1 kg, wing-span is 1510 mm, length is 1400 mm. The approximate endurance of the vehicle is 75 minutes and GLOBİHA is capable of carrying a payload of 750 g. Usage areas of the product are military, border safety, target identification, aerial mapping, aerial photographing and coast guarding. In public sector, on the other hand, GLOBİHA is used in natural disasters, marine pollution identification and petrol pipeline surveillance and security.

GLOBİHA



GLOBAL TEKNİK

GLOBQUAD



UNMANNED AIR VEHICLE

GLOBQUAD Unmanned Air Vehicle has a composite and closed body along with its high carriage capacity. Very easy to use, the unmanned air vehicle is able to perform its mission upon assignment of the required coordinates thanks to the land control station on a computer. When the connection with the land station is corrupt, then the vehicle is able to return its first take-off position and to perform auto-land and these functions can be assigned to any button on the remote controller. Upon the demand of the customer, required useful payloads can be integrated on the Quadrotor. The inter-rotors distance of GLOBQUAD is 1000 mm. The vehicle that can be controlled up to 15 km can endure for 45 minutes with li-po batteries. The vehicle is used in various fields such as border security, aerial imaging, aerial mapping, aerial photographing and observing social events.



GLOBAL TEKNİK

AVIONICS MODERNIZATION SUITE

TAI provides turnkey avionic modernization and system integration solutions to increase the technological level of airborne platforms, enhance the pilot vehicle interface and diversify the mission capabilities. Transport Aircraft (C-130), Jet Trainer (T-38) and Helicopter (S-70/UH-60/AH/UH-1) Avionics Suites designed and developed by TAI, are advanced platform independent technology solutions with modern and flexible avionics architecture, DO-178B software standards, multiple operating system capability, inherent growth potential in line with the current requirements.

TAI solution for **C-130** aircraft incorporates an advanced, state of the art RVSM compatible avionics suite integration to meet the GATM requirements. The developed avionics suite has undergone extensive flight and ground testing in order to receive Airworthiness Certification from SSM.

T-38 aircraft have been modernized with state of the art avionics suite to meet the demanding training requirements of the fighter pilots.

For the improvement of the flight and mission capabilities of **S-70/UH-60/AH/UH-1** helicopters, platforms are equipped with digital cockpit, advanced avionics and mission systems. Extensive modifications have been carried out for Turkish Special Missions.



T-38 KOKPIT Before Modernization



T-38 KOKPIT After Modernization



A400M

A400M MILITARY AIRLIFTER



TAI's structural work package includes the design and production the main structural components like forward-center fuselage, paratroop doors and hatch doors, emergency exit door, tail cone and top shell on rear fuselage and important flight control surfaces ailerons/spoilers.

TECHNICAL SPECIFICATIONS:

- Maximum Take Off Weight : 141.000kg / 310.850lb
- Maximum Payload : 37.000 kg / 81.600 lb
- Cargo Hold Volume : 340 m3 / 12.000 ft3
- Power-plant : 4 x EuroProp International TP400-D6 (each 11.000 shp / 8.200 kW)
- Service Ceiling : 40.000 ft 12.200 m
- Range with Max. Cargo : 1.780 nm 3.300 km





TJ35 TURBOJET ENGINE

Development activities of TJ35 Turbojet Engines were completed by end of 2013. The flight tests of TJ35 Engine which has 40lbf thrust, was performed with Futura 1.9 and T62-C Platforms. During the maximum altitude test which was conducted with T62-C with a 14 kg flight weight, the platform reached to 1860m altitude. At this altitude its speed was 110 km/h. TJ35 can reach speeds up to 200-250 km/h with Futura platform.

Technical Specifications:

Max Thrust(N)/(lbf)	: 178/40
SFC (g/N.h)/(lb/lbf.h)	: 137/1.35
Fuel	: JP8
Max Rotor Speed (RPM)	: 120.000
Pressure Ratio	: 4,1
Weight	: 3.1/6.8
Time Between Overhaul	: 25+
Endurance at 75% of Max RPM (h)	: 4+
Length (mm)/(in)	: 250/9.8
Diameter (mm)/(in)	: 130/5.1



TJ35



TP38



TP38 TURBOPROP ENGINE

TP38 Turboprop Engine Project which has 41.7 hp shaft power, is the first successful UAV gas turbine engine project in Turkey. The flight tests were conducted with various platforms, the last flight was performed with 19 Mayıs University's platform UZAYTEM in November 2013 with 150 kg flight weight, at 110 km/h speed and the platform reached the maximum altitude of 225m.

Technical Specifications:

Max Power(kW)/(hp)	: 31/41.7
SFC(kg/kW.h)/(lb/hp.h)	: 0.66/1.09
Fuel	: JP8
Max Core Speed	: 120.000
Max Propeller Speed	: 7.000
Pressure Ratio	: 4,1
Weight(kg)/(lb)	: 11.5/25.3
Time Between Overhaul (h)	: 25+
Length(mm)/(in)	: 530/20.9
Max Width(mm)/(in)	: 280/11.0



F-35 AIRCRAFT CENTER FUSELAGE PRODUCTION

JSF/F-35 Joint Strike Fighter (Lightning II) is a family of single-seat, single-engine, fifth generation multirole fighters to perform ground attack, reconnaissance and air defense missions with stealth capability.

The JSF/F-35 has three main models; the F-35A is a conventional takeoff and landing variant, the F-35B is a short take off and vertical-landing variant and the F-35C is a carrier-based variant.

Program participants are USA, UK, Italy, The Netherlands, Turkey, Canada, Australia, Norway and Denmark.

Industries of each participant countries have been contributing to the program. TAI - Turkish Aerospace Industries, Inc. has also undertaken important responsibilities.

One of the most complex structural section of the aircraft, "Center Fuselage" is produced by TAI.

TAI's other work-packages are "Center Fuselage Metallic Subassemblies, Composite Components, Air Inlet Ducts and Air-to-Ground Alternate Mission Equipment Pylon Manufacturing".



F-35 SPECIFICATIONS

Length	: 51.4 ft / 15.7 m
Height	: 14.4 ft / 4.38 m
Wingspan	: 35 ft / 10.7 m
Weight empty	: 29,300 lb
Maximum weight	: 70,000 lb class
Propulsion	: F135-PW-100
Speed	: 40,000 lbs Max.
Combat radius (internal fuel)	: Mach 1.6
Range (internal fuel)	: (~1,200 mph)
Max g-rating	: >590 nm / 1,093 km
	: >1,200 nm / 2,200 km
	: 9.0

F-35A CTOL

F-35B STOVL

F-35C CV

51.2 ft / 15.6 m
14.3 ft / 4.36 m
35 ft / 10.7 m
32,300 lb
60,000 lb class
F135-PW-600
40,000 lbs Max.
Mach 1.6
(~1,200 mph)
>450 nm / 833 km
>900 nm / 1,667 km
7.0

51.5 ft / 15.7 m
14.7 ft / 4.48 m
43 ft / 13.1 m
34,800 lb
70,000 lb class
F135-PW-100
40,000 lbs Max.
Mach 1.6
(~1,200 mph)
>600 n.mi / 1,100 km
>1,200 n.mi / 2,200 km
7.5



TJ90 TURBOJET ENGINE

TJ90 Turbojet Engine Development Project, which was started in 2011 with the aim of powering TUSAŞ's Şimşek speed target drone, continues with the qualification phase. Like TJ35 Engine, TJ90's engine control unit was also developed locally and it has EMI/EMC capability. The first flight test of TJ90 which has 90 lbf thrust, was carried out in June 2013 with Futura 2.5 Platform.

Technical Specifications:

Max Thrust (N)/(lbf)	: 400/90
SFC (g/N.h)/(lb/lbf.h)	: 150/1.5
Fuel	: JP8
Max Rotor Speed (RPM)	: 100.000
Pressure Ratio	: 4,1
Weight (kg)/(lb)	: 5.7/12.5
Time Between Overhaul (h)	: 25+
Length (mm)/(in)	: 390/15.4
Diameter (mm)/(in)	: 150/5.9

TJ90



TP400



TP400

TEI, as a %2.99 Risk and Revenue Sharing Partner, participates in the design and manufacturing activities of TP400-D6 Engine program which is being developed by EPI (EuroProp International) Engine Consortium. TEI's workshare consists of Front Bearing Structure Module, Primary Nozzle and Cone Module and test equipment special to the project. While TEI's responsibilities in the Engine Development Phase were design, prototype production, test and development engineering, in the mass production phase, TEI is the sole source for manufacturing, engineering and after sales services for the subject engine modules.





AIRCRAFT AND HELICOPTER ENGINE PART AND MODULE MANUFACTURING



TEI has been manufacturing more than 770 different engine components for 39 different engine programs. The manufactured parts are mainly rotating and hot section parts requiring state of the art manufacturing technologies, including many special process applications.

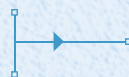
Inertia Weld, ECM (Electrochemical Machining), High Speed Blade Milling, Robotic Deburring, Vibratory Machining, Simultaneous Shotpeening are some of the high technology manufacturing processes used in TEI.

Through the blisk (bladed disk) and spool manufacturing technology transfer project, technologies which were not available in Turkey previously such as inertia welding, CNC blade milling, ECM (Electrochemical machining) and robotic deburring have been successfully implemented in TEI. Currently blisk and spool manufacturing are being continued for Genx, Leap, Passport, LMS100 and CF6 engine programs.



AIRCRAFT AND HELICOPTER ENGINE MAINTENANCE, REPAIR, OVERHAUL AND ASSEMBLY

TEI, as an important maintenance, repair and overhaul center of our country, is conducting different military and commercial engines' assembly, test and depot level maintenance activities with its international test capabilities and latest tooling and fixturing. TEI is performing MRO and testing activities on F110 engines powering F16 aircrafts for national and international customers, Depot Level Maintenance of Makila 1A1 Engines of Cougar Helicopters by pushing capabilities of 1st Air Supply Maintenance Center to the commercial market, Depot Level Maintenance of Modified Rotax 912 Engine powering Heron UAVs for Turkish Armed Forces, Depot Level Maintenance for TF33 Engines of NATO Awacs Aircrafts. TEI was selected Outstanding SoR in 2004, 2008 & 2011 by NSPA and IAMCO for the successful DLM activities for TF33 engine.





F135 AND F100 ENGINE PARTS PRODUCTION

Founded within the JSF Project, Kale Pratt&Whitney is not only specialized on sheet metal fabrication and machining process, but also contains Titanium Hot Forming, Hydraulic Forming, Titanium Hot Expander and Electrone Beam Welding, which needs high-tech Production and inspection methods.

Kale Pratt & Whitney is performing the production of all kinds of military and commercial parts.

Main goal of Kale Pratt&Whitney is to manufacture F135 engine parts besides F100 engine parts production.

Other commercial engine parts production of Pratt&Whitney are GP7000-PW4000-PW2000-V2500 and new generation PW1000G (Pure Power®) and other small jet Engine components.

Machining and fabrication production processes are used in both military and commercial engine parts as well as special processes. Digital X-Ray, Eddy Current, penetrant and magnetic particular inspection are various nondestructive inspection methods. Also heat treatment, Chemical and plasma coating processes are also applied.

To increase the product quality Operator certification Program has been completed with the support of Pratt&Whitney.

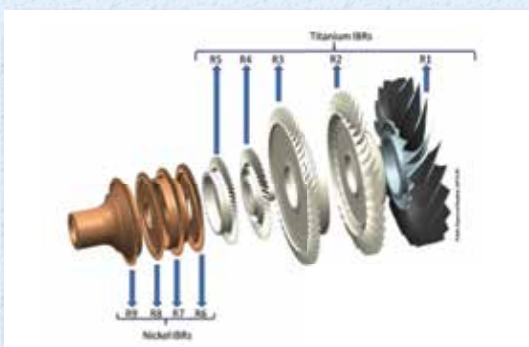
The processes such as Titanium Hot Forming, Hydraulic forming, Titanium hot expanding, Electron Beam welding which Turkey does not have, also are implemented in Kale Pratt Whitney.

Rather than hot sections on engine main production parts are, small and large machining parts, shrouds, compressor stators, seals, fan pannels, Syncrozitation rings, bearing heat shields and engine end flaps.



STRUCTURAL PARTS & ASSEMBLIES FOR AIRCRAFT

Alp Aviation is the source of the Black Hawk Horizontal Stabilizer Center-box assembly, Flight Safety Structural Assemblies, RAM Air Turbine Structural components and F-35 Flight Critical components for Lockheed Martin Aero.



DYNAMIC & STATIC ENGINE AND APU PARTS FOR AIRCRAFT

With dedicated engine components facility & business unit, Alp Aviation produces engine rotating hardware such as fan rotors & fan rear hub for F135, as well as other key engine & APU components such as Boeing 787 & Airbus 380 APU diffusers for Hamilton Sundstrand, Fuel & Oil Housings for many of Pratt& Whitney Canada engines, and Sync Rings for Pratt & Whiney F135 & F100.

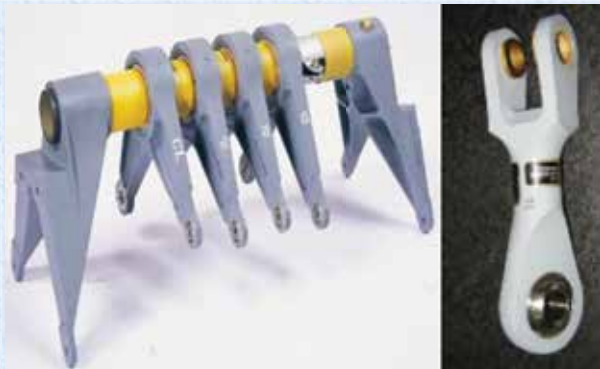
Alp Aviation is the major source for Pratt & Whitney F135 Stage 2, 3, 4 & 5 finished Ti IBRs as well as Fan rotor rear hub. An R&D contract is also signed in November 2011 between Alp and Pratt & Whitney to develop F135 Nickel IBR stages.





F-35 AND F-22 AIRCRAFT LANDING GEAR PARTS AND S-70 HELICOPTER PARTS & ASSEMBLIES

Alp Aviation produces landing gear parts and subassemblies for F-35 (JSF) and F-22 programs for Goodrich Landing Gear. The first JSF Flight carried more than 40 Alp made parts in its landing gears. Collar, Torque Arms, Drag Brace Assemblies and Uplock Assemblies, 300M and AERMET 100 components are currently in production. The strategic cooperation between Alp Aviation and Goodrich Landing Gear is expected to bring more opportunities in the near future, not only for the JSF program but also for other programs like S70I and major commercial programs. The landing gear assemblies will be manufactured by Alp Aviation in the Turkish Utility Helicopter Program (TUHP).



HELICOPTER DYNAMIC PARTS & ASSEMBLIES

Alp Aviation manufactures rotary-wing dynamic components, flight control hardware for all Sikorsky platforms, such as swash plate assemblies, bifilar, pressure plate assemblies, damper bracket assemblies, pitch-beams, horn assemblies, retention rod & nut.

As part of Turkish Utility Helicopter program with Sikorsky, product line expansion planned towards the production of all major flight critical & dynamic components& assemblies such as gears, gear boxes, rotor hub and spindle assemblies for Black Hawk.



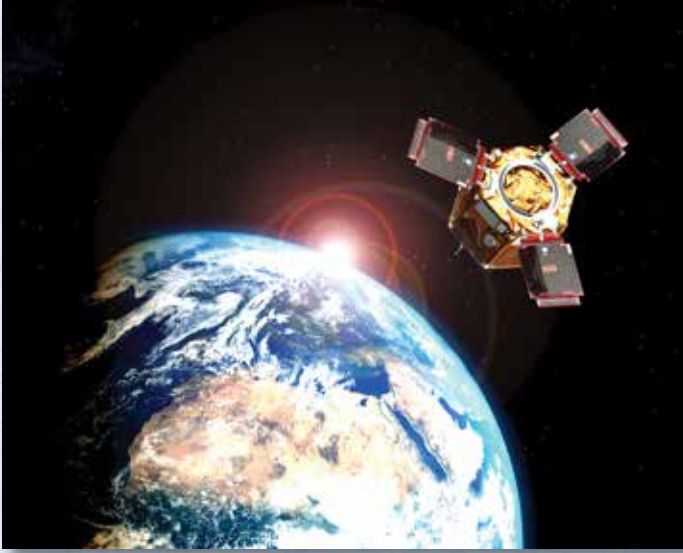
BLACK HAWK AND SEAHAWK HELICOPTER TAIL ROTOR DRIVE SHAFT SYSTEM (TRDS) PARTS & ASSEMBLIES

Alp Aviation is the source of Black Hawk and Seahawk TRDS details and assemblies. Dynamically balanced, fully finished assemblies are shipped to meet the requirements of final helicopter assembly lines and spare needs of users.

TRDS



GÖKTÜRK-2



TURKEY'S FIRST HIGH RESOLUTION REMOTE SENSING SATELLITE

Turkey's First High Resolution Electro-Optical Satellite GÖKTÜRK-2 has been indigenously designed by Turkish Aerospace Industries, Inc. (TAI) and TÜBİTAK Space consortium. With the program, developing space and satellite systems technologies and fulfilling the observation and research needs of the state institutions and organizations goals has been achieved with national capabilities.

After the design period, Satellite Flight Model has been integrated and tested* in TAI Assembly, Integration and Test Facilities and launched on December 18th 2012.

The satellite is under operation of Turkish Air Forces and downloads various images from various geographical locations to Ankara/Turkey Ground Station with success.

In each operational year, GÖKTÜRK-2 completes 5.344 passes around the earth. The technical specification of GÖKTÜRK-2 Satellite is given below.

(* Bus assembly & integration, payload integration, mass properties measurement, system level functional & thermal vacuum tests)

GÖKTÜRK-2 Technical Specifications:

• Orbit, Orbit Altitude	: Sun Synchronous Orbit, ~ 700km
• Orbit Period	: ~ 98 minutes
• Contact Period in Communication Cone Per Day	: ~ 40 min (day + night)
• Global Observation Capability / Revisit Time	: Entire World / Average 2,5 days
• Mass	: < 409 kg
• Mission Lifetime	: 5+ years
• Resolution (Panchromatic / Multispectral)	: 2,5 m / 5 m



TURKEY'S SPACE TECHNOLOGY GATEWAY

Turkey's Space Systems Assembly, Integration and Test (AIT) Center has been established in Turkish Aerospace Industries, Inc. (TAI) facilities in Ankara. The investment of the infrastructure is undertaken by Undersecretariat for Defence (SSM) & TÜRKSAT. TAI has been honored with the AIT Centre which consist of ~9.800 metersquare closed area and all the assembly, integration and enviromental test capabilities.

AIT Centre supports the required infrastructure for all ground qualification tests (Vibration, Thermal Vacuum, Mass Properties, Acoustic, EMI/EMC, Compact Antenna, Solar Panel Deployment etc.) of space systems up to 5 tonnes according to ECSS Standarts. Space Systems Assembly, Integration and Test Centre has been also equipped for AIT activities of multiple satellites simultaneously.

By adequate test capabilities and TAI's specialized AIT technical experts, AIT Centre has been organized to serve for both national and international space programs. With this investment Turkey becomes an international player, offering space systems assembly, integration and test services.

AIT CENTER



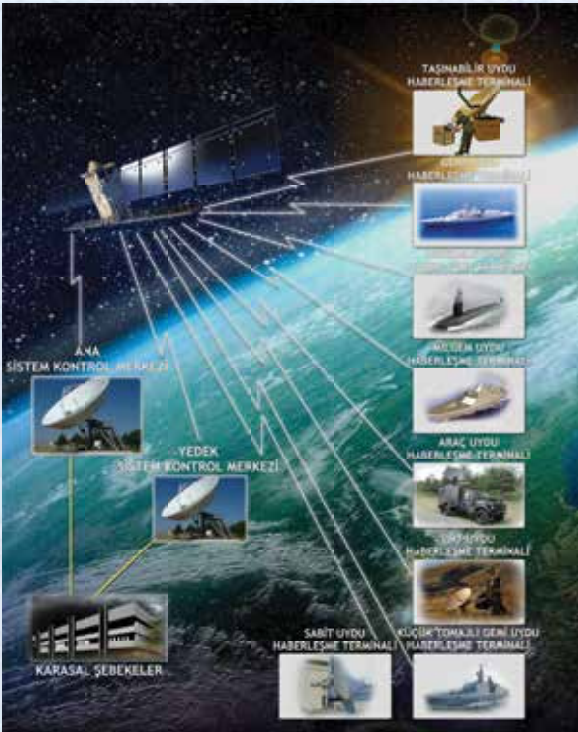
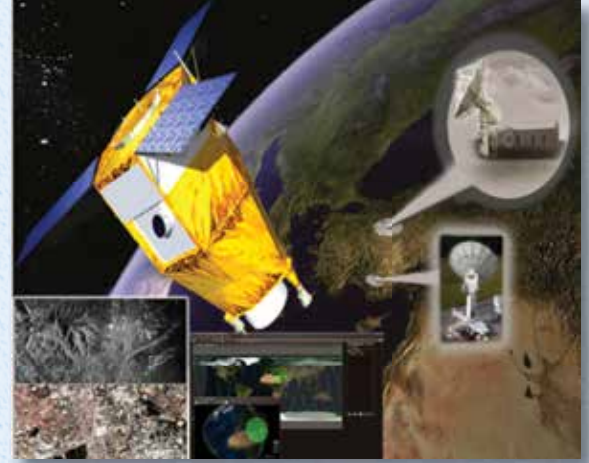
GÖKTÜRK SATELLITES GROUND TERMINALS

In this scope,

- Provides Antenna Systems for Main and Mobile Ground Stations
- Manages requests from one station by development of software interfaces for users and remote users
- Processes and exploitation of image that are downloaded to the stations
- Cataloges and archives raw and valued data/images
- Provides map or similar geographical data to other services by Geographical Information System
- Integration and installation of Mobile Ground Stations activities are carried out by ASELSAN.



GROUND TERMINALS



SATELLITE COMMUNICATION SYSTEMS

Voice, fax and data communication are done by using X-Band and Ku Band frequencies via various types of user terminals. Furthermore, the systems cover Network Control Stations that performs Terrestrial Networks transition and traffic management functions. The user terminal types are listed below:

- Manpack Satcom Terminals
- Flyaway Satcom Terminals
- Vehicular Satcom Terminals
- Shipborne Satcom Terminals
- SATCOM On the Move Terminals
- Submarine Satcom Terminals
- Fixed Ground Satcom Terminals



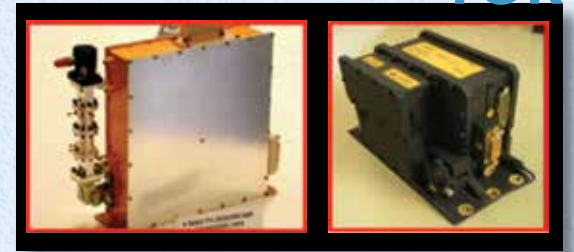
TELEMETRY, TELECOMMAND & RANGING (TCR) SUBSYSTEM

Telemetry, Telecommand & Ranging (TCR) Subsystem will be developed by CTECH in Turksat 6A Project. TCR subsystem will be responsible of:

- Forwarding the telecommand packets sent by ground station to satellite management unit (SMU)
- Gathering telemetry information from satellite system and send them to ground station
- Accomplishing ranging functionality of the satellite system

The following equipments will be produced by CTECH in Turksat 6A Project.

- Telemetry/Beacon Transmitter
- Command Receiver
- TCR Antennas
- Omni directional Transmit Antenna
- Transmit/Receive Horns Antennas



TCR

THE POWER OF INTEGRATION





COMMUNICATION & ELECTRONIC SYSTEMS



TASMUS TACTICAL AREA COMMUNICATION SYSTEM



Tactical Area Communications System forms a rapid, flexible, reliable, survivable and secure tactical communication network, to support all the present and future communication requirements of the commanders, and to provide the commanders with the communications background to get the real time picture of the battlefield. Tactical Area Communications System also makes the crucial near real time data communications needed by the tactical sensors and weapon systems.

Tactical Area Communications System is deployed in area (theater) of military operations such that, seamless communication between the army and battalion/company level is achieved.

aselsan

SDR



SOFTWARE DEFINED NETWORKING RADIOS

ASELSAN Software Defined Tactical Radios are designed to provide seamless communications among tactical users through secure voice, data and video. This Software Defined Radio, compared to traditional tactical radios, ensures better survivability against Electronic Warfare threats by providing alternative communication means over a wideband.

Outstanding Features:

- Multiband; multimode; multi-mission
- Hand-held, manpack, vehicular and base station applications
- Software programmable architecture
- Frequency Hopping
- Direct Sequence Spread Spectrum
- Near-real time data transfer (sensor to weapon)

aselsan

HF

ASELSAN HF NAVAL RADIO



ASELSAN HF Naval Radio Family based on Software Defined Radio technology, ensures reliable and secure communication in high frequency (HF) band for operation aboard naval ships and land-based installation.

Beyond line of sight voice/data communication is achieved with the utilization of the most advanced digital HF technology covered in the related STANAGs and Military Standards.

These state-of-the-art HF radios are developed with built-in digital encryption module for secure communication. Built-in modem offers variable data rates from 75 bps to 12800 bps matching different HF channel conditions.

aselsan

MILITARY COMMUNICATION SOLUTIONS FOR ARMY PLATFORMS

KAREL provides different and flexible communication solutions for different requirements of land forces platforms. Many different interfaces like PRI, E1, LB are supported by the systems and also IP subscribers and IP trunk capabilities are embedded. Karel DS200U and DS200T military PBXs have ability to communicate local and remote users via HF-VHF radio interfaces and also E1 lines with radio link connection capability. These platforms provides data and voice transfers; supports any type of IP/SIP phones as subscriber and it makes video conversations possible.

DS200U: IP embedded military PBX. LB, CO, Analog, IP, E&M, PRI, E1, Radio(HF, VHF) interface support. 11U, standalone or available in rack case.

DS200T: 6U, IP embedded military PBX. LB, CO, Analog, IP, E&M, PRI, E1, Radyo(HF, VHF) interface support. Built-in power supply. Suitable for harsh environments.

AS48: 4 internal, 12 external user support. 19 inch, 2U design. Built-in power supply.



KAREL

VHF/UHF

VHF/UHF AIRBORN RADIOS

ASELSAN produces the below listed systems;

- MXF-483 "Panel Mount Radio" with HaveQuick I-II Frequency Hopping and optional SATURN.
- MXF-484 "Remote Mount Radio" with HaveQuick I-II Frequency Hopping and optional SATURN.
- MXF-243A "Remote Control Unit"



ATLAS



ATLAS HANDHELD RADIO

ATLAS handheld radio with stunning features such as digital map and navigation, capability to operate on multi mode-band-system which is powered by ASELSAN, symbolizes the next generation of handheld radio.

ATLAS is innovative and creative product which interconnects the crucial features for public safety users with very user-friendly interface easing the operations of public safety officers.

ATLAS is designed to meet the demands of public safety users with mission critical features such as built-in GPS, digital maps, stealth mode, data application features, navigation, blue force tracking (tracking friend units), high storage capacity, long life battery and advanced encryption algorithm.



SOLDIER RADIO

ASELSAN Soldier Radio provides voice and data communications capabilities to the soldier in the field, ensuring connectivity with members of the squad or the team. Soldier Radio is small, light-weight and robust radio providing full-duplex communications.

The radio's full-duplex capability meets stringent operational requirements, also allowing conferencing and VOX (Voice Operated Transmitter) operation. Priority-based voice conferencing allows up to four simultaneous talkers on the net while the other users can monitor the conference call.

Digital voice coding and TDMA (Time Division Multiple Access) techniques are employed to achieve full duplex voice and data communications.



DRT



DEAD RECKONING TABLE

- The DRT (Dead Reckoning Table) is a navigational and tactical decision support system which provides a text and graphical display of Ownship data including position, speed and course, together with target data acquired from the navigational radar and sonar consoles, plotted on a digital navigational chart background.
- Conformant to the S-57 chart and S-52 visual presentation standards
- Display of Ownship Data (including position, CoG, SoG, StW, current Set Drift, Heading and time)
- Graphical chart measurement and calculation tools (distance, bearing)
- Route functions, route and past track display
- Supports the use of encrypted S-63 navigational charts.



SRC-155A



MIXED DIGITAL RADIO LINK EQUIPMENT

SRC155A is a “mixed mode, long range point-to-point” radio link equipment, which was designed full duplex digital data up to 16 Mbps via 28 MHz RF channel. Supported interfaces are: 16-32-64E1, 1-2-4E3, STM1 and L2 gigabit Ethernet. Basic operating frequency bands of the system are: 7 GHz and 8 GHz ITU.

- Software controlled transmission capacity, modulation type, RF channel frequency, operating mode (protection), output power
- Built in performance test module for operator needs
- Splitted structure as indoor and outdoor units permits a flexibility to user for mounting and operation
- Effective and powerful embedded control software using standard WEB browser
- Optionally available radio link network management software (SRCYM) developed by TUBITAK BILGEM, enables to control all the radio network from a control center
- Mixed mode radio airframe
- FEC support - 2D / 4D Reed Solomon
- 1+0, 1+1 HSB Tx, 1+1 FD, 2 x (1+1 HSB Tx, 1+1 FD), 2+0, operating modes
- One IDU and ODU supports 1+1 mode
- Splitted mounting antenna /ODU

SHIP DATA DISTRIBUTION SYSTEM PRODUCT FAMILY

Ship Data Distribution System (SDDS) is a service provider which collects the ship platform data from various sources and distributes the collected data to sensor, weapon and other subsystems who needs them. SDDS is an indigenous and proprietary system which is designed and develop by HAVELSAN. SDDS has been produced and integrated for MILGEM, New Type Patrol Boat and New Type Submarine platforms. SDDS has been an important part of the efforts to support local defence industry with local products.

- Collects raw analog data in high speed and various format
- Prioritize the collected data according to user defined rules.
- Distributes the data to different receivers in specific format and specific frequencies according the needs of receivers.
- Tags and records the data with accurate time stamps.
- On emergency cases, automatically distributes the critical data from spare channels.

SDDS



RADYOLINK



RADIOLINK COMMUNICATION UNIT

Radiolink Communication Unit is a new radio link system developed to provide secure and reliable C4ISR networks in 21st century's battlefield environment. Radiolink Communication Unit offers the latest ECCM (Electronic Counter Counter Measurement) features in order to overcome today's advanced electronic warfare threats.

State-of-the-art ECCM features of the Radiolink Communication Unit are:

- Full Band Frequency Hopping
- Built in Frequency Diversity
- Automatic Frequency Escape (AFE) Function in frequency hopping mode without any link failure
- Automatic Power Control (APC)
- Two-level Forward Error Correction (FEC)



VLS-100

DATA LINK SYSTEM

VLS-100 is a digital and Line of Sight (LOS) communication system which provides full-duplex, real-time and secure data transmission between Unmanned/Manned Aerial Vehicles and ground, sea and air based stations & systems.

Basic Specifications:

- Operational Frequency: Ku-Band
- Data Rate: 44,73 Mbps, 21,42 Mbps, 10,71 Mbps, 2 Mbps, 200 Kbps
- Security: Direct Spectrum Spread Spectrum Modem (DSSS)
- Modulation: BPSK (SS), BPSK, QPSK
- Range: >200 Km
- Standards: STANAG-7085, MIL-STD-810F, MIL-STD-461/464, RTCA/



HVT-100-200



AIR DATA TERMINAL (HVT-101 6 HVT-102)

Air Data Terminal (HVT-101 6 HVT-102) integrated into Unmanned/Manned Aerial Vehicles is a digital LOS communication system which provides full-duplex, real-time and secure communication between air platforms and ground, sea and air based stations & systems.

- Operational Frequency: Ku-Band
- Data Rate:
 - o Downlink: 200 kbps - 44,73 Mbps
 - o Uplink: 200 kbps - 2 Mbps
- Modulation: BPSK (SS), BPSK, QPSK
- Standards: STANAG-7085, MIL-STD-810F, MIL-STD-461/464, RTCA/DO-178B Level C



GROUND DATA TERMINAL / YVT-100

VLS-100 is a digital LOS communication system which provides full-duplex, real-time and secure communication among ground and sea based stations & systems and Unmanned/Manned Aerial Vehicles.

- Operational Frequency: Ku-Band
- Data Rate:
 - o Downlink: 200 kbps - 44,73 Mbps
 - o Uplink: 200 kbps - 2 Mbps
- Modulation: BPSK (SS), BPSK, QPSK
- Standards: STANAG-7085, MIL-STD-810F, MIL-STD-461/464, RTCA/DO-178B Level C



YVT-100



UYT



SATELLITE GROUND TERMINAL

Satellite Ground Terminal is an integrated trailer transportable communication system which transmits and receives data and voice over Satellites to/from headquarters/centers.

- Working Frequency : X-Band
- Spread Spectrum Modem (BPSK, QPSK, 8PSK)
- Data Speed : 2-16 Mbps
- Antenna Diameter : 2.4 m
- High Power Jamming Resistance, Sound , Data and Video Communication capacity
- Mobile (Trailer Mounted)





COMMUNICATION SOLUTIONS FOR NAVAL PLATFORMS

KAREL has integrated and flexible communication solutions for navy platforms. Alarm Announcement

Systems, Entertainment Systems (Video-on Demand) and also communication switches are provided for naval platforms by KAREL. Each system can have the ability to be customized according to the specific requirements.

DS200A; PBX for naval platforms in fully redundant configuration. 100+ subscribers,

X-band modem interface for satellite communication. It can also communicate with alarm/announcement systems and internal communication systems via MODBUS interface.

DS200D; Compact, ruggedized PBX solutions for naval platforms. It can also communicate with alarm/announcement systems and internal communication systems via MODBUS interface. IP users are supported. HF/VHF interface are embedded.

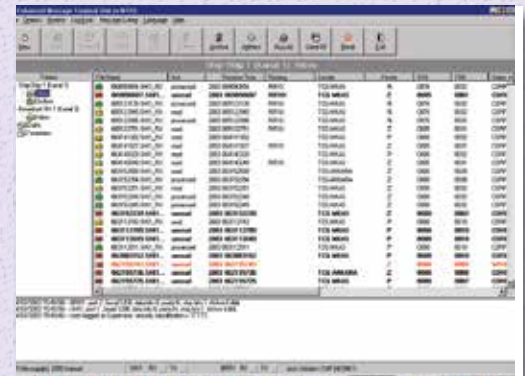
AD10I; Flexible, configurable alarm announcement system. Integrated solution with its MODBUS interface, music unit, speakers and horn speakers.

AD102ES; Entertainment System. Flexible, configurable and integrated design with

Alarm-announcement system. Video-on-demand system through entertainment panels with touch screens. TV, radio, movie and music broadcasting via media servers and antennas.

MESSAGE HANDLING SYSTEM

- Data communication over radio circuits
- E-mail over HF
- Unix or Windows based Software
- Centralized database structure
- ACP-127 based data communications
- Monitoring broadcast networks
- STANAG 5066 compatible
- STANAG 4406 (X400) compatible
- MIL-STD-810 compatible
- Integration with radio Automatic Link Establishment (ALE)



GSM



SECURE GSM PHONE

Secure GSM Phone is a device that can be used on standard GSM networks that allows its users to communicate securely. The device has been designed to be compatible with GSM standards, therefore it can be used on all GSM networks around the world.

In addition, Secure GSM Phone can be used to communicate securely in places where a GSM network is not available by connecting it to a satellite phone using a cable.



NEW GENERATION HIGH SPEED DIGITAL RADIO LINK EQUIPMENT

SRC400 is a "new generation" radio link equipment, which carries full duplex, point-to-point digital data. The Equipment is optimized and designed to carry L2 ethernet data up to 400 Mbps. Basic operating frequency bands of the system are: 7 GHz and 8 GHz ITU. Optionally, 10.5 - 15 and 26 GHz bands are available.

- Software controlled transmission capacity, modulation type, RF channel frequency, operating mode (protection), output power
- Built in performance test module for operator needs
- Splitted structure as indoor and outdoor units permits a flexibility to user for mounting and operation
- Effective and powerful embedded control software using standard WEB browser
- Optionally available radio link network management software (SRCYM) developed by TÜBITAK BİLGEM, enables to control all the radio network from a control center
- "Native Ethernet" airframe
- 1-2-4-8 weighted QoS support
- VLAN support up to 256
- FEC support - LDPC
- ACM support from QPSK to 256 QAM
- 1+0, 1+1 HSB Tx, 1+1 FD, 2 x (1+1 HSB Tx, 1+1 FD), 2+0, 3+0, 4+0 operating modes.
- Direct mount antenna
- 16E1 and STM1 support (with optional MODEM)



SRC 400





AIRBORNE COMPUTER SYSTEM

Airborne Computer System (ACS) is a high performance computer hardware that operates under military conditions with low power consumption and having MIL-STD-1553 and ARINC 429 avionics data interfaces. Airborne Computer System can be used for 3D visual applications such as moving map software. ACS also has data, video and audio recording capabilities. Adaptations to various air, sea and land platforms are possible.



ACS



2064



MINI IP CRYPTO DEVICE

Mini IP Crypto Device is a new compact and mobile IP encryption device designed for providing secure communication over IP networks.

Mini IP Crypto Device which has 10/100/1000 Mbit ethernet data interface, supports both direct key loading via Fillgun device and remote key loading, alarm and configuration management by remote management system.



IP CRYPTO DEVICE

IP Crypto Device is a new generation, high speed, high assurance IP encryption device which encrypts and decrypts IP data over local or wide area networks.

IP Crypto Device which has 10/100/1000 Mbit/s ethernet interface, supports direct key loading via Fillgun device and remote key loading, alarm and configuration management by remote management system.



2064E



VMU



VIDEO MULTIPLEXER UNIT (VMU)

Video Multiplexer Unit (VMU) is a custom- designed product for Land Vehicles which is used to monitor one, two and four camera views provided from eight different cameras at the same time to three different analog monitors. Video Multiplexer Unit (VMU) is a proof of SDT's ability for cost-effective electrical and mechanical design and production. It satisfies customer expectations in terms of utilization of COTS products and modular mechanical design which enable it to adapt to customer's new requirements easily and quickly.

TEKNİK ÖZELLİKLER

e. Control Interface : MIL-STD-1553/ CAN BUS/ Ethernet

f. Video Multiplexing and Video Output: Up to 12 channels PAL / NTSC video input.

g. 3 Channel Composite video output

h. Disk Capacity: 2 GB



MODEO KA BAND ENCODER



MODEO KA BAND VIDEO ENCODER

Modeo Ka has advanced network sense algorithm, which is developed for Ka-band networks. You can get best real-time streaming performance with Modeo Ka by taking into consideration delay of the satellite networks or variable bandwidth. Modeo Ka can decide video bitrate by sensing upload bandwidth and end-to-end delay of the Ka-Band networks for real-time streaming.



MODEO BONDING

Modeo Bond can provide real time big data transmission from field to your operation center and solve your communication infrastructure based problems.

Modeo Bond is a device capable of making file transfer through three internal 3G/LTE sim cards with bonding technology. Modeo Bond has 4 USB ports, whereas three of them can be used additional for external 3G/LTR connections and one of them for storage. Modeo Bond can easily integrate to any military and patrol vehicles for various military use and security purpose. The device is ready for CAN-BUS communication and HD IP Camera video transmission.

MODEO BONDING



SATKOM



SATCOM EPM (FREQUENCY HOPPING) MODEM

EPM waveform is the key feature to establish a secure and robust communication link, especially when your system is wide open to threats and unexpected interferences. C Tech's Software Defined Satellite Modem implements frequency hopping EPM waveform which has strong resiliency against jamming.

- STANAG 4606 Compatible, E1 & RS449 data interfaces
- L band IF input & output, Frequency hopping over 500 MHz bandwidth
- Supporting Nx64 kbps user data rate (up to 2048 kbps), Modular structure (6 channels), ESM, EMCON and Emergency Zeroizing
- Modular structure for TRANSEC/NETSEC algorithms (2 slots i.e.; NATO and National)



MOBILE VIDEO TRANSMISSION SYSTEM

MODEO® is a mobile video transmission system which consists of two main units; a receiver and a transmitter. The transmitter has six 3G modems and by making use of multiple 3G/4G bonded networks, it is able to send uninterrupted, real time video/audio and data to receiver. On the receiver side a custom software processes the incoming encrypted information from multiple branches and prepares it for the end user.

- Real time high quality video encoding
- Robust transmission of Video / Audio / Data
- Low Cost Solution
- Optional GPS support
- Remote / Local user friendly GUI
- Ability to bond multiple 3G/3G+ Networks



MODEO





GIS

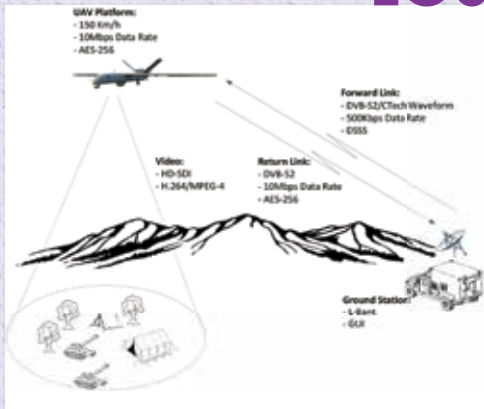
GIS SAFETY CRITICAL HARD REAL-TIME OPERATING SYSTEM

- GIS is safety critical hard real-time operating system (RTOS) developed by TUBITAK BILGEM. It is needed by many safety critical projects in avionics, transportation, space, medical, etc. systems.
- GIS is developed from ground-up according to the guidelines of DO-178B Level A. GIS can be used both in ARINC-653 mode which supports safety critical application interfaces, and also in PSE51, PSE52 or PSE53 profiles defined by POSIX.
- It allows to develop applications in C/C++ languages, and supports embedded C++ definitions.
- GIS supports; MIL-STD 1553, RS 232-422, ARINC 429, ARINC 664 communication standards, FAT 16/32 file systems, TCP/IP, UDP, FTP and TFTP network protocols which are used by many systems.
- GIS comes with an integrated development environment called TGO. TGO is an Eclipse based integrated development environment which provides system integrators with features like application development, debugging, system configuration, processor/memory/event analysis and simulation.
- Work goes on to reach wide variety of features such as different file systems, new architecture and board support packages.



LOS

UAV LINE OF SIGHT (LOS) DATA LINK SYSTEM



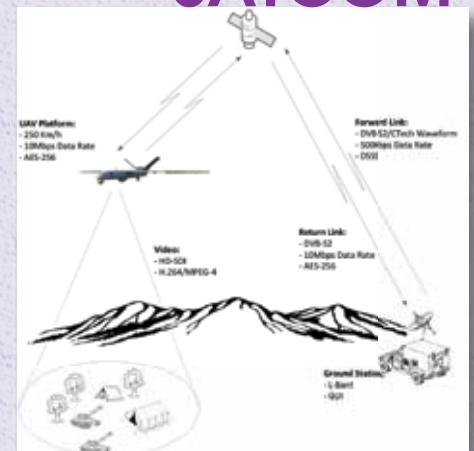
UAV LOS product establishes a robust, full-duplex, and real time Line-Of-Sight (LOS) data link between an Unmanned Aerial Vehicle (UAV) and a Ground Station. Video, telemetry data, and command/control data will be exchanged between these two terminals via the LOS digital communication link. The Status and the configuration of the system can be handled by means of a Global User Interface (GUI) running on the ground control computer.



UAV SATELLITE COMMUNICATION (SATCOM) DATA LINK SYSTEM

UAV SATCOM product establishes a robust, full-duplex, and real time SATCOM data link between an Unmanned Aerial Vehicle (UAV) and a Ground Station. Video, telemetry data, and command/control data will be exchanged between these two terminals via the satellite digital communication link. The Status and the configuration of the system can be handled by means of a Global User Interface (GUI) running on the ground control computer.

SATCOM



POWER DISTRIBUTION AND CONTROL UNIT



Power Distribution and Control Units are the secondary power distribution system providing AC and DC power for system and sub-systems of Air & Land & Sea Platforms with microprocessor controlled real time monitoring of input & output power and circuit breaker status.

- DC & AC Output Switching
- Input & Output Voltage, Current and Frequency Indicators
- LOG
- Interface: RS-232, RS422, CAN, Ethernet
- PT100 Temperature Sensors
- Standards: MIL-STD-810F, MIL-STD-461/464, IP 40
- Platforms & Projects: HÜRKUŞ, ANKA, GÖZCÜ, MİLGEM, BARBOROS, ADOP, HERIKKS, FIRTINA



IP BASED VOICE COMMUNICATION SYSTEM

Our IP Based VCS (Voice Communication System) system provides a turnkey solution where integrated radio, telephony and intercom access capabilities are required.

Our system is designed with fully redundant components and it is suitable for mission critical applications.

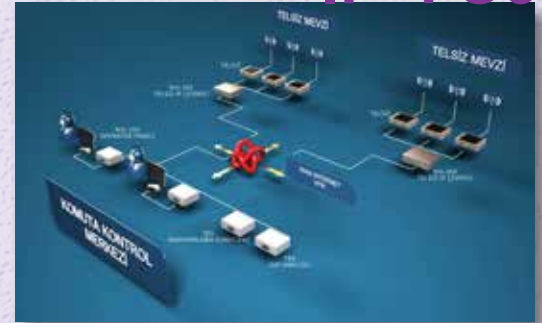
Our solution is comprised of:

- IP based Voice Switching System
- IP based Radio Gateways
- IP based Analog/Digital Telephony Gateways
- IP based Communication Panels
- Voice Recording and Replay System

Potential usage scenarios include:

- Air Traffic Control applications
- UAV Ground Control Stations
- Coastal Surveillance applications
- Any Command and Control application where integrated radio and telephony communication is need.

IP-VCS



VCCS



VCCS VOICE COMMUNICATION CONTROL SYSTEM

GATE-VCCS is a Voice Communication Control System designed to be used in military and civilian Ground Radio Station (GRS) applications, such as Air Traffic Control (ATC), Radar Approach CONTROL (RAPCON), Precision Approach Radar (PAR), Tactical Communication Systems. GATE-VCCS uses Voice over IP (VoIP) technology to interconnect and operate radios with ISDN, PSTN, GSM, and IP networks.

- Wired / wireless headset, handset and monitor speaker options
- Air to Ground (A/G) and Ground to Air (G/A) coupling
- Push To Talk (PTT), Voice Operated exchange (VOX), and Tone Operated exchange (TOX) functions
- Many available call functions, such as: conferencing, call forward/transfer, call hold, intercom, speed dial, call history, DTMF, etc
- Multi - language support



OPTOPHONE

VEHICLE MOUNT IR COMMUNICATION SYSTEM

OP - 01 Vehicle Mount IR Communication System is designed to sustain communication in convoys which uses one or more powerful RF jammers for IEDs. Voice communications can be instantly digitized, sent as infrared light, and converted back into voice, so users can talk over the stealthy "IR channel" and still have full RF shield. This system enables Digital Encryption to its users. OP-01 is designed to help military and VIP convoys operating in urban.

Technical Specifications

- Input: 12 V
- Range (Vehicle-to-Vehicle): 30 m
- Wavelength: IR
- Angle of View (Horizontal): 360°
- Angle of View (Vertical): ±10°
- Audio Bandwidth: 3 kHz



USB CRYPTO



USB CRYPTO DEVICE

Using the USB Crypto Device, which is a hardware-based crypto product, confidential files on a computer can be encrypted, stored securely, distributed securely, and e-mailed securely.

Double encryption algorithm support, user authentication using Crypto Ignition Key, built-in test support, prevention of unauthorized access and emergency zeroization are some of the security features present on the USB Crypto Device.



aselsan

DIGITAL UNDERWATER ACOUSTIC MODEM (DUWAM)

Digital Underwater Acoustic Modem (DUWAM) is an industrial prototype which would be used for underwater communication.

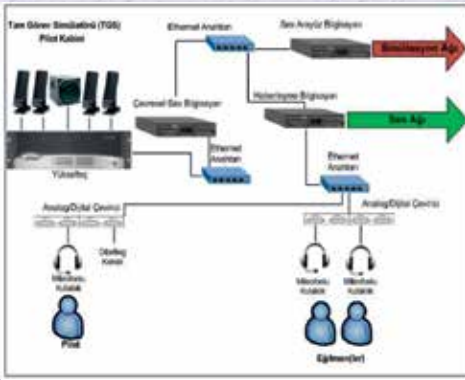
- Modem has a compact form (transportable; including transdüser, modem, battery and user interface laptop) and it is splash proof.
- It is suitable to use on boats, ships and buoys.
- Low power requirement on reception; rather high power transmission capability.
- Modem is compatible with NATO's draft ANEP-87 (JANUS) protocol.



METEKSAN
SAYINMA

DUWAM





ATAK HELICOPTER SIMULATOR SOUND SYSTEM

ATAK Helicopter Simulator Sound System enables flight crew in the simulator to hear 3D sound inside ATAK Helicopter Simulator cabin generated by simulated environmental conditions and ATAK helicopter itself. ATAK Helicopter Simulator Sound System, also emulates advanced radio and intercom communications systems in helicopter.



DATA LINK BASED DISTRIBUTED EMBEDDED SIMULATION SYSTEM

Data Link Based Distributed Embedded Simulation System is designed to expand the capabilities of embedded training/simulation systems to multi-platform distributed embedded training platforms. SDR based high bandwidth, long-range multi frequency, adaptive modulation capable Data Link design promises flexible communication between aircrafts and ground stations and allow individual air and ground platforms to cooperate on the same Synthetic Tactical Environment and share the simulation and tactical data between each other. Data Link Based Distributed Embedded Simulation System is capable to be integrated an airborne external load (Pod) as well as a traditional LRU formats.



GATE EMBEDDED TRAINING/SIMULATION SYSTEM

Gate Embedded Training/Simulation System, having been the First National Project for development of Embedded Training/Simulation System product integrated on a fighter aircraft. Designed and produced for realization of the actual flight conditions with creating the Synthetic Tactical Environments using virtual targets, weapons, sensors. System shortens the gap between Flight Training Simulators and trainings on military exercises.

- Flexible interface to support multiple airborne platforms.
- Approved for MIL-STD-810F, MIL-STD-461E and MIL-STD-704E standards.
- Combat Readiness Training Capability on F-4E/2020 aircraft
- Advanced Briefing, Debriefing and Reporting Capability
- Pilot Performance Analysis Capability



AIRSIM

AirSim is a simulation based engineering acquisition, performance analysis and "whatif" analysis for Air Defense systems. The system provides a specific language and a series of software tools

AIRSIM





JOINT ELECTRONIC WARFARE TRAINING & SIMULATION CENTER

JETS & JETSIM is a Joint EW Training&Simulation Center which provides EW training both in theory and practice for planners and decision makers.

It's composed of two applications:

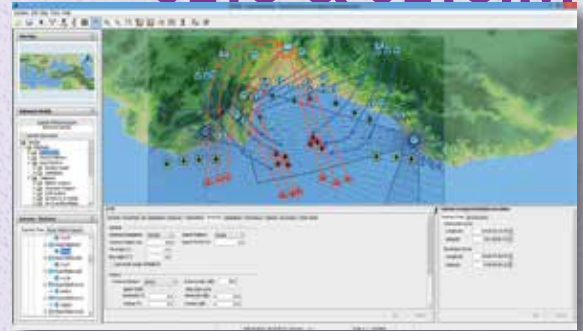
- EW e-learning Application (JETS):
Web based training system on EW.
- Interactive EW Application (JETSIM):

EW training is conducted in an interactive scenario environment (Red vs. Blue forces or Trainee vs. Computer).

JETS & JETSIM;

- Provides a complete training solution for EW. Both force specific and joint exercises can be conducted.
- Supports self-training against computer generated forces.
- Supports joint training in which trainees are divided into two groups and fight against each other.

JETS & JETSIM



HELSIM



HELICOPTER SIMULATORS

Havelsan is developing two Sikorsky S-70A-28D/DSAR Black Hawk and one S-70B Sea Hawk JAR STD 1H O30 Level D Full Flight Simulators and Full Mission Simulators, two Partial Mission Simulators, two Training Management Information System and training facilities for the Turkish Army and Navy under the HELSIM Programme.

Project also covers the delivery of two separate fully integrated Helicopter Training Simulator Centres on a turnkey basis to both Army Aviation School Command in Etimesgut/Ankara and Cengiz Topel Naval Aviation Base Command in Kocaeli.



F-4E 2020 WEAPON SYSTEMS AND FLIGHT TRAINING SIMULATOR

System provides IFR Training, VFR Training, Air Traffic Training, Air -to-air and Air-to-Ground Weapon System Training, Radar System Training, Tactical Training and emergency trainings to pilots of F-4E 2020 aircraft and the weapon system operators in a high-fidelity synthetic environment. For the first time in Turkey, two simulators installed in different locations will be able to carry out joint operations under the HLA&DIS interface connection.

F-4E



CN-235



CN-235 FULL FLIGHT SIMULATOR

A CN-235 FAA Level D Full Flight Aircraft Simulator has been designed and developed for the air force of the Republic of Korea by Havelsan in order to provide its pilots with realistic flight training in a realistic environment. The Full Flight Simulator is composed of a five-channel 220X40 visual system, a five-channel IG imaging system, a six-axis motion system, a loud control system, an instructor/operator console (IOS) and software and a recording and replay system.



TSTS



TSTS - TRACK SURVEILLANCE TRAINING SIMULATOR

Track Surveillance Training Simulator (TSTS) system includes training of personnel on: Command lever usage of 20 mm Oerlikon/Rheinmetall and 35 mm Oerlikon guns, Application of Track Surveillance principles on virtual medium, Effective use of these weapons against enemy forces. TSTS serves opportunity to work with different scenarios, different terrains and different climate conditions.

- Main Training Topics
- Aircraft identification
 - Track surveillance
 - Estimation of distance, intersection distance, interception and velocity
 - Air defense shooting techniques
 - Taking air targets under fire



ARISIM

In ARISIM Project of HAVELSAN T-38 Aircraft Simulators and Peripheral Systems design, development, installation and customer training activities has been completed. HAVELSAN continues to operate Integrated logistics and support activities.

In the scope of the Project,

- 2 Operational Flight Training (OFT) Simulators,
- 2 Instrumented Flight Training (IFT) Simulators,
- 4 sets of Debriefing Systems,
- Weather Server, Radio Navigation Server, Terrain Server, Data Storage and Configuration Server and related equipment and hardware are delivered.



ARISIM



TESIM

TESIM



In TESIM Project of HAVELSAN Operational Flight Training Simulators, Instrumented Flight Training Simulators, Aircraft Training Devices, Computer Based Training System (CBT), Aircraft Systems Failure/Malfunctions Trainer, Aircraft Egress Trainer, Debriefing Stations and other training support equipment has been delivered to Turkish Air Force.

In the scope of the Project following systems are delivered;

- 2 Operational Flight Training (OFT) Simulators,
- 2 Instrumented Flight Training (IFT) Simulators,
- 2 Aircraft Training Devices (ATD),
- 4 sets of Debriefing Systems,
- Weather Server, Radio Navigation Server, Terrain Server, Data Storage and Configuration Server
- 1 Aircraft Egress Trainer,
- 1 Central Security System to ensure the safety of OFT, IFT and ATD systems.
- Computer Based Training System (CBT), Aircraft Systems Failure/Malfunctions Trainer,
- Training Facility
- All related equipment and hardware are delivered.



HEL SIM II COUGAR

HAVELSAN, has developed AS 532 Cougar Phenix I UL (TM) Full Mission Simulator which is compatible with JAR-FSTD H Level-D standards. The simulator has also been integrated with other simulators and tactical systems developed for HELSIM Program.



HEL SIM II COUGAR





F16SIM

In F16SIM Project of HAVELSAN, the simulators for F-16C Block 40/50/50+ (Full Mission Simulator and Weapon Tactics Trainer) and supporting training systems (Forward Air Controller, Tactical Monitoring Center, Debriefing Stations and other training support systems) are provided to Turkish Air Force.

In the scope of the Project, for each Air Force Base (except 3. Main Jet Base (Konya);

- 1 F-16 Full Mission Simulator (FMS)
- 3 Weapons and Tactics Trainers (WTT),
- 1 set of Debriefing System, Weather Server, Radio Navigation Server, Terrain Server, Data Storage and Configuration Server,
- Central Safety System,
- Computer Based Training System, Visual Maintenance Trainer (VMT),
- 1 Database Generation Station,
- Facility

In 3rd Main Jet Base Konya, following systems will be delivered;

- 1 Tactical Monitoring Center,
- 1 Forward Air Controller with 3 (three) channel Visual System,
- 2 Weapon Tactics Trainer including a glass cockpit and a visual system with limited Field of View and for weapon systems and tactical training,
- 1 set Debriefing System,
- Weather Server, Radio Navigation Server, Terrain Server, Data Storage Configuration Server,
- Central Safety System to ensure the safety of the corresponding systems/subsystems,
- Facility and infrastructure

and all related equipment /hardware.

F16SIM



OMTASES



OMTASES (MID-RANGE ANTITANK MISSILE SYSTEM SIMULATOR)

Classroom simulator system which is developed for MIZRAK-O missile system users' education.

Realistic 3-D Battlefield Simulation, Day TV / IR Monocular view, Thermal Seeker view, Missile Launch Recoil simulation, Virtual Player and Scenario Simulation, Full weather effects, sound effects, Record and replay features.



OYMES

Forest Firefighters' Learning Yard Training Simulator (FireFLY) is a system that uses simulation techniques to train forest engineers / firefighters and operators / commanders who play most important roles during the forest-firefighting operations. The simulator is aimed to enhance the site coordination and management capabilities of the forest-firefighting personnel.

There are seven types of user consoles modeled in the system and these consoles communicate each other through a high speed local or wide area network:

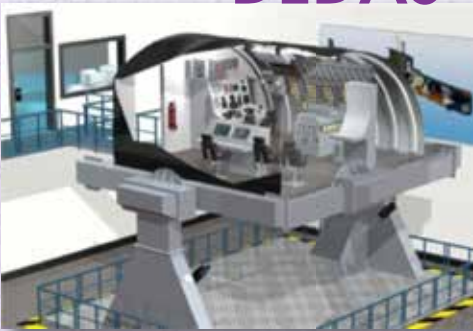
- Team Leader Console
- Dozer Leader Console
- Fire Intervention Helicopter Console
- Fire Intervention Aircraft Console
- Fire Line Leadership Console
- Fire Line Commander Console
- High Level Incident Commander Console



OYMES



DEDAS



DEDAS

The U209 TYPE SUBMARINE DIVING SIMULATOR (SDS) is going to be used to simulate the movements of submarine and the diving environment, with the aim of training the submariners who are working or will be working onboard PREVEZE and GÜR Class Submarines on the subjects of diving and surfacing operations, as well as the underwater and surfaced operational management and control. The simulator consists of;

- Diving Cabin,
- Motion System,
- Mathematical Model,
- Instructor and Operator Software,
- Instructor's Room,
- Observation Room

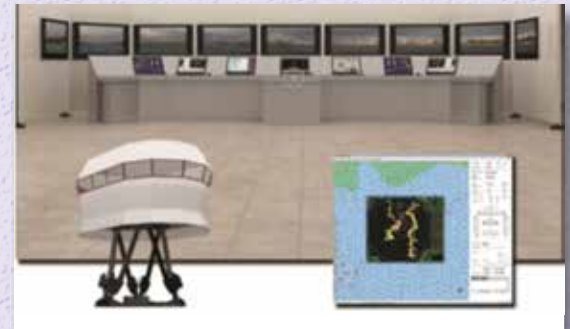


MARINE/BRIDGE SIMULATOR

With real control equipments and high fidelity software, seafarers can get navigation and maneuver training as in real life conditions.

- Special training scenarios with various environment conditions,
- ECDIS simulation,
- Radar simulation ,
- GPS, binocular, WAIS, gyro simulations,
- High fidelity dynamic ship models,
- Military operations control, Instructor station.

Simssoft



JAMiDS



JOINT AIR AND MISSILE DEFENSE SIMULATION

JAMiDS was developed as constructive air and missile defense simulation analysis software and it is High Level Architecture (HLA) compatible and interoperable. The aim of the system is to analyze the effectiveness of complex air defense scenarios under various conditions (probability of kill and the amount of damage, etc.) using high-fidelity models. The model library has several platforms, munitions, communication, sensor and building models with their attributes and behaviors.

System Features:

- Define engagement rules
- Define Air Tasking Orders (ATO)
- Define Air Control Orders (ACO)
- Define communication loops
- And generate Air Defense Tactical Pictures



RADAR SIGNAL GENERATOR SIMULATOR

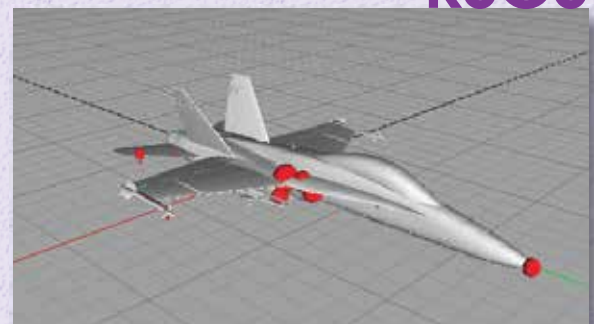
Testing and verification cycle of radar systems is a real cumbersome. Normally, these problems are tackled by running simulation scenarios on the vendor-specific simulation models. In spite of the fact, vendor-specific simulation model is not truly acceptable and reliable model as its complications are not open and changeable by the customer. Radar customers want to measure the radar performance accurately for different scenarios. C Tech's RSGS product provides test data vectors for real radar equipment.

RSGS product has the following features:

- Scenario definition,
- I,Q Generating from scenarios environment,
- Range profile extraction,
- Sea effect, land and sea clutter signals.



RSGS



MEDIUM RANGE ANTI-TANK WEAPON SYSTEM EMBEDDED SIMULATION

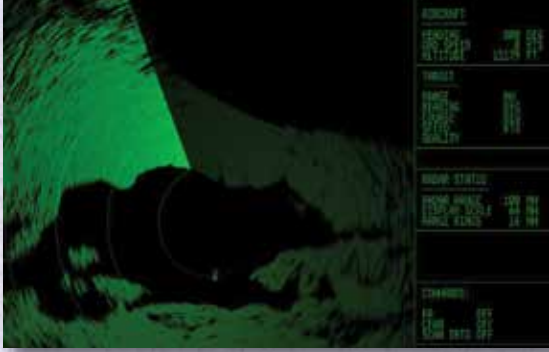
Atış Kontrol Ünitesi - Kontrol Birimi, OMTAS'ın fırlatma sisteminin elektronik iş paketi olup taktik mod ve simülasyon modu olmak üzere iki farklı moda sahiptir. Taktik modda yapabildiği tüm atış kontrol işlemlerini eğitim amaçlı olarak simüle etme kabiliyeti sayesinde, kullanıcının harici bir cihaza ihtiyaç duymadan eğitim yapabilmesine olanak tanımaktadır. Cihaz üzerinde bulunan USB veri girişinden yüklenebilen arazi ve senaryo bilgileri, cihaz üzerinde bulunan kullanıcı arayüz butonları vasıtasıyla ilgili menülerden aktive edilir ve gömülü simülasyon başlatılır. Cihaz içerisinde bulunan gyro ve pusula modülleri sayesinde eksenal dönme ve yükseliş hareketleri algılanarak görüntü güncellenir. Füzenin uçuş dinamikleri gerçeğe uygun şekilde simüle edilmektedir.



ANTI-TANK



APS143



SEA SURVEILLANCE RADAR SIMULATOR

APS143 Deniz Radarı Simülâtörü, Seahawk helikopterlerinde kullanılan, APS143-(V)3 radar sisteminin birebir simülasyonunu gerçekleştirmektedir. Sistem tam görev simülâtörüne entegre olarak çalışabildiği gibi, Arayüz Yazılımı aracılığıyla tek başına da kullanılabilir. Özellikler:

- Matematiksel radar modellemesi.
- Gerçeğe uygun kara, hava ve deniz ekolarının sergilenmesi.
- .dted formatlı yükseklik verisi desteği.
- Kültürel objelerin ve yüzey madde özelliklerinin modellenmesi.
- Hedef eko hesaplamaları ve gösterimi.
- Hedef izleme.
- Chaff, Jammer gibi karıştırıcıların modellemesi.
- CFAR modellemesi.
- Hava durumu modellemesi (bulut, yağmur, sis, kar, v.b)



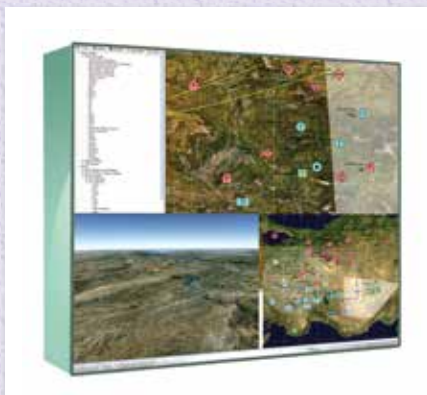
UMTASES (LONG-RANGE ANTITANK MISSILE SYSTEM SIMULATOR)

Classroom simulator system developed for helicopter pilots education whom use MIZRAK-U missile system.

Realistic 3-D Battlefield Simulation, FLIR view, Thermal Seeker view, helicopter cockpit shell and avionics, Virtual Player and Scenario Simulation, Full weather effects, sound effects, Record and replay features.



UMTASES



SAMMOS-MODELING AND SIMULATION OF ACTIVE AIR DEFENSE OPERATION BASED ON THE SURFACE

SAMMOS was developed as a modeling and simulation system to analyze the effectiveness of complex Surface to Air Missile Air Defense scenarios under various conditions including the probability of kill and damage impacts of high fidelity missile models. It was developed as constructive air defense simulation analysis software on the Strategic operational field and operational command level and it is High Level Architecture (HLA) compatible, object oriented and interoperable.

System Features:

- Deploy and configure CAOC, ADNC, ADNP, MCC, COC and AOC
- Identify and configure of BMC3 rules (data and track sharing between C2 items)
- Define engagement rules
- Define and assign Air Tasking Orders (ATO)
- Define Air Control Orders (ACO)
- Define airspace corridors as well as airspace and radar control rules
- Select and configure communication protocols between assets
- Define communication loops
- And generate Air Defense Tactical Pictures



NAVAL WARGAME SIMULATION SYSTEM

NAWAS is an interactive, multi-user and multi-resolution constructive simulation that models a naval wargame at sea, air and land warfare environments. Main goals of the system are to establish realistic and cost-effective training, to provide an environment for assessing plans and to increase mission effectiveness/readiness of personnel.

- Scalable, extensible and plugin-based system architecture, XML based generic infrastructure with IEEE 1516 HLA compliance
- International and custom tactical symbology
- On-the-fly user and platform addition/removal/modification
- Worldwide map with Integrated GIS, atmospheric and oceanographic data
- Remote access
- Autonomous behaviors, textual, audio and video communications.



DAMAGE CONTROL SIMULATOR

Damage Control Simulator provides a realistic training environment to develop and conduct damage control exercises to provide the shipboard personnel as part of damage control readiness and the internationally recognized commercial and naval standards.

- Plan, execute and evaluate different scenarios under different conditions,
- Measure and decrease crew's response time under heavy (smoke, flooding, rolling etc.) conditions,
- Evaluate their individual and team performances,
- Evaluate the ability to set and maintain material condition ZEBRA,
- Develop the ability to brief, execute, debrief and critique damage control exercises,
- Observe, record and replay trainings through CCTV system.



UNDERWATER WARFARE ANALYSIS AND SIMULATION

UWAS is a standalone computer based simulation framework aimed to model and simulate detailed interaction between naval warfare objects. Using the UWAS, torpedo countermeasure tactics can rapidly and easily be developed.

UWAS provides a scenario definition mechanism to identify the characteristics of the engagement. UWAS supports changing modeling fidelity triggered by changing time resolution. Results of the engagement can be exported from UWAS for statistical success analysis.

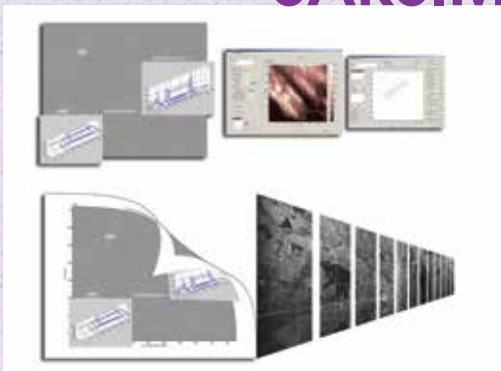
UWAS makes use of Dynamic Link Library (DLL) functions to determine the actions of the entities. The framework provides an Application Programming Interface (API) for the usage of custom DLLs in the simulation.

UWAS



SARSIM

SARSIM (SYNTHETIC APERTURE RADAR SIMULATOR)



Synthetic Aperture Radar (SAR) is a special kind of radar which generates high resolution images (comparable to optical sensors) in all weather conditions at both night and daytime. SAR Systems utilize sophisticated signal processing and image generation algorithms and have very complicated radar electronics and processing units.

SDT has developed SARSim (SYNTHETIC APERTURE RADAR SIMULATOR), a powerful end to end simulation tool which can be used for engineering purposes (at requirements, design and verification phases), mission planning and also as a training tool.

- Modelling of SAR System; Environmental Scattering, Moving / Stationary Targets, Platform Motion and Radar Electronics Modelling and Signal Processing Algorithms
- Simulation of SAR Modes (Stripmap, Spotlight), Selection of different Signal Processing Algorithms and SAR Mission planning
- Useful for engineering and design purposes to reduce cost, risk and complexity of requirements specification, design and testing of SAR systems





ATFS-400



AUTHENTIC TACTICAL FLIGHT SIMULATOR

ATFS-400 (Authentic Tactical Flight Simulator) provides a realistic training environment in real time, allowing aircrews to learn how to recognise and combat the effects of GLOC, a serious problem for high-performance aircraft pilots. The ATFS 400 combines high G-onset rates - up to 15G/sec, and the capability to generate sustained high G levels up to 25Ghz - with powered pitch and roll motion to take on the challenges of high G training and research.

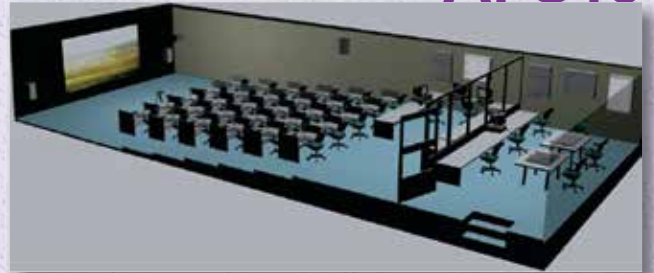


ARTILLERY FORWARD OBSERVER TRAINING SIMULATOR

Havelsan originally developed its Artillery Forward Observer Training Simulator for the Turkish Land Forces, but exported a similar system to Pakistan for its Land Forces in following some client-specific alterations.



AFOTS



HVS



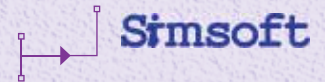
HEAVY VEHICLE SIMULATOR

Heavy vehicle simulators; provide consistent, economic and assessable training for various complex types of tracked and wheeled military vehicles such as:

- Lorry
- Truck
- Long Trail

Technical Specifications:

- High fidelity vehicle dynamics
- Real platform instrumentation and motion platform
- Oval screen, led screen, etc. visualization systems
- Artificial intelligence, traffic and signalization modeling
- Programmable artificial intelligence
- Configurable evaluation and assessment
- Recording and replaying tools



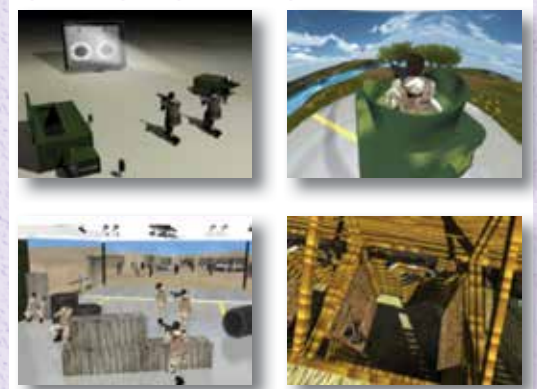
SHOOTING & TRAINING SIMULATION (SHOOTRS)

SHOOTing TRaining Simulator (SHOOTRS) provides cost-effective simulations with real-life virtual battleground environments for Basic Marksmanship Training, Collective Battle Training, Close Quarter Battle (CQB) Training, Sharp Shooter/Sniper Training, Security Detail Training for Law Enforcement and special operations.

SHOOTRS runs on a system consisting of indoor shooting ranges, outdoor Shoot-house and deployable/portable simulation systems.



SHOOTRS



LASER MARKSMANSHIP TRAINING SIMULATOR

Laser Marksmanship Training Simulator is designed for advanced marksmanship training at any place without using real ammunition.

The System comprises a laser pointer mounted on the barrel of the gun and computer controlled laser sensitive targets. The shooting skills can be improved without using real bullets in inside or outside and the practices can be done in anytime and anywhere. It gives you the advantage of more practice, fast feedback and low cost, saving the needs of having special shooting places, personnel transportation and ammunition.



TDLSIM



TACTICAL DATA LINK TEST/ANALYSIS/ TRAINING

1. Tactical Data Link Simulator

Tactical Data Link Simulator (TDLSIM) is a simulation system that is developed to be used for both testing and training purposes of Link 16 and Link 22 operating systems in laboratory environment.

2. Tactical Data Link Emulation, Monitoring and Record-Replay Tool.

This tool enables analysis of Link 11, 16 and 22 systems in lab and real environments. The tool supports real time visualization of data (both formatted view and DERG support), record-replay, Link 16 terminal & host emulations. The tool supports Link 11, 16, 22 and SIMPLE message formats.



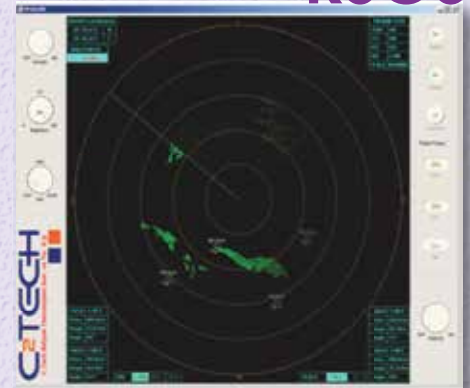
RADAR SIGNAL GENERATOR SIMULATOR-RSGS

The test and verification cycle of radar systems is a real cumbersome. In many cases test scenarios for load and performance tests having complicated features and components is not doable. Normally, that is tackled by simulation scenarios run on the vendor-specific simulation model. In spite of the fact, vendor-specific simulation model is not truly acceptable and reliable model as its complications are not open and changeable by the customer. Radar customers want to measure the radar performance accurately for different scenarios. When performing characterization of a radar receiver design, a variety of signals are required to recreate the operational environment.

RSGS is a realistic radar data generator tool capable of simulating returns from targets, and environmental effects like surface and volume clutters from synthetic scenarios. The data output is time series signal at baseband IQ level. The data generated by RSGS provides test vectors of real radar receiver data to test signal processor design and implementation easily. This real signal can then be transmitted or applied to the system hardware under test.

System Features:

- Scenarios definition
- Producing I and Q signals from simulated environment
- Range profile extraction
- Doppler processing
- Weather effect and producing land and sea clutters
- Producing Scattering Centers and Radar Cross Section
- Fast Sensor Coverage analysis
- Using any type of digital map
- Using 3-D CAD model of target platforms
- 100 targets injections simultaneously

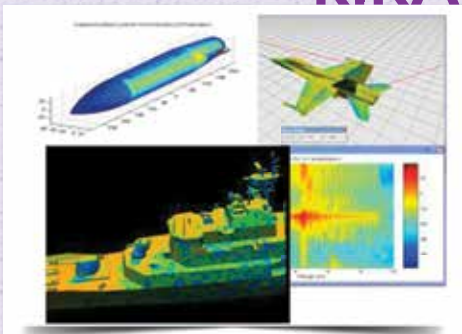


RSGS



RIKA

RADAR SIGNATURE PREDICTION AND ANALYSIS SOFTWARE



Radar signature reduction is a must in order to increase the battle-field effectiveness of any contemporary platform or long-range armament. The crucial step in radar signature reduction or stealth technologies is the determination of the radar signature of the platform under consideration. The following actions can be performed upon the determination of the signature:

- Shape changes can be affected for platforms under development.
- Radar absorbing coatings can be used on certain parts of the platform, and
- Strategic plans for approach-to-target patterns can be tailored.

The RIKA software analyzes the radar signature of any platform based on its CAD model and provides all the necessary information to realize these actions.

Capabilities:

- Computation of Radar Cross Section (RCS)
- Determination of hot-spots or scattering centers
- Computation of the induced surface currents
- Evaluation of the effectiveness of surface coatings
- Formation of ISAR images
- Determination of range profiles
- Computation of polarimetric scattering





GEO3D



BITES GEO3D SW FRAMEWORK

BITES Geo3D is a Geo-intelligence software framework that combines imagery, geospatial information and remote sensing data. It transforms raw imagery and sensor data into layered, detailed maps that support the mission.

BITES Geo3D has the following features:

- Imagery management: service-oriented IT infrastructure that helps store and manage the numerous libraries of available imagery
- Intelligence fusion and integrated map creation by merging traditional geospatial data such as terrain, cultural features, and three-dimensional building models with multi-source data displaying;
 - friendly and enemy forces,
 - sensor locations and footprints,
 - critical facilities information, and other important information.

Related Product Variant:

Common SW Framework for ASELSAN



BITES

D-BITES™ MISSION PLANNING AND AFTER ACTION REVIEW / DEBRIEFING SYSTEM:

D-BITES™ is a next-generation Mission planning and Debriefing/After Action Review tool that provides a complete modular solution for all kinds of real or training mission analysis on flight simulators & real mission platforms. D-BITES™ enables to record and replay all the different mission data. The recorded data is represented as Tactical Displays, MFDs (PFD, EICAS, ND), Analog Cockpit Displays, Approach Patterns, 2D Flight Plots, 3D Stealth View, Video Channels Playback, Audio Channels Playback all in sync. Main features of D-BITES™ are the following:

- Multi Monitor and Multi Window Support
- Multi Speed Playback
- All records can be played at different speeds with all visuals in sync
- Tactical Display
- Displays the entities participated in the recorded exercise on a 2D map
- Supports DIS or HLA records
- Supports DTED, FLT or any vector height map
- Event Viewer: All recorded events e.g. malfunctions, limit exceedings or messages
- 3D Flight Controllers
- Glass cockpit with MFD and other cockpit components visualized with high resolution imagery

Related Product Variants:

-Data Record and Debriefing System of Turkish Air Force F-16 Mission Training Centers and Simulators

-Data Record and Debriefing System of Turkish Air Force Basic Training Aircraft (KT-1) and Initial Jet Training (T-38M) Simulators and Training Center

D-BITES™



BITES

MEBS



MESSAGE HANDLING SYSTEM

The Message Handling System which is developed and installed on 47 platforms, has the ability to communicate over HF circuits between Ship/Ship, Ship/Shore using high-speed, secure, reliable and uninterrupted messaging in ACP-127 and X.400 (STANAG 4406 Edition 2, Annex E) formats and compatible with STANAG 5066 message transferring and allows listening broadcasted messages using National and NATO crypto and modem devices.

The major features of the system are as follows;

- STANAG 5066 Version 2/3 defined message exchange,
- STANAG 4406 Edition 2 Annex E defined X.400 formatted message exchange,
- Comms. with BRASS (BRoadcast And Ship/Shore) centers,
- Ruggedized, redundant system,
- MIL-STD-1472E (Human Engineering Design Criteria for Military Systems, Equipment and Facilities) compatibility,
- MIL-STD-810F compatibility,
- MIL-STD-461E Table V compatibility,



Koç
Koc Bilgi ve Sanayi Teknolojileri A.Ş.

AIRCRAFT PLATFORMS



COMPUTER / WEB BASED TRAINING SYSTEMS

BITES offers computer / web based interactive multimedia instruction applications with embedded simulation for military pilots, operators and maintenance task force based on a proven experience in training solutions using methodology of international standards and Training Needs Analysis.. Courseware is designed for student self-paced learning in an interactive multimedia environment and may include personalized instructor participation.

Related Product Variants:

- Sikorsky Blackhawk Helicopter (S-70A, UH-60M) CBT System
- Sikorsky Seahawk Helicopter (S-70B) CBT System
- Eurocopter Cougar / Super Puma Helicopter CBT System
- EADS CASA CN-235 Aircraft CBT System
- Basic Training Aircraft (KT-1) CBT System
- Jet Trainer Aircraft (T-38) CBT System
- T-129 Turkish Attack Helicopter CBT System
- Upgraded C-130 Aircraft Avionics System Trainer



COMBAT MANAGEMENT SYSTEM & COMBAT SYSTEM INTEGRATION

HAVELSAN, as the largest main contractor for the Turkish Naval Forces, produces Combat Management Systems(CMS) and undertakes Combat System Integration for all new combatant projects such as;

- National Ship (MILGEM) Project,
- New Type Patrol Boat (NTPB) Project, (Combat System Integration)
- New Type Submarine Project (CMS and Data Distribution System)
- Landing Ship Tank (LST) Project.

Even though differs for the type of the combatants, in general, HAVELSAN CMS activities include;

- Combat Management on main warfare disciplines (ASW, ASUW, AAW),
- Track Management
- Navigation,
- Sensor/weapon control,
- Training and simulation,
- Subsystem Integration



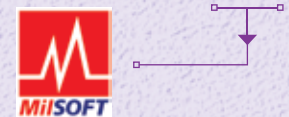
MIL-CMS

COMBAT MANAGEMENT SYSTEM



MilSOFT Combat Management System (Mil-CMS) is a scalable and modern command control system which integrates sensors and effectors, establishes recognized maritime tactical picture as well as operator support functions to enable effective decision making onboard ships.

- Modern and reliable system
- Open Architecture (OACE), Implements OMG Data Distribution Service(DDS)
- Based on standards of OMG C4I Task Force
- Scalable (Expandable from Weapon Control Capability to Full CMS Capability)
- Link-16/22 based message structures
- Infrastructure for Network Centric Capability



DATA DISTRIBUTION SERVICES MIDDLEWARE

Mil-DDS is a middleware software providing data centric publish-subscribe mechanism for distributed applications.

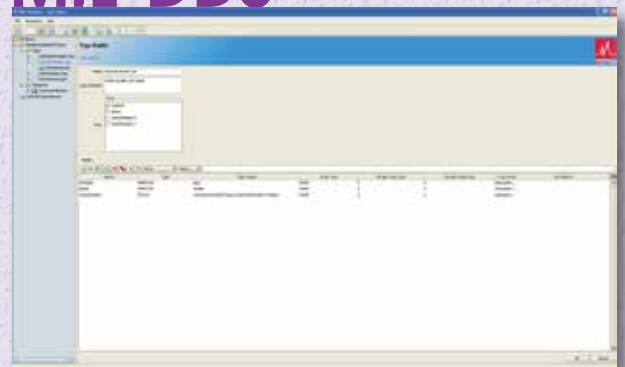
Mil-DDS Middleware has data centric publish subscribe architecture. It has rich set of Quality of services to satisfy requirements of real-time distributed applications.

Technical Features:

- DDS V1.2 Compliant
- RTPS V2.1 Compliant
- Operating Systems:
Windows XP, Windows 7, Linux, VxWorks 6.8, Solaris
- Codes: C++, C#, Java



MIL-DDS





COMMAND & CONTROL SYSTEM

HAVELSAN has been assigned as the main local subcontractor under THALES Airborne Systems for the MELTEM Program and has successfully concluded and delivered all delegated work packages. Ground Support System, which is one of the two main sub systems of this Project, has been developed by HAVELSAN. For the other main sub system; Airborne Platform, functional mission computer software has also been developed by HAVELSAN. In addition, HAVELSAN has provided Tactical Command System (TCS), Tactical Command and Control Information System (TCCIS), Ground Control Station (training system included), System Integration Test Bench, Mission System Tools and Integrated Logistic Support.



MELTEM



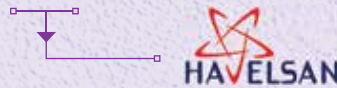
DOOB



COMMAND, CONTROL & INFORMATION SYSTEM

DOOB is an application that includes the core functionalities of a Command and Control Information System. It is mainly designed for national and NATO requirements, and can be easily extended to meet specific requirements. The main purpose of DOOB is to increase the situational awareness in all appropriate command levels. DOOB also supports commanders in planning and executing the operations. General Specifications:

- Web based
- Quick and easy use
- Modular and scalable
- Easy to deploy
- Single point maintenance and management
- Interoperable with common NATO standards (MIP, STANAG 2014, ADatP-3, NFFI)



AIR DEFENSE EARLY WARNING COMMAND AND CONTROL SYSTEM

Air Defense Early Warning and C3I System is designed and developed by ASELSAN to perform Air Defense Command Control functions in the tactical area. System provides a wireless network among air defense units (Air Defense Operation Centres, Radars, Air Defense Artillery and Missiles). It processes track information of the mobile and stationary radar systems in tactical battlefield and transmits real-time correlated air picture to all weapon systems and Air Defense Operation Centres within the mission area enabling precise decision making.



HERIKKS



MINISTEER



GENERIC CONTROL UNIT FOR UNMANNED AND AUTONOMOUS SYSTEMS

MiniSteer is an generic system-on-chip control unit that performs a variety of control task. These control tasks include navigation management, command & control, sensor data processing and smart power management. Not only this control unit is for the airborne but also for ground and maritime platforms. The control unit can smoothly be re-programmed by the platform manufacturer with the use of its SDK to meet the mission requirements of the platform.



FMS



FLEET MANAGEMENT SYSTEM (FMS)

FMS is to manage air fleets located at different locations. The system provides services on: Logistic Life Cycle, Personnel Management, Flight/Task Planning, Spare Catalogues, Material Management, Maintenance Planning, Repair and Fault Management, Stock Management, Operations Management, Resource and Order Management, Training and Task Planning. FMS optimizes the fleet system by replacement and lifecycle management based on Industry Standards resulting in cost efficiency. It improves asset management and all aspects of fleet operation. All fleet information is organized with one flexible asset management module with maintenance histories, inspection records and parts information. FMS establishes maintenance schedule for all equipment and manages specific tasks that encompass all operations from vehicle acquisition through maintenance to disposal.

Related Product Variant:

- Fleet Management System of Turkish Gendarmerie Aviation Group Command



MULTI DATA-LINKS PROCESSOR

Mil-DLP is a system that provides Data Link capability to share tactical information with other Tactical Data Links capable platforms and units.

Functions:

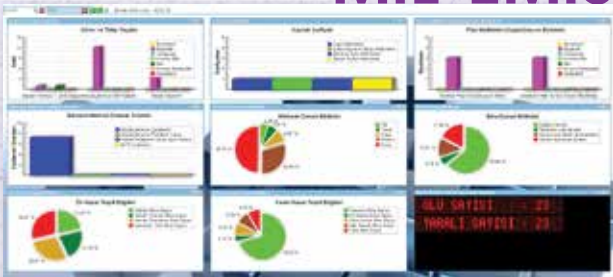
- Multi-Link Processing capability (L11/16/22)
- Air/Surface/Subsurface/Land/Space Surveillance
- MIDS LVT Initialization, Control and Monitoring, Link Network Management, Control and Monitoring, PPLI & Platform and System Status



MIL-DLP



MIL-EMIS



EMERGENCY MANAGEMENT INFORMATION SYSTEM

The purpose of Mil-EMIS is to manage any kind of disaster, emergency and incident by providing coordination and communication among responsible organizations in all phases of Emergency Management including Mitigation, Preparedness, Response and Recovery and decrease the people and proprietary loss.

Functions:

- GIS Based command & Control
- Control and Coordination of Aid
- Recovery Management (Disaster Victim Management, Damage Assessment Management, Shelter Management, etc.)



ARMADOR™

ARMADOR™ MISSION PLANNING AND ACOUSTIC MONITORING SYSTEM

ARMADOR™, has been developed to perform rescue mission controlling functionality, coning and rescue planning tasks for underwater activities carried out by vessels including displaying underwater situation plot, task planning, control and communication features. System provides central displaying feature of underwater sensors in addition to their local monitoring capabilities in a combined manner.





SOFTWARE FOR AIR DEFENSE SYSTEMS



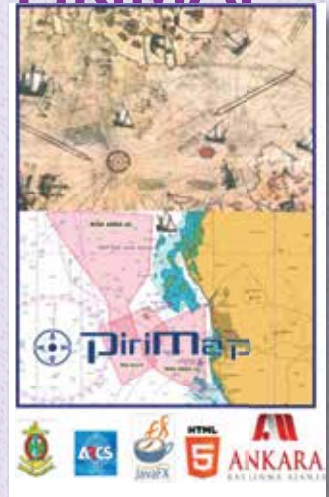
Altay Software, designed and developed the following modules of HAWK XXI-AMRAAM Low Altitude Air Defense System:

- Communication Planning Tool
- Field Test System
- CompasView Test Tool
- Link-1 Radar Simülator

The software modules which are inseparable parts of the HAWK XXI-AMRAAM Low Altitude Air Defense System are in use by different states' armed forces efficiently.

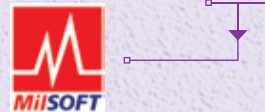


PIRIMAP



PIRIMAP - NET-CENTRIC GEOGRAPHIC INFORMATION SYSTEM PLATFORM

Pirimap is a high performance and easy-to-use cross-platorm GIS software development kit (SDK) that can be used by customers to develop map-centric applications targeting various defense, e-government, and civilian domains. Examples include Command and Control (C2) Systems, Emergency Management Information Systems, Maritime Navigation Systems, Logistics, and others. The applications customers develop will be able to run on desktop consoles, web browsers, and mobile devices.



NIXS



NAVY INFORMATION EXCHANGE SYSTEM

NIXS is the Design/development/deployment of software which shall be deployed on different platforms/units and shore based Command Operation Centers (COC) as Navy Information eXchange System (NIXS) capability.

- To collect and share near-real time information (tracks data, EW bearing line, platform data and information sharing including video streaming) from different platforms/units.
- To gather, correlate and process the information for development of Common Operational Picture (COP) at Head Quarters and to disseminate COP to the platforms/units of NIXS in a Wide Area Network.
- Surface/Air Platforms and Command Centers on different Geo-Locations that are using different technologies (Desktop, Web Based, Java, Java EE, C++, HTML 5, Java Script) will work in a coordinated environment, and the Combined Tactical Picture (COP) developed by the Command Centers will be disseminated to the units in the Operational Area.

TURKUAZ - NETWORK CENTRIC INFRASTRUCTURE

MiISOFT has an IT middleware product which is called TURKUAZ, extending the capabilities of the applications to use a foundation of common services and functions that are built on a service oriented and network centric architecture.

TURKUAZ brings together the enterprise service middleware and the real-time information providing middleware (such as DDS). TURKUAZ is deployed on top of a computing environment and a set of commercial infrastructure elements: an operating system, an application server, a database server, an enterprise service bus, etc.

MiISOFT is using TURKUAZ, in all net centric system products; such as Mil-EMIS Emergency Management applications, Mil-TRAC Logistics and Fleet Management applications, Command Control Information Systems (C2IS), e-Government Applications, Maritime Information Systems.

TURKUAZ



PUBLIC



PUBLIC SAFETY AND EMERGENCY COMMUNICATION SYSTEM SOLUTIONS

The distribution of calls that are come to emergency call center can be done to the attendant and expert incident response team operators (Ambulance, Fire Department, Police) over call taker operators, communication with the units, recording the calls, identifying the location information of the incoming call automatically and determining the nearest incident response team(s) to the scene by software, address search over digital maps of the cities, instant pursuit of the units and providing information sharing with the subunit of incident response agencies, agency based private reporting and making statistical inference can be actualized.



IMAGE EXPLOITATION SOLUTIONS

Transportable Image Exploitation System (TIES) receives EO/IR, SAR, GMTI, Telemetry sensor data from UAV via Ground Control Station, performs screening and exploitation functions and reports the exploitation products to intelligence requesters. Remote Video Terminal (RVT) receives and displays sensor data that are transferred directly from the UAV. The equipment is suitable to be used for forward observing posts in the battlefield.

Ground Control Station Mission Systems (GCSMS) is a complete mission system solution of Ground Control Station of UAVs which consists of Mission Planning Software, Payload Control Software, Communication System and Integrated Test and Monitoring Software.



Mil-TRAC



LIFE CYCLE SUPPORT & FLEET MANAGEMENT INFORMATION SYSTEM

Mil-TRAC is an international standard based (S1000D, S2000M, PLCS, etc.), advanced "Life Cycle Support & Fleet management information system" for the purpose of maintaining complex vehicles on Air/Sea/land platforms.

By Mil-TRAC, various level maintenance activities of the complex vehicles on Air/Sea/land platforms can be Planned, Executed, and Monitored in a cost effective way without compromising the operation safety.

Benefits:

- Maximized Operational Availability
- Having Single View of the Entire Fleet
- Increase in Proactive Logistics Response Capability
- Reduction in Operation and Maintenance Costs and Increased Efficiency
- Resource Optimization through Integrated Material and Maintenance Management



- Minimum Logistics Footprint
- Enabling Smooth Transition to Performance Based Logistics

FLIGHT TEST INSTRUMENTATION AND MEASUREMENT SYSTEM

FTI-100 is an test instrumentation and measurement system that collects and sends data (video, temperature, vibration, strain, current, voltage level, etc.) from air vehicles to ground control center in a real time for following the status of platforms and O/B equipments.

- Number Of Channels : 1500 (Master-Slave Configuration)
- Test Range : 200 Km
- Frequency : 2.2 GHz - 2.4 GHz
- Bit Transfer Rate : 10MBPS(Selectable)
- Data Processing Rate : 17MBPS
- Standard : IRIG106-96, MIL-STD 810E

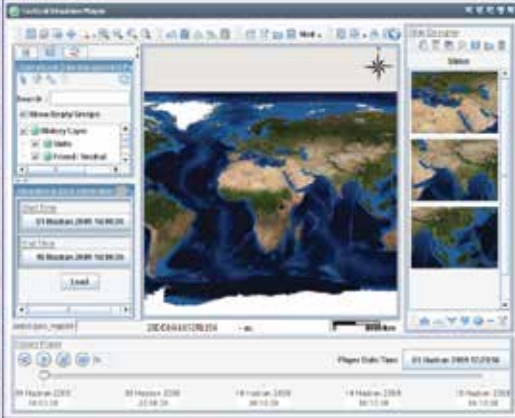


FTI-100





GeoKIT®



GIS TOOLKIT

GeoKIT is a Java API (Application Programming Interface) for manipulating, visualizing, and analyzing 2D/3D raster and vector spatial data. It is written completely in Java programming language. It provides a comprehensive set of components to embed GIS (Geographical Information System) functionality into your applications.

- Pure JAVA API
- High Performance for Vector and Raster data Display and Analysis
- Native Support for Widely Used Data Formats
- Seamless Geographic Database
- Real-Time 2D/3D Analysis Capabilities



DIGITAL DATA RECORDER

Digital Data Recorder (DDR) product family has been developed for different airborne platforms to fulfill various airborne mission recording needs. DDR is capable of recording data from digital / analog video and audio interfaces, various data buses and all types of serial / parallel data ports, DDR has also simultaneous playback capability.

- High resolution video and audio recording (PAL/ NTSC/ RS170), avionics data bus recording and discrete signal recording.
- Mission and high speed sensor data recording over MIL-STD-1553 bus and ethernet.
- Simultaneous playback of recorded data.
- Control over MIL-STD-1553 ethernet, discrete and serial interfaces.
- Event marking, Disk zeroize and secure erase, removable solid state disk (upto 512 GB capacity).
- Data transfer unit function.



VKS



SOAP

SYMBOLGY OVERLAY AND ALGORITHM PROCESSOR - SOAP



SOAP is designed for overlaying input video channels with each other and pre-downloaded symbology files. It has an FPGA based overlaying machine for high performance video processing and a signal processor for developing user applications. Its rugged design and military qualifications makes it a perfect choice for avionic projects with video interfaces. User has a GUI based application for symbology file generation and an easy to use API of the signal processor for application software.

Technical Specifications:

Video Input Interfaces
1 channel RS 170

Operating Temperature

-40°C / +70 °C Operating (+85 °C 30 Min.)



Video Output Interfaces

1 channel DV11024x768
1 channel CVBS

Data Interfaces

2 Channel RS422 UART
1 Channel 10/100 Mbps Ethernet

Other I/O Interfaces

1 Kanal RS422 Sync Pulse
1 Kanal Brightness Control Output (0V-5V)
1 Kanal TTL 5V Reset Output

EMI/EMC

MIL-STD-461 E Compliant
CE101 CE102, RE101 RE102,
RS103, CS114, CS115, CS116

Power Interface

MIL-STD-704F Compliant
28V 40W Power Output for subsystems

Connector Interface

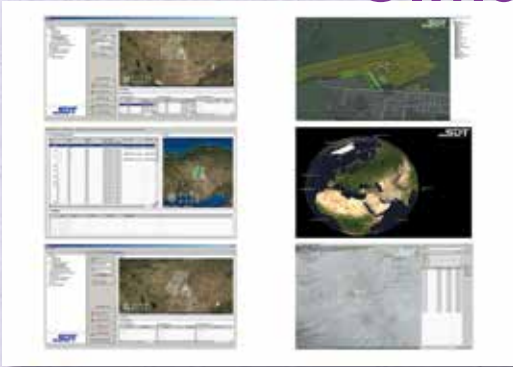
J1 Power In/Out
J2 Data, I/O, Video In, Video Out,
Programming

Mechanical Design

MIL-STD-810F Compliant
113mm*150mm*200mm

GIMS

GEOSPATIAL INTELLIGENCE MANAGEMENT SYSTEM



GIMS is a modular, end-to-end, comprehensive solution for Intelligence, Surveillance and Reconnaissance (ISR) requirements, from imagery and video acquisition to Geospatial Intelligence (GEOINT) dissemination. The system is designed to produce Geospatial Intelligence by real-time processing and integration of the image and/or video delivered by a variety of space, airborne and ground based sensors such as Electro-Optics (E/O), Infra-Red (IR) and Synthetic Aperture Radar (SAR).

The exploitation and dissemination process employs a variety of automatic and semi-automatic tools essential for quick detection, identification and acquisition of time-critical targets. These tools are provided in the form of functional toolboxes which are organized as a collection of algorithms for each stage of the processing (i.e. pre-processing, target detection/recognition, fusion etc.).

Technical Specifications:

- Service request and task management
- Image and video ingestion
- Archive, manage and serve image and live video stream
- Real-time and/or offline image analysis and exploitation
- Ability to create annotations on streaming video
- Fusing image and video with other intelligence data from other sources



AUGMENTED REALITY ASSISTED MAINTENANCE TRAINING & SUPPORT SYSTEM

The system utilizes Augmented Reality (AR) technology for the training & guidance of maintenance personnel on real platforms by the projection of virtual Instructions and maintenance guidelines on physical objects and environments. With Augmented Reality Assisted Maintenance Training & Support System; Understanding of Complex Sub-Systems and Maintenance Processes is getting easier and faster. Viewing a piece of live equipment through a camera-enabled smart device (e.g. smart glass or tablet device), the maintenance crew can access and see maintenance information about key equipment parts, including 2D/3D graphical overlays, video, animation and text augmentations enabling them to follow the augmented guidance steps in order to complete a maintenance procedure.



CONSOLES



MILITARY TYPE RUGGED CONSOLES

Consoles are equipped with AYESAŞ design Consol Cabinet Control System (CCCS) as standard. CCCS, adjusts the fan speeds by evaluating the signals received from the thermal sensors, controls the Cabinet's interior temperature, reports the system status through the warning lamps to the operator, runs console shut-down and power-up scenarios, performs the system BIT functions through the maintenance and test interfaces. At start-up and periodically performs the internal checks and reports to the operator.



NAVAL INERTIAL NAVIGATION SYSTEM

ASELSAN Naval Inertial Navigation System is a navigation grade naval inertial navigation system with embedded GPS receiver and Log speed interface. It is a small, low-cost, mass-producible system that will support a broad spectrum of marine platforms. ASELSAN Naval Inertial Navigation System is designed to serve as main/back up ship's gyrocompass and to be used for stabilization of shipboard sensors, such as radars, EO/IR trackers.

The tightly coupled, embedded INS/GPS and integrated Log Speed mechanization of ASELSAN Naval Inertial Navigation System provides improved performance for surface naval platforms.

ASELSAN Naval Inertial Navigation System is an open architecture and hardware/software flexible unit which can be adapted to various naval platforms.



ANS-510D





DISKRIPTO®



DISKRIPTO®

DISKRIPTO® is an hardware-based Full Disk Encryption device that is designed to protect Data-at-Rest by encrypting content and securely sharing sensitive information, and can be used for several data categories including protection of Financial Data, Private Individual Data, Military Data, Government Data to meet regulatory and contractual requirements, and comply with audits.

It is totally user transparent, therefore unlike any software-based solution, it is not subject to any software-based threats such as viruses and Trojans and zero performance degradation is ensured. It supports two-factor authentication, by combining a secret numeric password, PIN, used in pre-boot authentication and a USB authentication token used in real-time encryption and decryption process. DISKRIPTO® is bundled with a carefully designed Loading Management System (LMS) that handles key initialization, device activation, maintenance, device revocation, data backup and data recovery operations. DISKRIPTO® components and functionality, including the employed algorithms, are designed to be compatible with FIPS-140.3 Security Level 4.

DATA ENCRYPTION DEVICE , SECURKEY

SecurKEY is an encryption device which is connected to your computer from a USB port to encrypt your files, documents, media files (such as videos) and projects for security reason. securKEY is not a flash disc. You cannot copy and save a data in securKEY device. You can securely save and carry your data without the risk of someone steal and copy of it. securKEY can encrypt any size and file type of a data. Data that encrypt by secureKEY can be located in a local disc, shared network, external storage device or even in a cloud. secureKEY provides two factor security; with something you know (pin code) and something you have (usb encryption device).



NetRASAT® IP PROBE



NETRASAT® IP PROBE

NetRASAT® CyberSec has a capability of capturing network packets with all attributes and storing in specified formats. NetRASAT® CyberSec enables the reconstruction of sessions and giving a good insight to security analyst about user activities. In this manner, analysts are able to see the user IP traffic activities literally for Cyber Security purposes.

- ATCA Compatible Blades and Processors
- High Available and Redundant Architecture
- Scalable Architecture up to Tbps Real-Time Traffic
- Support 100M and 1/10G copper and 40G Optical Interfaces
- Advanced System Monitoring
- Classification of Network Flows using DPI Engine



WEBDEKS

WEBDEKS



Webdeks allows users to download a World Wide Web site from the Internet to a local directory and archive it for offline analysis. For providing most recent information, local archive is periodically checked and updated if necessary. With the offline archive, details such as domain name, IP address management and traffic management records are also supplied. With differential archival storage requirements are optimized. All of the content within an offline web site archive is indexed for full search and navigation. This navigation and index also covers all previous snapshots of the web sites.

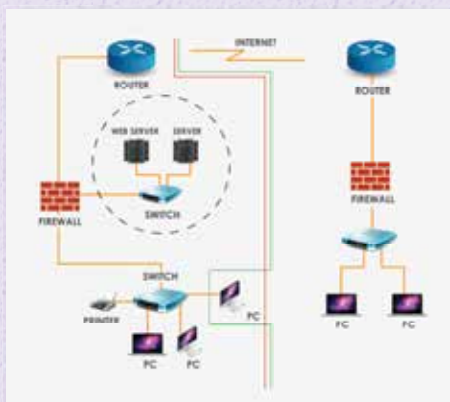


C TECH DEEP PACKET INSPECTION (DPI)

C Tech Deep Packet Inspection (DPI) Engine provides software libraries and tools those are used to identify applications, services and protocols from real-time network traffic flows. Its' clean Application Programming Interface (API) enables fast integration into custom solutions. C Tech DPI Engine also provides metadata extraction capability. C Tech DPI Engine is optimized for various domains;

- Lawful Interception
- Network Security (Next Generation Firewalls, IPS/IDS, UTM solutions, Secure (Web) Gateways)
- Policy, Charging and Billing Systems
- Network and Traffic Management
- Software Defined Networking/Network Virtualization Function
- Load Balancing/Link Aggregation/Network Testing
- Content Delivery Networks/LAN and WAN Optimization/Mobile Data Offload

DPI



C TECH CYBER RANGE

The biggest drawback of Cyber Security is lack of qualified human resources. The biggest problem in training Cyber Security specialists is insufficient practice. Because the environment setup takes too much time, setup is very complicated and the environment is mostly damaged after a short time. C Tech Cyber Range overcomes these problems with its fast and easy setup and reusability. C Tech Cyber Range can be used to verify Cyber Security tools and technics and to analyze some software/hardware components without damaging real world systems.

For rapid examination of attack and defense strategies or for execution of Cyber Security games like military exercises an environment that is ever ready with up-to-date content and ability to work with critical systems is required. C Tech Cyber Range presents a complete platform that meets all this requirements.

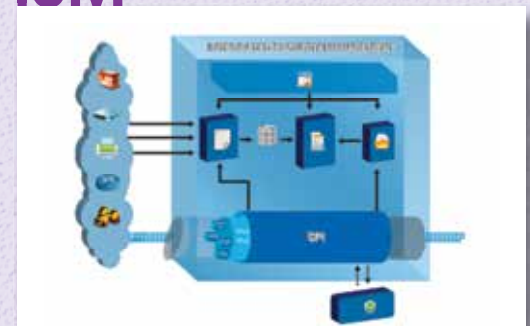


INTEGRATED SECURITY MANAGEMENT

C Tech Integrated Security Management (ISM) is an integrated next generation solution that protects enterprises from Advanced Persistent Threats (APTs). This protection is obtained by integration various different threat prevention techniques into a single solution. C Tech ISM can stop unknown malware, zero-day exploits, application-specific attacks, malicious command and control communications by correlating advanced malware and threat analysis with continuous risk assessment based on managed assets, identified vulnerabilities and abnormal network behaviors. C Tech ISM is the best friend of a network security administrator; it provides real-time threat intelligence and sophisticated incident response capabilities.



ISM





AVIONICS CENTRAL CONTROL COMPUTER (MISSION COMPUTER)

ACCC is the central control computer of the aircraft. ACCC functions can be summarized as follows:

- System Management,
- Operator Interface Management
- Communications and Identification Management, Navigation Management
- Tactical Surveillance Management, Stores Management
- Emergency/Auxiliary Operations and Zeroization Management
- Mission Planning

ACCC has a modular hardware design. Its interfaces and performance characteristics are easily scaled to the platform/application needs.

ACCC



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CMS



COCKPIT MANAGEMENT SYSTEMS

Cockpit Management System is the part of avionics that manage modern glass cockpits. Aselsan cockpit management systems work with either dumb or smart, flat panel, color display units. Cockpit Management Systems include Flight Display, Navigation Display, Engine Display, FLIR Display, Mapping Display, etc.

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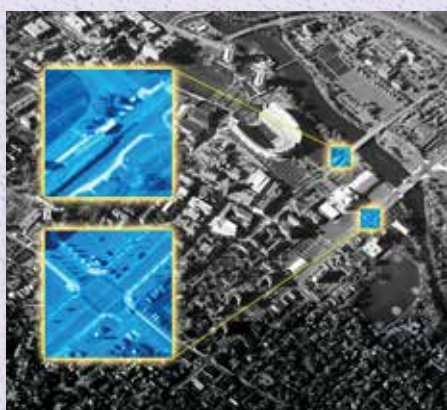
FLIGHT MANAGEMENT SYSTEMS

Flight Management Systems (FMS) are computerized avionics components found on most military, commercial and business aircraft assist pilots in navigation management, flight planning, communication management and other aircraft control functions. The primary purpose of FMS is to manage a variety of navigation sensors to produce a unified aircraft position. Using this position along with the flight planning capabilities, the FMS can handle the complete navigation, performance and guidance work for the flight. Navigation function computes the aircraft position and velocity for all phases of flight (oceanic, enroute, terminal and approach) and automatically blends or sleets position sensors to compute optimum position. Flight Planning function computes the active flight plan with both lateral and vertical definition, containing worldwide coverage of nav aids, airways, SID/STAR procedures, airports and runways.

FMS



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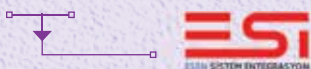


WIDE AREA SURVEILLANCE

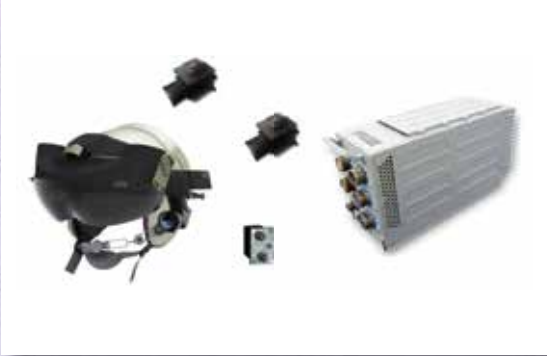
Conventional airborne surveillance systems enable to perform aerial surveillance of small-sized areas (~150x150 m) during day and at night. However, no general situational awareness can be created due to the fact that such systems serve at the restricted-sized areas, and only if targets are detected by means of any other intelligence methods, the targets can be monitored in detail. Wide Area Surveillance Systems enable to perform surveillance continuously in areas as wide as a city center (~20km²) on concurrent basis. Thus, complete situational awareness can be created at the wider areas, and much more intelligence data can be collected.

Wide Area System enables to perform the following capabilities:

- Long-term data archiving on the ground
- Forensic analysis
- Real-time event management optimizing the workload of the operators
- Wide area motion detection
- Real-time surveillance on city-center scale
- Instant display of any imagery pertaining to multiple regions with high resolution
- Real-time motion detection and tracking of high number of targets at the same time
- Ready-made and operator-customized abnormal situation / activity detection
- Full data recording during the operation in the air
- Monitoring suspicious vehicles/persons
- Convoy protection • Monitoring tactical operations
- Post-event forensic analysis
- Abnormal situation detection and predictions



HICS HELMET INTEGRATED CUEING SYSTEM



AVCI is a visor-projected system designed for helicopter platforms to improve the pilot's situational awareness and increase the capabilities of the pilot and aerial vehicle by:

- Night vision, IR video, navigation and weapon symbology
- Generation of head tracking information by optical-inertial hybrid approach for accurate line of sight cueing and targeting
- Personalized inner liner for the pilot
- Protection of the head and face region from impact and sharp objects

AVCI is composed of Headgear Unit (Basic Helmet assembly, Display Module, Head Tracking Module), Electronic Unit, Cockpit Camera Modules and Control Panel.



INTERCOMMUNICATION SYSTEM

DHS-101 is an analog Intercommunication System (ICS) which is capable of providing communication between pilot and copilot, managing communication equipments, and integrating audio and intercom facilities together with all audio caution and warning messages.

DHS-101 meets the needs of reliable and high intelligible audio communication for noisy military environments.

DHS-101 can be easily configured and updated to meet the complicated communication system needs for more users.



DHS-101



DHS-201 INTERCOMMUNICATION SYSTEM



The DHS-201 is a Digital Intercommunication System (ICS) which is capable of providing communication between aircraft crewmembers, managing communication equipments, and integrating audio and intercom facilities together with all audio caution and warning messages.

The DHS-201 meets the needs of reliable and high intelligible audio communication for noisy military environments.

The DHS-201 system architecture provides redundancy of all critical functions.

The DHS-201 is capable of supporting different pre-programmed ICS configurations which allows modification of the lots of DHS-201 parameters based on platform specific requirements without any change of system architecture and hardware design.



INERTIAL NAVIGATION SYSTEM

Inertial navigation systems (INS) are navigation aid that uses a computer and motion sensors to continuously track the position, orientation and velocity (direction and speed of movement) of a vehicle without the need for external references. The INS is initially provided with its position and velocity from another source (a human operator, a GPS satellite receiver, etc.), and thereafter computes its own updated position and velocity by integrating information received from the motion sensors.

ASELSAN Inertial Navigation Systems are used on airborne, land and naval applications. ASELSAN follows inertial navigation technology and manufactures inertial navigation systems since 1988 and delivers to the Turkish Armed Forces for various platforms including, F-4 and F-16 Fighters, Sikorsky Blackhawk and Seahawk helicopters, etc.

INS



EFB



ELEKTRONIC FLIGHT BAG

STM AeroTab™EFB (Electronic Flight Bag) is an electronic information management system, which was developed in accordance with the “paperless cockpit” concept and is used in military and civil aviation industry to help flight crew during flight processes by providing information security. Flight crew can perform flight operations more easily and efficiently in a paperless way by using STM AeroTab™ EFB. The system can also be integrated with the avionic systems on the aircraft, saves the necessary flight information in an electronic environment and manages the flight related documents during the flight. With the AeroTab™EFB solution, STM leads the usage of mobile technologies in the military and civil aviation industry by generating an indigenous EFB product.



TANK COMMAND CONTROL AND INFORMATION SYSTEM

TCCIS is a command and control system which provides continuous, secure and reliable data communication at all levels from a single tank to tank battalion levels at all operational phases, including planning, execution, control and monitoring. TCCIS can be used in various platforms of the battalion task force.

- Tracking of common tactical situation information of friend and foe units over digital maps
- Digital map and Decision supporting analysis tools
- Interaction with fire-control, avionics and navigation systems
- Exchange of digital orders, plans and reports
- Mission rehearsal and debriefing
- Integration to other Command and Control Systems



TCCIS



GMFD-68



GRAPHICAL MULTIFUNCTIONAL DISPLAY (GMFD-68)

GMFD-68 is ASELSAN designed graphic multifunctional display with 1024 x 768 high resolution and 6” x 8” AMLCD display. It is specially designed for

- Graphics/Video Management
- Sensor Interfaces
- Digital Map Management

GMFD-68 can display analog/digital video input and provide digital video output.

GMFD-68 has ARINC-429/708 and Serial communication Interfaces.

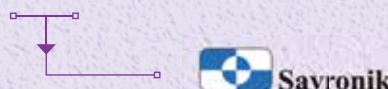
GMFD-68 provides NVIS compability to MIL-STD-3009. GMFD-68 is compliant with MIL-STD-810, RTCA DO160 and MIL-STD-704 requirements.



ACTIVATION PANEL AND LIGHTING CONTROL UNIT

Activation Panel & Lighting Control Unit is a control unit providing power through panel and lighting controls for avionics.

- Operational Voltage (DC):18-32 V
- Platforms:
 - CN-235
 - T-38
 - T-129
- Standards:
 - MIL-STD-810F
 - MIL-STD-461E
 - MIL-STD-704E
 - SAE-AS 7788
 - RTCADO- 160C



KDU

KEYBOARD DISPLAY UNIT



The KDU is a Control Display and Management Unit and provides the Man Machine Interface (MMI) for operator data entry, avionics subsystem mode selections and subsystem status displays. Its primary function is to serve as a control display and keyboard for Super Multi Function Display (SMFD). The KDU has Ethernet or Arinc-429 lines for page server activities.



SUPER MULTIFUNCTIONAL DISPLAY

SMFD-810 is ASELAN designed smart multifunctional display with 1360 x 1024 high resolution and 8" x 10" AMLCD display. It is specially designed for

- Cockpit Mission Management
- Flight Management
- Graphics/Video Management
- Navigation/Communication Management
- Digital Map Management

SMFD-810 can display analog/digital input and provide digital video output. SMFD-810 has MIL-STD-1553, ARINC-429/708, Ethernet and Serial communication Interfaces.

SMFD-810 provides NVIS compability to MIL-STD-3009. SMFD-810 is compliant with MIL-STD-810, MIL-STD-461 and MIL-STD-704 requirements.



SMFD-810



CAEeda™



COMPUTER AIDED ENGINEERING SOFTWARE FOR DESIGN AND ANALYSIS

CAEeda™ is a computer aided engineering design and analysis software package developed by EDA for most defense and aerospace industries applications. It is a complete package for engineering design from conceptual to final phases without need for another tool and has a user-friendly graphical interface, which can be easily learned and used. By using Linux operating system, it is also independent of any kind of proprietary operating system, under fully secure environment. Presently CAEeda™ has the following modules:

- Geometry Module (CADeda™)
- Mesh Generation Module (MESHeda™)
- Flow Analysis Module (FAPeda™)
- Structural Analysis Module (SAPeda™)
- Thermal Analysis Module (TAPeda)
- Interactive Multiphysics Module
- Optimization Module (TOPeda)
- Post-processing Module (POSTeda)
- 6DOF Module
- Ballistics Module (BALLISTICeda)



FOCUSFLITE MISSION MANAGEMENT SYSTEM

FocusFlite™ embraces ground and airborne systems for mission data preparation, planning, pre-flight briefing, mission execution, and post-flight briefing. Ground system FocusFlite™ GS helps the pilots to rapidly prepare and review mission plans with high accuracy and precision. It also facilitates the pilots to evaluate their flights by virtually visualizing mission environment after the flights. FocusFlite™ AS as airborne system is a Digital Moving Map System integrated to the other avionic systems and aims to enhance pilot's situation awareness. FocusFlite™ AS is a multi-platform, certifiable system and can be customized according to available computing resources and customer needs. [http://focusflite.stm.com.tr]

FOCUSFLITE



KRA-101 K-BAND RADAR ALTIMETER

The KRA-101 is a small form factor lightweight Linear FM (Chirped) Radar Altimeter designed to operate in K-Band. It is a compact design with a TX/RX module and an integrated antenna. The integrated antenna provides space saving and eliminates the need for cabling. The KRA-101 provides accurate height measurement in all phases of flight on manned or unmanned platforms with ground speeds of up to 300 m/s.

- 24.0-24.2 GHz operating frequency
- Accuracy of ± 2 ft or 2% of the actual height
- 50 Hz max update rate
- 22-32 V input power and 12 W max power consumption
- Detailed Build In Test capabilities
- Command and Response based operation
- Very low RF power, high bandwidth, power management
- 150mm x 125mm x 53mm size and 830 g weight
- Altitude limit up to 2500 ft
- Environmental Qualification: MIL-STD-810F, EMI/EMC Qualification: MIL-STD-461D
- MTBF prediction > 25000 hour



KRA-101



CRA-101



CRA-101 C-BAND RADAR ALTIMETER

The CRA-101 is a small form factor Linear FM (Chirped) C-Band Radar Altimeter designed to operate on high maneuverability manned or unmanned platforms. It consists of a TX/RX module and separate antennas which give flexibility in positioning the antenna within the platform. TX/RX module provides SMA (F) connectors to the antennas for transmit and receive ports. The CRA-101 ensures accurate height measurement in all phases of flight on platforms with ground speeds of up to 300 m/s.

- 4.2-4.4 GHz operating frequency
- Accuracy of ± 2 ft or 2% of the actual height
- 50 Hz max update rate
- 22-32 V input power and 11 W max power consumption
- Detailed Build In Test capabilities
- Command and Response based operation
- Very low RF power, high bandwidth, power management
- 131mm x 147mm x 47mm size and 710 g weight (wit hout antenna)
- Altitude limit up to 2500 ft
- Environmental Qualification: MIL-STD-810F, EMI/EMC Qualification: MIL-STD-461D
- MTBF prediction > 25000 hour



VIDEO MULTIFUNCTIONAL DISPLAY (VMFD-810)

VMFD-810 Video Multifunction Display is ASELSAN designed color flat panel display using Active Matrix Liquid Crystal Display (AMLCD) technology, with an active display area of 8 by 10 inches. It is specially designed for airborne mission computer applications and features digital video input displaying and digital input/output processing capabilities. VMFD-68 can display Display Port video inputs for the high resolution 1360 x 1024.

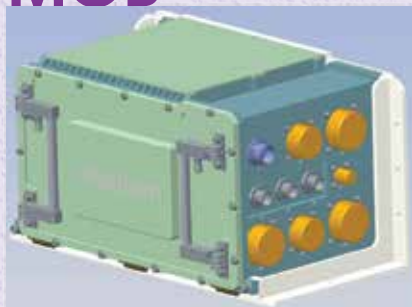
VMFD-68 outputs pressed bezel key information via RS-422/ RS-485 and provides detailed maintenance information via RS-232 interface. Sophisticated serial interface protocol provides flexible communication interface to Mission Computers or other airborne computers. VMFD-810 provides NVIS compability to MIL-STD-3009. VMFD-810 is compliant with MIL-STD-810, MIL-STD-461 and MIL-STD-704 requirements.



VMFD-810



MGB



ADVANCED MODULAR COMPUTER (MISSION COMPUTER)

AMC is the integrated processing center in the Integrated Fighter Avionics System. AMC functions can be summarized as follows:

- Avionics System Management, Aircraft Interface Management,
 - Operator Interface Management, Symbology Generation and Multi Function Display Management, Head Up Display Management
 - Communications and Identification Management, Navigation Management
 - Tactical Surveillance Management
 - Stores Management, Weapons Release, Launch and Jettison Management, Weapons System Diagnostics,
 - Emergency/Auxiliary Operations and Zeroization Management
 - Mission Planning, Mission and Test Data Upload/Download
 - Color Moving Map including Synthetic Vision(3D Terrain), Digital Terrain System
- AMC has a modular hardware and software design. AMC is compatible to MIL-STD-810F, MIL-STD-461E, RTCA DO-160E standards. Its interfaces and performance characteristics are easily scaled to the platform/application needs.





**SELF PROTECTION IS DEFENDING
YOUR LAND**



WEAPON SYSTEMS



CIRIT



CIRIT 2,75" LASER GUIDED MISSILE

CIRIT is a 2.75" (70 mm) diameter precision guided missile designed and developed by ROKETSAN to replace the existing gap between inexpensive but not accurate unguided rockets and expensive but accurate guided anti-tank missiles. CIRIT; which is a national program, is a highly accurate and cost effective solution against stationary and moving targets.

The development contract; which was signed in 2004, was satisfied by completing the product and production line qualification activities in 2010. Within the context of the development project more than 200 firing tests have been carried out. The first serial production contract has been awarded in 2011 in accordance with the Turkish Armed Forces (TAF) requirements. Following this contract; first export contract has been awarded by United Arab Emirates (UAE) towards the UAE Armed Forces needs in 2012.

Currently; all deliveries has been completed within the contexts of TAF and UAE contracts. Besides the helicopter platforms; integration activities for unmanned aerial vehicles, light attack aircrafts, land vehicles, naval platforms and stationary land platforms has been successfully completed. Up to this point; more than 4000 CIRIT missiles have been produced and shipped.

Key Features:

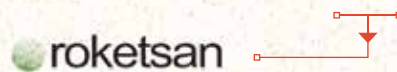
- First qualified and serial produced missile in its caliber (2,75") in the market
- Actively serving in two different countries' armed forces inventory
- Cost effective and proven high accuracy
- Both warhead and motor have Type 5 Insensitive Munition
- Has the longest range among the 2,75" systems
- Multi-Purpose Three Modes Warhead (Anti-Armor, Anti-Personnel and Incendiary)
- Data transfer capability between the platform and the missile for higher efficiency with Smart Launcher

HISAR AIR DEFENCE MISSILES

HISAR missiles are defence weapons developed to protect military bases, ports, facilities and troops against threats from the air. Their targets are military aircraft, attack helicopters, navigation missiles and unmanned aerial vehicles. HISAR missiles present a modular structure with the integrity of a family and are designed to be compatible with different platform integrations.

HISAR Missiles enjoy higher technology with respect to their equivalents:

- 360° effective area with the capability of vertical launch
- Maximum effectiveness with dual stage rocket motor
- Midcourse guidance via RF data link
- Terminal guidance with IIR seeker
- Multiplatform integration interface
- Hybrid control system



HISAR-A & HISAR-O





MIZRAK-O



MEDIUM RANGE ANTITANK MISSILE "MIZRAK - O"

MIZRAK-O has been developed as a medium range antitank missile intended for usage of land forces against all armored threats of the modern battlefield. It is highly effective against reactive armored targets with its IIR Seeker and tandem warhead. MIZRAK-O can also be integrated onto stationary and moving land platforms.

Key Features:

- 4 km range
- Firing behind the mask
- Fire&Forget and Fire&Update Modes
- Two way communication with RF Data Link
- Highly Effective Armor Piercing tandem warhead
- Insensitive Munition Properties
- Day&Night all-weather capabilities
- Fired from the ground using a tripod-mounted launch tube or installed on a land vehicle



LONG RANGE ANTITANK MISSILE "MIZRAK-U"

Long Range Antitank Missile (MIZRAK-U) is primarily designed to operate from attack helicopters. MIZRAK-U is equipped with state-of art technologies making it effective against all armored threats. It can also be integrated onto various land, aerial and naval platforms.

Key Features:

- 8 km range
- IIR and Laser Seeker options
- Firing behind the mask
- Day&Night all-weather capabilities
- Fire&Forget and Fire&Update Modes
- Two way communication with RF Data Link
- Can be used against both stationary and moving targets
- Highly Effective Armor Piercing tandem warhead
- Insensitive Munition Properties

MIZRAK-U



SOM

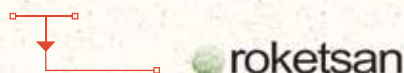


STAND-OFF MISSILE (SOM)

SOM is an air to ground missile system which is developed against heavily defended high value land and sea targets.

Key Features:

- Long Range (130 NM+)
- Low Observable
- High Precision Navigation with INS+GPS+TRN+IBN,ATR, IIR
- High Agility
- Resistance to Counter Measures / Clutter
- In Flight Mission Selection from a Preplanned Mission Set
- In Flight Retargeting
- Selectable Impact Parameters
- Cluster or Concrete Piercing tandem warhead
- NATO UAI Compatibility



KMS PEDESTAL MOUNTED AIR DEFENCE SYSTEM



Pedestal Mounted Air Defense System (PMADS) is a fully automated firing unit using Stinger missiles for very short range air defense.

The main mission of PMADS is to defend vital assets, troops, convoys and other ground targets in the battlefield against low level air-threats.

The increasing capabilities of the air threats require a well organized air defense with the integration of weapons, command/control systems and sensors. Within this context, PMADS is a very effective defense unit with high fire power under coordinated operation with command control systems.

PMADS has important superiorities over similar systems regarding the capabilities, technological level, subsystem performances, modularity.

PMADSs, ATILGAN and ZIPKIN, are devoted for different mission requirements and integrated on two different categories of vehicles with the same sub-systems.

General Features of PMADS

- 4 or 8 ready-to-fire Stinger missiles
- 12.7 mm. Machine Gun for self defense and missile dead zone coverage
- Passive surveillance, acquisition and tracking sensors, incorporating Thermal and daylight TV cameras
- Multi-pulse Laser Range Finder for target ranging
- Two-axis, gyro-stabilized turret providing on-the-move target surveillance, detection, acquisition and firing capabilities (ATILGAN)



HİSAR-A (LOW ALTITUDE AIR DEFENSE MISSILE SYSTEM)

HİSAR-A is a surface-to-air missile (SAM) system that will provide air defense for both moving troops and stationary critical assets against fixed and rotary wing aircrafts (included hovering), unmanned aerial vehicles (UAV), cruise missiles and air-to-surface missiles.

System intercept range : 15 km.

HİSAR-A consists of the following units:

- 4 ready to fire missiles
- Vertical missile launch
- Autonomous operation (Target detection, identification, tracking and missile launching)
- Operation in coordination with Systems
- Protection of mobile armed forces
- Ballistic protection

Missile Launching System:

- 6 ready-to-fire missiles
- Vertical launch
- Multiple engagement and successive firing
- Fire Control & Command Control functions, provided by the Fire Control Unit
- Operation in day, night and adverse weather conditions
- Global positioning system and navigation
- Remote control
- Wired and wireless communication
- Automatic leveling mechanism

(HİSAR-A)



- Fast deployment
- Mobility in tactic area
- Low Altitude Missile:
 - Imaging Infra Red (IIR) Seeker
 - Dual-pulse propulsion engine
 - Vertical launch

HİSAR-O



HİSAR-O (MEDIUM ALTITUDE AIRDEFENCE MISSILE SYSTEM)

HİSAR-O is a surface-to-air missile (SAM) system that will provide air defense for stationary troops and critical assets against fixed and rotary wing aircrafts (included hovering), unmanned aerial vehicles (UAV), cruise missiles and air-to-surface missiles.

HİSAR-O consists of the following units:

- Fire Control Center (FCC)
- Missile Launching System
- HİSAR-O Medium Altitude Missile
- Medium Altitude Air Defense Radar
- Electro-optical System

Main Features of HİSAR-O:

- System intercept range: 25 km.
- Distributed structure, flexible deployment
- Extendable protected area provided by wireless communication and distributed structure
- Detection, tracking and target identification by 3D surveillance radar
- Multiple engagement and successive firing
- Automatic leveling mechanism
- Fast deployment
- Mobility in tactic area

Medium Altitude Missile:

- Imaging Infra Red (IIR) Seeker
- Dual-pulse propulsion engine
- Vertical launch
- Mid-course guidance



AIR DEFENSE FIRE CONTROL SYSTEM

Air Defense Fire Control System is a sensor and command control system for fire and command control of 35 mm Towed Air Defense Guns and Low-Altitude Air Defense Missile Launching System.

General Specifications

- Fire and Command Control of 35 mm Towed Air Defense Guns and Low-Altitude Air Defense Missile Launching System
- 3 Dimensional Search Radar, Fire Control Radar and Electro-Optical (Thermal Camera, Daylight Camera, Laser Range Finder) Sensors
- IFF Sub-System for Identification of Friend/Foe
- Local Air Picture Generation,
- Advanced Threat Evaluation and Weapon Allocation Algorithm

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KORKUT COMMAND CONTROL VEHICLE (KORKUT CCV)

KORKUT Command Post is a mobile Command & Control (C2) unit with integrated 3-D search radar which is capable of controlling three KORKUT SPADG Systems. The system also provides the option of controlling other low altitude / short range air defence assets.

General Specifications:

- Target Acquisition & Tracking with 3D Search Radar
- Local Area Air Picture Generation
- Advanced threat evolution and weapon assignment algorithms
- Post command control of air defence weapon systems
- Identification of Friend or Foe with IFF System

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KORKUT CCV



KORKUT SPADGS



KORKUT SELF PROPELLED AIR DEFENCE GUN SYSTEM (KORKUT SPADGS)

KORKUT Air Defense Gun System is developed for the effective air defense of mechanized troops and mobile units. System has firing on the move capability with the stabilized and unmanned gun turret.

KORKUT Gun System has capability of firing 35 mm Airburst Ammunition -which is also a product of ASELSAN- in addition to conventional type 35 mm ammunitions. KORKUT Gun System -together with 35 mm Airburst Ammunition- highly improves the effectiveness of ground based air defence against modern air threats including air-to-ground missiles, cruise missiles and UAVs.

General Specifications:

- 35 mm Gun Turret with fire speed of 2 x 550 rpm
- Effective use of Air Burst Ammunition against Fixed/Rotary Wing Aircrafts, Cruise Missiles, Air-to-Ground Missiles and Unmanned Air Vehicles (UAVs)
- Automatic Linkless Ammunition Feed Mechanism (ALAFM) which brings the unique capability of loading two different types of ammunition at the same time into the magazine and makes it possible to change the type of ammunition to be fired within less than 15 seconds.

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FIRTINA

155 MM 52 CALIBRE WEAPON SYSTEM



With its rifled 52 calibre autofrettaged barrel, 155 mm weapon system has the operating capability in every terrain and weather condition.

Diameter	: 155 mm
Total Weight	: 4339 Kg
Barrel Weight	: 2259 Kg
Barrel Length	: 8095 mm
Number Of Grooves	: 48
Breech Ring Weight	: 665 Kg
Breech Weight	: 95 Kg Wedge type breech block
Ignition Type	: Electro-Hydraulic servo system or manuel
Number Of Fire	: Normal 6 rnd/min Maximum rate 3 rnd/15 sec. Sustained rate 2 rnd/min.
Range	: 30 Km (Modern Projectile), 40 Km. (ERFB/Base bleed Projectile)



Barrel Type : Monoblock, forged tube with autofrattage
 Product Facility : Heavy Weapon and Steel Factory/Heavy Weapon Factory (ÇANKIRI)

HOWITZER FIRE CONTROL SYSTEM

Howitzer Fire Control Systems have been designed in order to provide the fire control and fire direction functions to the self propelled and towed howitzers. System is composed of necessary sub-units that execute all the operations required from the receipt of fire order through voice or data communication on the howitzer till the end of firing process.

Fire Control System speeds up and automates most of the functions relevant to the movement control, positioning, gun laying, fire direction and fire control. The system enhances the firepower, first round hit capability and overall effectiveness of a howitzer, with its capabilities of automatic and fast gun laying, accurate ballistic computations and rapid.



HOWITZER



PANTER

40 KM RANGE ARTILLERY GUN



40 km Range Artillery Gun Can be towed or can be self propelled.

Barrel Length	: 52 calibre
Barrel Bore Diameter	: 155 mm
Range	: 18 km (M107), 30 km (M549A1 (RAP)), 40 km (ERFB/Base Bleed)
Rate Of Fire Normal	: 4-6 rds/min,
Impact	: 3 rds in 15 sec. ,
Continious	: 2 rds/min
Howitzer Weight	: 18000 kg
Barrel Weight	: 2240 kg
Number Of Grooves	: 48
Total Length	: 11.6 m
Total Height	: 2.6 m
Total Width	: 3.3 m



Motion Speed : 20 km/h
 On Paved Road : 14 km/h
 On Cross County : 60 km/h
 Towing Speed : 60 km/h
 Product Facility : Heavy Weapon Factory (ÇANKIRI)/ Heavy Weapon and Steel Factory /Machinery and Gas Mask Factory



TANK WEAPON SYS.



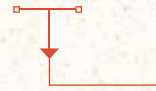
ALTAY TANK WEAPON SYSTEM

Barrel Length	: 6600 mm
Barrel type	: Smooth Bore -Chrome Plated
Total Length	: 7118 mm
Total Weight	: 3103 kg
Rate of Fire	: 6 rounds /min
Product Facility	: Heavy Weapon and Steel Factory



40 MM REVOLVER GRENADE LAUNCHER

Calibre	: 40 mm
Weight unloaded	: 5.8 kg (max.)
Length	: Butt extended 803 mm Butt folder 718 mm
Barrel length	: 300 mm
Rifling	: 6 grooves, right hand, one of turn in 1285 mm
Rate of fire	: Max. 6 rounds / 10 sec.
Muzzle velocity	: 76 m/sec
Max. Range	: 400 m
Minimun range	: 100m(training), 30m (combat)
Max. Effective range	: 375 m (area targets) 150 m (point targets)
Production Facility	: Heavy Weapon Factory (ÇANKIRI)



40 MM AUTOMATIC GRENADE LAUNCHER



Barrel Bore Diameter	: 40 mm
Weight	: Gun 33 Kg,Cradle 9,5 Kg,Tripod 20 Kg,Total 62,5 Kg
Size (Length)	: 1097 mm
Width	: 340 mm
Height	: 225 mm
Rate Of Fire	: Cyclic:325-375 rds/min
Rapid	: 60 rds/min,
Sustained	: 40 rds/min
Muzzle Velocity	: 242 m/sn
Maximum Range	: 2500 m
Maximum Effective Range	: 1500 m
Barrel Size (Length)	: 414 mm
Ammunition Feed	: from left
Bullet Type	: HE, HEDP, TP
Rifling	: 24 groves
Production Facility	: Heavy Weapon Factory (ÇANKIRI)



SMASH



30MM REMOTELY OPERATED STABILIZED WEAPON SYSTEM

SMASH is a remotely operated stabilized weapon station fitted with 30mm Mk44 Bushmaster-II Canon.

SMASH configurations incorporate advanced features as remote operation, built-in electro-optic sensor system for autonomous operation, day and night operation, stabilized turret, automatic target tracking (detect, track and fire on the move) and ballistic computation.

SMASH System has a stabilized turret which enables the line-of-sight of the gun to be aimed at the target at all times. Due to the stabilization feature, the system can perform precise firings against stationary or moving targets while the platform is on-the-move.

As opposed to fixed sight systems used on 12.7mm STAMP and 25mm STOP systems, SMASH incorporates a separately stabilized electro-optical suit which can move in elevation and azimuth axes relative to gun. This ensures effective firing at long distances by enabling line-of-sight stay on the target at all times, even during the firing where ballistic correction is applied to the gun. The separately stabilized electro-optical sight also enables surveillance and target tracking without aiming the gun to the target.



REMOTE CONTROLLED 25/30 MM GUN SYSTEM

CLAW is an unmanned, remote-controlled gun turret which can be adapted to a wide range of wheeled or tracked vehicles. The primary armament of the turret is 25/30 mm Gun, however the turret can be armed with a secondary 7.62mm co-axial machine gun.

The turret has two-axis stabilization for accurate shooting on the move, and an independent two-axis stabilized sight system which includes a Long Wave Thermal Camera, Day TV Camera and Laser Range Finder.

CLAW has been designed and developed within the scope of ASELSAN - FNSS cooperation for joint-production.



CLAW



TURRET



25MM DRAGAR TURRET AND 7.62MM CANNON SYSTEM

Weapon system provides day/night observing, electronic target capturing, tracing and salubrious and trustworthy target aiming capability under all weather and terrain conditions. Weapon system is designed in accordance with NATO specifications, and can be mounted on vehicle easily.

- 25 mm cannon primary weapon and 7.62 mm coaxial machine gun.
- Day/night sighting and electronic targeting capability under all weather conditions
- +48° -11° vertical, 360° horizontal firing capability
- Special aluminum armoured lightweight hull construction and bolted add on armour kit.
- 3 Smoke grenade launchers on both sides
- Waterproof, corrosion resistant surface coating as per NATO standards



MEDIUM CALIBER REMOTE CONTROLLED TURRET SYSTEM

MIZRAK-30 is an unmanned turret system which is designed for armoured fighting vehicles. It is controlled by the gunner and the commander seated inside the vehicle under armour. Armour piercing, high explosive and all other types of ammunition available for the 30 mm automatic cannon can be fired. ABM ammunition firing capability is also an option. MIZRAK-30 has the latest generation digital fire control system architecture having dual-axes independently stabilized commander and gunner sights utilized with highest performance cooled thermal camera, CCD camera and laser range finder as the payload and target tracking function.

Optionally MIZRAK-30 can be equipped with laser warning, soft kill system, laser guided anti-tank missile system and can be operated with UCOK 12.7mm/7.62mm/40mm AGL RCWS platform in place of commander sight.



MIZRAK-30



ONE-MAN SHARPSHOOTER™ TURRET

FNSS developed a one man turret family named Sharpshooter™. FNSS offers the One-Man Fully Stabilized Sharpshooter™ Turret in 3 configurations; 25mm Bushmaster cannon, 40mm automatic grenade launcher and 12,7 heavy machine gun. Each configuration has a 7.62 coaxial machine gun. Main features of the Sharpshooter™ Turret are; full shoot-on-the-move capability, wide variety mission capability, NATO standard, low cost, high survivability, defeats enemy AIFV's, provides fire support to infantry squad, easily retrofitted to tracked and wheeled vehicles, light weight, use of wide variety of ammunition and weapon station drives and electronic boxes are arranged for easy access.



TURRET



NAVAL GUN FCS



40 MM / 76 MM NAVAL GUN FIRE CONTROL SYSTEMS

Naval Gun Fire Control Systems (GFCS) of ASELSAN operates under existing naval combat management system of the ship for guiding the Naval Gun to the firing line. With its contemporary software and hardware, GFCS keeps the gun precisely on target by running target position estimation algorithms using target track information obtained from on board sensors (surface, ground, air) and by taking platform data obtained from ship's reference systems. The system utilizes high performance gun stabilization, future position estimation and ballistic calculation algorithms in order to solve the fire control problem.



BR-2100 FIRE CONTROL SYSTEM

The system consists Firing Control Computer, Launcher Control System, Vehicle Level Determination System, Firing Control System.

- Directional Computing ability and with entering new data, automatic vertical/horizontal adjustments needed redirection of the launcher.
- Controlling the launcher and the hydraulic jack system manually in two different speed modes.
- Controlling and leveling the launcher with one millime accuracy.
- Firing Control with computer and remote control unit.
- Firing ability in two different modes; single or ripple.
- Observing the load information after and before launching.



BR-2100



SMART MICRO MUNITION



SMART MICRO MUNITION

Classified as "Micro Munition" with a weight less than 50 lb and length less than 1m, optimized for use from all UAV classes and light attack aircraft where minimum payload weight is the most critical mission requirement.

Key Features:

- 8 km range
- High Explosive Cluster Warhead
- Insensitive Munition Properties
- High precision and accuracy with Laser Seeker
- Effective against stationary and moving targets
- Possible targets include: Light Armored Vehicles, Radar Antennas, Light Structures Anti-Personnel at 25m radius



HGK HGK PRECISION GUIDANCE KIT



HGK which is designed by Tübitak SAGE, is the state of the art GPS/INS support with hot start allows HGK to hit the targets below a CEP of 6 meters in all weather conditions. INS ONLY mode provides HGK a unique capability: CEP below 10 meters without GPS correction.

A maximum range of 15 nautical miles is achieved upon releases from high altitudes. HGK is fully MIL-STD-1760 compliant. Mission updating and target acquisition using on-board sensor during captive carriage provides operational flexibility required to adapt rapidly changing conditions on the front.

In addition to this, HGK has the capability of multiple release and moving target destroy with its laser seeker and can be used with general purpose bombs (MK-83, MK-82).



LGK LASER GUIDANCE KIT

LGK is a laser guidance kit which converts 500 lb and 2,000 lb dumb bombs into cost effective and highly reliable smart weapons. It provides increased accuracy, increased delivery range, reduced collateral damage and after release re-targeting capability against both stationary and moving targets. LGK can destroy the targets in the range of 12 nautical miles with 10 meters accuracy.

LGK consists of a semi-active laser (SAL) seeker, guidance section, thermal battery, canard control system and rear wing. The weapon homes on reflected laser energy directed on the target: the seeker detects the reflected light of the designating laser, and actuates the canards to guide the bomb toward the designated point.



LGK

KGK



KGK WING-ASSISTED GPS/INS GUIDANCE KIT

KGK is a wing-assisted GPS/INS guidance kit that converts existing unguided 1,000 lb MK-83 and 500 lb MK-82 general purpose bombs into long-range smart weapons. By KGK, the bombs have the capability of precision hit up to 10 m error from 100 km range, in all weather conditions. So, this provides aircraft to complete the mission safely without getting closer to threatening zones.

Overview of Kit Capabilities:

- Extended range with the help of added wings
- Providing high stand-off range to the aircraft from air defence systems
- Functioning in all environmental conditions day and night
- Capability to hit the target in high-precision with the use of GPS/INS
- Ability to use military GPS with crypto support (better jam resistance) or without crypto
- Certified to F-16C Block40 and F-4E/2020 fighter aircrafts
- Capability of planning target /waypoints and impact angle in advance
- Target of opportunity capability
- Ability to follow the waypoints
- Compatibility to MIL-STD-1760 standard
- Ability to be tested with the Test Equipment down to subsystem level



PENETRATOR BOMB

Platforms : F-4E/2020 and F-16
 Mission Type : Air to Ground
 Compatible Kits:
 • HGK High Precision Guidance Kit
 • GBU-10E/B Laser Guidance Kit
 Warhead: : Tandem Penetrator Warhead
 Penetration Performance : Minimum 2.1 m 35 MPa reinforced concrete

Typical Targets:

- Buried Hard Targets
- Munitions Depots
- Underground Petrochemical Depots
- Bunkers
- Aircraft Shelters
- Command/ Control Centers
- Surface Targets
- Aircraft Runways
- Dams
- Bridges
- Critical Buildings

Area Targets:

- Radar Antennas
- Stationary Air Defense Missile Sites
- Industrial Facilities
- Parked Aircrafts

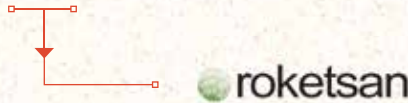
Length : 2600 mm
 Maximum Diameter : 457 mm
 Total Mass : 870 kg
 Shell Life : 20 years
 Product Facility : Ammunition Factory

NEB



ARTILLERY ROCKETS

The Artillery Rockets designed and produced by ROKETSAN with various calibers and ranges can provide mass fire power with wide coverage on critical area targets between 3 km and 100+ km range with perfect accuracy and minimum dispersion. ROKETSAN Artillery Rockets provide timely, accurate and effective fire support to maneuver forces.



LMM



LMM MISSILE LAUNCHING SYSTEM

The LMM Missile Launching System (MLS) developed to provide defense for refineries, seaports and naval bases etc. against variety of surface threats is a customized compact and lightweight solution for Fast Patrol Boats. It is capable of firing Lightweight Multirole Missile (LMM) that has Laser Beam Riding guidance technology. The System has been designed to have minimum weight and impact on Fast Patrol Boat speed and maneuverability.

The LMM Missile Launching System is a lightweight and modular solution that can be integrated to different kinds of naval platforms and provide defense/attack capability against naval threats with different sizes at a maximum distance of 6000m. The System can be integrated to other stabilized weapon platforms on board or it may be operated stand alone.



ANTI-SUBMARINE WARFARE (ASW) ROCKET AND LAUNCHER SYSTEM

The ASW Rocket is launched from naval platforms and effective against the underwater targets. Integrated with the sonar system of the naval platform, it can be used in 500-2000 m range and 15-300 m depth. The ASW weapon system is capable of automatic launcher laying.

Technical Specifications:

- Range : 500 - 2000 m
- Depth of Detonation : 15 - 300 m
- Warhead : High Explosive (HE) Insensitive (IM)
- Fuze : Time Setting (Depth control by Fire Control Computer remotely)
- Diameter : 196 mm
- Weight : (Rocket) 35.5 kg
- Weight (with tube) : 43 kg
- Length : (Rocket) 1300 mm
- Salvo Interval : 0.8 sec
- Explosive Weight : 12 kg



ASW



- Propellant Type : Reduced Smoke Composite
- Launcher System : Stabilized, Automatic Launcher Laying Using Ship Sonar Data

- Number of Rockets in the Launcher : 6
- Launcher Laying : Automatic - Manual
- Firing System Weight : 1200 kg

ESAD



ELECTRONIC SAFE & ARM DEVICE (ESAD)

ESAD is the unit keeping the missile/Rocket warheads and/or engines and other pyrotechnic components safety on, and, under certain conditions, having them ready for activation/detonation and starting detonating in the end.

ESAD was developed and designed in such a way as to be integrated into different missile/Rocket systems. To this end, being compatible with six (6) different platforms, it is a system which can operate in thirteen (13) configurations.



T-300 MULTI CALIBER AND MULTI BARREL ROCKET LAUNCHING (MBRL) SYSTEM

The T-300 is a launching platform with superior fire power that can fire 4 rounds 300 mm rockets. It uses sealed and thermal insulated rocket pods for 300 mm rockets with minimum reloading time and maximum protection against adverse environmental conditions for munitions.

Technical Specifications:

Diameter	: 300 mm
Maximum Range	: 100+ km (at sea level)
Minimum Range	: 40 km (at sea level)
Weight	: 590 kg
Propellant Type	: Composite
Warhead	: HE + Steel Ball
Warhead Weight	: 150 kg
Warhead Effective Radius	: 70 m
Fuze	: Proximity*
Shelf Life	: 10 years



T-300 / MBRL



155 mm AMMUNITION



155 MM HE ER HOWITZER AMMUNITION

Weight	: 45350 g
Length	: 950 mm (with fuze)
Fuze	: M739, M582
Filler	: TNT
Muzzle Velocity	: 945 m/s
Range	: 39000 m
Product Facility	: Ammunition Factory



T-122 MBRL, 122 MM MULTI BARREL ROCKET LAUNCHING SYSTEM

T-122, 122 mm MBRL is a weapon system used in artillery units which fulfills fire support missions for maneuver forces by indirect firing against area targets, day and night in all weather conditions. T-122 is equipped with modern sub-systems to provide lethal indirect mass fires on the targets from 3 km to 40+ km in depth.

Technical Specification

Diameter	: 122 mm
Maximum Range	: 40 km (at sea level)
Minimum Range	: 3 km (at sea level)
Number of Tubes	: 2 x 20
Tube Length	: 3 m
Min. Salvo Interval	: 0.5 sec
Elevation	: 0 - 55°
Deflection	: ± 110°
Weight	: ~23 tons
Length	: 9.2 m
Width	: 2.5 m
Height	: 3.1 m
Vehicle	: 6 x 6 or 8 x 8 Wheeled Tactical Truck



TR-122 / MBRL



Cradle Laying	: Automatic, by Fire Control System Manual Backup
Crane Capacity	: 15 tons
Stabilization	: 4 Hydraulic Jacks
Navigation System	: INS/GPS



T-107 MULTI CALIBER AND MULTI BARREL ROCKET LAUNCHING (MBRL) SYSTEM

The T-107 is a launching platform with superior fire power that can fire 60 rounds 107 mm rockets. It uses sealed and thermally insulated composite rocket pods for 107 mm with minimum reloading time and maximum protection against adverse environmental conditions for munitions.

Technical Specifications

- Diameter : 107 mm
- Maximum Range : 11 km (at sea level)
- Minimum Range : 3 km (at sea level)
- Number of Tubes : Sealed and Thermally Insulated Composite Pods
60 (3 x 20) 107 mm
- Min. Salvo Interval : 1 sec
- Vehicle : 4 x 4 or 6 x 6 Tactical Wheeled Truck
- Cradle Laying : Automatic Fire Control System Manual back up
- Stabilization : 4 Hydraulic Jacks
- Navigation System : INS/GPS

TR-107 / MBRL



2.75" ROCKET



2,75" FOLDING-FIN AERIAL ROCKET

- Operation : Unguided ,Air to ground MKE 40 /MK 4 Motors
- Overall Length : 1.4 m with M151 fuze and M151 warhead
- Diameter : 2,75 " (70 mm)
- Weight before firing : 9,3 kg(MKE 40 ,M 151 fuze and M151 warhead)
- Operation temperature : -54 C ± 65 C
- Burn out time : 1,42 sec.
- Range : 7 km (Groun to ground max.)
- Propellant type : Double base N5)
- Warhead : Miscallenous
- Weight : 9,3 kg (Motor and warhead)
- Burn-out velocity : 0,73 Km/sec (Launched by high speed aircraft)
- Burn out velocity : 0,64 Km /sec (Launched by helicopters)
- Product Facility : Rocket and Explosive Factory

25 MM M791 APDS-T AMMUNITION ARMoured PIERCING

- Diameter : 25 mm
- Barrel Muzzle Velocity : 1345 m/sec
- Cartridge : 10B30 steel
- Weapon To Be Used : M242,KBA,M811,GAV-12
- Range : 17.500 m
- Weight : 500 ~ g
- Size (Length) : 223 mm
- Product Facility : Ammunition Factory



25 mm AMMUNITION



7.62 mm CARTRIDGE



7,62 MM X 51 4 BALL + 1 TRACER CARTRIDGE

TECHNICAL SPECIFICATIONS

- Cartridge Length : 71,12 -0,60 mm
- Cartridge Weight : M80 ~ 24,5 g M62 ~ 24 g
- Velocity (23,7 M) : M80... 827 ± 15 m/sec ,M62... 838 ±9,1 m/sec
- Mean Pressure : M80... max. 3300 kg/cm2, M62... max. 3876 kg/cm2
- Accuracy(100 M) : M80... max. 3,5 cm , M62... max. 4,0 cm
- Action Time : M80... max. 4 millicsec., M62... max. 4 millicsec.
- Bullet Extraction Force : min. 27 Kgf
- Tracer : Trace shall be visible min. 80% of bullets.
- Primer : 7,62 mm PRIMER, BOXER
- Link Type : M13 LINK
- Powder : BALL POWDER
- Weapon To Be Used : MG3 , M60
- Product Facility : Small Arms Ammunition Factory



BOZOK 25 MM



25 MM MKT ONE MAN TURRET SYSTEM

BOZOK 25 mm MKT one man electrical driven stabilized closed turret is designed to operate with 25 mm dual feed automatic cannon. Turret has high performance electrical turret/gun drive and stabilization system. The turret is utilized with gunner's digital day and night (thermal) periscope system.

BOZOK 25 mm MKT is equipped with cooled thermal camera, CCD day camera and laser range finder and it can automatically track the target.

BOZOK 25 mm MKT has weather sensor with built-in GPS, electrical gun&turret drive and stabilization system, and automatic ballistic correction capabilities as standard and optionally laser warning system and soft kill system can be installed.

Otokar



REMOTE CONTROLLED STABILIZED AUTOMATIC GUN SYSTEM

STAMP is a stabilized and remotely operated weapon system against asymmetric threats. The system can detect, identify, deter, engage and destroy threats with a versatile sensor-weapon combination, suited on a fully stabilized turret that can be operated from a remote control console. Different caliber machine guns and various sensor suites can be tailored on the system according to the tactical requirements and the land/naval platform of the customer.

STAMP



aselsan

STOP



REMOTE CONTROLLED STABILIZED NAVAL GUN SYSTEM

STOP is a new generation, cost-effective, medium-caliber weapon system for naval platforms. STOP can detect, identify, deter, engage and destroy threats with a versatile sensor-weapon combination, situated on a fully stabilized turret that can be operated from a remote control console.

The system provides a lightweight, versatile and effective means of force protection for applications ranging from Capital ships to patrol craft.

STOP has an exceptionally high hit probability with an impressive firepower. Comprising a two-axis stabilized turret that contains electro-optical sensor suite and fire-control software, STOP is capable of acquiring targets and engaging them autonomously.

The optical sensor suite of STOP provides enhanced situational awareness and the ability to identify and engage threats, day or night, in all weather conditions.



aselsan

STABILIZED ADVANCED REMOTE WEAPON PLATFORM

SARP is a remotely operated and stabilized weapon platform which combines high-precision reconnaissance capabilities with excellent firepower.

SARP can be used on tactical land vehicles against air and ground targets. Depending on operational requirements, 12.7mm Machine Gun, 40mm Automatic Grenade Launcher and 7.62mm Machine Gun can be interchangeably installed to the system.

SARP incorporates a Thermal Imager and a day TV Camera which provide day and night operational capability and a laser range finder for precise ballistics calculations. Stabilization of line-of-sight and line-of-fire, combined with automatic target tracking and advanced ballistic computation algorithms provides excellent aiming and firing capability on the move.

SARP



aselsan



KESKIN



KESKIN 14.5MM/12.7MM/7.62MM/40MM AGL RCWS

KESKIN, state-of-the-art remote controlled weapon station (RCWS) enables target engagement under the protection of the host vehicle.

KESKIN RCWS is a combat proven, lightweight and modular weapon system designed and produced for tracked and wheeled vehicles. KESKIN RCWS is suitable for 7.62 mm GMPG, 12.7 mm HMG, 14.5 mm HMG or 40 mm AGL and has an optical suite composed of thermal sight, day sight providing 360° situational awareness and laser range finder.



Otokar

UCOK 12.7MM/7.62MM/40MM AGL STABILIZED RCWS

UCOK RCWS stabilized machine gun platform utilizes 12.7mm/7.62mm machine gun or 40mm automatic grenade launcher on the same platform.

The weapon station has dual axes independently driven sight which accommodates a dual fov thermal camera, a CCD camera and a laser range finder.

Independent driven sight allows the aiming reticle stay on the target even the super-elevation and lead angles are given to the weapon for accurate firing.

UCOK RCWS has an electrical drive and stabilization system and can automatically track a target. It can also be controlled manually from the top of the vehicle. In reconnaissance mode; target search is realized independent from gun's elevation.

UCOK



Otokar 

BASOK



BASOK STABILIZED 7.62 MM RCWS

BASOK-RCWS, is a stabilized weapon station with 7.62 mm machine gun which is designed for armoured fighting vehicles. The system is utilized with CCD day camera, optional thermal camera and variable beam width projector moving with the gun.

BASOK-RCWS has an electrical drive and stabilization system and capable of ballistic correction via graticule pattern.

BASOK-RCWS can be operated manually on top of the vehicle and optionally portable gunner control unit and automatic target tracker system can be provided.



Otokar

12.7 MM MKT ONE MAN CLOSED TURRET

BOZOK 12.7 mm MKT one man manual closed turret is designed to operate with 12.7 mm / 7.62 mm machine gun or 40 mm automatic grenade launcher.

The turret has day and night (thermal&ccd) digital gunner sight system having a multi-function gunner display unit. Gun functions are controlled by a digital gun control unit.

BOZOK 12.7 mm MKT is equipped with fire rate selector, last round fire inhibit/override, turret and gun lock in every angle and also dual beam width projector and fume extractor fan is provided.

BOZOK 12,7 MM



Otokar 

GUNNER'S CUPOLA

NMS product Gunner's Cupola provides sufficient ballistic protection to gunner in terms of its peculiar design. Gunner's Cupola also assures 360° gyration talent around with clear vision and covered with armoured steel in compliance with relevant MIL-STD.

- Carries a 12.7 mm machine gun mounted on top of the vehicle
- All around ballistic protection with the steel armour kit as per MIL-A-46100
- Gunner's seat available under the cupola
- The cupola is able to rotate 360°
- Non-skid surface and coating application according to military specifications



CUPOLA



ATS 10/20



ARMORED VEHICLE THERMAL WEAPON SIGHT SYSTEM

ASELSAN ATS-10/20 Armored Vehicle Thermal Sighting Systems enhance the operational capabilities of armored vehicles such as; carrier reconnaissance, fire support, patrol missions in all weather and battlefield conditions.

With its compact and versatile structure ATS-10 and ATS-20 can be integrated on any type of armored vehicle. This panoramic and weapon sighting systems comprise a modular structure consisting of thermal sight unit, ballistic armor, operator control unit, display, integration kit, cable kit, system electronics and video receiver and transmitter (optional). These systems have the capability to provide the gunner with range estimation by the use of stadia metric reticle. ATS-20 differs from ATS-10 with its field of view and magnification.

Besides high range optical magnification performance, the image can be viewed in a larger scale and with more details by means of electronic enlargement. ATS-10 and ATS-20 offer one-button control and easy to understand menu structure which make them to be a user friendly device with simple operating principles.

ROBOGUARD

ROBOGUARD is remote controlled weapon station protecting the sentries exposed to be shot down by surprise fire while observing outside in front area. Operator can stay in a secured area and operate the systems as if he is outside but more carefully than being outside.

Its abilities are motion detection, target tracking, route surveillance, fog filtering, calculation of distance and coordinates of target, firing with 7,62 mm MG. One-touch firing at all motions successively, called quick response mode, is most impressive feature never seen at other weapon stations. All features are subject to be modified up to tactical requirements.



ROBOGUARD



YAK



YAK & D-YAK

YAK is stabilized remote controlled weapon station with 12,7 mm / 7,62 mm MG and 40 mm Automatic Grenade Launcher. YAK integrates thermal imager, electro-optic cam and laser range finder in its sensor box. The abilities are to detect motion on the battlefield, to track target, to observe designated routes, to generate better view in foggy days, to calculate distance and coordinates of target and to set precise aiming on target. System can be operated also manually.

Another version of YAK is D-YAK for naval platforms such as fast patrol boats, ships and etc.





TE54 SUBMACHINE GUN

Caliber	: 9x19 mm
Capacity	: 20 / 30
Barrel Length	: 8,6" / 220 mm
Overall Length (Retracted)	: 25,1" / 640 mm
Overall Length (Extended)	: 29,1" / 740 mm
Overall Height	: 9,0" / 230 mm
Overall Width	: 2,0" / 52 mm
Weight	: 79,2 oz / 2265 gr
Muzzle Velocity	: 385 m/s - 1263 ft/s
Rate of Fire	: 900- 1000 rpm

Blow back operating system,
 • Light, modular and proper structure for accessories.



TE54



MP5 -A3



MP5 -A3 SUBMACHINE GUN

Calibre	: 9 mm x 19
Magazine Capacity	: 15/30 cartridge
Type of Fire	: Single / Auto
Muzzle Velocity min.	: 350 m/sec
Total Length	: 525/660 mm (Retractable butt stock)
Weight	: 3025 g
Rate of fire	: 800 round/min.
Effective Range	: 100 m
Product Facility	: Small Arms Weapon Factory



MP5 -K SUBMACHINE GUN

Calibre	: 9 mm x 19 Parabellum
Magazine Capacity	: 15/30 cartridge
Type of Fire	: Single / Auto
Muzzle Velocity	: min. 325 m/sec
Total Length	: 325 mm
Weight	: 2000 g
Rate of Fire	: 900 rounds/min
Effective Range	: 100 m
Product Facility	: Small Arms Weapon Factory



MP5-K



JMK BORA 12



7,62 MM JMK BORA 12 SNIPER RIFLE

Calibre	: 7,62x51mm NATO
Magazine Capacity	: 10
Muzzle Velocity	: 860m/sec
Weight (Empty Magazine)	: 6500 g
Length	: 1220/1265 mm
Barrel Length	: 660mm
Range	: 1000 m
Operation Type	: Bolt Action, Manual mechanism, single fire
Accuracy	: 0,3 MOA (1 cm at 100 m range)
Product Facility	: Small Arms Weapon Factory



MPT-76



MPT-76 NATIONAL INFANTRY RIFLE

Working Principle	: Short stroke, gas operated, rotary bolt action
Caliber	: 7,62 mm x 51 NATO
Length (Open/Closed)	: 1000 mm / 900 mm
Weight	: 4200 g
Barrel Length	: 406 mm
Barrel Life	: 15.000 rounds
Number of Grooves and sets	: 6
Modes of Fire	: Semi Automatic- Full Automatic
Accuracy	: 4 MOA
Buttstock	: Retractable, 100 mm, 12 Stages
Rate of Fire	: 700 rounds / min.
Muzzle Velocity	: 800 m/ sec
Effective Range	: 600 m
Trigger Force	: 20/30 Newton
Magazine Capacity	: 20
Product Facility	: Small Arms Weapon Factory



ASSAULT RIFLE

Caliber	: 5,56x45 mm
Capacity	: 20 / 30
Barrel Length	: 14,5" / 370 mm
Overall Length (Retracted)	: 30,3" / 770 mm
Overall Length (Extended)	: 33,4" / 850 mm
Overall Height	: 7,2" / 185 mm
Overall Width	: 2,5" / 65 mm
Weight	: 108,5 oz / 3100 gr
Muzzle Velocity	: 875 m/s - 2280 ft/s
Rate of Fire	: 700 - 950 rpm



SARSILMAZ®

SAR 223 C



SA-X 700



SEMI-AUTOMATIC SHOTGUN 12 GA / 20 GA

TECHNICAL SPESIFICATIONS:

Caliber	: 12 GA	: 20 GA
Capacity	: 5	: 5
Gauge	: 3" / 76 mm	: 3" / 76 mm
Barrel Length	: 24" / 61 cm - 26" / 66 cm -	: 24" / 61 cm - 26" / 66 cm - 28" / 71 cm
Overall Length	: 28" / 71 cm - 30" / 76 cm	: 44,4" / 113 cm - 46,5" / 118 cm - 48,4" / 123 cm
Overall Height	: 44,4" / 113 cm - 46,5" / 118 cm -	: 7,7" / 20 mm
Overall Width	: 48,4" / 123 cm - 50,7" / 129 cm	: 1,9" / 5 cm
Weight	: 7,7" / 20 mm	: 96,0 oz / 2720 gr - 97,0 oz / 27550 gr -
	: 1,9" / 5 cm	: 98,0 oz / 2780 gr
	: 107,9 oz / 3060 gr - 109,1 oz / 3090 gr -	
	: 109,7 oz / 3110 gr - 111,4 oz / 3160 gr	
Receiver	: Aluminium Alloy	: Aluminium Alloy
Stock	: Synthetic	: Synthetic



MC 312 SEMI AUTOMATIC SHOTGUN (SYNTHETIC STANDART)

Action	: SEMI-AUTO Inertial Rotary System
Gauge	: 12 Cal. / 76 mm (3")
Barrel Length	: 55, 61, 66, 71, 76 cm (20"- 22"-24"-26"-28"-30")
Magazine Capacity	: (2+1), (3+1), (4+1)
Safety	: Manual, Reversible Safety Button With New Ergonomics For Better Grip
Weight (approx.)	: Synthetic : 3200 gr, Walnut : 3100 gr



GIRSAN

MC-312



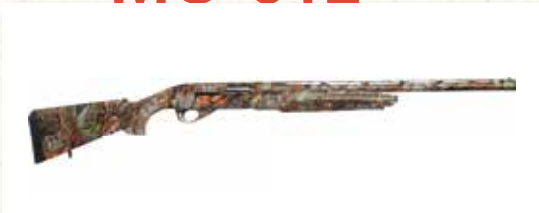
T-41

T-41 SEMI AUTOMATIC HUNTING RIFLE

Calibre	: 7.62 x51 mm
Magazine capacity	: 5/10 rounds
Firing type	: Single
Rifling	: 4 grooves
Barrel length	: 470 mm
Weight (Without magazine)	: 4500 g
Firing type	: Semi automatic
Product Facility	: Small Arms Weapon Factory



MC-312



MC 312 SEMI AUTOMATIC SHOTGUN (CAMOUFLAGE)

Action	: SEMI-AUTO Inertial Rotary System
Gauge	: 12 Cal. / 76 mm (3")
Barrel Length	: 55, 61, 66, 71, 76 cm (20"- 22"-24"-26"-28"-30")
Magazine Capacity	: (2+1),(3+1),(4+1)
Safety	: Manual, Reversible Safety Button With New Ergonomics For Better Grip
Weight (approx.)	: Synthetic :3200 gr, Walnut: 3100 gr



KILINÇ 2000 MEGA-SEMI-AUTOMATIC PISTOL - 9X19 MM BLACK

Caliber	: 9x19 mm
Capacity	: 15 / 17
Mechanism	: Double Action
Barrel Length	: 4,5" / 116 mm
Overall Length	: 8,0" / 204 mm
Overall Height	: 5,5" / 140 mm
Overall Width	: 1,3" / 35 mm
Weight	: 35,2 oz / 1000 gr
Frame - Slide	: Alloyed Forged Steel & Forged Stainless Steel
Safety System	: Manual safety/ Firing pin block



KILINÇ 2000



SR38-2.5/4/6



SR38-2.5/4/6

Caliber	: .38 SPC / .357 MAG
Capacity	: 6
Mechanism	: Double Action
Barrel Length	: 2,5" / 112 mm - 4" / 102 mm - 6" / 153 mm
Overall Length	: 8,0" / 203 mm - 9,4" / 240 mm - 11,4" / 290 mm
Overall Height	: 5,9" / 150 mm
Overall Width	: 1,4" / 35 mm
Weight	: 36,1 oz / 1025 gr - 40,7 oz / 1155 gr - 46,9 oz / 1330 gr
Frame - Slide	: Alloyed Forged Steel - Forged Stainless Steel
Safety System	: Hummer block



ZIGANA SPORT

Its barrel is made using cold forging steel. Caliber is 9x19 mm. Magazine capacity is 15- 18- 20. It has single and double action. There is adjustable rear sight on the pistol. Through the compensator pistol's rearing is less and the pistol heats late. Effective range and exit velocity is great.

- Barrel length 130 cm
- Weight (without magazine) 895 gr



SPORT



ZIG P 17



ZIG P 17

The barrel is produced with cold forging system. Frame is made from polymer. Due to polymer speciality, it is light. It is easy to remove and set this pistol. It has double action.

- 9x19mm
- Magazine capacity is 14.
- Barrel length is 104,5mm.
- Weight is 725gr.



ZIG M 1911

It is the same model with Colt known by all over the world. Its barrel is made using cold forging steel. Caliber is 45 ACP. Its magazine capacity is 7- 8- 10. It is single action. Trigger pull is light. There is firing pin safety. Its safety system is useful and effective. Because of barrel length effective range and exit velocity is great.

- barrel length 127,5 mm,
- weight (without magazine) 1010 gr.



ZIG T ZIGANA T



The barrel is produced with cold forging system. Base of frame is made from aluminium alloy to save lightness. Its effective range and exit speed of bullet are high owing to barrel length. It has single action speciality. There is firing pin block in this pistol. Adjustable rear sight and ergonomic grip can be fixed to pistol.

- 9x19 mm
- Magazine capacity is 15+1.
- Barrel length is 130mm.
- Weight of pistol is 885gr.



YAVUZ 16 COMPACT MC STANDART PISTOL

Caliber	: 9 mm x19 parabellum, 9 mm x21 IMI
Magazine Capacity	: 15 Cartridges
Barrel Length	: 110 mm
Barrel Production Process	: Cold Forged Steel,
Safety System	: Right and Left SAFety Latch, Pin Safety Block, Chamber Loaded Indicator, Hammer Safety
Weight (without magazine)	: 830 gr



COMPACT MC

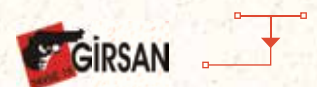


MC 27 E



MC 27 E STANDART PISTOL

Caliber	: 9 mm x19 parabellum
Magazine Capacity	: 15 Cartridges
Barrel Length	: 98.5 mm
Barrel Production Process	: Cold Forged, Polygonal Barrel,
Safety System	: Right and Left Safety Latch, Pin Safety Block, Hammer Safety
Weight (without magazine)	: 650gr



TP9SA

TP9SA

TECHNICAL SPESIFICATIONS:

Caliber	: 9x19mm	Other:	- Dovetail adjustable rear sight
Magazine Capacity	: 18 rounds		- Loaded Status Indicator
Barrel Length	: 113,5 mm		- Loaded Chamber Indicator
Barrel technology	: Cold Hammer Forged		- MIL-STD-1913 picatinny rail
Length	: 192 mm		- Side changeable magazine catch
Height	: 145 mm		
Width	: 32 mm		
Weight	: 710gr (without magazine)		
820gr (with empty magazine)			
Frame	: Polymer		
Action Type	: SA		
Firing System	: Semi-Automatic		
Safety System	: Ambidextrous Decocker-Safety Lever		



CANIK

5.56 mm



5,56MM X 45 (4 BALL + 1 TRACER) (4SS 109 + 1L 110) M27 LINKED CARTRIDGE

TECHNICAL SPECIFICATIONS

Cartridge Length:	57,4 - 0,7 mm
Cartridge Weight:	BALL...~12,5 g, TRACER...~13 g
Velocity (23,7 M):	BALL... 914,4 ± 12,2 m/sec, TRACER ...880 ± 12 m/sec
Mean Pressure:	BALL ...max. 3876 Kg/cm ² , TRACER...max. 3876 Kg/cm ²
Accuracy(100 M):	BALL...max. 2,2 cm, TRACER...max. 3,3 cm
Bullet Extraction Force:	min. 20,4 Kgf
Tracer:	Trace shall be visible min. 80% of bullets
Digging Power:	The bullet shall completely penetrate through 3,5mm steel plate (SAE 1010 or 1020) at a range of 570 meters.
Primer:	5,56 mm PRIMER, BOXER
Link Type:	M 27 LINK
Powder:	BALL POWDER
Product Facility:	Small Arms Ammunition Factory



9X9 PARABELLUM FMJ

Features

- 7,5 gr / 115 grain - 8 gr / 124 grain
- 370 m/s hız
- 2600 bar basınç
- Yüksek performans

Cartridge Length	: 29,69 - 0,3 mm
Bullet Extraction Force	: Min. 20,4 Kgf
Cartridge Weight	: ~12,15 gr
Case Model Number	: 9 mm x 19 mm
	Parabellum Kovan
Velocity	: 370 ± 10 m/sn (at 16 m)
Bullet Type	: FMJ Piriç Kaplı Çekirdek (CUZN36)

Velocity Standard

Deviation	: Max. 9 m/sn
Bullet Weight	: 8 ± 0,075 gr
Mean Pressure	: Max. 2601 kg/cm ³
Case Material	: Piriç (CUZN36)
Accuracy	: Max. 7,6 cm (at 46 m)
Powder - Primer	: Ball Powder - 9 mm Boxer Primer



9X9 FMJ



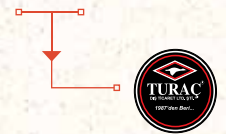
STERLING 12 CAL

STERLING 12 CAL. RUBBER SLUG



Features

Case Size Cal/mm	: 12.16.70
Wad	: Plastic
Pellet Number	: Rubber Slug
Pellet Weight	: 16 gr.
Velocity	: 300 m/s
Pressure	: 160 kg/cm ²



KARATAY



KARATAY TK-355 PUMP SHOTGUN

Model : Karatay TK-355
 Gauge Chamber : 12GA 3" (76mm) Magnum
 Stock Finish : Pistol Grip Stock Black
 Receiver : Matte Black
 Barrel Finish : Matte Bluing
 Capacity : 6+1
 Chokes : Tactical Choke Tube
 Sights : Rear Ghost ring sight Picatinny rail,
 Front fiber optic sight
 Barrel : 47 cm (18½")
 Overall Length : 98 cm
 Average Weight : 3.05 kg



KARATAY TACTICAL PUMP SHOTGUN

Model : Karatay Tactical
 Product Code : T293126
 Gauge Chamber : 12GA 3" (76mm) Magnum
 Stock Finish : Folding stock with pistol grip
 Receiver : Matte Black
 Barrel Finish : Matte bluing
 Capacity : 6+1
 Chokes : Muzzle break
 Sights : Adjustable rear sight Fixed blade front sight
 Barrel : 47 cm (18½")
 Overall Length : 99cm (Stock open) 72cm (Stock folded)
 Average Weight : 3.05 kg



KARATAY

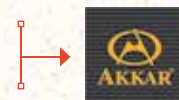


KARATAY



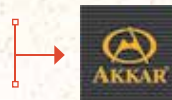
KARATAY SLUG PUMP SHOTGUN

Model : Karatay Slug
 Gauge Chamber : 12GA 3" (76mm) Magnum
 Stock Finish : Pistol Grip
 Receiver : Matte Black
 Barrel Finish : Matte Bluing
 Capacity : 6+1
 Chokes : Fixed cyl
 Sights : Ramp sight
 Barrel : 47 cm (18½")
 Overall Length : 70 cm
 Average Weight : 2.40 kg



KARATAY MARINER PUMP SHOTGUN

Model : Karatay Mariner
 Gauge Chamber : 12GA 3" (76mm) Magnum
 Stock Finish : Synthetic Black
 Receiver : Nickel
 Barrel Finish : Nickel
 Capacity : 6+1
 Chokes : Fixed cylinder
 Sights : Ramp sight
 Barrel : 47 cm (18½")
 Overall Length : 98 cm
 Average Weight : 2.60 kg



KARATAY



MAMMUT

MAMMUT 312 TRIPLE BARREL SHOTGUN

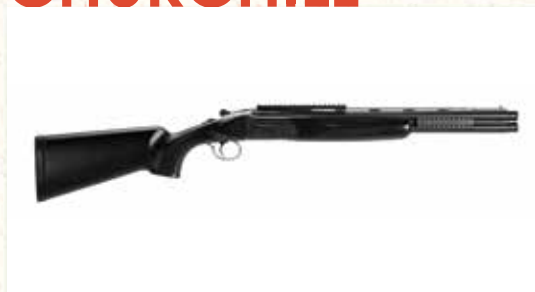
TECHNICAL SPECIFICATIONS:

- Model : Mammut 312 Black
- Gauge Chamber : 3 x 12ga 3" (76mm)
- Stock Finish : Black synthetic
- Receiver : Steel, black finish
- Barrel Finish : Matte bluing
- Trigger : Single
- Ejection : Extractor
- Safety : Manual
- Chokes : 5 mobile chokes
- Sights : Fiber optic sight
- Barrel : 47 cm (18½")
- Overall Length : 90 cm
- Average Weight : 3.35 kg



CHURCHILL

CHURCHILL 206 DEFENCE OVER & UNDER SHOTGUN



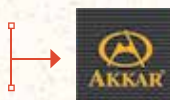
- Model : Churchill 206 Defence
- Gauge Chamber : 12ga 3" (76mm)
- Stock Finish : Synthetic Black
- Receiver : Steel, black finish
- Barrel Finish : Matte bluing
- Trigger : Single selective
- Ejection : Auto ejectors
- Safety : Manual
- Chokes : 5 extended mobile chokes
- Sights : 10mm rib, fiber optic sight
- Barrel : 51cm (20")
- Overall Length : 95 cm
- Average Weight : 3.10 kg



ALTAY TK-222 CAMO SEMI AUTO SHOTGUN

ALTAY

- Model : Altay TK-222
- Gauge Chamber : 12GA 3" (76mm) Magnum
- Stock Finish : Pistol Grip Stock Digital Camo
- Receiver : Digital Camo
- Barrel Finish : Digital Camo
- Capacity : 5+1
- Chokes : Tactical Choke Tube + MC-3
- Sights : Rear Ghost ring sight Picatinny rail
Front fiber optic sight
- Barrel : 47 cm (18½")
- Overall Length : 102 cm
- Average Weight : 3.10 kg



EYES AND EARS





ONE HORIZON TO THE OTHER

RADAR &

ELECTRONIC WARFARE

CSRS COASTAL SURVEILLANCE AND RADAR SYSTEM



Coastal Surveillance and Radar System (CSRS) Project aims to provide the above-water picture of the Turkish Coastal Waters with a wide range of radar coverage, automatic identification and classification, electro optic systems and sharing information with other government establishments.

The CSRS, providing near realtime surface picture of the Turkish territorial waters will enable maximum control over coastal waters, quick and accurate response during search and rescue missions, efficient patrol missions and effective and synchronised working process of all maritime establishments.



NAVAL PLATFORM LPI RADAR

ALPER (ASELSAN Low Power ECCM Radar), is a low probability of intercept (LPI) navigation radar system for detecting surface targets in all weather conditions.

- Low Probability of Intercept, LPI
- Frequency Hopping
- Very Low Antenna Sidelobe Levels
- Sector Blanking
- Water-Tightness
- Built-In-Test (BIT) Capability



ALPER



ARES 2N



NAVAL ELECTRONIC SUPPORT SYSTEM

Within its wide operating frequency range, ARES-2N detects, intercepts, identifies, classifies, tracks, finds the direction and localizes all of the sea, air, or land based emitters at exceptional accuracies. The system also incorporates the functionality of platform correlating and recording of the electromagnetic emissions.

Designed and developed by ASELSAN, the system provides wideband intercept of radar signals. Monopulse DF and high signal processing speed facilitate the processing of complex radar signals. A key feature of the system is its precision parameter measurement and advanced emitter characterization capability. The system can trace marked emitters and locate them automatically.

The system is comprised of antennas, front end modules and receivers on the ship mast, while operator console and main power distribution unit is located under deck.



COASTAL SURVEILLANCE RADAR

SERDAR, designed and developed by ASELSAN for coastal surveillance needs, is capable of automatic detection and tracking of above-water naval targets and low-flying airborne targets under all weather conditions, day and night. SERDAR can detect targets up to 48 NM range, can simultaneously track several hundred targets, and has exceptional close-in range performance. The Frequency Modulated Continuous Waveform (FMCW) transmission technique employed allows substantially reducing the output power while preserving its superior performance. SERDAR is Low Probability of Intercept (LPI) radar, meaning it is difficult for Electronic Support Systems (ESM) to detect it.

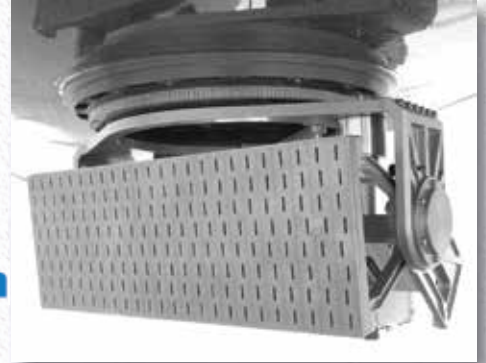
SERDAR



SAR

SYNTHETIC APERTURE RADAR

The Synthetic Aperture Radar (SAR) system enables high resolution radar imaging and moving target detection even in cloudy and rainy weather during day and night. The system offers a Spotlight Mode for high resolution imaging, a Stripmap Mode for wide area imaging, and a GMTI (Ground Moving Target Indicator) Mode for moving object detection. Its automatic motion compensation and automatic stabilization properties allow the system to be integrated on all kinds of manned and unmanned air vehicles. Deliveries of the system started by 2012.



FALCONEYE



ELECTRO-OPTICAL SYSTEM FOR LAND PLATFORMS

In order to enhance the mission performance during day-night and adverse weather conditions, ASELSAN has designed FALCONEYE Electro-Optical Systems which comprises an advanced Thermal Imaging System and a high performance Day TV Sensor. Discrimination of threats, by using detection, recognition and identification criteria, is the major function attained by this surveillance system.

Having a Target Acquisition System, Electro-Optical System provides user precise target coordinates and exact location of the threat. In addition, the system has a Global Positioning System and a Laser Pointer in order to illuminate the detected target.



SERHAT COUNTER MORTAR RADAR

SERHAT Counter Mortar Radar is designed and developed by ASELSAN for detecting and tracking mortar shells to determine the point of origin and the point of impact. The radar covers 360° in azimuth.

SERHAT, is designed to detect mortar shells from any direction even coming from behind of a mountain or barriers, then pinpoint the location of the mortar gun and also estimate the location of impact with unmatched accuracy during adverse weather conditions. SERHAT, first national weapon locating radar system, with patented advanced radar techniques is also the winner of 2013 TESID Innovative Product Grand Prize.

The compact and light weight SERHAT System offers the flexibility of deployment aboard vehicles for mobile use, integration on fixed location set forward operating bases, and stand-alone use atop a tripod.



SERHAT



KALKAN



AIR DEFENCE EARLY WARNING RADAR

Air Defence Radar KALKAN is a 3-D search and track radar for fast and accurate detection and tracking of low altitude and medium altitude air targets, classification as fixed or rotary wing and identification of friend or foe.

KALKAN is the main search radar for Air Defence Early Warning and Command Control System. The system can be used in all types of air defence applications concerning missile and gun systems direction. KALKAN has been designed originally with modern technologies such as modularity, modern DSP architecture, and digital pulse compression, multi-beam phased array antenna with electronic scanning, digital waveform generation and digital receiver.



A100 A100 NIGHT VISION MONOCULAR GOOGLE



ASELSAN A100 Model Night Vision Monocular system offers a high resolution image intensified night vision in a compact, lightweight, and yet rugged design. It features a single-tube and single-eyepiece configuration. The system has a unit magnification.

The concept of a single-eye format night vision monocular is based on independent use of each eye. One eye is equipped with a night vision device while the other eye remains free and uncovered.

Several accessories such as helmet mount, facemask, weapon mount are offered upon request.



A230 NIGHT VISION BIOCLULAR

ASELSAN A230 Model Night Vision Biocular with 3X magnification that offers high resolution, image intensified night vision in a lightweight, compact, single-tube configuration. It is an excellent medium-range night vision device.

Designed to military standards, the A230 represents a new standard for single-tube night vision binoculars. For short, medium and long-range use, both models can be easily converted to a highly effective 1X goggle by a simple objective lens change.

A200 Series includes 1X, 3X, 4X and 6X magnification bioculars.



A230



A341 & A361



NIGHT VISION WEAPON SIGHTS

A341 and A361 High Performance Individual Night Vision Weapon Sights are designed for increasing the aiming capability of modern infantry via image intensified night vision technology. A341 has 4X magnification and A361 has 6X magnification. These unique, new, high performance, individual night weapon sights are compact, light weight and user friendly.

A341/A361 Night Vision Weapon Sights operates with only one "AA" size battery. This rugged, water resistant, night vision sights provides a high resolution, intensified image for effective night sighting and aiming. Night Vision Weapon Sights include splash-proof lens covers which has a large neutral density filter for daylight training and accurate daylight weapon zeroing.



A500 PUHU AVIATOR NIGHT VISION GOGGLE

ASELSAN A500 - Aviator Night Vision Goggle is an advanced Night Vision System that is designed specifically for pilots by ASELSAN. ASELSAN A500 is designed to provide situational awareness for pilots at low light level conditions.

ASELSAN A500 provides high resolution image even at low starlight by using 2nd and 3rd generation image intensifier tubes. With A500, aviators obtain image with less halo effect, high resolution and contrast value.



A500 PUHU



A940-A960



WEAPON SIGHTS

ASELSAN Day Optic Sights are two fields of viewed, reticle reflected and low-weighted rifle sights that is designed for dual usage with Infantry Guns and Sniper Guns. This modern design combines reflex collimator and telescopic sight in one single body. In this manner, It is possible to shoot the target at the first try.

These two sided, reticle reflected and low-weighted weapon sights may be used both as a reflex collimator via its red-dot reticle & 1X (or 1,5X) magnification combination and telescopic sight via its ballistic or mil-dot reticle & 4X (or 6X) magnification combination. The red-dot & 1X combination provides soldiers higher success at faster first shoots in inhabited place battles with the ballistic reticle & 4X magnification combination increases shoot success in longer ranges.

aselsan

ADLR-01

AIR DEFENSE LASER RANGER

ADLR-01 is a high performance, eye-safe laser rangefinder, designed for air defense systems. ADLR-01 Laser Range Finder employs a high power and high repetition rate, diode pumped Nd:YAG laser source, which enables measurement of small and high speed targets. Eye-safe wavelength conversion is performed by an OPO.

A built in daylight camera is provided for easy bore-sighting.

ADLR-01 Laser Range Finder, has a built in test function and can be controlled via RS422 serial data interface.



aselsan

ASELFIR-200

AIRBORNE THERMAL IMAGING SYSTEM



The ASELFIR-200 Airborne Thermal Imaging System is a low-weight, multi-purpose, thermal imaging sensor for pilotage/navigation, surveillance, search-and-rescue, automatic tracking, target classification and targeting. The ASELFIR-200 has two weapon replaceable assemblies: Turret Unit, WRA-1 and Electronics Unit, WRA-2. The ASELFIR-200 is an open architecture and hardware/software flexible unit which can be adapted to various air & sea platforms and unmanned air vehicles.

aselsan

ELECTRO-OPTICAL SURVEILLANCE & RECONNAISSANCE SYSTEM

ASELFIR-300T Advanced Targeting System is a multi sensor electro-optical targeting and surveillance system. ASELFIR-300T System consists of a Thermal Camera, a Laser Range Finder/Laser Designator, a Laser Spot Tracker, a Color TV Camera and a Color Spotter Camera. The system units defined below can be easily replaced.

- High Resolution 3rd Gen IR Camera
- High Resolution Color Day Camera
- Laser Range Finder
- Laser Pointer
- Inertial Measurement Unit

aselsan

ASELFIR - 300T



ASUR Mobile®



aselsan

ASUR MOBILE® SURVEILLANCE/SECURITY SYSTEM

ASELSAN's new generation "ASUR Mobile® Surveillance/Security System" is a multi-purpose, multi-platform reconnaissance and surveillance system, which can be integrated to armoured / non-armoured vehicles or mobile / semi-mobile (towable) platforms such as trailers and shelters.

Thanks to her open and modular architecture, ASUR Mobile® Systems can be incorporated to/with any other (legacy) system, whether ASELSAN origin or not, establishing full interoperability with such systems.

The System is both extendable and customizable according to the end user requirements. Although not limited to, the System incorporates different sensors and units, such as ASELSAN ACAR Ground Surveillance Radar, ASELSAN Electro-Optical Systems (Thermal Imager, Day TV Camera, Laser Range Finder, DAS 360° Panoramic Camera System, etc.), Gun Shot Detection System, Threat Direction Indication System, Locating Sensors, weapon systems and wireless communication systems. Based on the customer requirements, it is also possible to integrate other company units.

ASUR Mobile® Surveillance / Security System is a highly demanded security solution in domestic and foreign applications, for complex and volatile terrains, where mobility is utmost concern.

MOBILE AIR TAFFIC CONTROL TOWER

Our Mobile Air Traffic Control Tower solution has been designed and developed in conjunction with operational requirements from Turkish Air Force Command. Our solution provides and addresses all key capabilities of a fixed ATC tower in tactical package.

MATCT solution is comprised of the following components;

- A cabin with adjustable elevation up to 5 meters
- A suitable radio package (HF/VHF/UHF)
- Voice Communication System (VCS)
- GPS Time Server
- Voice Recording and Replay Solution
- AWOS System
- Operator consoles
- Suitable UPS and generator sets
- Redundant A/C systems

Potential application scenarios are as follows:

- Enabling service continuity for fixed towers during renovation/modernization etc.
- Temporary ATC applications
- Tactical ATC applications
- Filling the operational gap during/after natural disaster scenarios

Our MATCT solution is both land and air transportable (C-130, helicopters) in addition to its own capabilities.



ATS40



ELECTRO OPTICAL SENSOR SYSTEM FOR WEAPON SYSTEMS

ATS-40 is a compact, high performance vision system, primarily designed for remote controlled weapon systems mounted on Armored Vehicles and Main Battle Tanks. ATS-40 is composed of Uncooled Thermal Camera, CCD Camera and Laser Range Finder and it provides effective firing capability under severe weather and harsh battlefield conditions. ATS-40 can be integrated on several weapon systems thanks to its compact structure and various integration interfaces.



ATS60 THERMAL SIGHT SYSTEM

ATS-60 is a compact, high performance vision system, primarily designed for remote controlled weapon systems mounted on Armoured Vehicles and Main Battle Tanks. ATS-60 composed of Cooled Thermal Camera, CCD Camera and Laser Range Finder and it provides effective firing capability under severe weather and harsh battlefield conditions. Since ATS-60 has Cooled Thermal Camera, it satisfies very high range observation requirements at night/day time and any weather conditions.

ATS60



ELECTRO-OPTICAL SURVEILLANCE, RECONNAISSANCE AND TARGETING SYSTEM

CATS is a multi-sensor surveillance, reconnaissance and targeting system. CATS allows long range imaging. CATS is developed for unmanned air systems, helicopters and similar air platforms.

CATS has following features:

- High Resolution IR Camera
- High Definition (HD) Color Day Camera
- Low Light Camera
- Laser Range Finder / Target Designator
- Laser Spot Tracker
- Laser Pointer
- Laser Illuminator

CATS



MPLRF



MULTI PULSE LASER RANGE FINDER

Multi Pulse Laser Range Finder (MPLRF) is designed to provide target range data to anti-aircraft gun and missile systems.

MPLRF uses high power laser pulses to measure range to the target, and transmits measured range to system computer thru RS422 serial link.

MPLRF is totally computer controlled with full Built In Test feature. With its 20 km measurement range, 5 m ranging accuracy and continuous operation at 20 measurements per second capabilities, MPLRF is the ideal solution for air defense applications.



DISTRIBUTED APERTURE SYSTEM

Distributed Aperture System is 360° panoramic camera system under ballistic armor composed of thermal imager and daytv camera. It is designed to work for day and night adverse weather conditions.

Technical Specifications:

- Long wave (8-12 μm) Thermal Imager
- Color DayTV Camera

DAS



DEPETEK



THERMAL IMAGER SYSTEM FOR SUBMARINE PERISCOPE

Head Sensor Assembly is a thermal imager with the latest technology of high resolution staring array detector, for the 3 to 5 μm (mid-wave) waveband which shall be used inside submarine periscope systems.

Technical Specifications:

- » Operating Band : IR Mid-wave band (3-5μm)
- » Detector : 640X512
- » Zoom : Continuous zoom lens
- » Ext. Communication : CANBUS
- » Video Output : CCIR, LVDS
- » Operating Temp. : -30°C to +70°C





HIGH SPEED FIRE DETECTION AND EXPLOSION SUPPRESSION SYSTEM

High Speed UV IR Fire Detection and Explosion Suppression system is developed for armored military vehicles. The system is totally certified for military usage to be used for life support sub system vehicle solution. System can control 4 different zones and protect the interior of the vehicle compartments. Protection is satisfied for missile or molotov or sudden explosion as also small growing hydraulic or fuel fires inside the vehicle.

UV IR detectors satisfies a range of 5 meters with 90 Degrees view angle and cover %100 of the interior vehicle for any explosion or fire detection. The detectors sends alarm signals to the controller box and controller activates the pyrotechnical cylinders in 10 ms to suppress the explosion under 250 ms.

Pyrotechnically activated fire suppression cylinders are able to operate between -40 °C to 70 °C . All components of the system are certified according to MIL-STD 461F and MIL-STD 810G military standards.

EYE-MOBILE HANDHELD THERMAL CAMERA SYSTEM

EYE-MOBILE, hand-held thermal camera uses the advanced technologies and offers one compact and ergonomic design. It comprises a high resolution thermal imaging sensor. EYE-MOBILE is an ideal camera for infantry units, Special Forces, forward observers, and any other users engaged in day and night operations in field and urban environments.



EYE-MOBILE

EXPLORER



EXPLORER

EXPLORER is designed to meet tactical needs of a modern army by allowing long range threat detection, identification, determination of coordinates and coordination of support fire via communication units. Due to its light weight and hand held nature, it is easy to carry wherever necessary.

Explorer basically consists of

- Uncooled Thermal Camera
- Laser Range Finder
- Digital Magnetic Compass
- GPS



LASER TARGET DESIGNATOR / LOCATOR

VIPER is a compact, lightweight, advanced ground laser target designator and target locator.

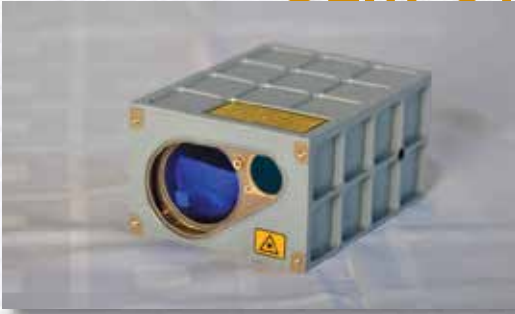
VIPER can operate at all Band I and Band II PRF codes of NATO STANAG 3733, hence is compatible with all NATO laser guided munitions with semi-active laser seekers, such as Paveway, Hellfire and Copperhead.

Besides designation, VIPER can also measure the range of the target, automatically calculate target location, and capture digital photographs.



VIPER

GZM-01



GZM-01 EYE-SAFE LASER RANGE FINDER

GZM-01 is an eye-safe laser rangefinder, designed for integration into electro-optical surveillance/targeting systems for land, airborne and naval applications.

For easy boresighting, a collimated visible LED is provided. An optional CMOS bore-sight camera can be replaced with the LED.

GZM-01 has a built in test function and can be controlled via serial data interface RS422 or RS232.



EYE-SAFE LASER RANGE FINDER / TARGET LOCATER

GZM-03 is a lightweight and compact, eye-safe laser rangefinder and target locator, designed for handheld and remote use.

GZM-03, measures range and angle of the target to calculate its location. Target photograph can be captured and saved in internal memory together with target data.

GZM-03, has 2 built in cameras; one with narrow, other with wide FOVs, which eases finding and aiming to the targets.

GZM-03 has built in test function, RS422 and RS232 serial data interfaces.



GZM-03



GZM-04



EYE-SAFE LASER RANGE FINDER

GZM-04 is an eye-safe laser rangefinder, designed for integration into electro-optical surveillance/targeting systems for land, airborne and naval applications.

GZM-04 has a built in test function and can be controlled via serial data interface RS422 or RS232.



THERMAL FIRE CONTROL SYSTEM

EAGLEEYE is a compact, small volume Gunner's Thermal Sight with a high performance thermal imager with two axis gyro stabilized head mirror. It has been developed by ASELSAN for Main Battle Tanks and Armoured Infantry Fighting Vehicles. EAGLEEYE provides the gunner and the commander the capability to engage threats on the move, both day and night and in adverse combat conditions like dust, smoke, fire and camouflage, with superior range performance. High precision stabilized Line-of-Sight, which is independent from the Line-of-Fire ensures high first round hit probability by providing a jitter-free, clear thermal/visible image in practically any terrain and at high speeds. High precision eye safe Laser Range Finder, Line-of-Sight and Line-of-Fire angular digital output and digital ballistic solution represent the assurance for the high probability of hit required in combat. The EAGLEEYE has been successfully integrated into the Leopard-1 main battle tank. Because of its small volume, it can also be used in different main battle tanks and armoured infantry fighting vehicles.

EAGLEEYE



KULAÇ



ECHOSOUNDER SYSTEM

KULAÇ is an Echosounder System designed for submarines and surface ships. As electronic navigational aid equipment, KULAÇ echosounder calculates the distance between surface ship to bottom and submarine to bottom and surface by measuring the time difference between transmitting and receiving acoustic signals.



MINE DETECTION SYSTEM

MATES is a high frequency, high resolution active sonar system to detect anchored mines, bottom mines and mine like objects. MATES has target detection and classification capabilities with high accuracy at various environment and target conditions by adaptive pulse modulation, automatic noise prediction and beamforming features.

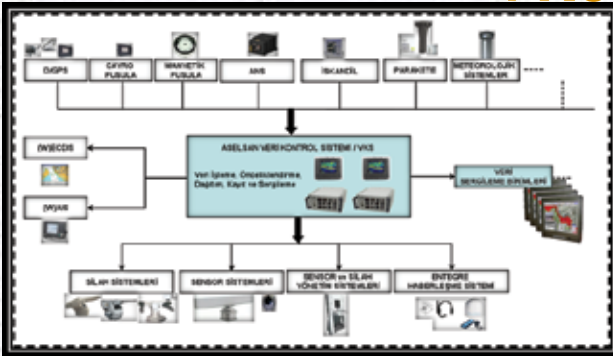


MATES



VKS

VKS DATA MANAGEMENT SYSTEM



ASELSAN data management system (VKS) provides; collecting data from reference platform, navigation and meteorological sensors, processing real time data, evaluation, displaying and data distribution to relevant subsystems of mission system in effective and reliable manner. VKS has been developed based on scalable and flexible system architecture to meet future requirements and easily configure for platform / mission needs utilizing proven protocols and communication infrastructure together with COTS and MOTS (Military Off The Shelf) equipments to provide fast and reliable data flow. VKS manages; dynamic data such as, geographical positions, heading, roll & pitch, speed, depth, meteorological data such as wind, pressure, temperature, oceanographic data such as salinity, sea temperature, conductivity, sound velocity and precise time information.



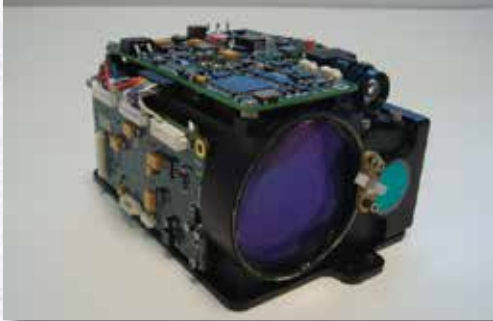
DRIVER VISION SYSTEM

ASELSAN's Driver's Vision System (DVS) is a compact, high performance vision system, primarily designed for Main Battle Tanks (MBT). DVS provides the driver 24-hour maneuvering capability under severe weather and harsh battlefield conditions such as fog, haze, dust, smoke, fire or camouflage. In addition DVS gives MBT the ability to maintain continuous mission operations while providing a safe driving environment through enhanced situational awareness. DVS is composed of Thermal and CCD Camera for both front and rear sight.

DVS



MRLR



MEDIUM REPETITION LASER RANGER EYE-SAFE LASER RANGE FINDER MODULE

MRLR is an open frame eyesafe laser rangefinder OEM module, designed for integration into electro-optical surveillance/ targeting systems and weapon stations for land, airborne and naval applications.

MRLR uses an efficient, eye safe diode pumped Er:Glass laser transmitter. This efficient laser source enables MRLR to reach measurement rates up to 5 Hz, which is an advantage for high speed targets.

To simplify the integration, laser transmitter is located in a sealed compartment. For easy boresighting, a boresight camera is provided. An optional laser pointer (IR or visible) can be replaced with the LED.

MRLR have built in test function and can be controlled via serial data interface RS422 or RS232.



SERIES THERMAL CAMERAS FOR COMMANDER & GUNNER PERISCOPES

The PERIEYE series Thermal Cameras are a compact, high performance thermal vision system, primarily designed for sighting systems that are mounted on Armoured Vehicles and Main Battle Tanks. The PERIEYE series Thermal Camera reflects the newest developments and technology in thermal imaging applications. The PERIEYE series Thermal Camera enables to detect, recognize and identify targets by providing high resolution thermal image to the gunner/commander from long ranges under day, night, severe weather and harsh battlefield conditions.



PERI EYE



SAGER



THERMAL SIGHT FOR KORNET-E ANTI TANK MISSILE SYSTEM

SAGER is a complete system solution that equips the Kornet-E anti tank launcher with a modern, compact, low weight, high performance thermal imaging sighting system.

SAGER is designed for detection, recognition and identification of threats at longer ranges during day-night and adverse weather conditions. By the help of optical collimator inside the SAGER, the image of thermal camera can be seen from the Day Sight Channel of Kornet-E Anti Tank Guided Missile. Operator uses the same ocular for viewing both day and thermal view. Operator can choose day or thermal view.



PIRI® INFRARED SEARCH AND TRACK SYSTEM

PIRI® passively detects and tracks guided missiles and targets that have the capacity to be a threat to ships, such as vessels, planes, helicopters, unmanned aerial vehicles (UAV). PIRI® allows high situational awareness with 360° field of view. PIRI® detects asymmetric threats in environments in which radar has reduced performance (on or near the sea surface) and also during the operations when the radar should be in "Radar-Silence".

PIRI® with it's Distributed/Static Sensor Architecture, will give IR video with high resolution and accuracy in a highly reliable way. PIRI® operates in two bands (3-5µm & 8-12µm) to increase it's detection performance and to decrease the false alarm rate. PIRI® track many targets with low false alarm rate.



PIRI®



FALCONEYE-MW

FALCONEYE-MW



Rugged and lightweight electro-optical system, design provides to the user the advantage of high performance thermal imaging for day and night observation. Target coordinates can be determined precisely and transferred via communication devices to the fire support units.

FALCONEYE MW Thermal Camera System is used on a tripod and Pan&Tilt. For situational awareness, thermal imager has a wide field of view. Besides, narrow field of view with high magnification can be selected for further target analysis.



THERMAL WEAPON SIGHT

Aselsan New Generation Thermal Weapon Sight can be used in all weather conditions like dust, smoke, fog, haze, darkness and battlefield conditions as well as daylight. It operates with commercially available lithium ion rechargeable batteries.

It provides 2.5x optical and 4x electronic magnification value as default. There exist optional different magnification values as well. According to weapon used, there are available ballistic reticules build-in the system.

The system has easy to understand menu structure which makes it a user friendly device with rugged and light weight design. To increase effectiveness of the system, reflex sight an IR pointer can be used as add-on.



MiniTSD



TEMREN

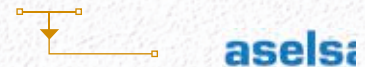
INFRARED (IR) LASER POINTER



Temren IR Laser Pointer is an environmentally sealed, high power and compact pointer designed to be part of airborne surveillance and targeting systems.

A wedge pair is provided for easy boresighting with the system.

Temren laser output is designed to follow an external control signal and can be operated either continuous or pulsed. During operation, laser output is continuously monitored.



ATS30 ARMORED VEHICLE THERMAL SIGHT SYSTEM

ASELSAN ATS-30 Armored Vehicle Thermal Sighting System compact high performance Thermal Sight is developed especially for armored combat vehicles and remote controlled fire systems.

ATS-30 provides user carrier reconnaissance, fire support, and patrol missions in all weather and battlefield conditions. With its compact and versatile structure ATS-30 can be integrated on any type of armored vehicle. Thus, ATS-30 is not only a thermal sight, but also a low-cost fire control solution.



ATS30



NAVAL MISSION MANAGEMENT SYSTEM

VATOZ® is a scalable mission management system developed for naval platforms based on distributed and modular architecture. System is already deployed over 30 platforms both in Turkish Navy and foreign navies. Basic functionalities of VATOZ® system are; sensor management, weapon control, situation awareness, surveillance and tactical mission control. System's features are; ease of scaling according to platform and mission requirements, supporting various operating systems and to be a reliable product with verified, validated and approved performance on the field.

aselsan

VATOZ®



SİLYON™



SİLYON™ NAVIGATION CONTROL SYSTEM

SİLYON™ Navigation control system is an integrated navigation system for surface platforms. System's main functionalities comprise; navigational and meteorological data collection, recording, displaying, processing and distribution to integrated systems. System also provides routing and navigation planning support together with (W)ECDIS system.

aselsan

THERMAL SIGHT SYSTEM

Panoramic Commander Sight and Gunner Sight has the superior image quality (high definition) thermal cameras, which provide accurate target engagement in day, night and severe weather conditions

Technical Specifications:

- Long wave (8-12 μm) Thermal Imager
- Color DayTV Camera
- Laser Range Finder
- Stabilized Line-of-Sight

TAKS



ACAR

NEW GENERATION GROUND SURVEILLANCE RADAR



New Generation Ground Surveillance Radar, ACAR, is a reflection of rapidly developing radar technologies. In addition to being capable of detection, tracking and classification of targets moving on or close to the ground or sea under all weather conditions, day and night, the radar has built-in capability for artillery fire adjustment support. ACAR, with track-while-scan capability can track and detect targets up to 40 km range, and single personnel up to 12 km range. It employs Low Probability of Intercept (LPI) techniques that enable operation at low radiated power, making detection by electronic support measure (ESM) extremely difficult.



TB-SH 05 SERIES UNDERWATER TELEPHONE

This equipment is a microprocessor controlled communication system for transmitting and receiving amplitude-modulated sound waves through the water.

- Telephony and Telegraph Communication
- Compatible with STANAG-1074
- Adjustable Output Power
- Custom Design Man Machine Interface (MMI)
- Built in Test (B.I.T.) for all sub-systems
- Sonar protection interface
- Emergency Channel Listening
- Voice recording up to 24 hours & playback
- Recorded voice and data transfer via MMC card



TB-SH 05



ASELPOD

TARGETING POD



ASELPOD is a next generation multi-sensor targeting pod for fighter aircrafts. ASELPOD has the following features:

- High resolution 3rd generation IR Camera, High resolution Day Camera
- Dual Band Laser Range Finder / Target Designator, Laser Spot Tracker
- Laser Pointer, Solid State Recorder for IR/Day Video & Mission History Recording
- Advanced Video Tracking on IR and Day Videos, Advanced Image Processing for Longer Range Performance
- Providing Highly Accurate Geo-Location Coordinates, Air to Air and Air to Ground modes compatible with aircraft modes
- Growth Potential for Future Mission Requirements, Easy access to main subassemblies for Maintenance.



THERMAL IMAGING SYSTEM

ASIR Thermal Imaging System is a high-sensitivity surveillance system that enables long-range target detection. It offers improved performance for day, night observation capabilities in adverse weather conditions.

The system is suitable for 24-hour continuous reconnaissance and surveillance missions and can be used as integrated either into any platform or with any tripod.

ASIR is capable of meeting all requirements of today's thermal imaging systems with its lightweight, compact unit features an ergonomic remote control unit.

Applications:

- Thermal imaging system for land vehicles
- Naval platforms
- On tripod with pan and tilt



ASIR



**HAND-HELD INTEGRATED
ELECTRO-OPTICAL SENSOR SYSTEM**

SHARPEYE is a hand-held integrated sensor system that uses the advanced technologies and offers different sensors into one compact and ergonomic design. It is a state-of-the-art product fulfilling the requirements for target acquisition in extensive ranges. User has the advantage of using a high performance thermal imaging sensor for day and night observation and target positioning capability. SHARPEYE is an integrated electro-optic sensor system which incorporates basically:

- Thermal Imaging Sensor
- Laser Range Finder
- Day Sight Sensor
- Digital Magnetic Compass (DMC)
- Digital inclinometer
- GPS Receiver
- Laser Pointer



SHARPEYE



EYE



THERMAL IMAGING SYSTEM

EYE Thermal Imaging System is designed to detect, recognize and identify threats during day, night and adverse weather conditions.

The system has high sensitivity that enables long range detection of targets at very low temperature difference with its environment. High resolution image of thermal camera results in recognizing and identifying threats easily.

Additional to day and night good weather conditions, it has high performance in adverse weather conditions which have a limited atmospheric energy transmission due to natural effects (like fog and haze) or battlefield conditions (like smoke, dust, fire, etc.).



HAND-HELD THERMAL IMAGER

GUARD Hand-Held Thermal Imager, with its innovative, ergonomic and compact design, provides high resolution thermal image. It is used for better situational awareness by observing expanse battlefield at day/night and even in adverse weather conditions.

GUARD has an optimized image which is calibrated dynamically depending on the scenery and can be easily carried by its neck belt and grabbed by one hand. The battery can easily be replaced and shuttered eyecup prevents stray light emission from the eyepiece. The rugged design complies with the battlefield environmental conditions.



GUARD



PYTHON/BOA



THERMAL WEAPON SIGHT

PYTHON/BOA Thermal Weapon Sight, providing situational awareness, enables the user to detect threats in the battlefield with high performance thermal image and clear vision at long ranges.

PYTHON/BOA operate in total darkness as well as day time and does not shut down or bloom in case of a direct light hit. They provide extended hours of operation, user friendly interface, rugged and ergonomic structure.

The design modularity enables PYTHON/BOA to be mounted on machine guns or sniper weapons in accordance with the tactical requirements, or it can be used as a hand-held system for instant surveillance.



AV-8



THERMAL CAMERA

Military AV-8 Thermal Camera is specifically designed for reconnaissance and surveillance especially at night in the dark or for bad weather conditions such as smoke, fog by revealing surrounding threats.

- Detector : Uncooled Microbolometer (Asi) 8-14 μm
- Resolution : 384 x 288 pixel
- NETD : <65 mK
- FOV : 55.7°
- Environmental Conditions : Complies with Military Standards
- Physical Features : 58.5X58.5x120 mm3, <600gr



HAND HELD MINE DETECTION SYSTEM

Hand Held Mine Detection System ETMTS-2 (SEZER), is a new generation mine detector that can detect metallic or non-metallic mines and handmade explosives audio-visually with its metal detector (Electromagnetic Induction-EMI) and Ground Penetrating Radar sensors. ETMTS-2 is developed in compliance with the military standards, MILSTD810G & MILSTD461F.

ETMTS-2 (SEZER)



E.DD.60



ECHORIUM.DD.60

Echorium.DD.60 is a high frequency sonar system that has been designed to detect possible underwater intruders, such as divers or AUVs, in order to protect and secure economically and strategically critical coastal area including naval bases, harbors, refineries and underwater-pipelines.

System has automated target detection, classification, localization and tracking capability with fully user friendly HMI.

System is compatible to Network Centric Warfare and Homeland Security Systems.



MINE HUNTERS' SONAR DOME

The Engin Sonar Dome has been developed and produced by ONUK-BG to be utilized on Engin Class Mine Hunters in service within the Turkish Naval Forces Inventory. The sonar dome has proved its success with its exceptional performance passing an extensive functional test program carried out by the Turkish Naval Forces. In order to meet the demanding acoustical performance and structural strength requirements nano-enhanced Fiber Reinforced Polymer (FRP) Composite materials have been exploited as the construction material. All acoustical research and development activities have been carried out at the ONUK-BG Underwater Acoustics Laboratory.



MINE HUNTER



MST01



SONAR TRANSDUCER MST-01

MST-01 is a low-medium frequency (Hull Mounted Sonar Transducer which can be used in different combinations to construct staves for wet-end of sonar systems. Linear, high power transducer design is sealed specially to work in sea water for a long time with high isolation resistances. MST-01 is currently used by Turkish Navy.

- Typical Operating Frequency Band
 - o Transmit 6.5 KHz - 8.5 KHz (Typ. TVR ~149 dB//1 μPa/V at 1 mt)
 - o Receive 2 KHz - 10 KHz (Typ. RVS ~ -163 dB //1V/μPa @ 6.5 KHz - 10 KHz)
- Typical empedance : 225 - 400 Ω, φ 0° - (- 40°) (@ 7.5KHz)
- Beamwidth (-3dB) : 75°
- Max Drive Voltage : 600Vpp
- Typical Drive Power : 125W (Max Test power : 160W)



HULL MOUNTED SONAR SYSTEM

Hull Mounted Sonar System is the most important sensor of Anti-Submarine Warfare conducted by Corvettes or Frigates. The sonar is low-medium frequency one which can be also used for Mine Avoidance. The Hull Mounted Sonar is in use in MILGEM Corvettes by Turkish Navy.

- Typical Operating Frequencies
 - o Active 5 KHz - 9 KHz
 - o Passive 3 KHz - 5 KHz
- Typical Sound Level Pressure (SPL - Omni) 222 ± 2 dB//1μPa/V @ 1 mt

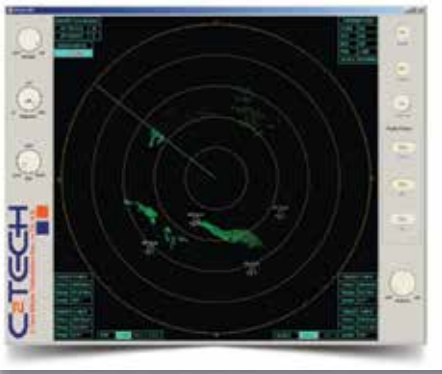


HMSSW-E



RECEIVER LIBRARY

SOFTWARE DEFINE RADIO RADAR RECEIVER LIBRARY



Software Defined Radar (SDR) is latest trend in radar development. In Software Defined Radar, most signal detection and radar processing are performed by FPGA and/or DPS. Since the radar platform is completely software defined, it can adaptively switch between different modes of operation for radar by modifying both transmit waveforms and receive signal-processing task on the fly.

Main features of developed system are as follows:

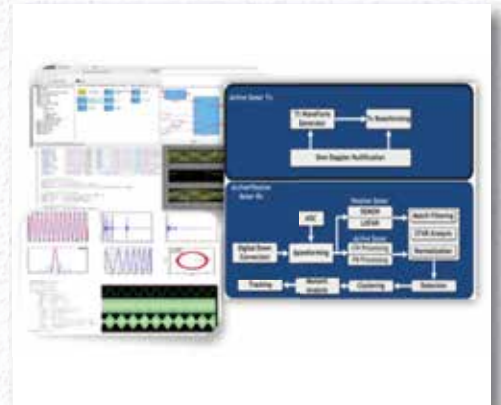
- Constant False Alarm Rate (CFAR)
- Adaptive Threshold
- Sensitivity Time Control (STC)
- Doppler Processing



SONAR EMBEDDED IP DESIGN LIBRARY

Sonar algorithms are implemented as fully parametric and customizable IP Cores for FPGA & ASIC. Usage of these IP Cores makes easy to implement any sonar system on embedded platforms and accelerates the design time.

- Design Language : VHDL
- Platform independent
- Verified with proper test benches
- Parametric and customizable structure through Generic Variables
- Combinational, Parallel and iterative forms of the Algorithms
- Different types of algorithm implementation for each IP Core
- Implementation Type Selectivity for all IP Cores
- Fully Generic and Flexible Structure
- Easy to combine the IP Cores in any configuration
- Available bit and cycle compatible MATLAB/Simulink library block for all IP Cores



AKR

FIRE CONTROL RADAR



ASELSAN Fire Control Radar is a modern 3D tracking radar design intended for ground and naval air defense weapon system applications. Fire Control Radar is a high-performance tracking radar with its automatic classification and discrimination capabilities.

3- D accurate target detection, tracking and classification, sector search, high accuracy in 3-D target position information, very low reaction time, operation on move capability, monopulse tracking, digital pulse compression, low sidelobe level and constant false alarm rate (CFAR) are among the operational features of the Fire Control Radar.

ASELSAN Fire Control Radar, which is capable of tracking and classifying high speed fighter air crafts, helicopters and hovering helicopters, unmanned air vehicles as well as air to surface missiles, can also be used for the protection of critical sites and can be integrated in to mobile air defense weapon systems, close in weapon systems and command and control systems.



ACOUSTIC EMBEDDED DETECTION AND CLASSIFICATION SYSTEM

Target detection by continuous monitoring and evaluation of signals received by acoustical, magnetic and pressure sensors, via advanced signal processing algorithms.

The system has its own decision making process after the target detection, classification and localization algorithms.

Due to having programmable feature by the user, it is a smart decision system that satisfies the operational needs for the underwater environment.

Technical Features:

- Acoustical, magnetic and pressure sensors
- Configurability per specific operational requirements
- Capability of identifying background noise and sweeping signals
- Built-In Test (BIT)
- Programmable through serial interface
- Easy software updates
- Capability of recording sensor interceptions
- Programmable sensitivity and detonation threshold
- Target discrimination
- Precise target selectivity
- Detection & Classification by advanced signal processing techniques
- Passive detection of target platforms
- Low power consumption



UNDERWATER ACOUSTIC LOCALISATION SYSTEM (SMART SONOBUOY)

Designed for underwater sea warfare operations and open sea security applications, smart sonobuoys serve for detecting the surface and sub-surface vehicles. Detection information is shared with friend platforms and ground bases. Major specifications are as follows;

- Designed as a buoy integrated structure,
- Zone coverage with multiple units,
- Detection of multiple targets and localisation,
- Low power consumption,
- Long operational endurance,
- Real time hydrophone signal processing,
- Automatic signal analysis and target classification,
- Transmitting processed outputs via RF channel to the Underwater Warfare Platforms and shore bases.



SONAR BEACON SYSTEM

When an emergency situation happens, it's vital for a submarine to indicate her current position to the vessels around, especially to the Search & Rescue Ship.

Within that purpose, under such emergency circumstances, Sonar Beacon System transmits alarm signals in;

- 9 KHz. Low Frequency,
- 37,5 KHz. High Frequency,
- Activated automatically or manually.

Low frequency signal can be detected from very long ranges, while the high frequency transmission gives the current position information with high accuracy to the Search & Rescue Ship.

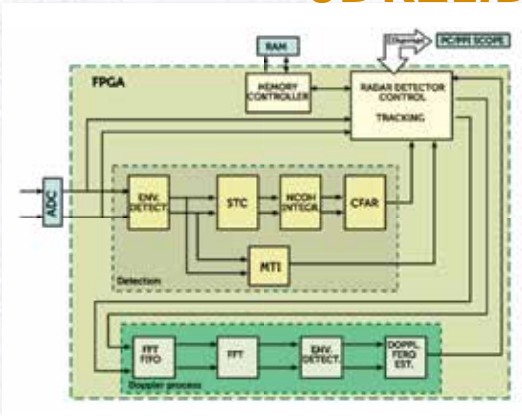
The power of system is completely independent from the mains of the submarine.

KBS Sonar Beacon System is developed in full compliance with the STANAG 1298 and STANAG 1382 requirements.



SDR2LIB

SOFTWARE DEFINED RADAR RECEIVER LIBRARY-SDR2LIB



Radar systems are used in varying fields from military to civilian applications. Software Defined Radar (SDR) is the latest trend in radar development. In Software Defined Radar, most signal detection and radar processing are performed by FPGA and/or DSP. Since the radar platform is completely software defined, it can adaptively switch between different modes of operation for radar by modifying both transmit waveforms and receive signal-processing tasks on the fly. Software defined system lends itself for a broad range of radar applications as it allows for the update of radar parameters for various different applications.

Main Features:

- Constant False Alarm Rate (CFAR)
- Adaptive Threshold
- Sensitivity Time Control (STC)
- Fast Time Constant (FTC)
- Doppler Processing



RETINAR-PTR - GROUND SURVEILLANCE RADAR

RETINAR-PTR is a ground surveillance & security radar with 12 km instrumental range, optimized for human detection and identification. It has low power consumption and low power output. It was developed for security applications such as perimeter security for critical facilities and infrastructure, border surveillance & security, base and force protection, and camp protection of patrolling security personnel. It has an intuitive user interface with 2D/3D maps, which minimizes the need for training.

It is a 2-man portable system with mobile charging unit and special batteries. It can be used on a tripod in the field, as well as fixed on a structure and on a vehicle. Using a special application; it communicates with smart phones and tablets for added mobility. The system can be operated remotely (up to 1 km) using special wifi antennas.

RETINAR-PTR



SONAR DOME



CORVETTE SONAR DOME

The MILGEM Sonar Dome has been developed and produced by ONUK-BG to be utilized on MILGEM Corvettes which have been designed and built for anti-submarine warfare and patrol missions.

In order to meet the demanding structural strength and acoustical performance requirements nano-enhanced Fiber Reinforced Polymer (FRP) Composite materials have been exploited as the construction material.



MOBILE SEARCH RADAR

ASELSAN Mobile Search Radar (MAR) is ASELSAN's latest 3D radar designed for mobile air defense weapon systems with modern radar design technologies such as digital beam-forming and solid state transmit/receive modules. It is capable of detecting, tracking and classifying low altitude airtargets in a very short time as either rotary or fixed while it simultaneously initiates the airpicture.

MAR is equipped with an integrated IFF antenna, modular system structure, multi beam capability, active phased array antenna, advanced digital signal processing architecture, pulse compressing ability, digital pulse processing, multiple target tracking, electronic beam stabilization and short reaction time which makes it an outstanding search and detection radar.

MAR can be used as main search radar in various command and control systems, while it can be operated stand alone as well. It can transmit the 3D airpicture to the systems it is connected to and also receive commands and parameters.

MAR



SMART-S MK 2



SMART-S MK 2

SMART-S Mk2, ASELSAN 3D multi-beam naval radar, is optimized for medium-to-long-range air and surface surveillance and target designation. This state-of-the-art radar is an excellent performer in complex littoral environments with the mix of sea, land, rain, thunderstorms and targets such as multiple small surface ships, helicopters and anti-ship missiles. The detection range and pointing accuracy is high (even in the case of multi-path by using receive beams below the horizon) and suited for fire and forget missiles, launch-on-search and guidance of medium range missiles.

Graceful degradation through the use of multiple solid state transmit modules and multiple receive channels ensures robust performance throughout the spectrum of military operations. Through the use of Doppler processing, SMART-S Mk2 can detect even stealthy targets in a cluttered environment by measuring radial speed directly. As a multi-beam radar, SMART-S Mk2 offers sufficient dwell time per target required for good radial speed measurements. SMART-S Mk2 is an optimal sensor for target indication to a fire control tracking system. By providing 3D tracks the radar supports correct classification and rapid acquisition.

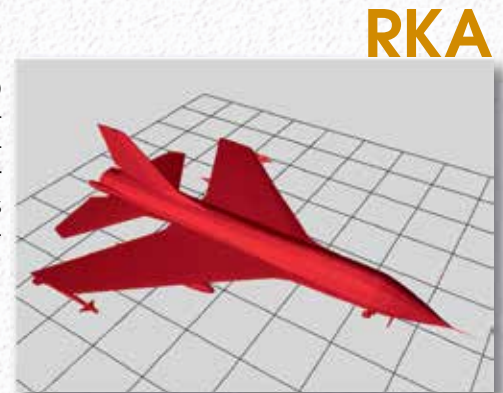
Operational control of the SMART-S Mk2 can be realized with a simple Windows-like display with control tabs for operational controls, environment-driven controls and observation-driven controls. SMART-S Mk2 is designed for ease of maintenance and can support maintenance free missions.



PRECISE RADAR CROSS SECTION (RCS) PREDICTION

A fast and effective simulation code for the fast calculation of radar cross section (RCS) from large and complex-shaped perfectly conducting targets at high frequencies. The pre-processor accepts many CAD formats such as *.raw, *.3ds, *.iges, *.facet and etc. Fast simulation run time thanks to shooting and bouncing ray implementation. The post processor can display RCS plots and range profile graphs of the targets instantly. Improved features such as inverse synthetic aperture radar (ISAR) images of the simulated targets and scattering center analysis are also available.

- RCS versus Frequency :Yes
- RCS versus Observation Angles :Yes
- Range Profile Calculation :Yes
- ISAR Imaging Capability :Yes
- Scattering Center Analysis Capability :Yes



GPR



GROUND PENETRATING RADAR (GPR)

This Imaging System is developed by Gate Elektronik Inc. to enable pulling out the EM image of the objects that are located underground and surface. By the help of this system buried explosives such as Anti Tank Mines, Anti-Personnel Mines and Improvised Explosive Devices can be identified. UWB technology is being used and integration to land vehicles is possible.



WALL PENETRATING RADAR

Wall Penetrating Radar is designed to detect and display the positions of the living beings that are hidden behind the walls and trapped under the wreckage. By using this system mobility inside wall can be seen and the exact location and number of the people can be found. The movements in real-time can be traceable or activities are able to be predicted. This system is optimized to detect even small micro movement such as breathing. The system is completely a portable device. The system is 7.8 kilograms including it's battery. The battery inside the system can provide power for 3 hours.



ESM/ELINT



LAND-BASED MOBILE ESM/ELINT SYSTEM

Within its wide operating frequency range, Land-Based Mobile Radar ESM/ELINT System has the capability of detecting, intercepting, identifying, classifying, tracking, Direction Finding (DF), localizing, audio warning, correlating and recording the electromagnetic emissions.

Designed and developed by ASELSAN, the system provides wideband intercept of radar signals. A key feature of the system is its precision parameter measurement and advanced emitter characterization capabilities. The system can trace marked emitters and locate them automatically. System determines the radar parameters such as; frequency, PRF, PW, pulse amplitude, scan rate, scan type.



LAND-BASED MOBILE ELECTRONIC ATTACK SYSTEM

Within its wide operating microwave frequency range, Land-Based Mobile Radar Electronic Attack System has the capability of intercepting and jamming and/or deceiving hostile radar emitters. It analyses multi-target signals and automatically/manually generates an appropriate response.

Designed and developed by ASELSAN, the system has a comprehensive and flexible Electronic Attack capability (coherent and non-coherent EA). Its high power RF amplifiers and directive transmit antennas allow high ERP up to %100 duty cycle. Each RF amplifier has an independent transmit antenna.

System is mounted on a single 6x6 tactical vehicle for rapid deployment and can be operated by a single operator.

MEAS

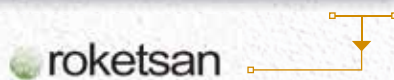


BALLISTIC PROTECTION SYSTEMS

ROKETSAN Ballistic Protection Systems (BPS) are structured to fulfill the ballistic protection requirements of military and civil platforms. BPS has composite and explosive reactive armor (ERA) design, development, production and testing capabilities for light/heavy armored vehicles, all kinds of air and naval platforms in compliance with national and international standards. ROKETSAN Ballistic Protection Systems have the responsibility of design and development of Armor System for ALTAY, Turkish Main Battle Tank currently being developed by Otokar.

Design and Production Capabilities;

- Threat Database
- 3D Modelling and Simulation with Specialized Software
- Ballistic Ceramic Production
- Reactive Armor Production
- Hybrid Armor Production



LIAS LASER WARNING RECEIVER

LIAS is a state-of-the-art threat warning system to detect, classify and identify the hostile laser threats aimed on the platform with high sensitivity and short response time. System can provide warning for the pilot and activate the countermeasure systems available on the platform either directly or via EW computer. With the multi-band sensors on the system, LIAS is designed to detect all types of the laser threats like laser range finders, laser designators and laser beam riders.

LIAS



ZOKA



ACOUSTIC TORPEDO COUNTERMEASURE JAMMERS AND DECOYS

ZOKA Acoustic Torpedo Countermeasure Jammers and Decoys comprise;

- Various types of Jammers and Decoys for any kind of platform
- Effective defense capability against acoustic homing torpedoes for both surface ships and submarines
- Customizable and "state of the art" design
- High fidelity on target emulation and
- Long operating time capabilities

Acoustic jammer is a broadband high power acoustic noise generator that covers all operating frequency bands of both classical and modern acoustic homing torpedoes operating in passive, active or combined homing modes. Acoustic Decoys are aimed to deceive incoming torpedo by emulating dynamic and acoustic behaviors of the submarine.



ELECTRONIC WARFARE TEST AND TRAINING RANGE

EWTRR provides EW Test and Training capabilities in a completely instrumented and near real threat environment. The system, which is in the inventory of Turkish Air Force since 1999, has also been exported to Pakistan and South Korea. Capabilities provided by the system can be summarized as below:

- Increase the confidence of the crew in platform EW equipment,
- Provide a testbed in order to develop EW technics, tactics and maneuvers,
- Provide an environment for EW equipment testing,
- Determine the performance and weaknesses of Air Defense Systems,
- Train Air Defense operators against technics, tactics and maneuvers and increase their level of readiness.



EWTRR



ZARGANA



SUBMARINE TORPEDO COUNTERMEASURE SYSTEM

ZARGANA Submarine Torpedo Countermeasure System ensures submarine survivability against torpedo attacks by autonomous operation and quick reaction capabilities. The system is designed to work integrated with submarine systems collecting real time data as well as operator provided data. ZARGANA system basically collects platform and threat related data from submarine systems and performs detection, classification and localization to provide torpedo counter measure tactics with highest escape probability. Tactics include evasive maneuvering advices for submarine, deployment pattern and timing for acoustic jammers/decoys launching.



TORPEDO COUNTERMEASURE SYSTEM

HIZIR is a Surface Ship Torpedo Countermeasure System composed of Towed Array, Towed Decoy, Winch, Electronic Cabinet, Launcher and Expandable Decoy subsystems. The system can be integrated with the Sonar, Combat Management System and Ship Data Distribution Unit. HIZIR system is capable of detecting torpedo threats from a distance required for instant counter reaction. Using advanced Detection, Classification and Localization algorithms, the system advises the operator the most suitable tactic required to escape from threat. This includes an evasive maneuvering advice for ship, related parameters and timings for towed decoy and deployment time of expandable decoys.



HIZIR



HEWS



HELICOPTER ELECTRONIC WARFARE SELF PROTECTION SYSTEM

Helicopter Electronic Warfare System (HEWS) is a comprehensive Electronic Warfare self-protection suit, developed by ASELSAN to equip fixed and rotary wing aircraft of the Turkish Armed Forces. HEWS integrates Radar Warning Receiver, Laser Warning Receiver, RF Jammer, Suit Central Processing Unit, Missile Warning System and Chaff/Flare Countermeasure Dispenser System into a self-protection suit with extended capabilities. HEWS provides situational awareness and enables aircraft survival under intense threat environment while maintaining minimum work load for the pilot. Effective and threat-specific countermeasure resulting from the fusion and assessment of the data received from the sub-systems is applied.



AN/ALQ-178 (SELF-PROTECTION ELECTRONIC WARFARE SUITE-SPEWS)

The AN/ALQ-178 is an advanced, internally mounted self-protection system specifically designed for high performance fighter aircraft, including the F-16 and F-4E. Fully operational since 1986, the AN/ALQ-178 is currently in operation for two major Air Forces.

The AN/ALQ-178 is a proven integrated Radar Warning Receiver (RWR) and Electronic Countermeasures (ECM) Suite, providing the pilot with situational awareness and deceptive RF jamming. The AN/ALQ-178 provides intelligent control of chaff/flare dispenser systems for enhanced and coordinated ECM response.

The AN/ALQ-178 was designed, tested and fully qualified in accordance with the full range of U.S. Military Specifications. AN/ALQ-178 System on TuAF F-16 and F-4E 2020 are proven systems in operations (such as Bosnia, Kosovo) and exercises (Red Flag, Ramon, etc.)



AN/ALQ-178

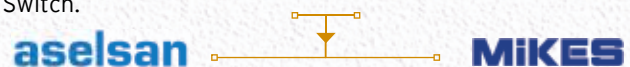


SPREAD



SELF PROTECTION EXPENDABLES AIRBORNE DISPENSER

SPREAD (Self Protection Expendables Airborne Dispenser) is an advanced Countermeasures Dispensing System (CMDS) designed to increase the survivability and mission effectiveness of airborne platforms against RF and IR threats. SPREAD has different operational modes such as manual, semi-automatic, automatic and bypass. SPREAD can also work together with Radar Warning Receiver, Missile Warning System, Laser Warning Receiver and 1553 B data bus with an integrated architecture. Multiple and simultaneous dispensing of 1"x1" chaff, dual chaff, 1"x1" flare and Multi-Blu-3 decoys is possible through SPREAD. The system is composed of 5 different line replaceable units: System Control Unit, Dispense Control Unit, Dispense Magazine, Magazine and Safety Switch.



PJO2



PJO2 PANEL JAMMERS

This device is designed to control the communication between the cellular system base stations and cellular phones. It can be carried easily or hanged onto the wall. Moreover, it is suitable for remote configurations and camouflage with its modular structure. Thuraya, NavStar and Global Star NMT (1600 Mhz) services are also in coverage zone (Optional). It acquires Jamming System Double Sweep Technology and Filtering Unit Micro-Controller.

Technical Specifications:

GSM 900 1 Watt (935-960 Mhz) and GSM 1800 1 Watt (1805-1890 Mhz) adjustable

E.R.P. Power +10 dBmW (10 mWatt)

Antenna Gain 6 dB

Antenna Angle 120 (Horizontal), 60 (Vertical)

Dimensions 230x190x42 mm



VEHICULAR JAMMER SYSTEMS

Vehicular jammer systems are designed and produced by ATEL engineers to provide effective protection against threats generated by RC-IEDs targeting VIPs and convoys.

The system is field proven to be the best operating vehicular jamming system in desert and harsh climatic environments thanks to its high technology and genuine design.

The system provides reliability and programmability through its DDS (Direct Digital Synthesis) technology. The system enables the user to sustain the command and control capability which is essential for the success of the mission via communication channels to be notched.

The user friendly LCD touchscreen control unit allows the operator to test, restart or re-program the system on-the-go. The vehicle is completely shielded to protect the personnel from the harmful effects of the electromagnetic radiation.

ATEL has the capability to customize jammer solutions to comply with customer demands based on his threat analysis.

Technical Specifications:

- Frequency Range 20 to 6000 MHz (please ask for other frequency coverage options)
- Jamming Type Programmable Full Band Sweeping - Direct Digital Synthesis
- Environmental Cond. MIL-STD-810
- Operation Period 7/24
- Power Alternator, additional alternator or battery pack

ARJ



PORTABLE RCIED JAMMER SYSTEM

GERGEDAN is designed to protect convoys, VIP vehicles in motion and static infrastructure against Radio Frequency (RF) Controlled Improvised Explosive Devices (RCIEDs), by jamming the communication between these devices and threats.

GERGEDAN is a vehicle-independent jamming system which covers the whole frequency band with specific emphasis on the following threats:

- Amateur band radios, remote control devices of toy car, door bells, car keys etc.
- Cordless phones and DECT phones.
- Up to 3.9G mobile phones: GSM 900, DCS 1800, 3G, CDMA2000, UMTS, HSPA+.
- Satellite phones like Thuraya and Globalstar.
- IEEE 802.11 (WLAN, WiFi) and IEEE 802.16 (WiMAX) applications.
- ISM bands.



GERGEDAN



VT JAMMER



VEHICLE TYPE JAMMER SYSTEMS

Vehicle Type RF Jammer Systems designed for VIP and convoy protection for remotely controlled explosives. These systems defuse threats activated with walky talkies, wireless phones and remotely controlled devices using their RF protection shield. Designed and produced with %100 native opportunities. Vehicle Type Jammer Systems can adapt any vehicles, in addition programmable for other environmental conditions. Application areas can be defined as Military Anti Terror Units, Anti Terror Teams, Bomb Disposal Teams, Narcotic Teams.

Technical Specifications:

- Constant wide band working performance and controllable with hand terminal
- Warning of fault and VSWR
- Vehicle protection for RF effects
- Durable for vibrations
- Suitable for MIL-STFD 810 environmental conditions



SJ 2003 MINIPOCKET JAMMER

This device is designed to control the communication between the cellular system base station and cellular phones. It also obstructs the transfer of RF signals produced by cellular systems. Everyone can carry it easily as it looks like a real cigarette package.

Technical Specifications:

- Carrier Scan Band : 935-960 Mhz (GSM 900)
1805-1880 Mhz (GSM 1800)
- Output Power : 1 Watt (Total)
- Frequency Control : PLL Controlled Oscillator
- Jamming System : Double Sweep Technology
- Power Source : Li-Ion Battery
- Working Time : 2 Hours
- Recharging Time : 4.5 Hours



SJ 2003



RF ACTIVE/REACTIVE JAMMER SYSTEM

SAPAN RF Active/Reactive Jammer System is designed and developed by ASELSAN to protect convoys, VIP vehicles in motion, and campsite stationary against RF Remote-Controlled Improvised Explosive Devices (RCIEDs) by jamming the communication between these devices and threats. SAPAN can instantly survey the whole frequency spectrum and quickly react on the threat signals. Hardware and software/algorithms developed are such that any inevitable delay and all processing periods are minimized/optimized to ensure an extremely fast reaction.



SAPAN



KRJ



DESK - SUITCASE JAMMER SYSTEMS

Desk - Suitcase Jammer Systems are designed and produced by ATEL engineers to prevent any GSM, Wi-Fi or Bluetooth communication, to secure VIP offices, conference halls, meeting rooms or theaters.

The system can easily be operated and managed by the user friendly keypad or its infrared remote control unit. The system is flexible to be used as a vehicular, stationary or portable jammer with relevant accessories.

Accessories:

- Battery
- Battery charging adaptor
- 220 - 24 V AC/DC Adaptor
- Wall hanger

Vehicle Kit:

- 12 V DC charger and magnetic antenna mounts

Suitcase Kit:

- Suitcase kit and accessories

Technical Specifications (Customer tailored solutions):

- Frequency Range GSM I, II, 3G, Wi-Fi,
- Bluetooth (4G ready)
- Jamming Type Programmable Full Band
- Sweeping - Direct Digital Synthesis
- Environm. Cond. MIL-STD-810
- Operation Period 7/24
- Power Battery and 220 V AC



SOFTWARE DEFINED JAMMER

KiRPI provides the patrols with a protection umbrella against the risk of running into RCIED (Radio Frequency Controlled Improvised Explosive Devices) on the battlefield. Designed and developed by ASELSAN, the software defined jammer is full-band re-programmable at the field. Easy and rapid setting of frequency sub-bands and respective output powers enables adaptation of the jammer to cope with the operational and technical requirements of the particular treat environment.

KiRPI is capable to counter simultaneously the following threats;

- Amateur Radios, PAMR, PMR, FRS Radios,
- Remote Control Equipments, Doorbells, Car Openers, etc.
- GSM 900, DCS1800, 3G Mobile Communication Devices



KIRPI



MRJ MANPACK / MULTI PURPOSE JAMMER SYSTEMS



Multi-purpose Jammer systems are designed and produced by ATEL engineers to provide effective protection against threats generated by RC-IEDs, targeting EOD units, patrol units, convoys and VIPs.

The system provides reliability and programmability through its DDS (Direct Digital Synthesis) technology, enabling the jammer operator to utilize secure communication channel(s) for security personnel. The user friendly LCD touchscreen control unit or tactical hand control unit allows the operator to test, restart or re-program the system easily. The system is flexible to be used as a vehicular, stationary or portable jammer with relevant accessories, without permanent modification to the vehicle or the system.

ATEL has the capability to customize jammer solutions to comply with customer demands based on his threat analysis.

Accessories:

- Carrying Cases
- Trolley
- RF Protection Suit

Vehicle Kit:

- 12 V DC Charger
- 12-24 V DC/DC Adaptor
- 24 V DC Battery Charging Adaptor
- Magnetic Antenna Mounts
- Antenna Masts for Armored Personnel Carriers

Technical Specifications:

- Frequency Range 20 to 6000 MHz (please ask for other frequency coverage options)
- Jamming Type Programmable Full Band Sweeping - Direct Digital Synthesis
- Environm Cond. MIL-STD-810
- Operation Period Long Battery Life (Battery options are available)
- Power Battery or 220 V AC

MOBILE GSM JAMMER SYSTEMS- PMJ03 MOBILE CASE JAMMER 3 BANDS (900-1800-THURAYA)

This device is specially designed for secret operations. It is sound, water and shock resistant. It can be directed to the targets with the adjustable high gain antenna integrated in the case. It can obstruct not only cellular phones but also RF signal transfer from remote controls to bombs, suspicious car or buildings. It can obstruct GSM/PCN signals completely on a predefined area since TDMA technology is used for system's power supply. Different models are available for VIP, police and military applications.

Technical Specifications:

- Carrier Scan Band 935-960Mhz, 1805-1880Mhz
- RF Output Impedance 50 Ohm
- RF Antenna Gain 6Db for all antennas
- Jamming System Double Sweep Technology
- Dimensions 390x290x 80mm aluminium case



PMJ03



MANPACK



MANPACK JAMMER SYSTEMS

Manpack Jammer Systems designed for personal protection for remotely controlled explosives. These systems defuse threats activated with walky talkies, wireless phones and remotely controlled devices using their RF protection shield. Designed and produced with %100 native opportunities. Manpack Jammer Systems can be carried easily with its push and pull kit and also adaptable for any vehicles without making differences. Application areas can be defined as Military Anti Terror Units, Anti-Terror Teams, Bomb Disposal Teams, Narcotic Teams.

Technical Specifications

- Ergonomic design and Long life battery
- Constant wide band working performance
- 7-14 kg weight (without battery)
- Suitable for MIL-STD 810 environmental Conditions
- Warning of fault and VSWR



SURVIVABILITY IS THE KEY





LOGISTICS & TRAINING



OCK

CONTAINERIZED KITCHEN - OCK 3IN1



OCK is a self-contained system for food preparation, cooking and warming in an expandable 20 feet ISO container. Capable of supporting up to 500 soldiers with three hot cook-prepared per day. OCK is designed for use under extreme climatic conditions at temperature ranging from -32°C up to 60°C. It is well insulated with polyurethane injected wall panels. All cooking modules are heated by separate diesel fueled burners. The electrical needs of the OCK are provided by an on-board 15kVA generator.

- Kitchen appliances :
- 3 x Pressure boiling pan
 - Frying pan
 - Convection Oven
 - Hot food service counter
 - Refrigerator
 - Sink unit



MOBILE SANITARY UNIT

Mobile Sanitary Unit serves for people to perform their basic hygienic needs in field conditions. It is built in a ISO 20' container. The configuration can be modified according to special requirements. The container has a separate engineering area for control panel, diesel driven water heating system, pumps and 15kVA generator. Water heating system has a capacity of 2000 l/h warm water. The system is independent and complete with its clean/dirty water tank. All sanitary components and accessories are made of stainless steel. The Mobile Sanitary Unit can also be designed on a trailer.



SANITARY



LAUNDRY

MOBILE LAUNDRY



OZTI Mobile Laundry is designed for washing and drying large quantities of laundry (25 kg of dry laundry per hour) The system is mounted on an all-terrain single-axle trailer. Industrial type washing machine and dryer are heated by means of diesel-driven heating system which reduces energy consumption. Therefore it is advantageous compared to electrically driven systems. OZTI Mobile Laundry can even be used on the remote sites because it works independently with its on board diesel generator . For larger capacities OZTI Mobile Laundry can be built in a 20' container with expanding shelter.



VERTICAL WIND TUNNEL

STM has designed and manufactured the Vertical Wind Tunnel (VWT) for the Turkish Special Forces' needs. STM has the capability to design and manufacture different VWTs according to customers' configuration requirements.

Usage:

- Training of Special Forces
- Training of Airborne Troops
- Paratroops Beginning Free Fall Training
- Training of Acrobatic Parachute Teams



WIND TUNNEL



MOBILE WATER PURIFICATION SYSTEM

The RO S500 treats water on the basis of reverse osmosis (RO). It is a self-contained water treatment system designed to produce drinking water from fresh, brackish and sea water sources. It removes dust, heavy metals, organic and bacteriologic pollution with chemical-free treatment. The system is mounted on an all-terrain single-axle trailer which can be towed by any vehicle with a hitch assembly, and can be quickly and easily set up to provide an immediate portable water supply. Permeate water quality and all equipment are controlled by PLC.

• Technical features:

Purified Water Output : 500Lt/hours
TDS<45000



RO S500



SHELTER



MILITARY SHELTER

By NMS Shelters, exclusive solutions are introduced complying NATO, ISO standards, and customized solutions are introduced that satisfies customers' special requirements. NATO-1, NATO-2, NATO-3 ve ACE-1, ACE-2, ACE-3 types of NMS Shelters, with RFI, EMI protection and EMC compatibility according to NATO6516/SHCPE/86 Standard Shelter Technical Specification's, can be deployed in:

- Receiving and Transmitting Stations,
- Air Defence and Mobile Military Command Control Centers,
- Mobile Laboratories,
- Radio and Tv-Link Stations,
- Mobile Medical Units,
- Air Traffic Control Centers,
- Disaster Relief Coordination Centers.

applications. Long-term usage period is aimed with its modular, durable design and low life-cycle costs.

HOWITZER-AMMUNITION CARRIER HVAC SYSTEM

Cooling Capacity	:	6450 kcal/h - (7500 Watt)
Heating Capacity	:	4300 kcal/h - (50000 Watt)
Cooling Fluid	:	R134a
Unit Dimensions		
condenser unit (WxHxD)	:	1000 x 800 x 190
evaporator unit (WxHxD)	:	850 x 650 x 185
Weight	:	~ 100 Kg ±3
Aif Flow	:	1100 m³/h
Fresh Air	:	-
Power Requirements	:	24 VDC - max.16A
Areas of Use	:	Howitzer-Ammunition Carrier



ES75FM



SHELTER / VEHICLE APPLICATIONS

MFB-080 is an indigenous over pressure ColPro CBRN system for military shelters complying to NATO standards. The unit can be used as a mask feeder alternatively up to 8 personnel as well.

Unit has an 80 m³/hour capacity and comes with an Alarm kit / Pressure indicator and overpressure relief valve.

The TNO / Nederland certified unit has also TRaC Global / UK certification for compliance to the relevant Mil-STD-810 G and Mil-STD-461 requirements.



MFB-080



EXHAUST SILENCER PRODUCTION PROJECT FOR NAVAL PLATFORMS

In the scope of SAR-33 Modernization Project, it was aimed at :

- Developing a silencer for minimum pressure drop and maximum noise reduction in a smaller and more durable product,
- The acquisition of silencer design&test capability for vessels within national facilities,
- Construction and testing activities of developed silencer within national facilities,
- Construction of silencer for SAR-33 Boats considering its main engine requirements .

Two silencers have been delivered.

Manufacturer: MILPER Pervane Teknolojileri A.Ş.



ONBOARD NAVAL APPLICATIONS / BUILDING COLPRO SYSTEMS

MFK-300 NATO type radial STANAG 4447 CBRN filters indispensable and crucial to the MAKEL ColPro Systems like MFB-Oxxxx series both for Naval and Building applications.

The filter has been tested and certified with STANAG 4447 compliance by TNO-Proqares /Netherlands.



MFK-300



AZM-04-1240



VEHICLE APPLICATIONS

AZM-04-1240 : Manufactured to combine an individual CBRN Unit that is tested and certified in accordance to NATO AEP-54 standard, with a 9 kW Auxiliary Power Unit and a 12 kW (41.000 Btu/hr) Environmental Control Unit. The AZM04-1240 has been manufactured for the Turkish Armed Forces. It is fully tested according to the relevant MIL-STD-810G and MIL-STD-461E standards at accredited independent testing houses.



NI-CD AIRCRAFT BATTERIES AND BATTERY CELLS



ASPİLSAN A.Ş Ni-Cd Aircraft batteries well above requirements of all relevant standards and Military specifications. Additionally, batteries have also been certified by Germany BWB establishment and French SOPEMEA environmental testing laboratory.

Complete batteries are generally assembled with 20 cells having 24V rated voltage and with different capacities ranging from 7Ah to 40Ah.



BATTERY PACKS FOR MILITARY AND CIVILIAN PURPOSE

ASPİLSAN A.Ş Ni-Cd, Ni-Mh ve Li-Ion Battery packs contain quick or standard charge type batteries and also have protective components such as thermo switch (thermostat), PTC device, Termistor, diode and others to ensure safety, reliability and long service life. Cells used in the pack are fully complying with the IEC Standard No 285 and all relevant Military specification.



BATTERY PACKS



BALLISTIC PROTECTIVE SHIELD AND SHIELD SETS



As Nurol Technology, we produce ballistic protective shield, which is one of the most important requirements of our security forces, at international standards completely with our national capabilities. The ballistic protective shields which provide the user with an ease of intervention, are produced at desired sizes according to the level of threat.

TECHNICAL SPECIFICATIONS

- According to the desired level of protection, a great number of in-house produced materials are used. These materials are alumina, silicon carbide and boron carbide.
- It presents solutions for levels of protection at all levels specified in NIJ Standards.
- Monitoring window at DIN EN1063 BR7 protection level and desired sizes.
- Resistant to the most difficult environmental conditions as per Mil-Std-810 standard.



TIM 80-100-120

AIRCRAFT PUSHBACK & TOW TRACTOR



TİMSAN TRAKTÖR

TIM 80 has draw bar pull capacity of 80 kN. It provides tow and push-back service to the aircrafts that are up to 96.000 kg. Also TIM 100 tow tractor has draw bar pull capacity of 100 kN and can provide tow and push-back services to the aircrafts that are up to 120.000 kg. TIM 120 tow tractor has draw bar pull capacity of 120 kN. It can provide tow and push-back services to the aircrafts which have maximum 150.000 kg weight.

- 4x4 towing(4wheel drive)
- 4 wheel suspension,leaf spring on front and rear axles
- Hydraulic Power Steering System and service brake
- 2 options steering system
 - Crab mod (crab mode steering)
 - 4 wheels coordinated mode

(Four wheel co-ordinate mode steering)

- Hydraulic disc brake on front and rear axles
- Differential lock on front and rear axles
- Automatic Power-Shift transmission with torque converter
- General Measures (LxWxH mm):4600x2200x2100
- Weight : 11.000 kg(with cabin)
- Drawbar pull : 80 kN
- Towing capacity : 96 ton

HELICOPTER CARRIER

Transportation system that we manufactured is designed in order to transport the helicopter comfortably and safety with its control system and special equipments. Chassis structure and removable handles are designed in accordance to worst conditions. Lifting and towing system can carry the AB 204, 205, 206 ve 212 type of helicopters (max. 5.500 kg) as safety.

- Lifting range : 345 mm - 782 mm
- 24 V AC - 2 kW - 2000 rpm brake tow engine
- 24 V DC - 240 Ah battery
- Front wheels Ø 200 vulcalon
- Rear wheels Ø 300 vulcalon
- Hydraulic Lifting and steering system ;
- 24 V DC - 3 kW power-pack
- General measures (L X W X H mm):4120x1650x345



TİMSAN TRAKTÖR

HC 5500



TIM 25-TIM 45

TIM 25-TIM 45



TİMSAN TRAKTÖR

Tim 25 tow tractor can tow the weights that are up to 30,000 kg with 2500 tow power for all cargo services. TIM 45 tow tractor can tow the weights that are up to 54,000 kg with 4500 kg tow power for all military aircrafts and equipments.

- 4x2 towing (2 wheel drive)
- 4 wheel suspension,leaf spring on front and rear axles
- Hydraulic Power Steering System
- Service brake with power support
- Hydraulic disc brake on front and rear axles
- Electrically controlled Power-Shift transmission with torque converter
- General Measures(LxWxHmm) : 2890x1480x2100
- Weight : 3800 kg (with cabin)
- Draw bar Pull : 25 kN
- Towing Capacity : 30 ton

SELF PROPELLED PASSENGER STAIR

Self propelled passenger stairs; are able to serve to narrow and wide body aircrafts with door sill heights between 2400 - 5800 mm. Stairs can be produced with driver's cabin, with half or full canopy (option).

- Standard 1200 mm (optional 1500 mm) width anti slip aluminum steps
- Wide, movable platform, retractable side panels
- Maximum stability with 4 hydraulic stabilizers
- 37 kW water coolant Tier3 diesel engine
- Electrically controlled power-shift transmission with torque converter
- Hydraulic steering and brakes on all wheels
- Dinmensions (LxWxH mm) : 7375 x 2170 x 3710

SPS5800



MSP7000



MOBILE MAINTENANCE PLATFORM

MSP 7000 is a mobile scissor platform with 1500 kg load capacity and maximum 7000 mm platform floor height. Can be mounted to variety of commercial trucks and widely used in airports and hangars for maintenance works.

- Platform with handrails and antslip aluminum floor
- Commands from the platform including start-stop the engine of truck
- Maximum stability with 4 hydraulic stabilizers
- Rigid, heavy duty scissors with hydraulic cylinders
- Platform dimensions (LxW mm) : 4000 x 2100
- General dimensions (LxWxH mm) : 6225 x 2220 x 2430



MOBILE DE-ICER

Mobile de-icer shall be mounted on a commercial truck. With it's access platform operated with a hydraulic boom, it can do de-ice and anti-ice operations of aircrafts. For de-icing operations the system is equipped with high capacity heater.

- Stainless steel 2000 lt de-ice and 500 lt anti-ice tanks
- Boom system with 205 kg platform capacity and 11 meters working height
- Driven from the PTO of truck
- Generator for heating system
- Special Hardi pumps for de-ice and anti-ice operations
- Dimensions (LxWxH mm) : 7730 x 2250 x 3300

MDI2000



MARINE TYPE ELECTROGEN GROUP



Generators has to, engine control(Start/Stop), communication with engine, programmable logical controller (PLC), alternator humidity receiver controller, air/ electricity start controller, old breakdown observation, protection between IP23/66, observing all functions on LCD monitor, peace/war state controller, automatic and manuel synchronization, local/ remote working controller. Generators are working to help special sound isolated cabin with different pressure and also that generators has heat exchanger inside of cabin and spontaneously capability of extinguishing for fire. National Ship (MİLGEM) project, main propulsion systems, combat systems, communication systems 4x750kVA diesel generator sets are used.

Technical Properties :

- Engine : Mitsubishi S6R2
- Alternator : İşbir
- Scope : Marin Tip Elektrojen Grubu / Marine Type Electrojel Group
- Power : 750 kVA
- Voltage : 440 V / 3 Fazlı - 440V / 3 Phase
- Speed : 1600rpm / 60 Hz.



DIESEL MOBILE DUAL ELECTROGEN GROUP

ADOP, weapons, target detection, analysis, planning, execution and control functions fulfilling battlefield functional systems and other fire support elements (maneuver, air defense, intelligence and electronic warfare and combat service support, etc.) that have been installed between the numerical to work with the integrated tactical communications systems.

- Engine : Hatz Silent Pack 3L 41C
- Alternator : İşbir
- Scope : Diesel Mobile Dual Electrojen Group
- Power : 2x15 kVA
- Voltage : 220 V / 1 Phase
- Speed : 1500rpm / 50 Hz.



DUAL



RCEG



DOMESTIC REMOTE CONTROL SYSTEM ELECTROGEN GROUP

JEMUS providing affordable communications, witness statements, physical evidence, and the information presented is intended to reach the most expeditious and timely.

Used in the system of radar, command and control unit and the communication devices.

- Engine : Perkins 404D22G /403D15G
- Alternator : İşbir
- Scope : Domestic Remote Control System with Dual Container continuous 7/24 Operating Basis appropriate Electrojen Group
- Power : 2x20 kVA - 2x13 kVA
- Voltage : 220 V / 1 Fazlı - 220V / 1 Phase
- Speed : 1500rpm / 50 Hz.



FULL SIDE PROTECTION, TACTICAL BALLISTIC VEST (QUICK RELEASE SYSTEM)

GENERAL SPECIFICATIONS;

General Specifications;

- Inner Material : High Performance UHMWPE UD package, 5mm thick sponge support
- Outer Material : Polyester/Cotton Polyester/ Spandex inside net lining
- Optimal Protection / add-on side protection and biceps panels
- Ballistic protection insert plates available to increase the protection level
- Fully compatible special designed collar and throat protection
- Covers the body softly with light and elastic bands
- Various design and colors
- International test laboratories test results available

Protection:

Tactical body armours can manufactured in all international standards:

- NIJ 0101.04, NIJ 0101.06, NIJ 0101.08, NIJ 0115.00, GOST 50 775, STANAG 2920, MIL 662, Technische Richtlinien, HOSDB

Protection levels can be determined regarding customer requirements.



AVS-1020

COLD CLIMATE UNIFORM- AVS-1020



- 100 % Polyamide (outer fabric), functional membrane laminated (middleware) and inner lining (bottom layer)
- Waterproof 10.000 Mm wc
- Waporproof Max 130*10-3 m2bar/W
- Special welding bands at seam line for waterproof
- Portable quilted mouflon insert
- Waterproof zipper
- Water repellent
- - 40c / +70c protection
- Dry Clean applicable
- High resistance
- High Quality



FOSTER MAJOR PRODUCTS

FOSTER has succeeded in expending products categories to diversification, making it far beyond the traditional textile and apparel industry and maintains high quality to adapt to the international market diversified demand.

FOSTER major product is as follows: Various Military and Police Uniforms, Field Jacket, Multiple Pockets Trousers, Wool Overcoats, Tactical Vest, Raincoats, Sweaters, Shirts, T- shirts, Overall, Ballistic vest, Ballistic helmets, Hard Plates, Goggles, Binoculars. Our factory that can also produce all kinds of special designs presents the special orders according to the demands of the customers by producing in best quality and most appropriate way.



AVCI

AVCI HELMET INTEGRATED CUEING SYSTEM



AVCI Helmet Integrated Cueing System (HICS) is a visor-projected system designed for helicopter platforms to improve the pilot's situational awareness and increase the capabilities of the pilot and aerial vehicle with its night vision, video, symbology, accurate head tracking. The system is composed of a Headgear Unit, Electronic Unit, Cockpit Camera Modules for head tracking and Control Panel.

Video, navigation, weapon and platform symbologies and external video (i.e., IR camera, missile seeker) are projected on Pilot's visor. The symbology of the system can be designed according to the platform and user specifications.



SPECIAL CASES

Production of cases used for storage and carrying of Military weapons, ammunition and material and production of special cases which have ESD property in order to carry and store electronic devices.



CASES



WAR GAME SIMULATION



This application is developed to increase the decision making skills of the key leaders in Border Security units.

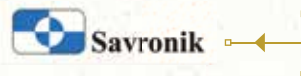
- Deployment,
- Reconnaissance and surveillance,
- Indirect fire,
- Detection, recognition, identification,
- Air defense,
- Mine detection and clearance,
- Logistic support,
- Border security and conventional war tactics.



EARLY WARNING AND COMMUNICATION C2 SYSTEMS GROUND CONTROL STATIONS

The Ground Control Stations are command and control centers with integrated computers, man-machine interface (MMI) units, internal & external connection panels, operator consoles and other equipment.

- ACE-III Shelter
- NATO 6516 Allied Command Europe-Standard Shelter
- Infrared Protection
- RFI Protection
- Standard: MIL-STD -810E
- NBC
- 19" Rack and Consoles
- Power distribution Units



MOBILE UAV



12.7 MM FLEX CHUTE

The ammunition feed system, designed and produced by ANOVA, is a low cost - high quality alternative to other ammunition feed systems that have been imported by the domestic defense companies. The ammunition feed system, used for loading ammunition to 7.62mm - 40mm caliber weapon systems, is a flexible apparatus that can take various forms between the ammunition box and the weapon without compromising the enhanced flow of ammunition to the weapon. The montage of ammunition feed system onto the weapon systems is easy and the extra-durable assembly parts are designed and produced such that no damage will be caused during the entire lifecycle of the ammunition system itself. Low friction force being one of the critical design parameters were validated through tests in which prescribed static and dynamic forces were applied on the product.

AMMO FEEDER



GUN MOUNT SYSTEM



GUN MOUNT SYSTEM

The aim of firing platform; light armored military land and sea vehicles, land or air against the attacks, defense or attack to gain function.

- -20°/+60° Depression and Elevation Capability
- Locking all axes in any position with single handle bar capability
- Azimuth axis is capable of 360° of rotation and locking
- High corrosion resistance
- Maintenance Free Mechanisms
- Vehicle is isolated from outside effects



RAZOR WIRE

Razor Wire is an aggressive security solution due to its razor blades.

Usage areas of Security Panel:

- Military areas,
- Borders,
- Prisons
- Residential areas,
- Energy Plants
- Oil & Gas Pipe Lines,
- Industrial & Commercial Buildings,
- Airports,
- SeaPorts, and any perimeter fence where high security is required.



WIRE



TV/DLP-2 DUAL LASER TARGET POINTER

TV/DLP-2 Dual Laser Target Pointer is designed and produced by Transvaro for using with light and heavy weapons. Laser pointer has one IR and one visible, dual laser beam sources. Both laser beams can be adjusted on X and Y axis independently. Dual Laser Target Pointer uses one standard AA battery. It complies with the night vision binoculars and night vision goggles, having the capability to be used on different weapons. Dual Laser Target Pointer has extra properties like flashing laser mode and safe battery reload protection. In night conditions device has a minimum range of 1000m. Both lasers have a 0.5mrad per turn click for Boresight adjustment sensitivity.



DLP2



MON3



TV/MON-3 MONOCULAR NIGHT VISION GOGGLE

TV/MON-3 Monocular Night Vision Goggle has a perfect vision capability in night darkness. With its lightweight and compact design, it assures the ease of use in hand, mounted to head or helmet.

Beside its continuous or flashing IR mode, it also has an automatic high light protection circuit. Also when mounted to head by band or helmet by an adaptor, if it is turned upside, the device turns off automatically.

It can be used in hand with its 3x and 5x objectives as a surveillance sight. With its twin adaptor, it can be used as binocular either in hand, on head or on helmet with its special adaptor connecting two monoculars together.

With its afocal objectives, it is possible to use the device on weapons or behind the daylight optical sights.



MULTI MINIATURE UNIVERSAL LIGHTWEIGHT THERMAL IMAGER

MULTI's primary mode is a weapon sight to be used on lightweight weapons. It's secondary role is a surveillance sight used with a X3 Afocal Adapter. The MULTI has the capability to be used as head/helmet mounted and also as a "Clip-On" system. MULTI is used in the night darkness, total darkness, daylight conditions or in weather conditions like fog, smoke. Device has low power consumption and additionally to its compact and lightweight design, it has a user friendly menu and user interface which the user can perform zeroing, reticle selection and image capturing. MULTI, has a built in IR laser pointer, video out option, remote control, image capturing, zeroing, screen brightness, BH/WH polarity controls and 2x electronic zoom.

MULTI



RATION PACKS



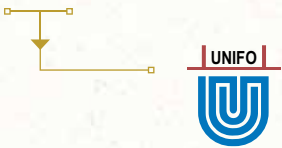
RATION PACKS

Ration pack is an emergency food that can be served without any preparation, without requiring special storage and a refrigerator, which can be kept at room temperature for at least two years. UNIFO have supplied ration packs for different international organizations and armies of several countries for 20 years. In particularly, rations are manufactured for a daily need of a soldier, offering three meals of menu as breakfast, lunch and dinner. In addition to 3 main courses we also offer shelf-stable bread, fruit and snack assortments, instant tea, coffee, energy drinks, energy bars, sugar, salt, cutlery set, napkins, etc.with Flameless Ration Heater (FRH).

As a result of the difficulty and importance of the military services to provide a hot meal, Flameless Ration Heaters, provide comfort and used easily by just adding 100 ml (half a cup) of water. Heating starts quickly without electricity or flame. FRH is easy to carry and environmentally friendly.

ADVANTAGES OF UNIFO RATION PACKS:

- Ease of transportation and storage : Light packs (1.8 kg / pack), Heat and impact resistant flexible packaging is used. Suitable to be dropped from the helicopters.
- Ease of Use : Easy opening thanks to a comfortable opening up the notches.
- Ease of consumption : Can be heated in FRH or consumed cold.
- Meeting the need : Each person is given the same ration to provide energy and calories.
- Product diversification : Optional, according to taste food preference
- Shelf life and quality : Ration packs are sterile, not requiring refrigerators and can be stored two years based on ambient conditions .



TEST PROGRAM SET DEVELOPMENT

GATE Elektronik has got development capability military and avionics systems, Arinc 625 standard digital, analog and RF containing the LRU and/or to SRUs intermediate and Base(Depot) level Test Program Set(TPS). The unit under test(UUT) TPS development stage, is provided if required reverse engineering services, in circuit or functional test methods are used.

Test Program Sets can be developed in commercially available general purpose automated test stations(ATE) as well as customer-oriented design in general or special purpose.

TPS Development Activities are Circuit Analysis,Reverse Engineering,Test Adapter (ITA) Design and Production,Software Development,Documentation and TPS Training.



TPS



CAMOUFLAGE UNIFORMS



ALL NATIONS CAMOUFLAGE DESIGNS

RAFF Army Textile has been exporting uniforms and equipments for military and security forces to all over the world since 1977.

RAFF Army Textile specialized and performant in the manufacturing of 'All Nations Camouflage and ceremony Uniforms'. These camouflage uniforms are made with customized design from the RAFF Army Textile designers, using the best fabric quality in Ripstop/Gabardin types. Mixtures of Cotton/Polyester or 100% Cotton can be made. These Camouflage uniforms are antibacterial and are equipped with Nano Technology.

We have high production capacity and we are able to provide more than 250 different military textile and equipment products like leather military boots, caps, vests, helmets, underwears, belts, gloves, tents and etc.



PROTECTIVE EQUIPMENT

Production of Protective Transparent Shield, Helmet, Helmet with receiver system, Body Protector, Baton, Protective Gloves, Road Trap, Knee & Elbow Protector used at demonstration in order to protect Military and Police Units.



BALISTIC OVERT VEST

Ballistic Material: Made of PE, Aramid, woven or UD fabric panels are packed with water-proof materials.

Outer Fabric: high tenacities of nylon fabrics are using in overt vest, anti-bacterial, fast-drying fabrics are used in covert vest.

Protection Levels: produced according to customer requests in a variety of appropriate level of protection and international standards such as NIJ0101.04, NIJ0101.06, STAN-AG 2920 V50 HOSDB 2003. In addition to ballistic protection, skewer and knife protection can be offered.

Protection Area: It is designed according to customer demands. Also, groin protection, neck protection, additional accessories such as shoulder protection and throat protection are also available.



ARMORING RAILWAY CAR AND LOCOMOTIVE CABINET

As Nurol Technology Inc., in the regions bearing armored and explosive threat, the armorization of luggage railway cars and locomotives which are used to provide access to railways are performed successfully. We offer proper solutions with our armoring applications against armor piercing bullets and mines.

TECHNICAL SPECIFICATIONS

- Generating modular solutions by using hybrid armor systems
- The modules are prepared according to the ergonomics of the railway cars that the hybrid armor geometries will be applied and the opportunity of mounting to form maximum protection level is provided.
- Major security and quick logistics are provided for the transportation of military personnel.
- Ballistic protection at desired level is provided.
- Glasses at DIN EN 1063 BR7 protection level are used.



BASED ON IPA'S SUPERIOR GROUND PENETRATING RADAR(GPR) AND EMI (ELECTROMAGNETIC INDUCTION)



Based on IPA's superior Ground Penetrating Radar(GPR) and EMI (Electromagnetic Induction), the MAYIN AVCISI system provides superior GPR and MD performance for buried object location and subsurface inspection and visualization. MAYIN AVCISI also gives the option of vibration and sound to interact with the operator. With the fully integrated IPA GPR , the detection, location and visualization of metallic and non-metallic buried objects is now possible in variety of tasks and scenarios. By combining two complementary sensors MAYIN AVCISI has become a state of the art product with a user-friendly software in a lightweight , portable and cost effective structure.

- Lightweight , portable dual sensor system for buried object detection
- Optimized performance on changing and uneven terrain
- Rapid proficiency/ease of use which maximizes training
- User can "see" buried objects

Specifications:

- Metallic/Low-Metallic with discrimination
- Visualization of different subsurface
- Ultra Lightweight Dual Sensor (2.8 kg with battery)
- Rechargeable battery
- 8 hour of operation capability
- Test Site proven Dual Sensor
- 2 channel GPR sensor with IPA technology
- Single Frequency, Continuous Wave Metal Detector



Environmental : Designed to meet IP67 and survive a 1m drop

Operating Temperature : -25C to +50C

Fast start up time :

- 60 sec opening time
- 30 sec calibration time

LOGISTIC SUPPORT

TAI provides Integrated Logistics Support and Product Support services for the TAI developed/modernized and Turkish Armed Forces air platforms as well as platforms of allied nations.

Within the scope of Integrated Logistics Support; Logistics Support, Level of Repair, Maintenance Task, Life Cycle Cost, Spare Part Optimization, Qualitative Maintenance, Scheduled Maintenance and Graphical Support Analysis as per military and ASD s3000L requirements and Technical Publication services as per Military, ATA, ASD s1000D and IETM requirements are provided.

Within the scope of Product Support; Warranty Management, Material Management, Ground Support and Test Equipment (Design, Production, Procurement, Calibration), On site or On-call basis Technical Support including Engineering Change, Service Bulletin and Technical Order Publishing, Configuration Management, and Performance Based Logistics Services (Material and System availability based) are provided.



TAC TACTICAL ASSAULT CARRIER (TAC)



Tactical Assault Carrier (TAC) which opens a new era on new generation external carriers, has many features including modified adjustment property on both shoulder and side coating area. TAC is produced with 1000 denye resistant Cordura cloth and is designed for maximum comfort and resistance. TAC is available in Clean, Pocket and Modular Webbing models and is produced in different sizes.

Tactical Assault Carrier - CLEAN

Available Colors : Navy, Black, Tan, Coyote Brown, Tactical Green

Tactical Assault Carrier - POCKET

Permanent Pouches : (1) 6" x 6" Utility, (1) 2" x 6" Flashlight/ Baton, (1) 4" x 6" Dual Magazine (handgun or Rifle), (1) 4" x 6" Radio and (2) 3" x 3" Handcuff

Tactical Assault Carrier - MODULAR WEBBING

Front and Rear modular webbing for attachment of optional tactical pouches.



PERSONNEL PROTECTION VEST AND BALLISTIC ARMOR PLATES

SİPER®, which has been developed by Nurol Technology by combining its advanced design and unique production capability, is manufactured completely within the framework of national opportunities and capabilities. When compared with its equivalents all around the world, it may be seen that SİPER® is the lightest and highest class technological product family which may be found in the market even against the most complex threats. Within a specific program, the new generation materials and solutions developed in the laboratories of Nurol Technology make several armor solutions as reliable, long lasting and light as they have never been before.

TECHNICAL SPECIFICATIONS

- According to the requirements the most proper soft and tough ballistic plate protection solutions
- Meeting all levels of NIJ Standards as desired.
- Presenting ballistic protection vest to the market at a quality at world standards.
- Presenting successful solutions with B4C and SIC plates in which the lightness is at the forefront.
- Capability of manufacturing special and effective personnel protection vest in accordance with the will of TSK and EGM.

SİPER®



BOT BOOTS



Dual density PU/Rubber soling system. Antistatic and oil resistant. Optimised wearer comfort through excellent shock absorption and cushioning properties. Grip and traction provided by the engineered sole structure enables superior mobility and balance over rough terrain and when scaling or traversing obstacles.

Comfort Features : Open cell, reticulated, non-wicking foam used to enable better fitting and reduce any pressure points developing or any hot spots.





MANUFACTURER OF BULLET RESISTANCE GLASS

ARMASSGLASS, is an international BULLET RESISTANCE GLASS manufacturer experienced in 24 years, especially for Defence Industry, supports its customers about their all projects with its machine park and R&D facilities equipped with advanced high technology and manufactures for all over the World by considering ISO 9001 philosophy completely.

ARMASSGLASS (armassarmour), follows up all new technology and integrates this usable technology to its own process. With this continuous improvement mentality, ARMASSGLASS manufactures following variations:

- With or Without Polycarbonate
- Flat or Convex (curved),
- Heated (microwires technology) and un-heated
- With or Without Serigraphy
- Gun-port applications

ARMASSGLASS can supply all its customers for all standards such as EN 1063 (BR2-BR7), STANAG 4569 (LEVEL I-II-III,IV), UL752 ve NIJ . ARMASSGLASS can make all tests inhouse except shot tests. For Shot Tests, ARMASSGLASS works with accredited labrotory in Germany and Holland.

ARMASSGLASS knows "The best raw material, The best quality". That's why, ARMASSGLASS uses BEST QUALITY raw materials.

BULLET RESISTANCE GLASS FOR MILITARY ARMoured VEHICLES WITH GUNPORT HOLE

By applied ISO 9001 Quality Management System, ARMASSGLASS manufactured Bullet Resistance Glass with Gunport for Military Armoured Vehicles due to its customers demands located in International Defence Industry. This product; certificated according to STANAG 4569 International Standards for Bullet Resistance Glass,

- is flat-shaped,
- including serigraphy and marking,
- including Gunport Hole,
- including hard-coated PC,
- including Edge Seal application against to delamination,
- is conform to the extreme ambient conditions, especially,

For this product and all other applications, all quality performance tests applied in ARMASSGLASS test laboratories. For Shoting Test, this certificated in accredited Germany Laboratory according to STANAG 4569 test standards.





SPECIAL GLASSES

Military Helicopters and Planes Glasses as well as Unbreakable Special Glasses in ballistic property.



SPECTRA MSCN: MULTISPECTRAL CAMOUFLAGE NETS: VISUAL, NIGHT VISION (NIR)

Thermal (TIR) and Radar (up to 100 GHz) protection
 All in ONE (FIR,NIR,Radar,Visual)
 Only ONE layer is enough
 ONE bag all inside (Net,Hot spot cover, Repair Kit,Construction materials)
 • Simple to use
 • Cost effective
 • Double face camouflage for
 • multi-protection:
 • desert & woodland
 • desert & artic
 • woodland & artic...
 Not only for a tank,but for all battle tanks,
 armoured vehicles or anything needed to be hidden
 ANY SIZE ANY COLOR



SPECTRA -MSCN:

- One net covers all
- Non- snagging
- Cost effective
- Rapidly deployed
- Ultra light
- High tear strength
- Highly durable
- Adaptable on all vehicles
- Available in a wide range of colors, prints and sizes for all climate conditions

2. Ballistic Fabrics: Ballistic Protective Vests, Ballistic Vest Fabrics , prepregs

Spectra Armour Ballistic Fabrics Applications:

- Vests
- Helmets
- Composite Panels
- Vehicle Armours
- Fragmentation Panels

SPECTRA ARMOUR BALLISTIC PROTECTION SYSTEMS

PROVIDE ENHANCED PERFORMANCE

Öztek Textile weaves it's own ballistic fabrics from the thread level, allowing her to offer competitive prices along with top quality



ARMORED VEHICLE LIGHTING

Tekom Military lighting lamps are produced due to military forced conditions. They are being preferred oftenly because of their robust construction, easy installation and safety working conditions. Military lamps are produced in 2 catagories, led and flamen types. They are used indoor and outdoor succesfully. They also ensure IP68 sealing, MIL-STD-810F Environmental tests and MIL-STD 461E EMI tests due to NATO standarts.



MILITARY TYPE LIMIT SWITCH

Tekom Limit switches are produced in 2 categories , LS1 and LS2. They are used in Military Land,sea and air vehicles in forced conditions. In addition to standart sizes Tekom limit switches can be also specially produced in different measures, actuator types and spring forces according to customer needs

TEKOM limit switch specifications;

- Housing Material Aliminyum alloy
- IEC60529 IP67 (0,2 bar,5 dk)
- Temperature range -55 C ile +125 C
- MIL-STD-202 vibration test (15 g)
- MIL-STD-202 shock test (100 g)
- MIL-STD-202 Insulation Resistance (100 MOhm dk)
- MIL-STD-202 Dielektrik withstanding voltage (1050 VAC)
- MIL-S-8805 Endurance Life cycle (25 000)



TEKOM POWER SUPPLY

TEKOM manufactures DC-DC converters in various power and features. DC-DC converters operate safely in fixed voltage in all application of military vehicles. The body materials of converters are aluminum and ensure shock and vibration tests according to MIL-STD-810F. TEKOM power supplies are produced in different power ranges according to customer needs and ensure EMC/EMI standarts according to MIL-STD-461E and MIL-STD-462E standarts.



CONSULTING



CONSULTING

Consultancy services are provided for the following topics;

- Project Technical Consulting Services
- Project Assurance Services
- Feasibility Services
- R&D and Technology Management Services
- Industry Coordination Services
- IT Services

Within these services, following activities are also carried out:

Feasibility studies, preparation of request for information and request for proposal documents, studies for determining project model, identification of system usage concept, determination of technical needs and properties, supporting proposal evaluation studies, contract preparation (service definition and appendixes, technical section), contract negotiation, determining and reviewing system requirements, reviewing outputs of systems engineering, participating system tests, consulting

maintenance processes, evaluating quality applications, generating opinions about design/development documentation and conducting "General Strategy and Concept Studies" in specific expertise fields that customer needs, evaluating testability of requirements, evaluating applications that intended for verification and validation and participating these activities, analysis and evaluation studies with regards to customer's proposals and requirements based on changes in engineering needs.



AIRWORTHINESS CERTIFICATION CONSULTANCY SERVICES

The main target in aviation is to provide a safe, reliable and continuous development of aviation. Certification department which was established in STM in 2005 provides "Airworthiness Certification" consultancy and engineering services in the following areas:

- Safety function and airworthiness certification infrastructure establishment
- Airworthiness evaluation support
- Airworthiness certification



AIRWORTHINESS CERTIFICATION



LINK 16 INTEROPERABILITY PROJECT - TDL TRAININGS



Modern TDLs are complex systems in terms of procurement, integration, test, management and maintenance. STM provides consultancy, training, and systems engineering support to SSM/TAF for TDL management functions; and offers its knowledge through professional training programs.

For interoperable, proper, cost-effective TDL communications, and shorter adaptation periods, personnel that will use the new TDL system should complete role-specific, professional training programs. With its solid technical knowledge combined with operational understanding, STM provides trainings on Link 1, ATDL, Link 11, Link 16, Link 22, VMF, and JREAP TDL systems, as well as TDL Testing, Multi-Link Planning & Management, and Link 16 Network Design & Management.



VIRTUAL MAINTENANCE TRAINERS

BITES Virtual Maintenance Trainers provide an immersive 3D learning environment for maintenance task force to learn maintenance and troubleshooting procedures. The system includes computer-generated interactive 3D simulations of virtual equipment that replicates the actual real life vehicle or device. It safely teaches the maintenance technicians the procedures to properly service, repair, troubleshoot and maintain the systems and equipment.

BITES also offers a Virtual Training Content Development Tool called BETIM. BETIM allows any Instructional Systems Designer, Subject Matter Expert or 3D Graphics Artist to create 3D task and maintenance training scenarios without any programming knowledge.

Related Product Variants:

- T-129 Turkish Attack Helicopter Virtual Maintenance Trainer - Reference: Turkish Army
- Long Range Anti-Tank Missile Virtual Maintenance Trainer - Reference: Turkish Army



BITES

TMIS



TRAINING MANAGEMENT INFORMATION SYSTEM (TMIS)

TMIS is an management information software that integrates the main features of a Learning Management System (LMS) for the delivery of courses, registration of students, tracking activities and the capabilities to schedule training activities based on the syllabus, personnel and resource availability, instructor qualifications, preferences, and other applicable scheduling rules and constraints.

TMIS is provided with a more intuitive and user friendly interface and intends to automate and manage the Capacity Building Programs in order to provide an efficient flow of training information and nominating trainees with web enabled tools. It is a complete training management solution that allows the Training Organizations to;

- plan and assign courses,
- query user info,
- plan personal calendar,
- manage announcement,
- plan training,
- analyze training performance,
- track the progress of each student,
- keep statistical data,
- archive trainee performance,
- view variety of reports,
- manage administrative affairs,
- record sent-received documents
- customize the courseware to better match an individual's specific learning needs.

Related Product Variants:

- Training Management Information System for Turkish Army Aviation School Command (9000 m² Synthetic Flight Training Center)
- Turkish Navy Aviation School Command (5000 m² Synthetic Flight Training Center)



BITES

NATO TRAINING

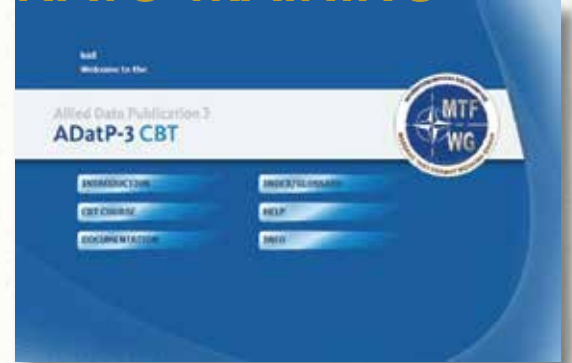
An interactive education system that allows the 3 month long face to face trainings to be given in 15 days as an online education to all of the military personnel of the NATO member countries.

Some statistics on the scope of the project.

- Only Turkish education system running on the servers in Brussels.
- The system is accessed by 28 NATO countries.
- The system can run directly from a CD.



NATO TRAINING



DEFENSE CONSULTANCY AND TRAINING

AKADEMİ SANCAK provides services and consultancy issues in international area as follows;

- Procurement of defense industry products and training aids,
- Procurement consulting,
- Quality Assurance and Quality Control services,
- Analysis and installing of Logistics Support Systems,
- Risk management and analysis,
- Logistics trainings,
- Other trainings (i.e. Close Protection Training, Simulator Based Trainings etc.)
- Defense planning,
- Construction of infrastructure and upper structure.



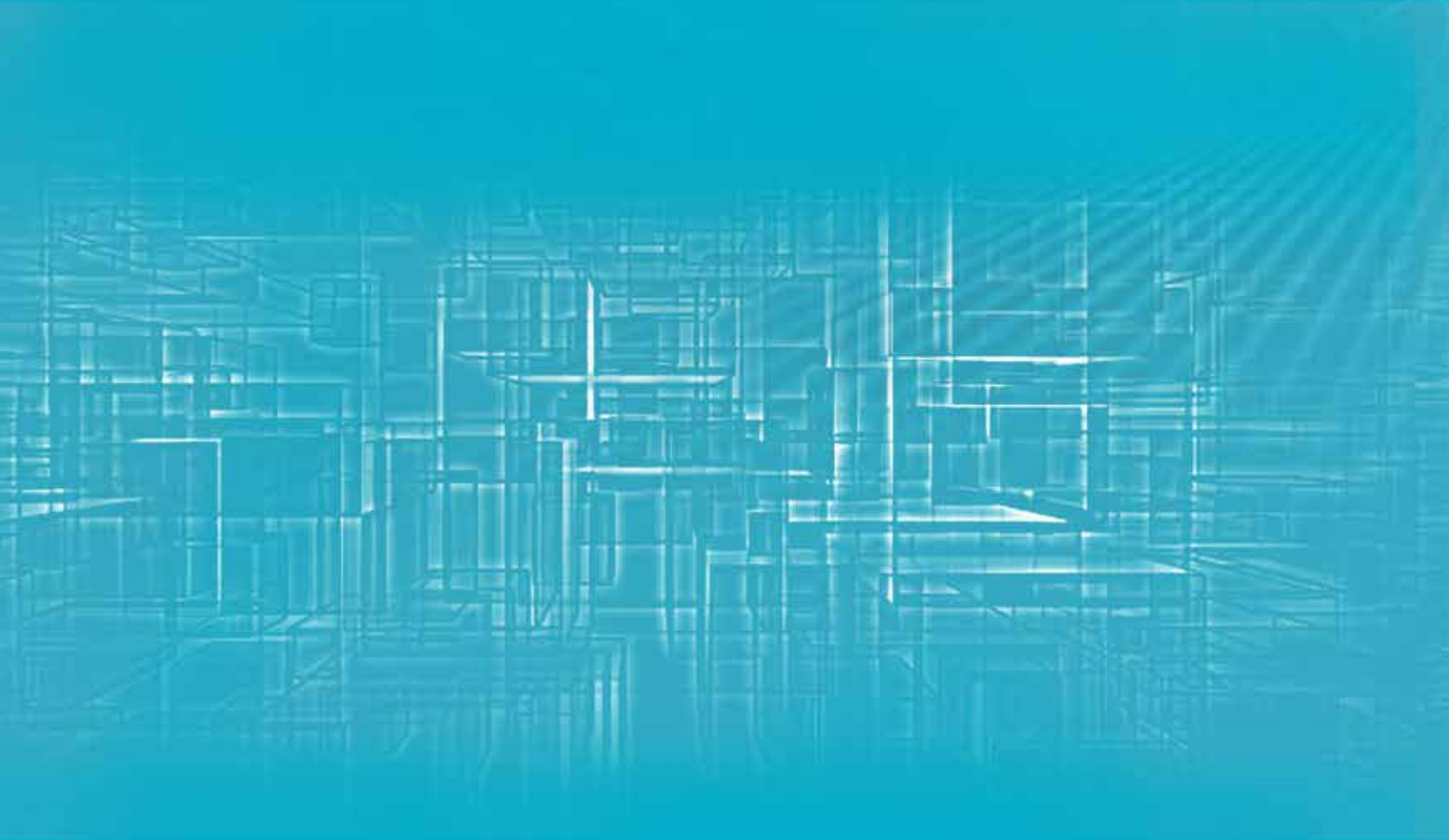
FLIGHT SCHOOL

TAI Flight School, complying DGCA and JAA/EASA Regulations, fulfills the military/paramilitary and civilian helicopter training requirements in Turkey and the region. PPL-H, CPL-H (Integrated & Modular), FI-H, Type Rating and Night Qualification ground and flight trainings are provided by the highly skilled and experienced flight instructors.



FLIGHT SCHOOL







CONTACT INFORMATION





UNDERSECRETARIAT FOR DEFENCE INDUSTRIES INTERNATIONAL COOPERATION DEPARTMENT

The International Cooperation Department (ICD) of the Undersecretariat for Defence Industries (SSM) is primarily responsible for promoting Turkish Defence Industries through cooperation and collaboration with our partners and allies. Our aim is to create a competent and internationally competitive defence industrial base and to be able to expand into emerging markets whilst meeting the requirements of the Armed Forces in our neighbourhood.

Since the establishment of the SSM in 1985, Turkey has focused its attention on improving the capabilities of its defence industry, and as a result of these efforts Turkey now has significant capabilities in fields ranging from UAVs, missiles, armoured vehicles to C4ISR, and has become more and more successful in international arena and export markets. In addition, the SSM has undertaken many indigenous development programmes in such fields as main battle tanks, attack helicopters, new types of submarines and a national corvette (MilGem).

In line with the industrial strategy of the SSM in defence, Turkish defence industry companies have been investing in cutting-edge technologies and R&D so as to create indigenous capabilities in the fields of nanotechnology, MEMS and acoustic sensors, among others. The ICD also fosters joint R&D activities and co-development projects.

Exports are widely considered to be a trigger for defence industrial development, and for this reason the SSM attaches great importance to international cooperation. The ICD prepares a ground for good relations and exchange information and expertise with Turkey's partner nations, and aims to achieve this through several mechanisms, such as through the establishment of bilateral and multilateral links and networking opportunities at governmental and industrial levels, market analysis and procurement trends, through the organisation and coordination of partnering events, official visits, industry days and inward industry visits, workshops, conferences; participating in defence industry exhibitions and fairs; and supporting the local companies. The ICD also promotes Turkish defence capabilities through participation in international defence fairs (LAAD-Brazil, DSA-Malaysia, IDEAS-Pakistan, AUSA-USA and MSPO-Poland). In addition, the ICD establishes relations with key decision-makers in international institutions, organisations and agencies such as NATO, OCCAR and foreign governments to promote multilateral defence cooperation and joint procurement efforts, and the ICD works in close coordination with such government institutions as DEİK, TİM, SSI and SaSaD to this end. Moreover the ICD creates G2G and B2B network opportunities by the channel of international cooperation offices in Washington DC, Riyadh Astana and Brussels and establishes new generation credit mechanism in order to support local companies to achieve global successes. Thanks to great efforts of ICD and all public and private partners, Turkish defence companies have exported a number of different defence systems, including missiles, rocket launchers, radios, tracked and wheeled armoured vehicles, electronic systems, pilot simulators and coastguard boats all over the world.

In 2014, the export of defence and aviation industry reached to 1.65 Billion US\$.

The Turkish defence sector has also become a leading participant in multinational programmes, specifically the A400M and US-led F-35 JSF by having experience in different settings, such as multilateral cooperation activities in NATO and OCCAR, and bilateral cooperation with the US, Europe, Asia, Middle East and Africa. At the same time, many Turkish defence companies have increased their activities within NATO agencies such as NAMSA and NC3A, won contracts.

Turkish defence industrial base offers a considerable capacity for technical cooperation and market access for the first tier defence companies. ICD is determined to foster long-lasting relations with the partner countries, and will continue to its diligent work to enhance stronger bilateral and multilateral relations.



DEFENCE AND AEROSPACE INDUSTRY EXPORTERS' ASSOCIATION (SSI)

SSI, Defence and Aerospace Industry Exporters' Association of Turkey (www.turkishdefenceindustry.gov.tr) (www.ssi.gov.tr) was established in 2011 in order to improve exports of Turkish defence and aerospace industry comprising defence and security systems, land and naval platforms, aerospace, electronics and information systems, weapon systems and ammunition, support systems and logistic services, military clothes and finery equipment, R&D, engineering etc . SSI's main mission is to support the exporters of Turkish Defence and Aerospace Industry both financially and morally.

Being the sole coordinator Exporters' Association in the Turkish defence and aerospace industry and in accordance with Turkish legislation, all exporting companies in the sector must be a member of SSI.

SSI is working under the auspices of Ministry of Economy and in cooperation with Ministry of Defence.

SSI's ACTIVITIES

Coordination & Public Relation :

- SSI acts as a bridge between private sector and the governmental bodies (especially with Ministry of Economy and Ministry of Defence),
- Contributes to the development of the sectoral policies by the government,
- Communicates and cooperates with other national and international organizations.

Buyer Mission Programs :

- Representatives from purchasing countries active in the sector are selected by the Trade Counsellors in the related countries and invited to Turkey.
- Within the mission program SSI organizes bilateral meetings with Turkish exporters.

Trade Mission Programs :

- Trade Mission is a visit to a target market by a group of business delegates, including representatives from Turkish companies and associations and is generally led by government officials from related Ministries,
- With the Trade Mission Organizations private companies develop efforts to increase trade and investment.

Fairs :

- SSI organizes national participation to major fairs around the world.
- Apart from such organizations SSI also participates to the important international fairs both in Turkey and abroad with info-stands and give information about its member companies.

Export Registration:

- SSI registers exports of Turkish defence and aerospace sector. These statistics are recorded on daily, weekly and monthly basis
- The statistics and reports are used in decision-making processes to build up and steer future policies of the sectors

Research & Reporting:

SSI prepares and shares;

- Market research reports,
- Sub-sectoral reports,
- Country and product profiles,
- Reports of international relations,
- Publicly accessible database.

Consulting :

- Provides information about target markets,
- Offers practical advises to members on logistics, banking, customs regulations, payment terms, incoterms, insurance, EU, free trade agreements, free zones etc,
- Informs its members about the trade regulations of Turkey and changes thereof,
- Provides information about trade practices of partner countries and changes thereof,
- Advises practical information on market access into the world markets.

Training :

- Organizes seminars and courses on production, marketing, foreign trade, etc. to its members
- Cooperates with educational bodies like universities for skilled labor power etc.

Other Activities :

- National and international conventions, seminars, symposia, and conferences are announced to the members and participated
- Requests from importers are disseminated to the members and related organizations
- SSI is responsible for the implementation of the general export policy, under the auspices of the Ministry of Economy. So, SSI finalizes some other works with coordination and/or under the auspices of the Ministry of Economy.



DEFENCE INDUSTRY MANUFACTURERS ASSOCIATION

SaSaD, Defence Industry Manufacturers Association was established in 1990, by the support of Ministry of National Defense, Its headquarters is located in ANKARA/TURKEY. By the end of 2012 ; Sasad has reached to 155 total member active in Defence and Aerospace industry as manufacturer or Designer. With the objective of creating an independent and international Turkish Defence Industry, capable of providing solutions in pace with recent worldwide requirements and technological innovations, SaSaD primarily puts the focus on the coordination of local defense industry manufacturers providing a convenient business environment and legal ,economical solution for his member . To improve the level of already existing production and technological capabilities, thus to provide efficiency and independence in nationwide that shall also create an effective basis for international diversification, SaSaD targets to serve in the establishment and development of a ‘Turkish Defense and Aerospace Industry’ that is horizontally integrated in ‘Defense and Aerospace sub-industry and vertically integrated in grand “Turkish Industry”.

The Association fulfills the activities summarized below in order to materialize its objectives

- To provide and maintain solidarity, mutual assistance and cooperation among its members.
- By currently following up the developments taking place technological, social and economic policies, to have the analyses of the latter made and determine their possible effects on the sector and the necessary policies to be followed.
- To carry out academic and socio-cultural activities such as domestic and international scientific researches, symposia, seminars, conferences , all kinds of publications, on-site training, granting scholarship for students studying in this field and the like, and thus fulfill the functions of getting to know, making to know and educating.
- To carry out all kinds of activities to make known the activities of the Turkish Defense and Aerospace Industry. To participate in meetings, fairs, and thus assist in the development of our country’s exports in this sector. To work for supporting the exports. To provide, within the frame of first possibilities, support to its members.
- Whenever necessary, to assist on the sectorial basis; to express an opinion. Upon request, to supply names for the expertise and arbitration services of the members.
- Whenever necessary, to assist its members, in terms of informing and procedures to follow, in establishing companies with foreign partners. To assist with the purpose of especially developing the models most suitable to our country’s conditions in matters of Company Main Protocols, cooperation and license agreements and management organization.



İstanbul Teknoloji Geliştirme
Bölgesi
Sanayi Mah. Teknopark Bulvarı
No: 1
Pendik 34906, İstanbul,
TÜRKİYE

T : +90 216 999 70 00
F : +90 216 999 70 01

TEKNOPARK İSTANBUL

www.teknoparkistanbul.com.tr

Teknopark İstanbul is a science and technology park which is being developed by the Under-secretariat for Defence Industries (SSM) and the İstanbul Chamber of Commerce (ITO) to contribute to Turkey's technology development capacity as well as to create a dynamic innovation environment in the region for local and international entrepreneurs.

When completed, it will be one of the largest and most prestigious science parks in Europe. Teknopark İstanbul will have a closed area of 1.5 milyon m² consisting of 1.000 companies and host 30.000 highly qualified employees. 16.000 m² office space will be allocated to new entrepreneurs. These entrepreneurs will also be supported by an ever-green capital fund. The first 6 blocks of the park comprised of 62.000 m² will be available as of August 2013 and all development works is expected to be completed before 2023.

With its devotion to green and the environment, 1.5 million m² forest is allocated for the use of Teknopark İstanbul tenants.

Main technology fields of Teknopark İstanbul are as follows:

- Aeronautics and Space
- Life Sciences
- Defence Industry
- Energy
- Marine Technology
- Advanced Electronics
- Advanced Materials
- Industrial Software

The park is being designed to be a base for companies that are focusing on Europe, the Middle East, Africa, Turkish-speaking countries and Russia. Fully integrated with the neighbouring Sabiha Gokcen International Airport, Teknopark İstanbul is expected to be the new innovation hub of Turkey. Teknopark İstanbul is not only considered as an innovation and a business hub for Turkish investors, but is intended to be a two-ways-gate for foreign investors as well with its international identity.

With over 10 universities to be represented in Teknopark İstanbul with their particular excellence centers and graduate programs, Teknopark İstanbul will also create an extraordinary synergy between business and academic worlds .

Teknopark İstanbul also provides a set of advantages to its tenants. In that regard revenues derived from R&D activities are exempted from income and corporate taxes until December 31, 2023. Salaries of R&D personnel employed in the zone are also exempted from all taxes in the same time frame. Moreover, software generated exclusively in Teknopark İstanbul are exempted from VAT until December 31, 2023.



ESKİŞEHİR AVIATION CLUSTER

www.eskisehiraviation.org

Eskişehir Aviation Cluster (ESAC) is a natural and legal initiative serving as Eskişehir's primary organization devoted to aviation based economic development of the province.

ESAC's mission is:

To promote aviation capacity in Eskişehir which will attract and help create businesses in innovative, high-growth industries relating to aviation.

ESAC accomplishes this mission by focusing on SME's in aviation industry or which have a capacity to be involved in aviation supply chain. In collaboration with Eskişehir Chamber of Industry, Eskişehir Organized Industrial Zone, Anadolu University and other supplementary units in Eskişehir, ESAC helps to improve Eskişehir's business climate for aviation industry thus ensuring the province's global competitiveness.

CLUSTERS - ESAC



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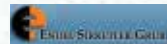
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www.gateelektronik.com.tr



İZMİR ESBAS AEROSPACE CLUSTERING ASSOCIATION

www.hukd.org.tr

Aerospace Clustering Association - ACA was founded in 2009 by the support of ESBAS Industrial Park with the aim of enhancing the development of Turkish aerospace industry, internationalization of its stakeholders, rendering the industry capable of competing in global scope with its high quality, qualified staff and logistics possibilities, increasing the aerospace activities in Aegean Region and providing clustering organizations in Turkey. ACA has 56 members, including private sector companies (29), organized industrial zones, chambers of industry, and universities.

Since the first day, with the foundations/organizations participating to our cluster from İzmir, Ankara and İstanbul, we discuss how we can create common values under common strategies and with the institutions and universities we collaborate on technical projects that will take us forward to compete under same common strategies.

A delegated committee among the ACA Board assures ongoing activities' relevancy with the goals and performance criterions in "ACA 2012-2014 Strategic Plan". One can classify these activities as; development of SME's and their integration to the aerospace and defense industries, international relations, facilitating the integration between the industry and the universities for innovative design and R&D collaboration and new product development, supporting the efforts on educating qualified technical staff and supporting the development of technical-technological infrastructure in Aegean region.

ACA is the only Turkish member of "European Aerospace Cluster Partnership (EACP)", which is an entity managed by Hamburg Aviation and an important network for business and R&D collaboration, out of 38 members from 13 countries. Also ACA has Memorandum of Understandings (MOU) with "Hanse Aerospace e.V.", "Aviabelt e.V." and "BavAiria", significant German clusters.

CLUSTERS - ESBAS

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OSSA - OSTİM DEFENCE & AVIATION CLUSTER

www.ostimsavunma.org

The idea of OSSA Defence and Aviation Cluster has shaped with the competitiveness analysis which was implemented within the OSTİM Organized Industrial Region Ankara. The results of the analysis have pushed these small and medium enterprises in the region to act together and found the defence and aviation cluster which has already formed by their natural affiliations within these sectors. Cluster has been established in 1 July 2008 and involves companies all over Turkey. More importantly, one of the criterias to be a member of the cluster is to gain its revenue from defence and aviation industries by producing goods and services to those industries or being a sub-supplier to key industry companies .

If we are to list our goals in order, we aim to increase the share of domestic production in the fulfillment of the needs of defence and aviation industry and to render the firms in the cluster competitive on international market and also to become preferred sub-suppliers with increased cooperation and developed capabilities & penetrate into international market. Cooperating with the universities and organized industrial region management by technology transfer to SMEs, and focusing on regional competitive advantages on a specialized sector to create competitive advantage against foreign competitors with skill development in sub-suppliers.

With support of and cooperation with the Undersecretariat of Defense Industry, KOSGEB, TTTGV, Ankara Chamber of Industry, TÜBİTAK, SASAD, ODEM, OSTİM, Metutech and THK University, OSSA is conducting its activities more efficient with 155 members from all over Turkey and more than 3900 personnel in order to increase the share of domestic production and support the actions to deepen the Turkish defence industry.

CLUSTERS - OSSA



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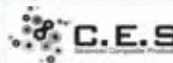
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CLUSTERS - OSSA



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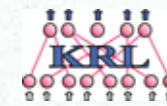
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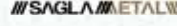
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Founded in 2010, Middle East Technical University (ODTÜ) Teknokent Defence Industry Cluster, TSSK, represents the high technology cluster of defense, aerospace and security industries operating in Ankara, Turkey. TSSK located in ODTÜ Teknokent at the heart of the capital of Turkey and surrounded by the region's most renowned university as well as various research centers many of which focus on defence technologies, hosts many companies that perform intensive R&D activities for defence industry. At present, it consists of 70 member companies operating in ODTÜ Teknokent, but intends to embrace all defence industry companies of the region, that are developing high-tech innovations in the sector. The majority of member companies are privately owned, high-tech SMEs operating in the development of solutions for manned and unmanned vehicles; energetic materials, advanced materials, CBRN technologies, protective vehicle and material technologies; human-machine interface; cryptography, coding and encryption, electronic intelligence systems; modeling and simulation, simulation systems; communication, electronic and information systems; sensors and electronic systems, dataLink technologies as well as the various related engineering services such as testing, calibration, modeling and maintenance. The top-tier contractors of the Turkish defence industry, ASELSAN, HAVELSAN and TAI, also have their R&D departments located in Teknokent and they are the members of the cluster, TSSK, as well. Owing to the abundance of high quality technology developing companies collaborating with top-tier contractors as well as among themselves, ODTÜ Teknokent is a center of attraction and TSSK is a house for national and international defence companies.

TSSK is commissioned to contribute to the development of the cluster members by furthering the cooperation within and outside the cluster, promoting its members' competencies and know how in the international market, facilitating university-industry collaboration as well as through intensive communication and information sharing with national policy makers. The driving force of the cluster is the R&D projects stimulated by the synergy between university, industry and research. Many TSSK companies are currently exporting technology to various countries in the world and envision expanding these export activities even more. TSSK has close relations with the Undersecretariat of Defence (SSM), and is a member of Defence Industry Manufacturers Association (SASAD) as well as the Turkish Defence Alliance.

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