



CIVIL AVIATION TRAINING SOLUTIONS

Simulation, Autonomous and Platform
Management Technologies

 **HAVELSAN**



Over more than 40 years of experience, HAVELSAN creates the Future of Training and Simulation Technologies by developing a wide range of high technology products, uttermost solutions and enhanced capabilities. Training and Simulation Technologies form the core of HAVELSAN and as a global leader in its area of expertise. HAVELSAN develops state of art solutions for Defense Forces, Military Units, and Civil Aviation Authorities.

HAVELSAN brings a new breath to the Aviation Training and Simulation market with unexcelled training solutions for fixed wing and rotary wing aircrafts, air traffic controllers, aerial refueling operations and more. HAVELSAN also provides miscellaneous training solutions to Qatar, Saudi Arabia, Pakistan, Azerbaijan, Georgia, Turkmenistan, Malaysia, Indonesia, South Korea, Singapore, Ecuador, Columbia and more countries in addition to Türkiye.

HAVELSAN constantly supports the sustainment of training equipment, upgrades the existing systems, and provides overall optimization and reliability of training & simulation centers with expert maintenance and services personnel within HAVELSAN Life Cycle Support Services (LCS).

As a leading technology company and innovation center, HAVELSAN always stays up-to-date with the latest technological advancements worldwide through continuous adaptation. Within this context, HAVELSAN creates advanced solutions and systems for all sectors worldwide, utilizing cutting-edge technologies to ensure the highest quality and extensive outcomes.

HAVELSAN's Training & Simulation Technologies portfolio includes;

- Training Centers: Rotary Wing, Fixed Wing Training Centers and Specific-Purpose Training Centers
- Training Systems: Air, Land and Naval Platform Simulators
- Civil Aviation Simulators
- Complementary Solutions and Products for Training
- Live Simulation
- Constructive Simulation
- Training Services
- Integrated Logistics Support





FULL-FLIGHT SIMULATOR (FFS)

HAVELSAN designs, develops and manufactures EASA and FAA Level D Full Flight Simulators with advanced capabilities in order to increase efficiency of training and operations.

General Features:

- FFS are type specific and developed by using aircraft and avionics Original Equipment Manufacturer (OEM) data.
- Full flight deck and cockpit replicas
- Real or replicated Aircraft (A/C) parts
- Simulated or A/C avionics

- Control loading system on all flight controls
- Flight Management System (Rehosted FMS) and full autopilot
- Aircraft subsystems (electronics, hydraulics, pneumatics, etc.)
- User-friendly instructor console software (IOS)
- Aerodynamic flight and ground models based on OEM data pack
- High definition collimated display system
- Advanced image generator including World Wide Data Base (WWDB)
- Worldwide FMS navigation database
- Fully automated Qualification Test Guide (QTG) tool
- Circuit breaker doors
- Fully Electrical 6 Degrees of Freedom (DOF) Motion System





**FFS-LEVEL D
TRAINING PROGRAMS
SUPPORTED**

- TR** Type Rating
- MPL** Multi Pilot Licence
- MCC** Multi-Crew Co-operation
- APS MCC** Airline Pilot Standarts MCC
- JOC** Jet Oriented Course
- IFR** Instrumented Flight Rules
- LOFT** Line Oriented Flight Training
- UPRT** Upset Prevention & Recovery Training



**FFS-LEVEL D
TRAINING
CAPABILITIES**

- Preflight Procedure
- Take-Off & Departure
- Inflight Manoeuvres
- Instrument Procedures
- Approach & Landing
- Normal/Abnormal Procedures
- Emergency Procedures
- Post Flight Procedures



BOEING 737 MAX FULL FLIGHT SIMULATOR



AIRBUS A320 NEO/CEO FULL FLIGHT SIMULATOR



FLIGHT TRAINING DEVICE (FTD)

FTDs are designed, developed and manufactured by the most experienced engineers, area experts and consultants in order to comply with the requirements at all levels.

It is also possible to configure the FTDs in accordance with the specific requirements. HAVELSAN's high fidelity FTDs provide reliable and high quality training at a cost-efficient rate, with constant after sales support and service.

FTDs are A/C model & type specific and developed by using Aircraft and Avionics OEM data.

SUPPORTED TRAINING PROGRAMS

TR	Type Rating
MPL	Multi Pilot Licence
MCC	Multi-Crew Co-operation
APS MCC	Airline Pilot Standarts MCC
JOC	Jet Oriented Course
IFR	Instrumented Flight Rules
LOFT	Line Oriented Flight Training

FTD-LEVEL 1-2/4-5-6 TRAINING CAPABILITIES

- Preflight Procedure
- Take-Off & Departure (Limited)
- Inflight Manoeuvres (Limited)
- Instrument Procedures
- Approach & Landing (Limited)
- Normal/Abnormal Procedures
- Emergency Procedures
- Post Flight Procedures
- Interactive Training Screens (EASA 1, FAA 4-5 only)



EASA LEVEL 1 / FAA LEVEL 4-5 FLIGHT TRAINING DEVICE FEATURES

- Responsive Multi-Touch Cockpit
- Tactile FMS Control Display Units
- Crew Member Seats (Optional)
- Realistic replicas of primary & secondary flight controls [yoke/side sticks, rudder pedals, toe brakes, throttles, gear and flap handle (Optional)]
- Flight management system (rehosted FMS) and full autopilot, flight director and auto throttle
- Aircraft subsystems (electronics, hydraulics, pneumatics, etc.)
- User-friendly instructor console software (IOS)
- Aerodynamic flight and ground model based on OEM data pack
- Flat panel screen display
- Advanced image generator including World Wide Data Base (WWDB)
- Worldwide FMS navigation database
- Fully automated Qualification Test Guide (QTG) tool (Optional)



EASA LEVEL 2 / FAA LEVEL 6 FLIGHT TRAINING DEVICE FEATURES

- Complete flight deck and cockpit replica
- Real or replicated A/C parts
- Simulated or A/C avionics
- Crew Member Seats
- Control loading system on all flight controls
- Flight management system (rehosted FMS) and full autopilot, flight director and auto throttle
- Aircraft subsystems (electronics, hydraulics, pneumatics, etc.)
- User-friendly instructor console software (IOS)
- Aerodynamic flight and ground models based on OEM data pack
- High definition collimated/direct display system
- Advanced image generator with WWDB
- Worldwide FMS navigation database
- Fully automated QTG tool
- Circuit breaker panel wall



PRIME

One-Cockpit Multi-Platform Simulator: Ab-Initio Flight Training

- Custom design generic cockpit
- High-definition display system
- FNPT II certified control loading system
- Aircraft subsystems (electronics, hydraulics, pneumatics, etc.)
- User-friendly instructor console software (IOS)
- Instructor console
- Special QTG tool
- Advanced image generator
- Worldwide navigation database
- Enhanced aero models developed by HAVELSAN



TRAINING CAPABILITIES

- Preflight Procedure
 - Take-Off & Departure
 - Inflight Manouvers
 - Instrument Procedures
 - Approach & Landing
 - Normal/Abnormal Procedures
 - Emergency Procedures
 - Post Flight Procedures
 - All Weather Options
 - All System Malfunctions
 - Up-to-date Map and Visuals
- FNPT II in SEP (Cessna 172SP)
 - FNPT II in MEP (Piper PA-44)
 - FNPT II MCC in Turboprop (Beechcraft C90 GTI)
 - HAVELSAN Enhanced Aero Models
 - PPL/CPL/IR/ME/MCC Training





ARTEMIS

AIR TRAFFIC CONTROL TOWER RADAR TRAINING SIMULATOR

HAVELSAN ARTEMIS is designed and developed to train air traffic controllers from beginner to expert levels for all kinds of situations in accordance with their mission statements. All levels of Approach, En-Route and Tower ATC training scenarios are supported by HAVELSAN ARTEMIS. The ARTEMIS is leveraged by the high fidelity software modules which are the main subsystems of an air traffic control system such as Flight Data Processing System, Radar Data Processing System and Synthetic Traffic Generator.

ARTEMIS includes a tower simulation environment that aims to train controllers

for aircraft ground movement, aerodrome control and emergency situations. Controller candidates learn to manage take-off clearance allowances, landing clearance allowances, taxiing procedures and situations, ground vehicle movements and duties with high level of visual fidelity. The system has dynamic weather events and various environment conditions like fog, rain, snow and day, night, twilight, winter, summer, etc. These dynamic conditions can be used to provide controller candidates to work with different scenarios to be ready for their duties.

Tower Control Simulator	Approach En-Route Radar Control Simulator	Pseudo Pilot Simulator	Exercise Preparation Station	De-briefing Station
3D Visual Display up to 360° horizontal view Dynamic day and night transition Weather modeling Emergency situations Lighting: Runway - Taxiway The Aerodrome Realistic binocular simulation Airport Aircraft - Ground Vehicles Special effects: Explosions Smoke - Fire	Area Control Approach Control Ground Control Precision Approach Control Advanced ground control and routing system (A-SMGCS) Simulation of surveillance data of various types - PSR/SSR/MSSR - MLAT - ADS-B High-resolution screens S-NET	Efficient user interface Control & guidance of various aircrafts Automatic and manual handling of aircraft	Parametric based auto-scenario creation Create and edit navigational aid Create and edit all aspects of the airport Define antenna patterns and radar coverage Scenario preview utility Usage of ARINC based IFR compliant standard procedures (SID, STAR, RNAV)	Exercise Recording Evaluation Replay





One of the greatest technology companies in Türkiye, HAVELSAN develops solutions based on advanced technology with its experience and qualified employees.

In addition to the high technology and software developed in-house, HAVELSAN produces technologies in the defence, security and informatics industries. Putting innovation at the center of its corporate values as an integral part of the culture of development, HAVELSAN has a high-tech product portfolio for the defence, security and informatics sectors. New generation products, projects and systems for modern needs are offered to users all over the world with HAVELSAN quality.

