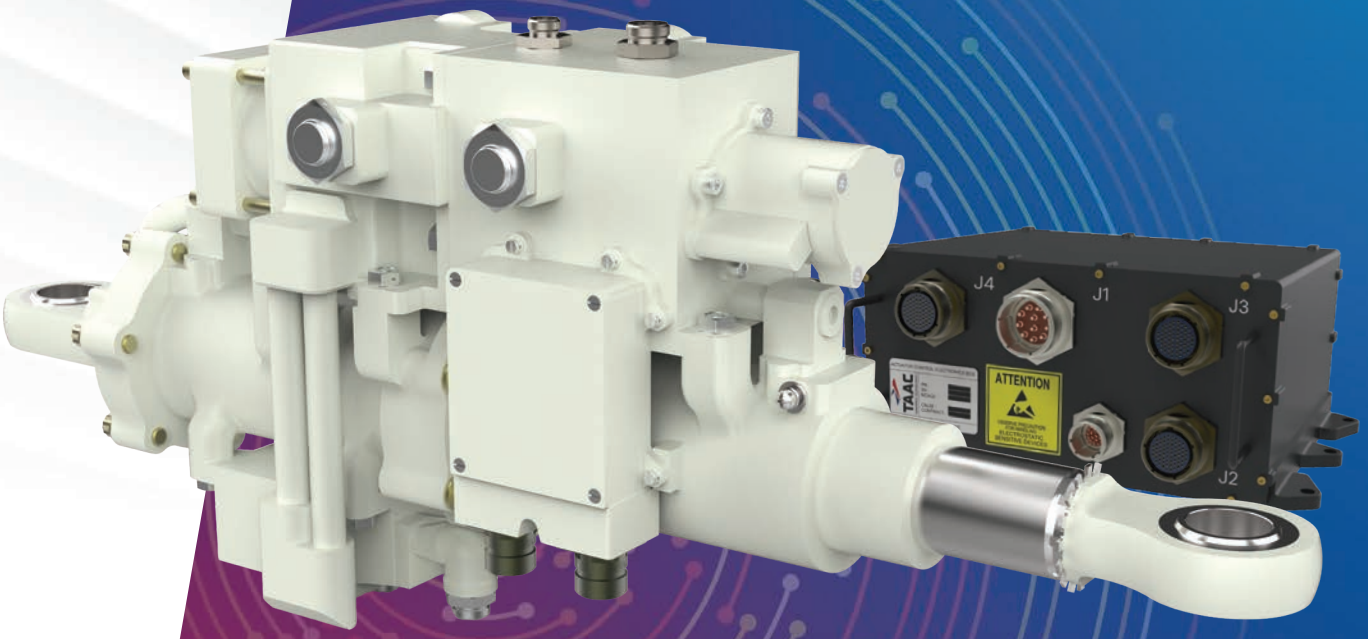
TAAC
AEROSPACE TECHNOLOGIES



FLIGHT CONTROL ACTUATOR

ACTUATION SYSTEMS

FLIGHT CONTROL ACTUATION SYSTEMS

TAAC Aerospace Technologies designs and develops Hydromechanical Flight Control Actuation Systems for advanced aircraft platforms. Each system integrates hydraulic cylinders, valve manifolds, and redundant electronic control units with embedded software. Fully compliant with international aviation standards, our solutions ensure high reliability and precise, safety-critical performance for both primary and secondary flight control applications.

APPLICATION AREAS / USAGE SCENARIOS

TAAC's Hydromechanical Flight Control Actuation Systems are developed for safety-critical functions in modern military and trainer aircraft. Designed for both primary and secondary flight controls, they deliver precise force transmission, fast dynamic response, and built-in redundancy as required by platform architecture.

Key Application Areas Include:

Primary Flight Control Systems

- Elevator Actuators
- Aileron Actuators
- Rudder Actuators

Secondary and High-Lift Systems

- Flap and Slat Actuators
- Trim Actuators
- Spoiler or Speed Brake Actuators

QUALITY & STANDARDS COMPLIANCE

TAAC's Hydromechanical Flight Control Actuation Systems are developed and tested in full compliance with international aerospace standards. Our commitment to airworthiness and system integrity is reflected in adherence to industry-recognized certification and quality frameworks:

- **Development and Certification Standards:**
  - ARP 4754A (System Development Assurance)
  - ARP 4761 (Safety Assessment)
  - ARP 1281 / ARP 1070 (Hydraulic Actuator Qualification)
  - DO-160 (Environmental Testing)
  - MIL-STD-810 (Military Environmental Conditions)
  - DO-178C / DO-254 (Software & Hardware Assurance)
  - MIL-STD-461 (EMI Requirements)
  - MIL-STD-704 (Aircraft Electrical Power)
  - DO-297 (Modular Avionics Integration)

TECHNICAL PROPERTIES

Parameters	Typical / Max Value	Unit
System Pressure	3000 / 4000 (Proof and Burst Pressure AS5440)	psi
Stall Load	200-400	kN
Design Ultimate Load	< 600	kN
Actuator No Load Rate	< 300	mm/s
Stroke Range	60 – 250	mm
Pin To Pin Length	< 500	mm
Power Consumption	250	W
Input Voltage	28	VDC
Overall Dimensions	< 150 × 200 × 600 (Dimension vary with stroke and typical configuration)	mm
Dry Weight	< 75	kg
Electronic Control Unit Dimensions	< 300 x 300 x 200	mm
Electronic Control Unit Weigh	< 5	kg
Operational Temperature	-45 to +125	°C
Control Driver	Direct Drive Motor/Valve, EHSV, Solenoid Valve	
Interface	CAN Bus 2.0 B	-
Communication Protocols	ARINC 825, ARINC 826	-

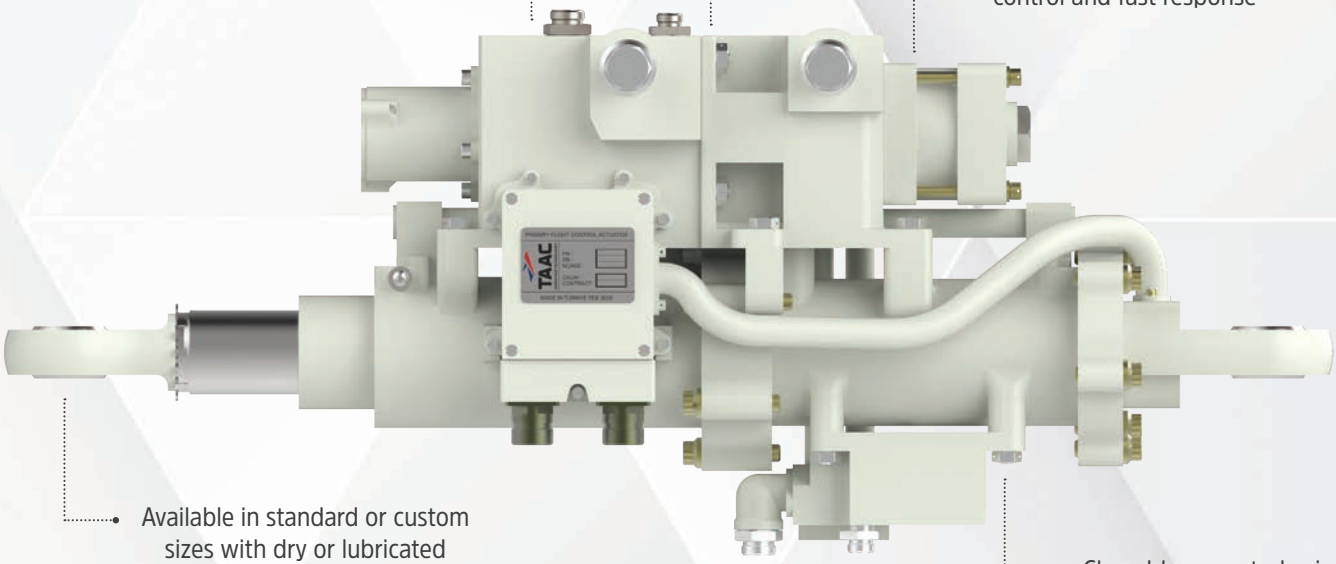
- **Design Assurance Level:**
  - DAL-A, ensuring safety for flight-critical systems
- **Material and Part Conformity:**
  - Standard parts per MS (Military Standards) and NAS (National Aerospace Standards)
  - Raw materials per AMS (Aerospace Material Specifications)
  - Hydraulic compatibility: MIL-H-5606, MIL-PRF-83282, or platform-specific fluids
  - RoHS-compliant avionics hardware

TAAC
AEROSPACE TECHNOLOGIES

Tandem configuration with Ripstop design feature

Compact valve-body design integrated into actuator assembly

Direct Drive Valve (DDV) architecture with force motor actuation for precise fluid flow control and fast response



Available in standard or custom sizes with dry or lubricated bearing options

Closed-loop control using internal LVDT for position control

Standalone control unit architecture for easy platform integration and Line-Replaceable Unit (LRU) maintenance

Real-time Built-In-Test (BIT) capability with fault detection, isolation, and reporting

Hardware design per DO-254, software design per DO-178C Guidelines

Real-time closed-loop control of actuator

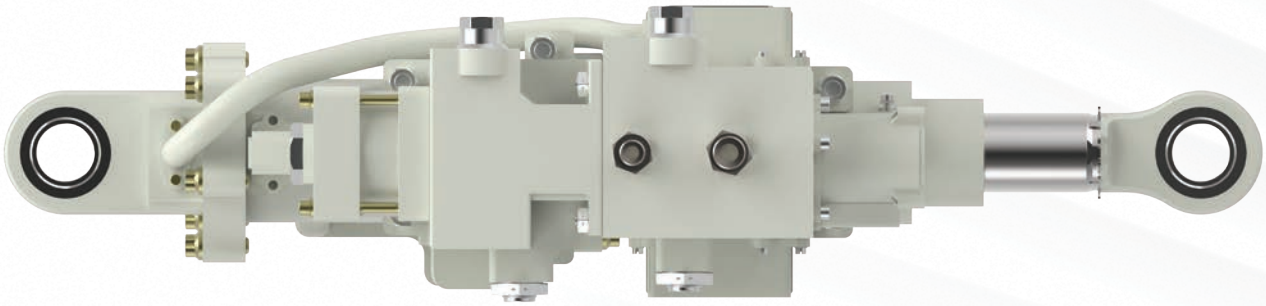
MAINTENANCE & LIFECYCLE SUPPORT

TAAC's Hydromechanical Flight Control Actuation Systems are engineered for reliability, reduced maintenance burden, and long service life. Comprehensive lifecycle support ensures system readiness and airworthiness throughout the product's operational duration.

- **O-Level Maintenance:**
  - Visual inspection every 600 flight hours or 2 years, whichever comes first
- **D-Level Maintenance:**
  - Seal kit replacement, internal cleaning, and wear inspection typically every 5 years or based on fluid contamination indicators
- **Lifecycle Support Commitment:**
  - Technical support available for up to 30 years or 8,000 flight hours
  - Spare parts availability and obsolescence management included within support scope

OPTIONAL CUSTOMIZATION

- **Hydraulic Cylinder Type**
- **Hydraulic Valve Manifold Architecture**
- **Electronic Control Unit (ECU)**
- **Position Feedback Options**
- **Mechanical Interface**
- **Seal and Material Options**
- **Connector & Harness Configurations**



REDUNDANCY CASE

- **Hydraulic Power Loss:**
  - Redundant hydraulic cylinder configurations
- **Electronic Control Unit Redundancy:**
  - Redundant control electronics
- **Fail-Safe Valve Logic:**
  - Integrated hydraulic valve manifolds include fail-safe return-to-neutral or hold-position modes in case of signal or power loss.

TAAC AEROSPACE TECHNOLOGIES

TAAC Aerospace Technologies
Sanayi Mah. Teknopark Bul. No:1/7C
Pendik / İstanbul / Türkiye
www.taac.com.tr
bd@taac.com.tr