

# CARGO HANDLING & AERIAL DELIVERY SYSTEMS



## MILITARY AIRCRAFT POINT-TO-POINT CARGO TRANSPORT, AERIAL DELIVERY AND AIRDROP

Leonardo DRS (DRS) is a worldwide supplier with over four decades of experience providing military Cargo Handling Systems/Aerial Delivery Systems (CHS/ADS) for both fixed and rotary wing aircraft. DRS specializes in onboard systems for restraint of cargo, wheeled vehicles in military transport aircraft, and gravity air drop or parachute extraction of cargo during flight. These systems feature restraint rails, roller trays, tie-down points, electronic or mechanical palletized cargo locks for tactical airdrop or transport restraint, parachute release mechanisms, towplate, mechanical or electronic system control and structural floor panels if required.

Over our history, we have designed and fielded hundreds of military aircraft CHS/ADS working under contract both with aircraft Original Equipment Manufacturers (OEM) and military end users. Our systems are in service around the world and have received airworthiness approvals from military organizations including United States (US) and international aviation authorities, such as the Joint Direct Attack Munition and Excalibur.

Addressing critical military load cases with stringent weight requirements is one of our highly developed specialties. DRS has engineered and qualified more military aircraft variant cargo handling systems than any other company. With our current development and on-going production contracts, the outlook of our CHS product line is exceptional and our presence as a world leader and supplier of military CHS/ADS will continue well into the next decade.



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## AERIAL DELIVERY SYSTEMS TEST & TRAINING

- Ground fit checks
- Cargo loading functional demonstrations
- Aerial Delivery Qualification
  - Containerized Delivery System Drop
  - High Altitude Drop
  - Low Altitude Drop
  - Emergency Procedures - drogue & extraction parachute jettison, airdrop platform re-lock, load management
- Training for Cargo Loading
- Training for Load & Parachute Rigging
- Aerial Delivery Training
- Tailored In-Country Test and/or Training Programs for Pilots, Loadmasters, and Riggers
- Test and Training Programs conducted Internationally (Spain, Chile, Indonesia, many others)

*Test and Training offered at aircraft customer locations worldwide.*

## AERIAL DELIVERY SYSTEMS EXPERIENCE

- Design & Development using major aerial delivery standards and corporate knowledge for design of flight critical airdrop characteristics
  - Air Force Design Handbook DH-1-11
  - MIL-HDBK-1791: Military Handbook Designing For Internal Aerial Delivery In Fixed Wing Aircraft
- Extensive history and capability for developing and producing fixed wing aerial delivery systems
  - High Altitude and Low Altitude Parachute Aerial Delivery Systems
  - Containerized Delivery System
  - Aerodynamic design considerations for parachute extraction
  - Dynamic extraction loads on system components
  - Drogue & Extraction Parachute selection
  - Recovery Parachute selection
  - Shock protection of rigged loads and components
- Developed Low Altitude Parachute Extraction System (LAPES) form of aerial delivery
- Developed Type IV and Type V airdrop platforms
- Developed 60,000 lb. capable Airdrop Controlled Exit System for use on C-17 aircraft

*We are experts in the development of aircraft cargo aerial delivery systems.*

## AERO STRUCTURE CAPABILITY

- Decades of experience engineering lightweight structurally-capable components from composite materials and traditional metals
  - Identification of optimal traditional metal or resin/fiber material selection
  - Experienced in extrusion and casting shape design and usage
  - Ply lay-up schedule definition
  - Identification of material allowable
  - Selection and qualification of proper manufacturing, consolidation, and bonding processes
  - Strength substantiation
    - Numerical and Finite Element Analysis
    - Destructive and Non-destructive Testing
  - Structural and operational qualification
  - Airworthiness certification
- Significant airframe integration experience
- In-house turn-key production capabilities for metal components

*We are experts in aero-mechanical engineering and integrating with the airframe structure.*



DRS developed the AM-53 Internal Cargo Handling System for use on the US Marine Corps' CH-53K Heavy Lift Replacement aircraft. It uses the latest in thermoplastic materials and manufacturing technologies to be the lightest-weight most capable aircraft cargo handling system developed to date.

## Airborne & Intelligence Systems

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