



REGAL REXNORD AEROSPACE SOLUTIONS

AEROSPACE AND DEFENSE PRODUCT AND SOLUTIONS GUIDE

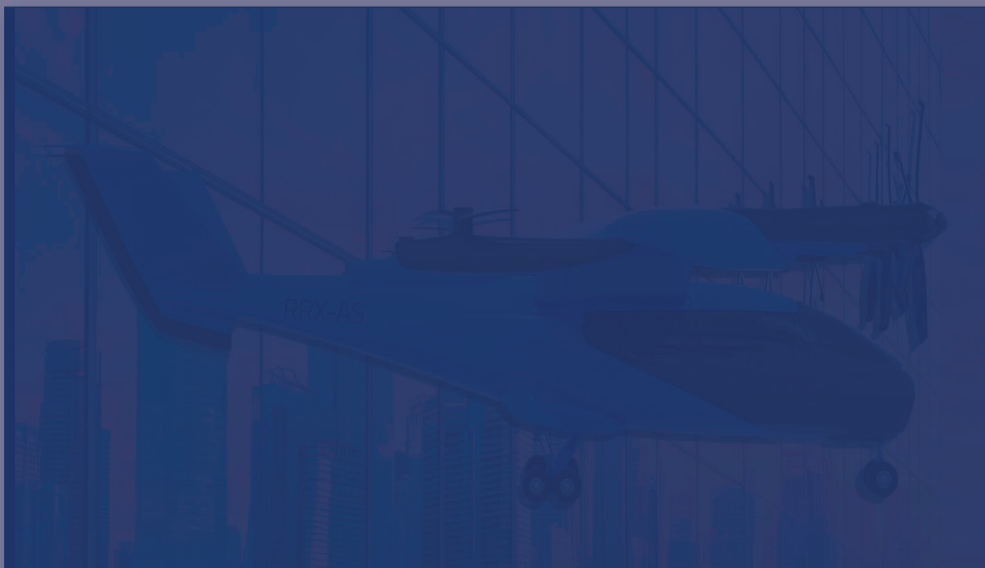


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FLIGHT CRITICAL SOLUTIONS ALL IN ONE PLACE

Regal Rexnord Aerospace Solutions is your trusted partner for all motion control needs in the aerospace industry. Our comprehensive range of high-performance products is designed to meet the demands of nearly every application, from bearings and seals to motors, clutches, brakes, and much more. With a robust portfolio that spans both mechanical and electrical components, we deliver seamless solutions tailored to your unique requirements.

Backed by over 75 years of industry experience, we bring world-class engineering expertise under one roof.

REXNORD™
aerospace

KOLLMORGEN

Portescap

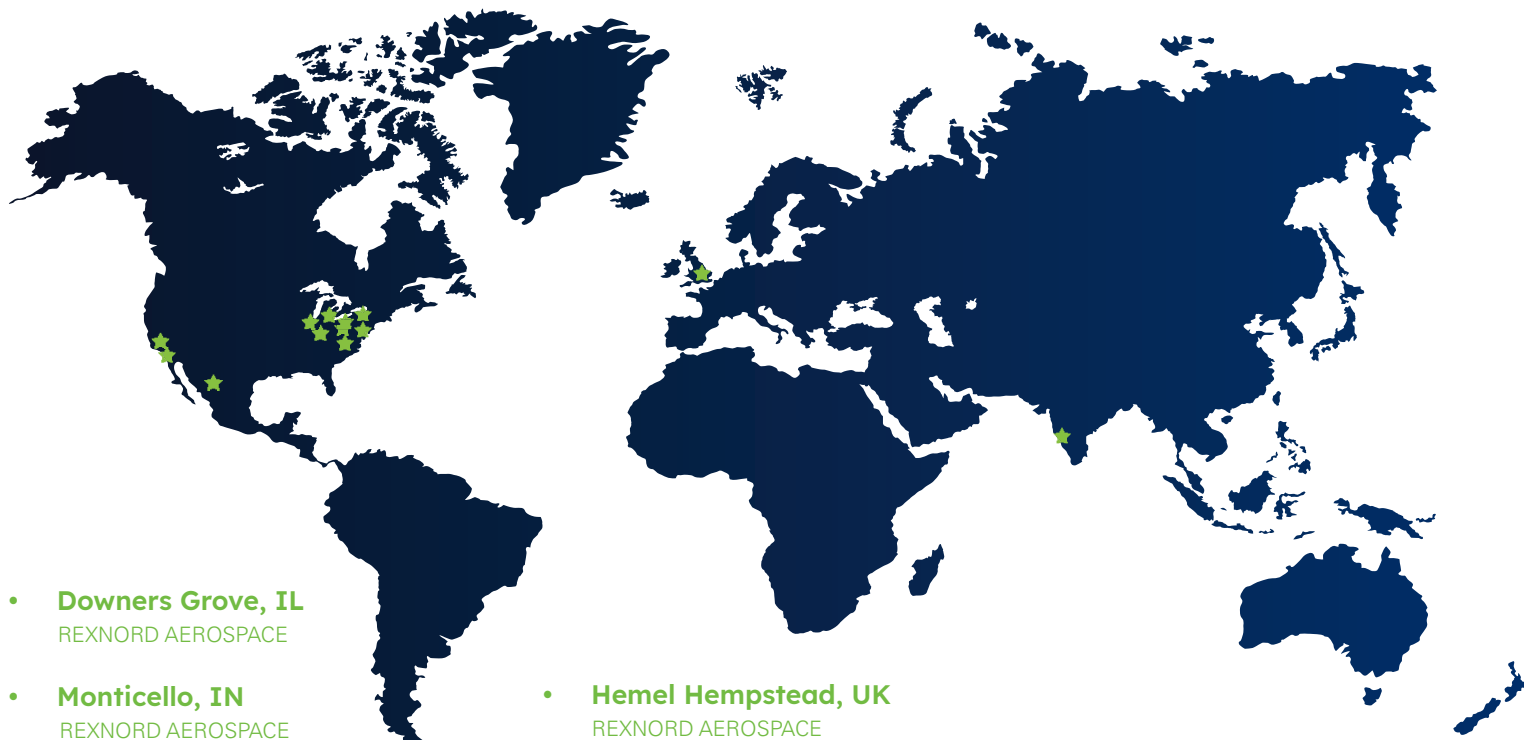
DELEVAN™

NOOK™

THOMSON™

FORMSPRAG CLUTCH™

With 13 AS9100-certified global design and manufacturing sites, we offer some of the broadest in-house electrical and mechanical motion control solutions in the aerospace sector. Whether supporting flight-critical applications or advancing capabilities for land, sea, and space vehicles, Regal Rexnord Aerospace Solutions combines technical expertise, cutting-edge innovation, and a collaborative approach to help you achieve mission success.



- **Downers Grove, IL**
REXNORD AEROSPACE

- **Monticello, IN**
REXNORD AEROSPACE

- **Simi Valley, CA**
REXNORD AEROSPACE

- **Twinsburg, OH**
REXNORD AEROSPACE

- **Cleveland, OH**
NOOK

- **Warren, MI**
FORMSPRAG CLUTCH

- **West Chester, PA**
PORTESCAP - COMING SOON

- **East Aurora, NY**
DELEVAN

- **Radford, VA**
KOLLMORGEN

- **Hemel Hempstead, UK**
REXNORD AEROSPACE

- **Chihuahua, MX**
REXNORD AEROSPACE

- **Mumbai, India**
PORTESCAP

- **Tijuana, MX**
DELEVAN

High-quality dynamic seal designs for optimum leak protection

Face Seals



- Ideal for providing virtually leakage free operations
- Compact design minimizes weight and space requirements
- Versatile design allows for customization
- Repairable design to reduce total cost of ownership
- Wide operating ranges allows standardization of seal types
- Integral design options to reduce part count and weight
- Interchangeable liftoff sealing technology accommodates product upgrades within the same space
- Can be designed to be tamper resistant or repairable
- Typically range in diameter from 0.3" to 9", diameter can exceed range for a specified applications
- Typical operating temperature of -65° to 600°F

Circumferential Seals



- Compact construction and design provides high quality seal performance when space is limited, and minimizes weight and space requirements
- Spring-loaded designs provide a positive sealing barrier during static conditions
- Broad offering of material options are available to meet the demands of specialized operating conditions
- Versatile design allows for a wide range of variations and customization
- Available in single, multiple and fragmented ring options
- Precisely assembled segmented carbon element accommodate axial shaft movement
- High-temperature capacity allows for a wide application range
- Repairable design reduces total cost of ownerships
- Typically range in diameter from 0.5" to 6", diameter can exceed these for a specified application
- Typical operating temperature of -65° to 900°F

Applications

Fixed Wing Aircraft

- Engine
- APU
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems

Rotary Wing Aircraft

- Rotor Controls
- Engine
- Transmission
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems

Radar

- Portable, Stationary

eVTOL

- Environmental Control Systems

Missiles, Guided Ordinances

- Seeker Head



Engineered bearing solutions through technology and design enhancement

Oscillatory Bearings



- Reduced bearing weight
- Wide temperature ranges
- Broad range of material, configuration, fit offerings, finishes, and coatings to increase bearing life and performance
- Increased bearing stiffness
- Extended service life (due to ball/race conformity)
- "On-wing" replacement (with only ball and pin removal)
- Corrosion resistance
- Engineering custom solutions
- Bearing Types: Slotted-Entry, Split-Ball, Split-Race, Mounts, Supports, Linkages, Tie Rods, and Roller Bearings

Full Rotational Bearings



- Specialty Bearing Steels to Increase Bearing Fatigue Life
- Specialty designs to reduce weight, increase heat resistance, and reduce overall size.
- Engineering support for customized bearing solutions for specific applications.
- Specialized bearing coatings for wear resistance.
- Bearing Types: Ball, Cylindrical Roller, Needle Roller, and Spherical Roller

Applications

Fixed Wing Aircraft

- Cockpit Controls
- Primary Flight Control
- High Lift
- Flight Management
- Engine
- APU
- Accessory Gearbox
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems
- Structure
- Cargo Systems
- Nacelle
- Landing Gear

UAVs, Drones

- Propulsion
- Control Surface
- Actuators

Missiles, Guided Ordnances

- Fin Control Actuation Systems

Rotary Wing Aircraft

- Rotor Controls
- Engine
- Transmission
- Gearbox
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems
- Landing Gear

eVTOL

- Tilt Prop
- Control Surface
- Propulsion
- Environmental Control Systems
- Cockpit Controls
- Landing Gear



Experts in manufacturing precision gears, splines, complex shafts, stators, and rotors.

Gears



- Built to print, high precision gears
- Manufacture from prototype to production
- Various Aerospace grade steels and materials available
- Size Range of Pitch Diameter from 3/32" to 36"
- Pitch from 3/6" to 96"
- Types include Spur Gears, Helical Gears, Straight Bevels, Miters, Spiral Bevels, Worm Gears

Shafts & Splines



- Non-standard offerings & modifications
- Built to print
- Manufacture from prototype to production
- Various Aerospace grade steels and materials available
- Shafts typically up to 12" (300mm) diameter
- Shafts typically up to 48" (600mm) long
- Spline shaping 12" (300mm) diameter, 4" face

Stators & Rotors



- Materials used in Rotors and Stators range from Silicon to Cobalt Iron, and in varying thicknesses from 0.5mm to 0.1mm
- Processes include: Heat treatment, build, machining, and testing
- Bores and diameters of Rotors and Stators can be finished machined to customer drawings and supplied direct for winding
- Size range for Stacks is from 250mm diameter and 20Kg down to 10mm and 25g
- Completed Stacks can be assembled

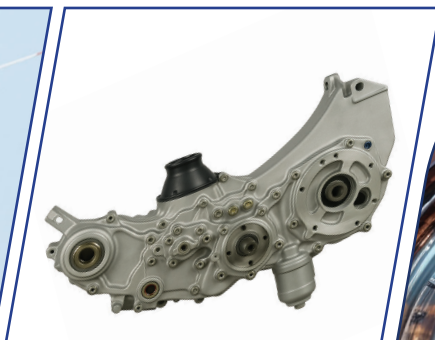
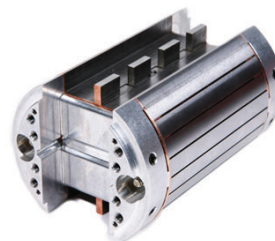
Applications

Fixed Wing Aircraft

- Engine
- APU
- Accessory Gearbox
- Accessories (i.e. Pumps, Generators, Starters)
- Landing Gear

Rotary Wing Aircraft

- Environmental Control Systems



Precision motion solutions for demanding aerospace applications

BLDC Motors



- Frame Sizes from 8mm to 50mm
- Power up to 350 watts
- Size, Weight, and Power Optimized
- COTS and Fully Custom Designs
- Slotted and Slotless Technology Options

Brush DC Motors



- Frame Sizes from 8mm to 35mm
- Power up to 150 watts
- Low Rotor Inertia
- High Efficiency, Power Dense Designs
- Graphite and Precious Metal Brush Options

Flat Motors



- Frame Sizes from 20mm to 90mm
- Power up to 260 watts
- High Torque Density
- Compact, Flat Architecture
- Inner and Outer Rotor Designs Available

Stepper Motors



- High Precision
- Long Lifetime
- Cost Effective
- Can Stack, Disc Magnet, and Linear Stepper Technology Options

Gearheads



- Compact Envelope
- Input Speeds up to 70,000 RPM
- High Torque and Reduction Ratios
- Planetary and Spur Technology Options

Encoders



- Resolution up to 1024 Lines
- Accuracy in Speed and Position Feedback
- Incremental and Absolute Feedback Options
- Magnetic and Optical Technology Options

Applications

Fixed Wing Aircraft

- Cockpit Controls
- Flight Management
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems
- Interiors

Rotary Wing Aircraft

- Cockpit Controls
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems

eVTOL

- Tilt Prop
- Control Surface
- Environmental Control Systems
- Cockpit Controls

UAVs, Drones

- EO/IR
- Control Surface
- Actuators

Missiles, Guided Ordinances

- Fin Control Actuation Systems
- Seeker Head
- Wing Deployment

Space

- SmallSats



Frameless Motors provide torque density and efficiency in the most compact package

KBM Series Frameless Motors



- High performance brushless motor
- Embed directly in your design
- Outside diameter 59.96mm to 850.0mm
- 155°C internal winding temperature continuous
- Cost effective modifications

TBM Series Frameless Motors



- Torquer direct drive brushless motors
- High torque at low speeds at low-voltage
- Directly embed in your system
- Frame sizes from 60 mm to 129 mm OD
- 24/48 VDC standard optimized windings

TBM2G Series Frameless Motors



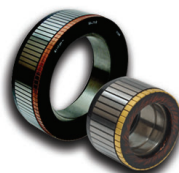
- Next generation brushless motors
- Frame sizes 50 mm to 115mm
- Standard sizing for harmonic gearing
- Optimized for 48 VDC and below
- Designed to not exceed 85°C

RBE Series Frameless Motors



- High-torque, low speed, pancake-style motors
- Ten frame sizes from 21.3mm to 239mm OD
- Speeds up to 35,000 rpm
- Low cogging for smooth low-speed rotation
- Standard and custom windings

Servo Motors



- Low-voltage brush DC direct drive motors
- Deliver high torque at low speed
- Frameless and housed models
- Low electrical time constant
- Co-engineered modifications

DC Torque Motors



- Family of servo motors for flexibility
- Pair Kollmorgen servo motors and drives
- Custom solution with fast delivery times
- Work with the Kollmorgen team to customize

Applications

Rotary Wing Aircraft

- Accessories (i.e. Pumps, Generators, Starters)

eVTOL

- Tilt Prop
- Control Surface

UAVs, Drones

- EO/IR Gimbals
- Control Surface
- Actuators

Radar

- Portable, Stationary

Missiles, Guided Ordnances

- Fin Control Actuation Systems
- Seeker Head
- Wing Deployment

Space

- SmallSats
- Ground Systems
- Space & Launch Vehicles

Remote Weapon Systems



Reliable Clutch and Brake solutions for challenging Aerospace and eVTOL applications

Overrunning Sprag Clutches



- Permit drive during normal operations and auto rotation during emergency situations
- Free-action retainers
- Positive Continuous Engagement (PCE) sprags
- Formchrome® sprags process
- Instantaneous action with no backlash, high torque density from 0,5 to 10,000 lb-ft
- Speed range from 0 to 30,000 rpm

Bi-directional Backstops & Clutches



- Bi-directional, purely mechanical operation
- Minimal backlash
- Smooth, consistent torque transmission
- Positive holding under load
- Custom configurations for virtually any application
- Standard and custom designs
- Speed range from 0 to 3,000 rpm

Electromagnetic Clutches & Brakes



- Energy-efficient electric clutches and brakes
- Torque range from 0,25 to 380,000 C&B
- Endless possibilities for customization

Applications

Fixed Wing Aircraft

- Engine & APU
- Accessory Gearbox & Accessories
- Cargo Systems

Rotary Wing Aircraft

- Rotor Controls
- Engine
- Transmission
- Gearbox
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems
- Landing Gear

eVTOL

- Tilt Prop
- Control Surface
- Propulsion

UAVs, Drones

- Propulsion
- Actuators

Space

- SmallSats
- Space & Launch Vehicles

Remote Weapon Systems



Specialty components designed for high reliability and outstanding performance

Housed Resolvers



- Multiple frame sizes available: 0.8" to 2.5" outer diameter
- High/Extreme shock and vibe, Low/High temperatures
- Analog feedback for motor commutation, position control & velocity feedback

Frameless Resolvers



- Multiple frame sizes available: 1" to 5.5"
- Simplifies mounting mechanics
- High shock and vibe, Low/High temperatures
- Analog feedback for motor commutation, position control & velocity feedback

Magnetics



- RF & Power Inductors
 - Inductance from 0.001 μ H to 150,000 μ H
 - Surface Mount, Thru-Hole & Radial Leaded
- EMI/RFI Suppressors
 - Sheet, Cable & Board Suppressors, & Common Mode Chokes
- Transformers
 - Single and Dual Voltage
 - Horizontal PCB & Vertical Quick Connect

Servo-Coils



- Specialized molding, winding, & assembly
- Diode, cable harness & header assembly value add
- light qualified – APQP/PPAP
- Prototyping available

Precision Balls



- Multiple Sizes Available
 - 1/32" to 3.0" Diameter
- Tolerances/Grades
 - Best Grade 3 Sphericity 0.000003"
 - Tolerance +/- 0.000025"
- Variety of Raw Materials
 - Hard Stainless Steel, Soft Stainless Steel, 52100 Chrome & Ceramic

Custom Solutions



- Custom assemblies and modifications available for Magnetics, Resolvers & Precision Balls
- Engineer-to-Engineer support to help build the right part for your application
- Prototype services available
- Customized test plans available

Applications

Fixed Wing Aircraft

- Cockpit Controls
- Primary Flight Control
- High Lift
- Flight Management
- Engine & APU
- Accessory Gearbox
- Accessories (i.e. Pumps, Generators, Starters)
- Environmental Control Systems
- Cargo Systems
- Landing Gear

Rotary Wing Aircraft

- Cockpit Controls
- Rotor Controls
- Environmental Control Systems

eVTOL

- Tilt Prop
- Control Surface
- Propulsion
- Environmental Control Systems
- Cockpit Controls
- Landing Gear

UAVs, Drones

- Propulsion
- EO/IR
- Control Surface
- Actuators

Radar

- Portable, Stationary

Missiles, Guided Ordnances

- Fin Control Actuation Systems
- Seeker Head
- Thrust Vectoring Control
- Wing Deployment

Space

- SmallSats
- Ground Systems
- Space & Launch Vehicle

Remote Weapon Systems



Precise and robust motion control solutions tailored for aerospace applications

Ball Screws & Lead Screws



- Available in metric or inch sizes
- Options for machining and assembling with nuts, flanges or wipers
- Three types of ball return systems optimize noise, vibration, mounting and cost

Electric Linear Actuators



- Set the standard for control, durability, load capacity and eco-friendliness
- Onboard controls enable enhanced control functions
- Inherently clean and maintenance-free

Linear Guides



- Available in round and square
- Outstanding surface finish, roundness, straightness, case hardness and cylindricity
- Custom options include radial holes, supports, end blocks and assemblies

Applications

Fixed Wing Aircraft

- Flight Management
- Interiors

Rotary Wing Aircraft

- Accessories (i.e. Pumps, Generators, Starters)

UAVs, Drones

- EO/IR
- Actuators

Radar

- Portable, Stationary

Missiles, Guided Ordnances

- Fin Control Actuation Systems
- Thrust Vectoring Control
- Actuators

Space

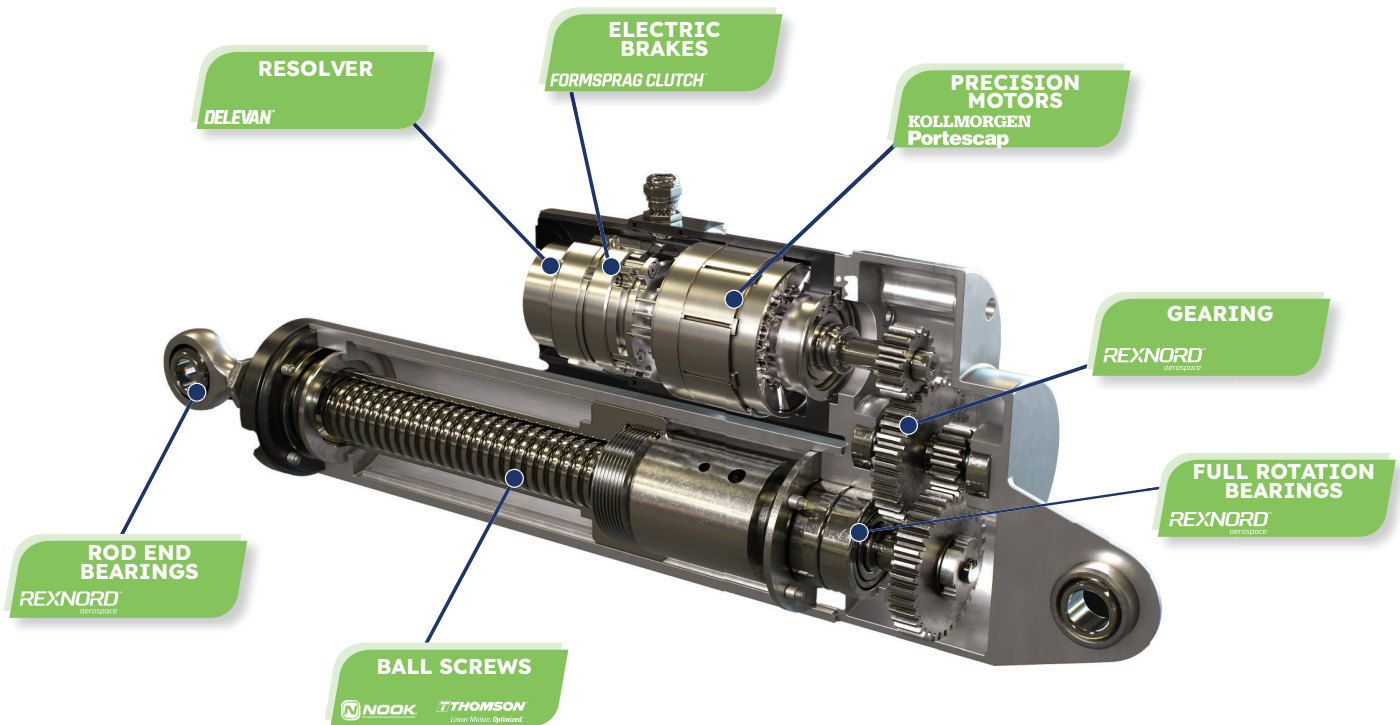
- Ground Systems
- Space & Launch Vehicle

Remote Weapon Systems



**Combining a comprehensive portfolio
of products and advanced application
expertise to deliver vertically
integrated solutions.**

Electromechanical Actuators Linear & Rotary



Mechanical Assemblies



- Control Rods
- Links
- Turnbuckles
- Tie-Rods
- Engine/Gearbox/Oil Tank Mounts

Drive Systems



- Motors
- Electric Brakes
- Gearheads
- Ball Screws
- Encoders
- Resolvers

Applications

Fixed Wing Aircraft

- Cockpit Controls
- Primary Flight Control
- High Lift
- Flight Management
- Engine
- APU
- Environmental Control Systems
- Structure
- Cargo Systems
- Nacelle
- Landing Gear

Rotary Wing Aircraft

- Cockpit Controls
- Engine
- Transmission
- Environmental Control Systems
- Landing Gear

eVTOL

- Tilt Prop
- Control Surface
- Environmental Control Systems
- Cockpit Controls
- Landing Gear

UAVs, Drones

- EO/IR
- Control Surface
- Actuators

Radar

- Portable, Stationary

Missiles, Guided Ordnances

- Fin Control Actuation Systems
- Seeker Head
- Thrust Vectoring Control
- Wing Deployment

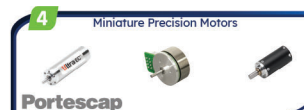
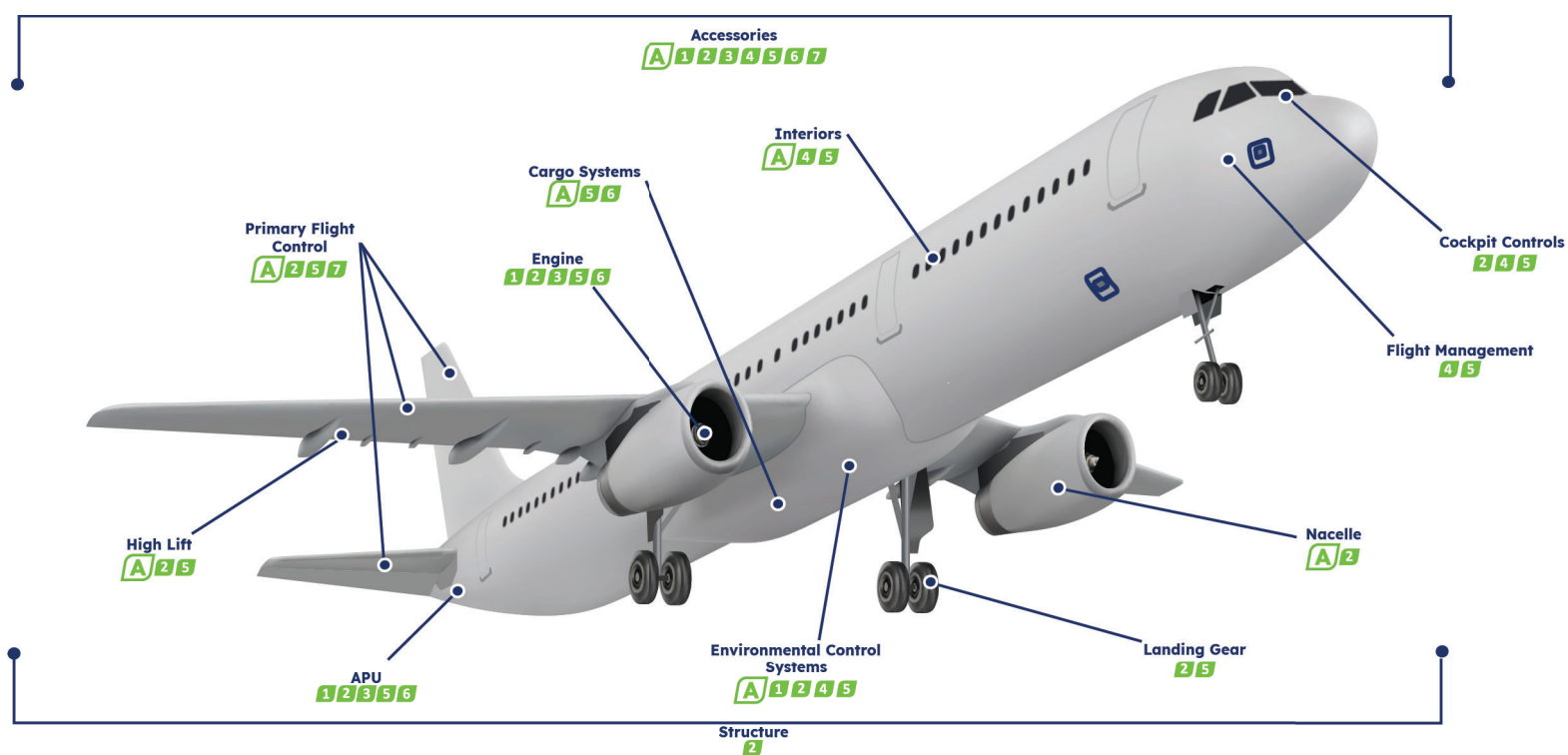
Space

- SmallSats
- Ground Systems
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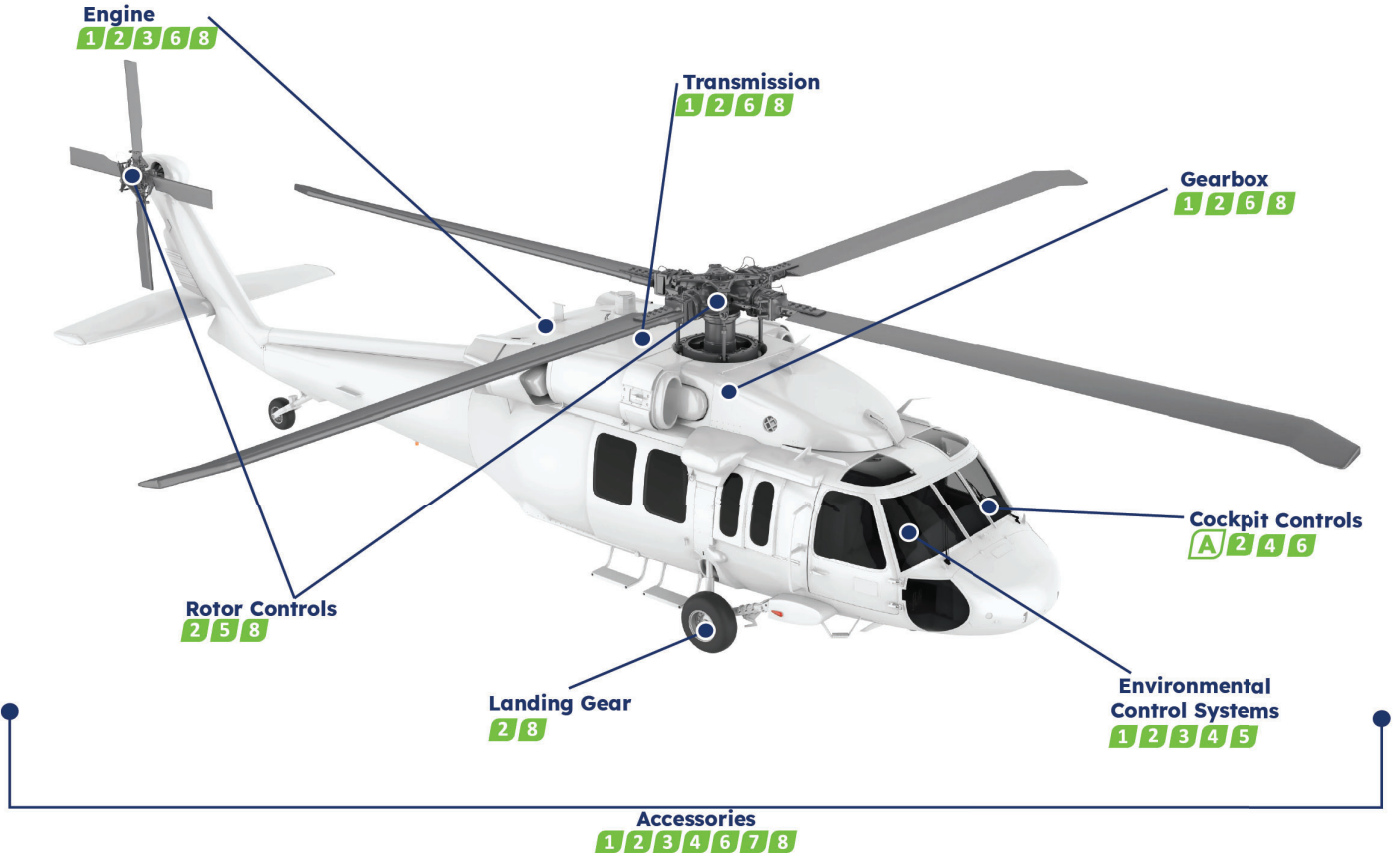
Remote Weapon Systems



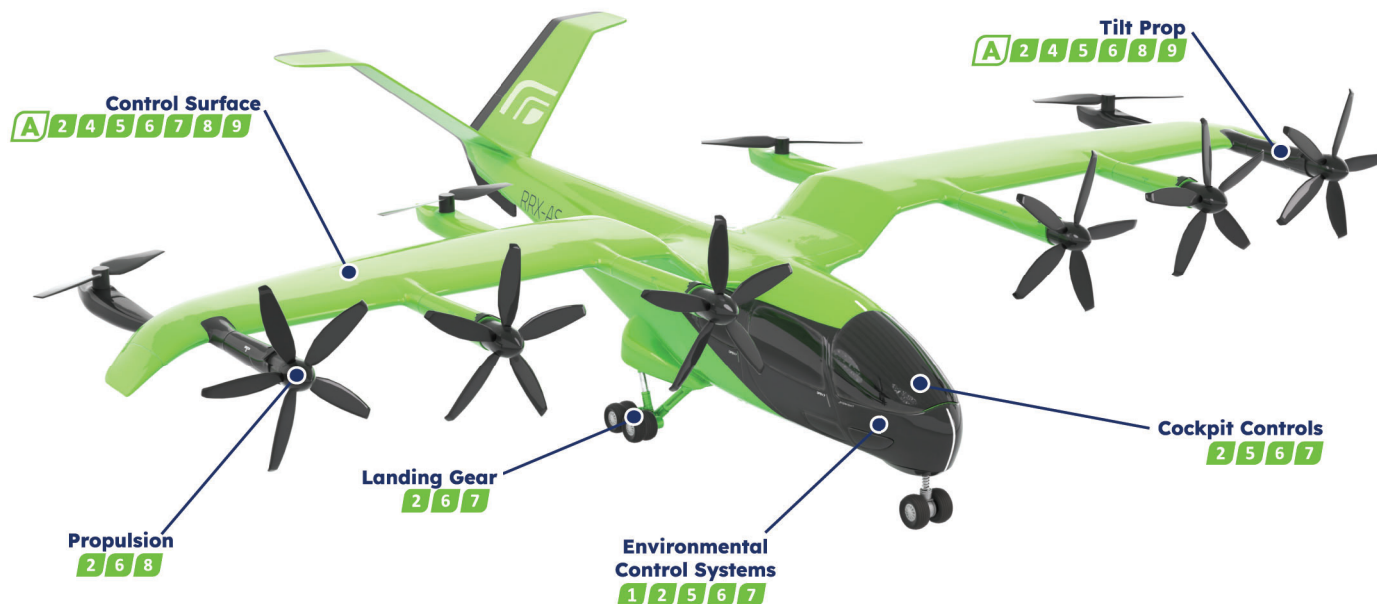
COMMERCIAL AIRCRAFT



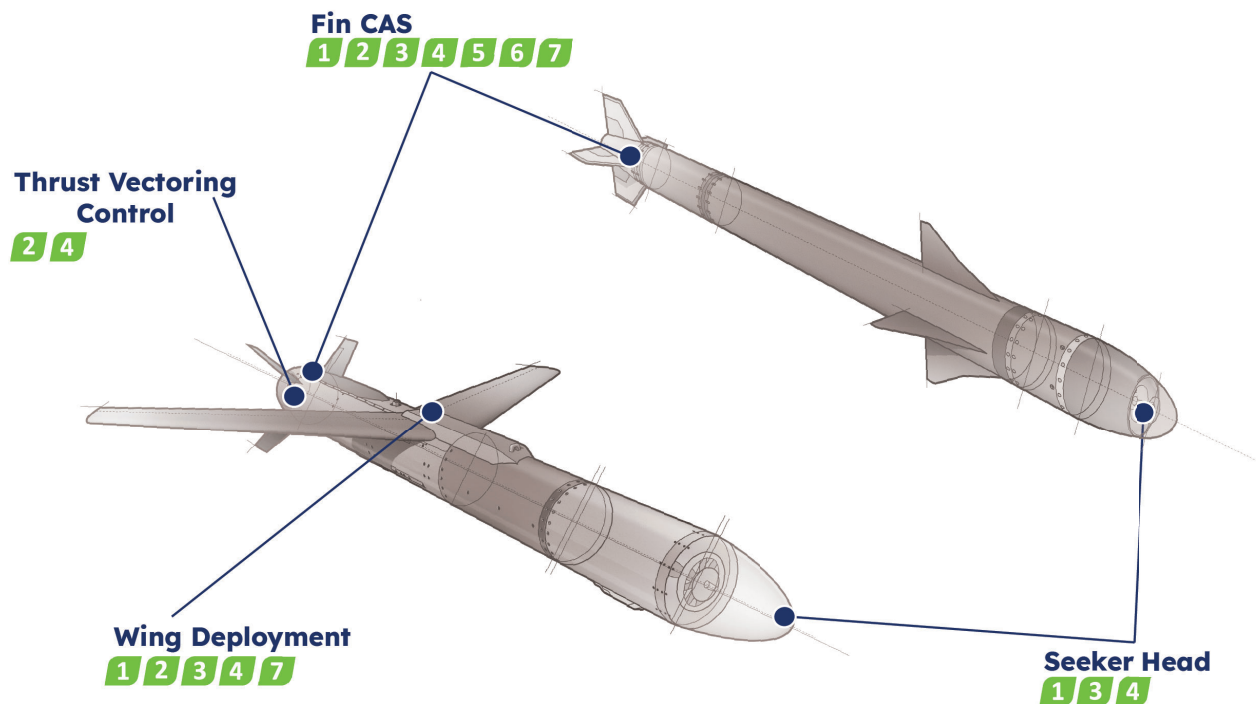
ROTARY WING AIRCRAFT



ADVANCED AIR MOBILITY



WEAPON SYSTEMS



REXNORD
aerospacE

KOLLMORGEN

Portescap

NODK

THOMSON

DELEVAN

FORMSPRAG CLUTCH

Creating a Better Tomorrow.

At Regal Rexnord, we create a better tomorrow with sustainable solutions that power, transmit, and control motion. Focused on customer needs and committed to sustainability, we harness innovation to transform industries and create a brighter future. From high-performance, precision motion control systems that power surgical robots, humanoids, satellites, and unmanned aerial vehicles, to advanced automation systems that optimize motion across factory floors, to precision-engineered power transmission components and innovative air-moving solutions that drive efficiency, our technologies fuel progress.

The impact of Regal Rexnord's innovation capability goes far beyond our expertise and resources in advanced aerospace. For more than 125 years, our portfolio of technology brands has grown intentionally and thoughtfully. We find the best and brightest ideas, bring them together under a single roof, build them to suit each customer's purpose, and create value far beyond their individual potential.

Utilizing our deep knowledge of the unique motion needs of the industries we serve—robotics, aerospace, space, defense, medical, data centers, factory automation, renewable energy, agriculture, construction, and more—we collaborate with our customers and serve as trusted advisors to deliver optimized solutions. Customer-focused innovation drives us, and our global network of design and manufacturing centers enables us to effectively engineer and reliably produce the complex solutions required to drive progress all around the world.

Headquartered in Milwaukee, Wisconsin, and with a worldwide presence of over 200 locations and 30,000 associates dedicated to customer success, Regal Rexnord (NYSE: RRX) empowers global industries to thrive sustainably while **Creating a Better Tomorrow.**

To learn more about Regal Rexnord Aerospace Solutions and our portfolio of proven brands, contact your sales representative or **visit aerospace.regalrexnord.com**