



CDA InterCorp

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CDA INTERCORP SPACE PROGRAMS

<u>CUSTOMER/PROGRAM</u>	<u>APPLICATION</u>	<u>InterCorp P/N</u>
Alliance Space Systems <u>Program</u>		
Spacecraft for the Universal Modification of Orbits (SUMO): Robotic Arm	Geared Brushless Permanent Magnet Motor with Friction Brake for Shoulder Yaw Actuator	ER5-A
	Geared Brushless Permanent Magnet Motor with Friction Brake for Shoulder Pitch Actuator	ER6-A
	Geared Brushless Permanent Magnet Motor with Friction Brake for Elbow Pitch Actuator	ER7-A
	Geared Brushless Permanent Magnet Motor with Friction Brake for Wrist Yaw, Pitch & Roll Actuator	ER8-A
	Geared Brushless Permanent Magnet Motor for Tool Drive	ER9-A
ATK Space Systems <u>Program</u>		
IMAGE: Imager for Magnetopause-to-Aurora Global Exploration	Geared Stepper Motor Brake for Radial Antenna Deployer on Radio Plasma Imager (RPI)	CT2-B
AIM: Aeronomy of Ice in the Mesosphere	Geared Eddy Current Damper for Solar Array Deployment	EM6-A
Orbcomm Generation 2 (OG2) Satellite	Geared Eddy Current Damper for Deployment Pulley	EY3-B
ICON/MIGHTI	Geared Stepper Motor for Shutter Positioning Drive Mechanism	GD2-A

APCO TechnologiesProgram

Solar Orbiter	Geared Stepper Motor for SPICE Cryogenic Door Drive Actuator	GA8-A
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Applied Physics LaboratoryProgram

Messenger Spacecraft: Mercury Dual Imaging System (MDIS)	Geared Stepper Motor for Filter Wheel Drive	DS9-A
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Brushless Resolver for Filter Wheel Position Sensing	DT1-A
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Compact Reconnaissance Imaging Spectrometer for Mars (CRISM)	Geared Stepper Motor for Mirror Fold Drive	DW9-A
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AstriumProgram

Various Satellites Including: Orion, Hotbird, and Skynet	Geared Stepper Motor Brake for Antenna Deployment Trimming Mechanism (ADTM)	BU7-E
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Worldstar Satellite	Geared Stepper Motor Brake for Antenna Deployment Trimming Mechanism (ADTM)	CP1-A
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Eurostar 3000	Geared Stepper Motor Brake for Antenna Deployment Trimming Mechanism (ADTM)	DL1-A
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High Resolution Dynamics Limb Sounder Instrument (HIRDLS)	Geared Stepper Motor Brake for Solar Shield Door Hinge Drive	DA6-A
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AMOS (3)	Geared Eddy Current Damper For Solar Array Deployment	EQ4-A
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Eurostar 3000	Geared Stepper Motor for Antenna Trimming Mechanism	EW1-A
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Ball Aerospace

Program

Hubble Space Telescope: Corrective Optics Space Telescope Axial Replacement (COSTAR)	Geared Stepper Motor for Mirror Tip-Tilt Mechanism	BW3-A
	Geared Stepper Motors for	BW5-A
	Forearm Deployment Mechanism	BW7-A
	Stepper Motor Brake for Deployment Drive Mechanism	BX5-A
Thermal Imaging Radiometer (TIR)	Geared Stepper Motor for Rotation of Fast Steering Mirror	CA4-B
Cosmic Origins Spectograph (COS)	Geared Stepper Motor with Integral Resolver Feedback for Filter Wheel Drive	DH4-A
	Geared Stepper Motor with Detent Brake and Ball Screw for Aperture Positioning	DP1-A
	Geared Stepper Motor for OSM1 Linear Stage Actuator Drive	DR8-A
Hubble Space Telescope: Near Infrared Camera and Multi- Object Spectrometer (NICMOS)	Geared Stepper Motors for Filter Wheel Drive	CD4-A
	Geared Stepper Motor for Field Offset Mechanism	CE9-A
	Geared Stepper Motor for Pupil Adjustment Mechanism	BW3-C *
Hubble Space Telescope: Space Telescope Imaging Spectrograph (STIS)	Brushless Permanent Magnet Motor with Resolver Feedback for CCD Shutter Drive	CD1-A *
	Geared Stepper Motors for Mode Select Mechanisms	CA8-A CA9-A CC6-A

Geared Tandem Brushless Resolvers for Mode Select Mechanism	CF1-A CF2-A CF3-A
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Geared Stepper Motor for Pupil Adjustment Mechanism	BW3-B
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Geared Stepper Motor Brakes for Inner and Outer Calibration Input Mechanisms	CG6-A CG7-A
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Geared Stepper Motors for Echelle Blocker and Mode Isolation Shutter	CD5-A **
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Geared Stepper Motor for Secondary Shutter Latch Mechanism	CN5-B
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Rotary Switch for Primary Shutter Latch Mechanism	CN6-A
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* Also used on Wide Field Camera 3 (WCF3)

** Also used on Advanced Camera for Surveys (ACS)

Hubble Space Telescope: Advanced Camera for Surveys (ACS)	Geared Stepper Motor with Integral Resolver feedback for Filter Wheel Drive	CJ6-B
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Geared Stepper Motor with Integral RVDT for Inner Wobbler Drive	CJ7-A
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Geared Stepper Motor with Integral Resolver feedback for Outer Wobbler Drive	CJ8-A
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Geared Stepper Motor Brakes for Inner and Outer Cal-Door/Cronograph Mechanism	CR5-A CR6-A
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Hubble Space Telescope: Wide Field Camera 3 (WCF3)	Geared Stepper Motor with Integral Resolver Feedback for Filter Wheel Drive	DM6-A
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	Geared Stepper Motor with Integral RVDT for Inner Wobbler Drive	DM7-A
	Geared Stepper Motor with Integral Resolver Feedback for Outer Wobbler Drive	DM8-A
Stratospheric Aerosol and Gas Experiment (SAGE III)	Geared Stepper Motor for Solar Attenuator Optic Positioner	CL9-A
Spitzer Space Telescope (formerly SIRTf-CTA)	Geared Stepper Motor for Photon Shutter Mechanism Drive	DB7-A
Scripps-NISTAR Instrument	Geared Stepper Motor for Focus Mechanism Assembly Drive	DD5-A
	Geared Stepper Motor for Shutter and Filter Wheel Drive	DG4-A
Prospector (Classified)	Geared Stepper Motor for Valve 1 Drive	CT4-A
	Geared Stepper Motor for Y-Axis Structure Drive	CT5-A
	Geared Stepper Motor for Lock 1 Drive	CT7-A
	Geared Stepper Motor for Valve 2 Drive	CT8-A
	Geared Brushless Permanent Magnet Motor for IMRT Drive	CT9-A
	Geared Stepper Motor for Structure 2 Drive	CU1-A
	Geared Stepper Motor for Structure Drive	CU2-A
	Geared Stepper Motor for Mechanism Drive	CU3-A
	Geared Stepper Motor Brake for Linear Rack Drive	CU4-A
	Geared Stepper Motor for Lock 2 Drive	CU9-A

Geared Stepper Motor for VRM Drive	CV1-A
Geared Stepper Motor for PRM Drive	CV2-A
Brushless Permanent Magnet Motor for IMAT Pump Drive	CV6-A
Geared AC Motor Brake for Clamp Actuator	CV9-A
Geared Stepper Motor for Z-MTN Structure Drive	CW2-A
Geared Stepper Motor for Mechanism Drive	CW4-A
Geared Stepper Motor for Axis Z Drive	DB9-A
Geared Stepper Motor Brake for Axis 4 Drive	DC4-A
Geared Stepper Motor with Ball Screw for Axis 3 Drive	DC5-A
Geared Stepper Motor Brake for Deployment Drive	DC6-A
Geared Stepper Motor for Rotational Drive	DC7-A
Geared Stepper Motor for Axis 1 Drive	DC8-A
Geared Stepper Motor for Structure Z-MTN Drive	DC9-A
Stepper Motor for BAT Agitation Drive	DD3-A
Geared Stepper Motor with Ball Screw for BAT Clamp Drive	DD4-A
Geared Stepper Motor for PRM Drive	DF9-A

	Geared Stepper motor w/Friction Brake for Z-Rotation Drive	DP6-A
	Geared Stepper Motor for RDA Drive	DW2-A
	Geared Stepper Motor for Universal Drive	DW8-A
	Geared Stepper Motor for RDA Drive	DY1-A
	Brushless Permanent Magnet Motor for BAT3 Agitation Drive	DY7-A
	Geared Stepper Motor for Classified Usage	EA5-A
Quickbird 1	Geared Stepper Motor for Focus Mechanism	DJ8-A
Ozone Mapping Profiler Suite (OMPS)	Geared Stepper Motor with Integral Resolver Feedback for Nadir Calibration Door Mechanism Drive	DR2-A
Deep Impact Spacecraft	Geared Stepper Motor for Shutter Mechanism Assembly Drive on HRI, MRI, and ITS Instruments	DR3-A
	Geared Stepper Motor for Nine Position Filter Wheel Assembly Drive on HRI and MRI Instruments	DR4-A
Hi Resolution Imaging Science Instrument (HiRISE)	Geared Stepper Motor with Detent Brake and Ball Screw for Fold Mirror #2 Drive	DV8-A
OPAL (Classified)	Geared Stepper Motor for FM Drive	DV5-A
	Geared Stepper Motor for Cryo-FM Drive	DV6-A
	Geared Stepper Motor for Source Select Drive	DW1-A
	Geared Eddy Current Damper	DX3-A

	Geared Eddy Current Damper	DX4-A
NPOESS Preparatory Project (NPP)	Geared Eddy Current Damper for Main Solar Array Deployment Hinge	DZ3-A
	Geared Eddy Current Damper for Interpanel Solar Array Deployment Hinge	DZ4-A
James Webb Space Telescope (JWST)	Geared Brushless Permanent Magnet Motor for Control of Primary Mirror Segments and Secondary Mirror	EB2-A
	Geared Stepper Motor w/Ball Screw for GSE	EW5-A
	Geared Stepper Motor with Detent Brake for Latching Mechanism Drive Actuator	FA4-A
	Geared Stepper Motor with Detent Brake for Deployment Tower Assembly Drive	FA5-A
Commercial Laser Communications Terminal (CLCT)	Geared Stepper Motor for Flipper Assembly Drive	EB5-A
	Geared Stepper Motor for Switch Assembly Drive	EB6-A
Kepler	Geared Eddy Current Damper for Phototomer Deployment	EC7-A
Worldview 60	Geared Eddy Current Damper for Main Deployment Hinge	EC9-A
	Geared Stepper Motor with Ball Screw for Focus Actuator	ED2-A
Worldview 110	Geared Eddy Current Damper for Hi Gain Antenna Deployment Boom	EG1-A

Space Based Space Surveillance (SBSS)	Geared Stepper Motor for Focus Actuator	EL2-A
	Geared Stepper Motor with Rotary Accelerometer for Filter Wheel Drive	EL3-A
	Geared Eddy Current Damper for Aperture Door Mechanism	EN8-B
	Geared Stepper Motor with Detent Brake for GSE Door Actuator	EN9-A
	Geared Eddy Current Damper for Solar Array Main Deployment Hinge	EP4-A
OLI: Operational Land Imager	Geared Stepper Motor with Detent Brake and Ball Screw for Focus Mechanism	EW7-A
	Geared Stepper Motor with Feedback Gearbox for Calibration Actuator	EZ1-A
	Geared Stepper Motor with Detent Brake and Ball Screw for Focus Mechanism	FD3-A
Rofi-STA	Frameless RVT for Shutter Position Sensing	FD8-A
JPSS	Geared Eddy Current Damper for Inter Panel Hinge	FLC1-A
	Geared Eddy Current Damper for Main Panel Hinge	FLC2-A
Omega	Geared Stepper for Cover Drive Actuator	FN9-A
	Geared Stepper Motor with Detent Brake for Focus Drive Actuator	FP1-A
Aquila	Frameless RVT for Shutter Position Sensing	FX4-A

Com DevProgram

NGST Demonstrator	Brushless Resolver for Cryogenic System Position Feedback	CA6-B
Stratospheric Wind Interferometer for Transport Studies (SWIFT)	RVDT for PMA Focus Mirror Sensor	ED8-A
	RVDT for Cryogenic PMA Focus Mirror Sensor	ED9-A
James Web Space Telescope (JWST): Find Guidance Sensor	Geared Stepper Motor with the Detent Brake Integral Position Feedback and Ball Screw for Cryogenic Fine Focus Mechanism	ES4-A
	Geared Stepper Motor with Detent Brake, Integral Position Feedback and Ball Screw for Cryogenic Course Focus Mechanism	ES5-A
	Brushless Resolver for Cryogenic Pupil Wheel Sensor	ES6-A
	Brushless Resolver for Cryogenic Filter Wheel Sensor	ES7-A
	Geared Stepper Motor for Cryogenic Dual Filter Wheel Actuator	FW9-A
	Geared Stepper Motor for Cryogenic Pupil Wheel Actuator	FX1-A

CSA EngineeringProgram

Boom Isolation System on Classified Program	Geared Stepper Motor with Acme Screw for Tuned Mass Damper	CM1-A
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Comision de Nacionales de Actividades Espaciales (CONAE)

Program

SAOCOM	Geared Brushless Permanent Magnet Motor with Rotary Accelerometer for SAR Antenna Panel Deployment	EH1-A
Aquarius/SAC-D	Geared Eddy Current Damper for Solar Array Deployment	EQ7-A
SAC-D	Geared Stepper Motor for Mirror Actuation	EV1-A

Deployable Space Systems

Program

Commercial Satellite	Geared Eddy Current Damper for Array Deployment	GG8-A
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DLR: Institute of Planetary Exploration

Program

Rosetta Lander	Geared Stepper Motor for Descent/Downlooking Camera Drive	DA1-A
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Goodrich Optical & Space Systems

Program

Hubble Space Telescope: Fine Guidance Sensor (FGS)	Stepper Motor for Fold Mirror Adjustment for S-Curve Restoration	CG5-A
Multi-Thermal Imager	Stepper Motor Brake for Calibration Wheel and Door Mechanisms	CL6-A

Honeybee Robotics

Program

Mars Science Lander (MSL)	Geared Brushless Permanent Magnet Motor with Detent Brake for Elevator Actuator	EM2-A
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	Geared Brushless Permanent Magnet Motor for Carousel Actuator	EM4-A
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Honeywell
Program

International Space Station	Geared Stepper Motor with Lead	CC2-A
	Screw for Cryocooler Flow Control Valve Actuation	CC5-A

Howden Fluid Systems
Program

Relatively Mission Space Vehicle and Gravity Probe B	Geared Stepper Motor with Acme Screw for Thruster Isolation Valve	CJ5-A
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ISRO Satellite Centre
Program

ASTROSAT	Geared Stepper Motor for Mechanism Positioning	GL8-A
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ITT-Exelis-Harris
Program

Next View Space Telescope (NVST)	Stepper Motor for Focus Actuator	ED6-A
Next View Orbimage	Stepper Motor for Focus Actuator	EF4-A
Orbview 5	Geared Stepper Motor for Outer Barrel Assembly Door Actuator	EG3-A
Classified	Stepper Motor	EU3-A
GOES-R: Advanced Baseline Imager	Geared Stepper Motor for Solar Calibration Door Actuator	EU7-A
Classified	Geared Stepper Motor for FLIPA Actuator	EX7-A
GeoEye 2	Stepper Motor	FC8-A

GOES: Advanced Baseline Imager/Advanced Himawari Imager	Geared Stepper Motor for Solar Calibration Door Actuator	FD7-A
Next View Orbimage	Stepper Motor for Focus Actuator	FJ9-A
Worldview 3	Geared Stepper Motor for Shutter Actuator	FL6-A
	Geared Stepper Motor for Launch Lock Actuator	FL7-A
E454	Geared Stepper Motor for FSM Launch Lock Actuator	FM7-A
E325	Geared Stepper Motor for Filter Wheel Actuator	FP2-A**
**Also used on R655		
E415	Geared Stepper Motor for FLIPA Actuator	GA2-A
GOSAT (TANSO FTS-2)	Geared Stepper Motor for Solar Calibration Assembly	GL5-A
Classified	Stepper Motor for Arm Actuator	GP6-A
	Geared Stepper Motor for Failsafe Actuator	GP7-A

**Jena Optronik
Program**

Mars Netlander	Geared Stepper Motor for PanCam Filter Swivel Device Drive	DT9-A
	Geared Stepper Motor for PanCam Camera Rotation Device Drive	DU1-A

**Jet Propulsion Labs
Program**

Space Shuttle: Spaceborne Imaging Radar (SIR-C), and Shuttle Radar Topography Mission (SRTM)	Geared AC Motors for X-Band Tri-Drive Mechanism	BT5-A
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Genesis	Geared Brushless Permanent Magnet Motor for Canister Cover and Lock Ring Actuator	DD6-A
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Rosetta/MIRO (Microwave Instruments for Rosetta Orbiter)	Geared Stepper Motor for Calibration Mirror Switch Drive	DF3-A
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John Hopkins University
Program

Far Ultra-Violet Spectroscopic Explorer (FUSE)	Geared Stepper Motor for Fine Mirror Adjustment Mechanism	CK9-A
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Kongsberg
Program

Rosetta Spacecraft	Geared Stepper Motor for Solar Array Deployment Mechanism	DH3-A ***
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KARMA	Geared Stepper Motor for Solar Array Drive Mechanism	EX8-A
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Bepi Columbo (Mercury Transfer Module)	Geared Stepper Motor for Solar Array Drive Mechanism	EY9-A
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KARMA	Geared Stepper Motor for SADM Actuator	FB8-A
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	Geared Stepper Motor for SADM Actuator	FE9-A
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Bepi Columbo (Mercury Transfer Module)	Geared Stepper Motor for High Temperature SADM Actuator	FG3-A
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Solar Orbiter	Geared Stepper Motor for SADM Actuator	FV7-A
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*** Also Used on Venus Express and Mars Express

L'Garde, Inc.
Program

Sunjammer	Geared Stepper Motor for Deployment Drive	GC4-A
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L3 Integrated Optical Systems (SSG)

Program

Orb View-3, and Orb View-4, and TRIANA/NISTAR	Geared Stepper Motor with Ball Screw for Camera Focus Drive	CY8-A
Comet Nucleus Tour (CONTOUR)	Geared Stepper Motor with Integral Position Feedback for Mirror Drive	DP2-A
CONTOUR Remote Imaging Spectrograph (CRISP)	Geared Stepper Motor with Integral Position Feedback for Filter Wheel Drive	DP4-A
GOES Advanced Baseline Imager (ABI)	Geared Stepper Motor with Ball Screw for Focus Actuator	EP2-A
JMAPS	Geared Stepper Motor with Detent Brake, Resolver and Feedback Gearbox for Optical Telescope Assembly Drive Actuator	FF1-A
	Geared Stepper Motor with Detent Brake, Resolver and 2-Pass Feedback Gearbox for Optical Telescope Assembly Focus Actuator	FF2-A
Python	Geared Stepper Motor for Filter Wheel Actuator	GH7-A
Music	Geared Stepper Motor with Resolver and Feedback Gearbox for VIS Focus Mechanism	GK2-A
	Geared Stepper Motor with Resolver and Feedback Gearbox for IR Focus Mechanism	GK3-A
	Geared Stepper Motor for Filter Wheel Actuator	GK4-A
	Stepper Motor for Shutter Actuator	GK5-A

Laboratory for Atmospheric & Space Physics (LASP)

Program

SAVE-EOS	Geared Stepper Motor for Filter Wheel Drive	DG2-B
Solar Dynamics Observatory-Extreme Ultraviolet Variability Experiment (SDO-EVE)	Geared Stepper Motor with Integral Resolver Feedback for Filter Wheel Drive	ED3-A
GOES-R	Geared Stepper Motor with Detent Brake for EXIS Door Drive	FA3-A
	Geared Stepper Motor for EXIS Filter Wheel Drive	FA7-A
International Space Station Mechanism	Geared Stepper Motor with Detent Brake for Optical Bench Deployment Actuator	FD1-B

Lincoln Laboratory

Program

Earth Orbiter-1 Advanced Land Imager	Geared Stepper Motor for Calibration Plate Drive	CV3-A
	Geared Stepper Motor for Aperture Cover Drive	CV4-A
	Geared Stepper Motor Brake with Ball Screw and Integral Resolver Feedback for Calibration Selector Drive	CV5-A
GeoLite Lasercomm Terminal	Geared Stepper Motor for Solar Window Cover Drive	DD1-A
Lasercom	Geared Stepper Motor with Detent Brake for Flexure Actuator	EE2-A
Lincoln Lab Payload (2008)	Geared Stepper for Cover Drive Actuator	EZ3-B
	Geared Stepper Motor with Detent Brake for Focus Drive Actuator	EZ4-B

Lockheed Martin

Program

Solar-B	Geared Stepper Motor with Ball Screw for Mirror Actuator on Focal Plane Package (FPP)	DK8-A
Space Based Infra Red System (SBIRS)	Geared Stepper Motor for Deployable Light Shade Drive	DP8-B
P909 (Classified) and Advanced Extremely High Frequency Communications Satellite (AEHF)	Geared Eddy Current Damper for Deployment Mechanism	DX2-C
Helioseismic & Magnetic Imager Investigation (HMI)	Geared Stepper Motor with Acme Screw for Alignment Actuator	EA4-A
	Geared Stepper Motor for Door Actuator	EA6-A
Atmospheric Imaging Assembly (AIA)	Geared Stepper Motor with Ball Screw for Focus Actuator	EC3-A
P321 (Classified)	Geared Eddy Current Damper for Array Deployment Mechanism	FM8-B
	Geared Eddy Current Damper for Array Deployment Mechanism	FM9-B
OSIRIS-REx	Geared Stepper Motor with Detent Brake for Arm/Shoulder Actuator	FR2-A
	Geared Stepper Motor for TAGSAM Wrist and SRC Latch/Hinge Actuator	GA4-A

Marotta Scientific Controls

Program

Vacuum System, International Space Station	Stepper Motor Brake for Vacuum Valve Actuation	CL8-C
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MD RoboticsProgram

Special Purpose Dexterous Manipulator (SPDM)	Geared Stepper Motor for Orbital Tool Changeout Mechanism (OTCM) Drive	DK6-A
Phoenix	Geared Stepper Motor for Lens Cover Actuator	EG4-A

MDA Corp.Program

O3B Gimbaled Antenna	Geared Stepper Motor for Antenna Steering	EW8-B
Iridium Next	Geared Stepper Motor for Antenna Actuator	FK6-A
ColKa UST	Geared Stepper Motor for Antenna Steering Subsystem	GM7-A
Hylas-4	Geared Stepper Motor for Antenna Positioning Actuator	GM8-A
O3B Next Generation	Geared Stepper Motor for Antenna Steering	GN7-A
ISS RCAM	Geared Stepper Motor with Hall Sensor for Mobile Servicing System (MSS) Lens	GP8-A

Meisei ElectricProgram

Mercury Magnetospheric Orbiter Satellite (MMO)	Geared Stepper Motor for Drive Actuator	FA9-A
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Sierra Nevada CorporationProgram

Demonstration & Science Experiment (DSX)	Geared Eddy Current Damper for Solar Array Hinge Line Deployment	ER2-A*
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Orbcomm Generation 2 (OG2) Satellite	Geared Stepper Motor for Solar Array Deployment	EX4-A
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* also used on OG2 Satellite

**Millennium Space Systems
Program**

SmallSat	Geared Stepper Motor for SADA APM Actuator	FT4-A
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**NASA – Goddard Space Flight Center
Program**

Mars Science Lander (MSL)	Geared Brushless Permanent Magnet Motor for High Conductive Valve Actuator	EP1-A
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James Webb Space Telescope (JWST): Near Infrared Spectrometer (NIRSpec)	Geared Stepper Motor for Microshutter Launch Lock Actuator	ET3-A
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	Geared Stepper Motor with Integral Redundant Resolver for Microshutter Helium Cryogenic Actuator	EW6-A
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Solar Orbiter	Geared Stepper Motor for SPICE Cryogenic Door Drive Actuator	FZ4-A
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**NASA – Johnson Space Center
Program**

International Space Station	Linear Eddy Current Damper for Deployment of Jet Pack Hand Controller	DA3-A
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**NASA – Langley Research Center
Program**

Gas and Aerosol Monitoring System (GAAMS)	Stepper Motor with Brake for Spectrometer Drive	DK9-A
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NASA – Lewis Space Center
Program

Lunar Rover	Geared Brushless Permanent Magnet Motor for Wheel Drive	EL1-A
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Naval Research Laboratory
Program

Classified	Geared Stepper Motor for Deployment System	CN7-A
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SOLAR-B	Geared Stepper Motor with Detent Brake for Mirror Actuator	DL4-A
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	Geared Stepper Motor with Detent Brake and Integral Position Feedback for Paddle Wheel Drive	DL5-A
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	Geared Brushless Resolver for Mirror Position Sensor	DL6-A
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Spatial Heterodyne Imager for Mesospheric Radicals (SHIMMER)	Geared Stepper Motor Brake for Shutter Drive	DW6-A
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	Geared Stepper Motor for Door Drive	DW7-A
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Northrop Grumman Aerospace Systems
Program

EOS Aqua	Geared Eddy Current Damper for X-Band Antenna Deployment	DH1-A
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TTM Program	Geared Eddy Current Damper for Deployment System	EV2-A
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	Geared Brushless Permanent Magnet Motor for Deployment System	EH8-B
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INMARSAT 4	Geared Stepper Motor for Spooler Deployment	ES1-A
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P858 (Classified)	Geared Brushless Permanent Magnet Motor for ME Actuator	EX9-A
	Geared Brushless Permanent Magnet Motor for MD Actuator	EY1-A
	Geared Brushless Permanent Magnet Motor for MG Actuator	EY2-A
DARPA Fast Access Spacecraft Testbed (FAST)	Geared Stepper Motor for STEM Drive Deployer	FB3-A
James Webb Space Telescope (JWST)	Geared Brushless Motor with Redundant Field Director for PMBA and SMSS Actuators	FB4-A
	Geared Brushless Motor with Redundant Field Director for Sunshield MBA Drive	FB5-A
	Geared Brushless Motor with Redundant Field Director for Sunshield STSA Drive	FB6-A
	Geared Brushless Motor with Redundant Field Director for Sunshield MTS Drive	FB7-A
AMP	Geared Eddy Current Damper for a Classified Application	FF9-A
James Webb Space Telescope (JWST)	Geared Eddy Current Damper for Solar Array Deployment	FX5-B

OHB CGS
Program

Solar Orbiter	Geared Stepper Motor with Linear Drive for METIS-IOM Actuator	GJ6-A
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Orbital Sciences Corp.
Program

Orb View-3	Geared Stepper Motor with Integral Position Feedback for Camera Door Actuator	DC3-A
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Solar Terrestrial Relations Observatory (STEREO)	Geared Stepper Motor for Door Actuator	EB1-A
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Orbitec (Orbital Technologies Corporation)

Program

CST-100	Brushless Permanent Magnet Motor with Hall Sensor for Valve Drive	GC8-A
	Geared Brushless Permanent Magnet Motor with Hall Sensor for Vacuum Isolation Valve	GM9-A

PMOD

Program

Precision Monitoring of Solar Variability (PREMOS)	Stepper Motor for Cover Mechanism Drive	EP6-A
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Raytheon Santa Barbara Remote Sensing

Program

Thermal Emissions Imaging System (THEMIS)	Geared Stepper Motor for Shutter Control Actuator	DF6-A
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RUAG Space

Program

SAC-C	Geared Eddy Current Damper for Solar Array Deployment	DB4-A
Rosetta Spacecraft	Geared Stepper Motor for Antenna Pointing Mechanism	DE9-A
Large Deployable Antenna	Geared Stepper Motor for Antenna Deployment	DY8-A
Solar Variable & Irradiance Monitor (SOVIM)	Stepper Motor for Cover Mechanism Drive	DN4-A
Short Range Optical Intersatellite Link Terminal (SROIL)	Stepper Motor with Detent Brake for FOV Drive	DN8-A
JWST Mid Infra-Red Instrument (MIRI)	Geared Stepper Motor for Contamination Cover Drive	EF5-A

Bepi Columbo	Geared Stepper Motor for Thrust Pointing Mechanism Actuator	FE1-A
Astro-H	Geared Stepper Motor for Filter Wheel Drive Actuator	FJ6-A
Mateosat Third Generation	Geared Stepper Motor for Refocusing Mechanism	GJ8-A

Sandia National Laboratories
Program

Space Shuttle: Mechanisms of Granular Materials (MGM)	Geared Stepper Motor with Acme Screw for Crusher Motor #1	CE1-A
	Geared Stepper Motor with Acme Screw for Crusher Motor #2	CE2-A
	Geared Stepper Motor with Acme Screw for Accumulator Motor	CE3-A

Selex Galileo
Program

COSMO SkyMed	Geared Stepper Motor with Detent Brake for Scanning Mirror Lock Motor on High Resolution Camera	DM1-A
Rosetta Lander	High Accuracy Brushless Resolver For Drill Drive Position Sensor	DH2-A
Exomars	Frameless Detent Brake for Rover Drill	FQ4-A

Sener
Program

GAIA Satellite	Geared Stepper Motor for Secondary Mirror Mechanism Actuator	ET5-A**
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**Also used on Euclid

Bepi Columbo	Geared Stepper Motor for Medium Gain Antenna (Beam) Actuator	FE3-D
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	Geared Stepper Motor for High Gain Antenna Actuator	FE7-A
	Geared Stepper Motor for Medium Gain Antenna (Boom) Actuator	FE8-D
Exomars	Geared Tandem Resolver for Position Feedback Sensing	FG2-A
Solar Orbiter	Geared Stepper Motor for Feedthrough Door Mechanism	FV6-A
	Geared Stepper Motor for Medium and High Gain Antenna Pointing Mechanism	FX7-A
Meteosat Third Generation	Geared Stepper Motor for Scan Mechanism LDD Actuator	GJ3-A
Serenum		
<u>Program</u>		
Proba-3	Geared Stepper Motor for Front Door Actuator	GN6-A
Space Systems Loral		
<u>Program</u>		
IPSTAR	Geared Eddy Current Damper for Solar Array Deployment	DS6-B
Stinger Ghaffarian Technologies, Inc. (SGT)		
<u>Program</u>		
VIPIR	Geared Stepper Motor for Tendon Drive Actuator	FT1-A
	Geared Stepper Motor for Zoom Lens Drive Actuator	FW3-A
Swales Aerospace		
<u>Program</u>		
Solar Heliospheric Observatory (SOHO)	Geared Stepper Motor for Slit Plate Positioning on UVCS (Ultra Violet Coronagraph Spectrometer)	CF8-A

Far Ultra-Violet Spectroscopic Explorer (FUSE)	Geared Stepper Motor for Fine Mirror Adjustment Mechanism	CK9-B
Advanced Camera for Surveys (ACS)	Brushless Permanent Magnet Motor with Resolver Feedback for CDD Shutter Drive	CD1-A
Hubble Space Telescope (HST)	Geared Brushless Permanent Magnet Motor for Power CAT Drive	DN6-A
ICESat: Geoscience Laser Altimeter System (GLAS)	Geared Stepper Motor for Boresight Adjustment Mechanism Drive	DU2-A
Pupil Imaging Lens (PIL)	Geared Stepper Motor for Secondary Lens Actuator	EE4-A
	Rotary Switch for Primary Lens Actuator	EE5-A
MARS Science Laboratory (MSL) Chemistry & Mineralogy X-Ray Diffraction/X-Ray Fluorescence Instrument (CheMin)	Geared Stepper Motor for Sample Wheel Actuator	EP8-A
	Brushless Resolver for Sample Wheel Position Sensing	EQ1-A
	Geared Stepper Motor with Detent Brake and Ball Screw for Linear Drive	EQ3-A

Technomare
Program

Exomars	Tandem Brushless Resolver for Servo Position Feedback	GG9-A
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TNO
Program

High Vacuum Test	Brushless Permanent Magnet Motor with Integral Brushless Resolver for Chopper Wheel Drive	DS2-A
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United Technologies Aerospace Systems (Hamilton Sundstrand)Program

CST-100	Brushless Permanent Magnet Motor with Hall Sensor for Low Flow Fan	FX2-B
International Space Station	Geared Brushless Permanent Magnet Motor with Hall Sensor for Soft Capture Latching Docking System	GF2-A

University of Arizona – Lunar & Planetary LaboratoryProgram

Mars Volatiles & Climate Surveyor (MVACS)	Stepper Motor for Focus Actuator	CS2-A
	Stepper Motor for Cover Drive	CS3-A
	Geared Stepper Motor for Filter Wheel Drive	CS4-A
MARS 2002	Stepper Motor for Focus Actuator	CS2-B
Phoenix; Stereo Surface Imager (SSI)	Geared Stepper Motor for Filter Wheel Drive	EC6-A
OSIRIS-REx	Geared Stepper Motor for SamCam, MapCam, and PolyCam (OCAMS) Actuator Suite	FW1-A

University of California at BerkeleyProgram

ICON	Geared Stepper Motor for Turret Drive Mechanism	GD7-A
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University of ColoradoProgram

Far Ultra-Violet Spectroscopic Explorer (FUSE)	Geared Stepper Motor for Focal Plane Mirror Drive	CL1-A
	Geared Stepper Motor for Micrometer Drive	CP6-A

	Geared Stepper Motor with Ball Screw for Focus Drive	CP7-A
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**University of Padova (CISAS)
Program**

Rosetta Orbiter: Optical, Spectroscopic, and Infrared Remote Imaging System (OSIRIS)	Geared Stepper Motor for Cover Shield Drive on Narrow and Wide Angle Cameras	DH6-A
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**Utah State University: Space Dynamics Lab
Program**

Geostationary Imaging Fourier Transform Spectrometer (GIFTS)	Geared Stepper Motor Brake for Aperture Cover	DT2-A
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	Geared Stepper Motor for Flip In Actuator	DT3-A
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	Geared Stepper Motor with Ball Screw for IFC Selector	EA1-A
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**Vacco Industries
Program**

Orion	Geared Stepper Motor with Detent Brake for Hydrazine Valve Actuator	FL8-A
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**Zellweger Analytics
Program**

International Space Station	Stepper Motor for Water Quality Monitor Sensor Effect Unit	CA5-C
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	Synchronous Motor for Water Quality Monitor Sensor Effect Unit	CA7-B
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TOTAL NUMBER OF APPLICATIONS:

323