

NEWSPACE MARKET · COMPANY PROFILE



Motiv Space Systems

United States · founded 2014 · motivss.com

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as of 20 August 2026



Motiv Space Systems

Motiv Space Systems was founded in 2014 by three experienced robotics engineers, Chris Thayer, Brett Lindenfeld, and Tom McCarthy, who set out to develop and build space-based robotic systems more efficiently and with a higher level of quality and capability than existing competitors. The company is headquartered at 350 N Halstead St, Pasadena, CA 91107. Motiv quickly earned and successfully executed NASA and JPL contracts for a range of missions, most notably designing and building the seven-foot, five-degree-of-freedom robotic arm on NASA/JPL's Mars 2020 Perseverance rover, which carries key science instruments such as SHERLOC, WATSON, PIXL, and the rover's coring drill. The company also engineered the optomechanical systems for Perseverance's Mastcam-Z stereo camera and its filter wheel, and has contributed motion control, mobility, chassis, and mechanism systems to JPL's CADRE lunar rover mission. In 2020, Motiv launched its xLink Robotic Arm System, a space-rated, modular robotic arm platform built by the same team behind the Perseverance arm, aimed at bringing dexterous robotic arm capabilities to a broader range of missions at lower cost and shorter lead times. The xLink system flew on NASA's OSAM-2 mission to perform in-space assembly and manufacturing tasks. Motiv later introduced ModuLink, a scalable, modular robotic system built on xLink technology designed for on-orbit servicing tasks such as repairs, replacements, refueling, satellite and debris removal, and satellite relocation. Beyond robotic arms, Motiv designs and manufactures a line of space-rated motor controllers (including the Alpha-II, Bravo, and Delta controllers) for brushless DC and stepper motors used in robotics, gimbals, positioners, focus mechanisms, filter wheels, and cryocoolers, along

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SERVICES

Services

Custom Robotic Solutions Development

Motiv's experienced team develops and delivers custom robotic solutions for critical missions, trusted by private corporations, NASA, JPL, and Goddard Space Flight Center.

Engineering Services

Motiv provides engineering services for space robotics, offering dependable and cost-effective solutions for public and private space missions.

Mechanism Engineering

Motiv's mechanism engineers design and build mission-critical mechanisms, from filter wheels to focus mechanisms, for reliable operation in harsh space environments.

Rapid & Custom Integration for xLink System

Motiv offers rapid and custom integration of the xLink system, allowing for deployment in months rather than years, with development cycles as short as six months.

Product catalogue



MOTIV SPACE SYSTEMS

BRAVO-II Motor Controller

The BRAVO-II is a dual-axis motor controller card designed for space applications, supporting BLDC and 3-axis stepper motors with current, velocity, and position control.

Axis	Dual Axis Motor Controller Card
Motor Support	BLDC / 3-Axis Stepper
Control	Current, Velocity, & Position
Motor Velocity	500-10,000 RPM (typ)
Environment	GE0
Radiation Tolerance	TID 100kRad
SEU LET Threshold	>60 MeV-cm2/mg

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MOTIV SPACE SYSTEMS

CADRE (Cooperative Autonomous Distributed Robotic Exploration)

CADRE is a project developing motion control, mobility, chassis, and mechanism systems for a trio of autonomous lunar rovers, their deployer, and a base station for a NASA JPL miss

Client	NASA Jet Propulsion Laboratory
Status	In Progress
Schedule for launch	2024

price on request [datasheet](#)



MOTIV SPACE SYSTEMS

Custom Mechanisms (Mastcam-Z, SOMS Filter Wheel, Mastcam-Z Filter Wheel)

Motiv Space Systems engineers and builds custom mechanisms for space applications, including imaging systems and filter wheels for planetary rovers and Earth-orbiting platforms.

Mastcam-Z Key Capabilities	High-Definition Video
Mastcam-Z Key Capabilities	3D Images
Mastcam-Z Key Capabilities	Panoramic Color Imaging
Mastcam-Z Key Capabilities	28-100mm Zoom Range
Mastcam-Z Key Capabilities	Ability to Resolve Features 1mm Across at a Distance of 100-Meters
Mastcam-Z Key Capabilities	360-degree swivel and 180-degree up and down panning
SOMS Filter Wheel Key Capabilities	8 Locations for Filters or Powered Optical Elements

price on request



MOTIV SPACE SYSTEMS

Mars 2020 Perseverance Rover's Primary Robotic Arm

A seven-foot long, five-DOF robotic arm designed for the Mars 2020 Perseverance rover, carrying critical science instruments for Martian exploration.

Payload	45kg (Earth gravity)
Kinematics	5-DOF
Reach	2.1 meters
Environment	-135°C; Martian Dust and Radiation Hardened
Accuracy	<1 millimeter
Mass	76kg
Mission	Mars 2020 Perseverance Rover

price on request



MOTIV SPACE SYSTEMS

ModuLink

ModuLink is a scalable, modular, space-rated robotic system designed to enhance the capabilities and on-orbit resiliency of spacecraft through various servicing operations.

price on request



MOTIV SPACE SYSTEMS

xLink™ System

The xLink™ System is a modular, scalable, and flexible robotic system designed for space applications, offering advanced robotics capabilities at competitive costs and lead times.

Modularity	Building block approach for customization
Scalability	1 meter, 3 meters; 4-DOF, 7-DOF
Flexibility	Component solutions to whole systems
Industry Leading	Dexterous space robotic systems at industry leading cost and lead times
Flight Heritage	Developed by the same team that built the robotic arm for NASA/JPL's Mars 2020 Perseveranc
Integration Time	Months (customized versions as short as six months)

price on request

[datasheet](#)

Contact Motiv Space Systems

Open the company profile on NewSpace Market to see full specifications and datasheets, and to send a request for quotation that reaches the manufacturer directly.

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<https://www.motivss.com>

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