

## Pro-Dex Astromec Motors Are Used In

### Aerospace

- Boeing 737, 747, 757, 767
- Airbus A320, A380
- Cessna 406

### Military

- B52, F5, F101, T38
- Sikorsky Seahawk

### Medical

- Small Bone Surgical Instruments
- Large Bone Surgical Instruments
- Spinal Surgical Instruments

## Accelerating Possibilities

### ISO 9001:2008-Certified Facility

Pro-Dex Astromec is an ISO 9001-certified facility offering full-scale engineering and manufacturing capabilities. We work closely with our customers to provide all aspects of custom motor creation, from prototype design to final production. The speed and efficiency of a Pro-Dex motor reflects the speed and efficiency of the company that created it.

### World-Class Engineering

Our engineering team designs your motor using the latest technological advances in magnetic flux simulation, finite element analysis, and 3-D parametric solid modeling. We then conduct validation and verification testing to ensure the design package meets your exact specifications.

### Lean Manufacturing

Our manufacturing control systems concentrate on efficient product assembly. We machine many of our own custom parts, utilize cell-based assembly lines with Lean Manufacturing principles, and live in pursuit of continuous improvement.

### About Pro-Dex, Inc.

Headquartered in California, USA, with operations in Oregon and Nevada, Pro-Dex delivers products that are often customized to fit the demanding applications of our customers. Visit us at [www.Pro-Dex.com](http://www.Pro-Dex.com).

## Our Four Focus Areas Include:

### Custom Motors for Harsh Environments

Pro-Dex Carson City produces reliable, custom, fractional-horsepower motors for customers' products that operate in harsh or challenging environments in medical and aerospace applications. Our unsurpassed technical support and customer service assists each customer with solutions for their unique requirements.

#### Pro-Dex Custom Motors

2950 Arrowhead Dr., Carson City, NV 89706-0488  
(775) 883-9226 • (775) 883-9228 Fax • [www.Astromec.com](http://www.Astromec.com)

### Medical Device Manufacturing Services

Pro-Dex's ISO 13485-certified facility gets electro-mechanical devices planned, built and on the shelf quickly with outsourcing excellence.

Customers rely on our proven RA/QA expertise, streamlined documentation and release processes, and lean manufacturing to get their products to market.

Our precision machining capability and high-mix manufacturing flexibility can produce your components to full systems, and everything in between. Our trusted team ensures high quality, reliable and regulatory compliant products delivered on time.

### Powered Surgical Devices

Pro-Dex's unique and specialized experience in designing and delivering reliable, powered surgical devices that withstand harsh environments, enables our customers to provide complete medical device systems.

Pro-Dex is your resource for manufacturing capacity overloads, powered surgical device expertise, and for compressing your time to market, enabling your focus to remain on your core business.

#### Corporate Headquarters: Powered Surgical Devices and Medical Device Manufacturing Services

2361 McGaw Avenue, Irvine, CA 92614 USA  
(800) 562-6204 • (949) 769-3281 Fax • [www.Pro-Dex.com](http://www.Pro-Dex.com)

### High Performance Multi-Axis Motion Control

Pro-Dex OMS provides rock-solid multi-axis motion control with the right combination of standard and customer specified features for general motion application as well as critical applications where failure is not an option. Our customers' count on us when their success depends upon consistent, reliable performance in demanding applications such as Lab Automation, Medical Equipment, Semiconductor Equipment and specialized needs in Research Facilities around the world.

#### Pro-Dex OMS

15201 N.W. Greenbrier, B-1, Beaverton, OR 97006  
(800) 707-8111 • (503) 629-0688 Fax • [www.Pro-DexOMS.com](http://www.Pro-DexOMS.com)

# Custom Motor Solutions

Fractional-Horsepower Motors  
for Medical, Aerospace,  
Military & Industrial Applications



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Accelerating Possibilities

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## Custom Motor Solutions

*When an off-the-shelf solution doesn't meet your requirements, where do you turn?*

Pro-Dex Astromec has been meeting the needs of the Medical, Aerospace, Military, and Industrial markets for over 40 years.

*Customized, powered solutions that deliver performance and high-quality*

Pro-Dex Astromec focuses on reducing your cost and time-to-market. Our custom engineering capabilities provide you with a broad offering of motor options. Our team of design engineers can develop a unique, proprietary motor perfectly suited to your application.

Pro-Dex Astromec can customize a solution to meet your requirements. Whether your project requires a brush or brushless motor, is fitted with a gearbox, controller, encoder, brake, or other accessory, or has a special shape to fit within your product's envelope, Pro-Dex Astromec provides a solution.

Our heritage is based on providing the highest quality products with exceptional customer service. As a result, we have customers who have worked with us since 1967.



## Maximum Performance & Efficiency

*Medical Brush and Brushless Motors*

Our medical brush and brushless motor products provide smooth, reliable power for OEM surgical handpieces and instruments worldwide. Motors are designed to withstand harsh environments where saline, the autoclave process, and extended use are the norm. Pro-Dex Astromec motors power arthroscopic shavers, cranial cutters and drills, and multi-function handpieces used in surgical applications. Our motors are also found in endodontic handpieces and provide power for research laboratory instruments.

*Military/Aerospace Brush and Brushless Motors*

Our military/aerospace brush and brushless motors are engineered to meet stringent mil-spec requirements for quality and reliability in the aerospace and defense industries. Each motor is custom-designed to perform in harsh environments with high reliability and long life.

Pro-Dex Astromec motors are used in aviation for control surface actuator assemblies, aircraft fluid and gas valves, as well as cargo and landing gear doors. Military applications include radio tuner drives, tank controls and communications satellite equipment.

## Quality & Service Guaranteed

*Personalized Service*

Our Business Development Group ensures flexible and open communication to ensure interactive problem-solving for every customer requirement. Our customers expect and receive a high level of personalized service. Step-by-step analysis guarantees reliable performance while Pro-Dex's high-mix manufacturing approach ensures on-time delivery.

## Examples of Custom Motor Solutions

Model No.	Motor Type	Input Voltage	Body Length	Body Diameter	Gear Ratio	Rated Output Shaft Nom Speed (RPM)	Rated Output Shaft Torque (in oz)	Special Feature(s)
<b>Typical Application: Aerospace</b>								
K-1	Brushless, PM	270 V	4.23"	2.55"	----	11,000	157	
D-1	Brush, PM	28 VDC	3.68"	1.535"	112.5:1	60	320	Thermal fuse, EMI filter
D-2	Brush, PM	28 VDC	2.76"	1.53"	----	8600	2.13	
D-3	Brush, PM	28 VDC	2.76"	1.53"	----	11,700	2.44	
C-1	Brush, Split-series field	28 VDC	2.80"	1.265"	----	12,500	2.5	Series brake
C-2	Brush, PM	24 VDC	2.79"	1.25"	----	9,800	0.57	Series brake
C-3	PSC	110 VAC	2.025"	1.25"	----	9,600	0.58	Phase shift capacitor, brake
C-4	Brush, Split-shunt field	28 VDC	2.341"	1.25"	----	5,300	0.75	Series brake
C-5	Brush, Split-shunt field	28 VDC	3.550"	1.25"	352:1	14.5	64	
C-6	Brush, Split-series field	26 VDC	2.531"	1.275"	----	12,000	0.70	Series brake
C-7	Brush, PM	27 VDC	2.660"	1.25"	----	9,650	1.5	Shunt brake
C-8	Brush, PM	27 VDC	2.660"	1.25"	----	9,650	1.5	Shunt brake
C-9	Brush, PM	28 VDC	4.190"	1.25"	1528:1	11.5	800	Series brake
B-1	Brush, PM	15 VDC	2.52"	.874"	675:1	4.5	35	
B-2	Brush, PM	26 VDC	1.76"	.875"	----	11,400	0.07	Series brake
B-3	Brush, PM	28 VDC	2.25"	.895"	26:1	380	8	Series brake
A-1	PSC	115 VAC	3.65"	2.00"	936:1	9.7	80	Clutch, Limit switch, Phase shift capacitor
<b>Typical Application: Medical</b>								
N-1	Brushless, PM	9.6 VDC	2.457"	1.098"	----	16,000	40	Autoclavable, Cannulated Shaft
N-2	Brushless, PM	9.6 VDC	2.457"	1.098"	----	16,000	40	Autoclavable, Cannulated Shaft
N-3	Brushless, PM	48 VDC	3.41"	1.00"	16:1	1700	80	Autoclavable, Cannulated Shaft
N-4	Brushless, PM	48 VDC	1.752"	.872"	----	20,000	10	Autoclavable
N-5	Brushless, PM	24 VDC	1.752"	.872"	----	20,000	10	Autoclavable
N-6	Brushless, PM	48 VDC	2.50"	.650"	6:1	9,500	20	Autoclavable