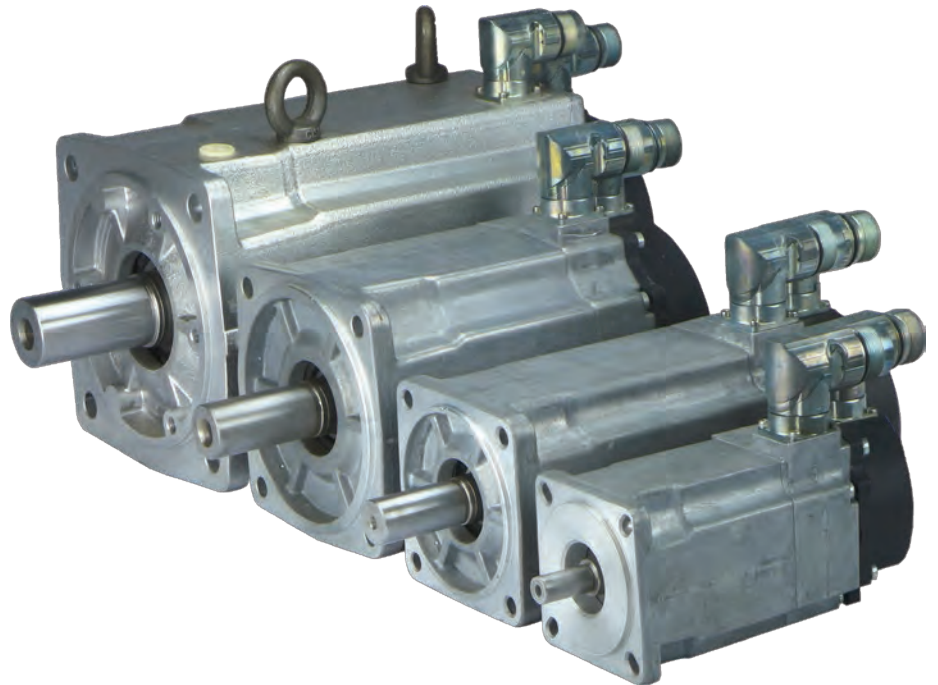


aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



## NV Series

High Speed Servo Motor



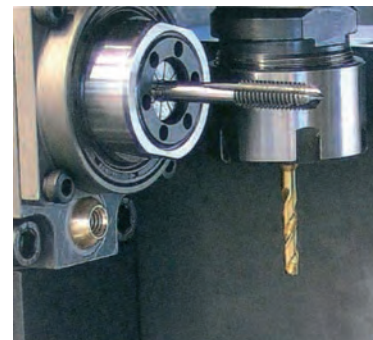
北京润诚时代科技有限公司

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**WARNING – USER RESPONSIBILITY**

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- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

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# Parker Hannifin

## The global leader in motion and control technologies

### A world class player on a local stage

#### Global Product Design

Parker Hannifin has more than 40 years experience in the design and manufacturing of drives, controls, motors and mechanical products. With dedicated global product development teams, Parker draws on industry-leading technological leadership and experience from engineering teams in Europe, North America and Asia.

#### Local Application Expertise

Parker has local engineering resources committed to adapting and applying our current products and technologies to best fit our customers' needs.

#### Manufacturing to Meet Our Customers' Needs

Parker is committed to meeting the increasing service demands that our customers require to succeed in the global industrial market. Parker's manufacturing teams seek continuous improvement through the implementation of lean manufacturing methods throughout the process. We measure ourselves on meeting our customers' expectations of quality and delivery, not just our own. In order to meet these expectations, Parker operates and continues to invest in our manufacturing facilities in Europe, North America and Asia.

#### Electromechanical Worldwide Manufacturing Locations

##### Europe

Littlehampton, United Kingdom  
Dijon, France  
Offenburg, Germany  
Filderstadt, Germany  
Milan, Italy

##### Asia

Wuxi, China  
Jangan, Korea  
Chennai, India

##### North America

Rohnert Park, California  
Irwin, Pennsylvania  
Charlotte, North Carolina  
New Ulm, Minnesota



Offenburg, Germany

#### Local Manufacturing and Support in Europe

Parker provides sales assistance and local technical support through a network of dedicated sales teams and authorized technical distributors throughout Europe.

For contact information, please refer to the Sales Offices on the back cover of this document or visit [www.parker.com](http://www.parker.com)



Milan, Italy



Littlehampton, UK



Filderstadt, Germany



Dijon, France

# High Speed Servo Motor - NV Series

## Overview

### Description

The NV series is a range of compact servomotors specially designed for high speed operation. NV motors are balanced with high accuracy to minimize the level of vibration and to increase their service life, making them particularly suitable for auxiliary spindle applications on machine tools. NV motors feature high dynamic performance and torque densities, while taking advantage of a large variety of options and customization possibilities. Available in kit version on request

### Advantages

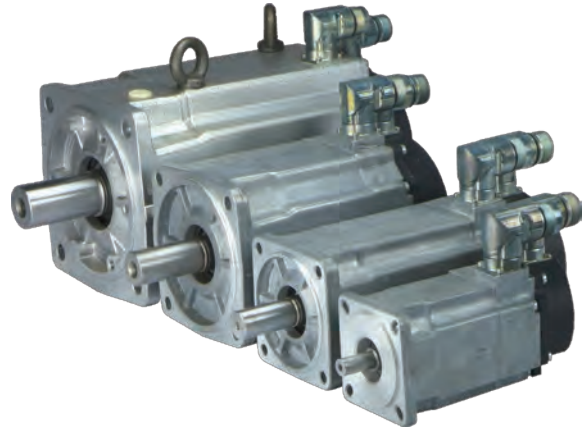
- High-Speed capabilities, precise and accurate positioning, high dynamic performance
- Compact and robust
- Design flexibility

### Application

- Special Machines
- Tooling Machines
- Test Benches
- Sprayers
- Centrifuges

### Features

- **Mounting**
  - Flange with clearance holes
- **Mechanical interface**
  - Solid smooth shaft
- **Feedback sensor**
  - 2 pole resolver (standard)
  - Absolute encoders: Hiperface (option)
  - Without sensor (option)
- **Connections**
  - Connectors (standard)
  - Cables (option)
  - Terminal box (fan cooled motors)
- **Options**
  - Thermal protection (PTC, KTY)



### Technical Characteristics - Overview

<b>Motor type</b>	Synchronous permanent magnet servomotors
<b>Poles number</b>	10
<b>Voltage supply</b>	230 VAC or 400 VAC
<b>Power range</b>	0.7...11 kW
<b>Torque range</b>	0.4...11.5 Nm
<b>Speed range</b>	7000...17 000 min <sup>-1</sup>
<b>Ingress protection level (IEC60034-5)</b>	<ul style="list-style-type: none"> <li>• IP64 (standard)</li> <li>• IP65 (option)</li> <li>• IP67 (on request)</li> </ul>
<b>Cooling method</b>	<ul style="list-style-type: none"> <li>• Natural ventilation (standard)</li> <li>• Fan cooling (NV860V)</li> <li>• Water cooled up to 60 kW (on request)</li> </ul>
<b>Temperature class (IEC60034-1)</b>	Class F

## Technical Data

Model	Size	Stall <sup>(1)</sup>		Nominal <sup>(1)</sup>				Peak <sup>(1)</sup>	Inertia	Ke <sup>(2) (3)</sup>	Kt <sup>(2) (3)</sup>
		Torque	Current	Power	Torque	Speed	Current	Torque	No brake		
		T <sub>0</sub> [Nm]	I <sub>0</sub> [A]	P <sub>n</sub> [kW]	T <sub>n</sub> [Nm]	n [min <sup>-1</sup> ]	I <sub>n</sub> [A]	T <sub>max</sub> [Nm]	J [kgmm <sup>2</sup> ]	Ke [Vs]	Kt [Nm/A <sub>rms</sub> ]
<b>230VAC power supply - single or three-phased</b>											
NV310EAW	71	0.9	5.13	0.73	0.41	17 000	2.78	1.8	73.4	11.1	0.175
<b>400 VAC power supply - three-phased</b>											
NV420EAI	91.5	1.9	5.25	1.4	0.95	14 000	2.78	2.87	290	22.1	0.362
NV430EAH	91.5	2.5	5.63	1.5	1.3	11 000	3.48	3.78	426	28	0.444
NV620EAJ	121	3.5	9.86	1.8	1.6	11 000	5.02	5.42	900	23.8	0.355
NV630EAI	121	5.5	11.1	2.0	1.9	10 000	4.34	8.51	1300	31.7	0.497
NV820EAN	155	7.6	14.7	3.1	3.3	9 000	7.73	11.5	3100	34.5	0.517
NV840EAJ	155	13.5	19.4	5.5	6.6	8 000	10.5	20.4	5700	43.8	0.697
NV860EAE	155	18.5	28.3	7.3	9.9	7 000	16.3	27.9	8400	41.3	0.653
<b>400 VAC power supply - three-phased - fan cooled</b>											
NV860VAC	155	30	57	11	11.5	9 000	23.7	37	8400	33	0.526

<sup>(1)</sup> Data referred to motor mounted on aluminium flange: 400 x 400 x 12 mm, Temperature <40 °C near motor's flange. Stall torques refer to motor turning at 100 min<sup>-1</sup>

<sup>(2)</sup> Data measured at 20 °C. When "hot" consider -0.09 %/K derating

<sup>(3)</sup> Manufacturing tolerance data ±10 %

## Drive Association

Motor	Associated Drive Sizes			
	PSD1	Compax3	AC890	AC30
<b>230VAC power supply - single or three-phased</b>				
NV310EAW	PSD1SW1300... <sup>(1)</sup>	C3S063V2... <sup>(2)</sup>	890SD-231700B0-B00-1A500 <sup>(2)</sup>	-
<b>400 VAC power supply - three-phased</b>				
NV420EAI	PSD1MW1400... <sup>(1)</sup>	C3S075V4... <sup>(2)</sup>	890SD-532100B0-B00-1A500 <sup>(2)</sup>	31V-4D0008
NV430EAH	PSD1MW1400... <sup>(1)</sup>	C3S075V4...	890SD-532100B0-B00-1A500	31V-4D0008
NV620EAJ	PSD1MW1600... <sup>(1)</sup>	C3S150V4...	890SD-532160B0-B00-1A500	31V-4D0012
NV630EAI	PSD1MW1600... <sup>(1)</sup>	C3S150V4...	890SD-532160B0-B00-1A500	31V-4E0016
NV820EAN	PSD1MW1600... <sup>(1)</sup>	C3S150V4...	890SD-53216SB0-B00-1A500	31V-4E0023
NV840EAJ	PSD1MW1800... <sup>(1)</sup>	C3S300V4...	890SD-532240C0-B00-1A500	31V-4F0032
NV860EAE	PSD1MW1800...	C3S300V4...	890SD-532240C0-B00-1A500	31V-4G0045
<b>400 VAC power supply - three-phased - fan cooled</b>				
NV860VAC	-	C3H090V4...	890SD-532590D0-B00-1A500	31V-4H0105

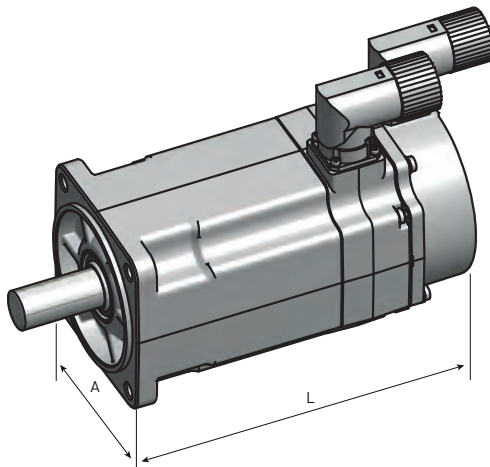
<sup>(1)</sup> max. speed: 7 200 min<sup>-1</sup>

<sup>(2)</sup> max. speed: 12 000 min<sup>-1</sup>

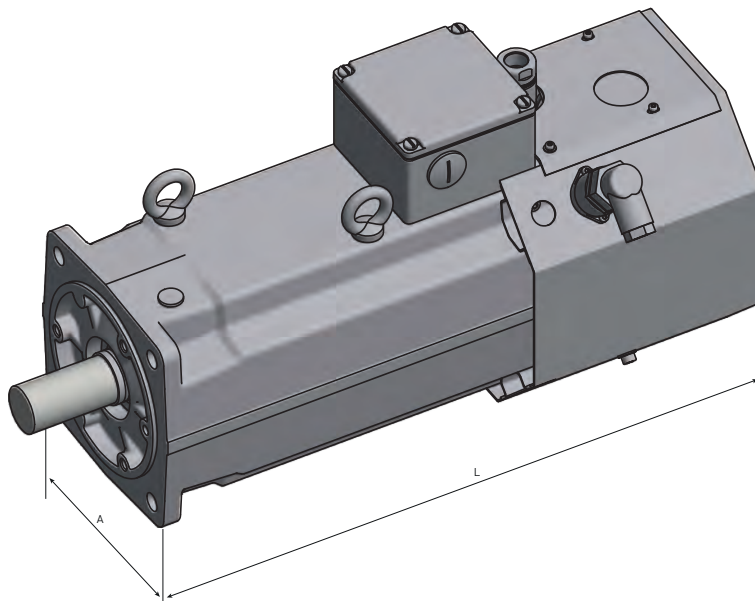


## Dimensions (resolver version)

Motor	A	Mounting Flange centering / interaxis hole	Shaft diameter x length	L	Weight	Fr* [N]	Fa* [N]
	[mm]	[mm]	[mm]	[mm]	[kg]		
NV310	71	60 / 75-80	11 x 23	147	2	170	70
NV420	91.5	80 / 100	19 x 40	175	3.7	380	30
NV430	91.5	80 / 100	19 x 40	200	4.6	395	35
NV620	121	110 / 130	24 x 50	181	6.9	380	180
NV630	121	110 / 130	24 x 50	210	8.8	400	190
NV820	155	130 / 165	32 x 58	200	13	950	50
NV840	155	130 / 165	32 x 58	260	20	1050	80
NV860	155	130 / 165	32 x 58	320	27	1100	100



Motor	A	Mounting Flange centering / interaxis hole	Shaft diameter x length	L	Weight	Fr* [N]	Fa* [N]
	[mm]	[mm]	[mm]	[mm]	[kg]		
NV860V	185	130 / 165	32 x 58	424	30.5	1100	100



\* Fr and Fa not cumulative: At 10000 rpm (NV3,4 et 6) or 5000 rpm (NV8), for a bearing servicing life of 20 000h. At maximum speed, no axial load should be applied on motor's shaft, under penalty of shortening the servicing life.

## Options

### Feedback Sensors

#### 2 poles resolver - option A

- Accuracy:  $\pm 10'$  max
- Transformation ratio:  $0.5 \pm 5\%$
- Max. operating speed:  $17\,000\text{ min}^{-1}$
- Working temperature range:  $-55\dots+155\text{ }^{\circ}\text{C}$

#### Single turn / Multiturn absolute encoder HIPERFACE SKS/SKM 36 - option R/S

- Number of sine/cosine periods per revolution: 128
- Absolute position per revolution: 4096 (12 bits)
- Number of absolutely encodable revolutions: 4096 (SKM36)
- Max. operating speed SKS36:  $12\,000\text{ min}^{-1}$
- Max. operating speed SKM36:  $9\,000\text{ min}^{-1}$
- Working temperature range:  $-20\dots+110\text{ }^{\circ}\text{C}$

#### Single turn / Multiturn absolute encoder HIPERFACE DSL SIL2 EKS/EKM36 - option P/Q

- Absolute position per revolution: 262 144 (18 bits)
- Number of absolutely encodable revolutions: 4096 (EKM36)
- Max. operating speed EKS36:  $12\,000\text{ min}^{-1}$
- Max. operating speed EKM36:  $9\,000\text{ min}^{-1}$
- Working temperature range:  $-20\dots+115\text{ }^{\circ}\text{C}$



# Order Code

## NV Series

	1	2	3	4	5	6	7
Order example	<b>NV310E</b>	<b>A</b>	<b>R</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>

<b>1 Motor type</b>	NV310E NV420E NV430E see table "Technical Data" ... NV860V
<b>2 Feedback sensor</b>	A 2 pole resolver (standard) Max. speed 17 000 min <sup>-1</sup> R HIPERFACE encoder 128 ppr SKS36 Max. speed 12 000 min <sup>-1</sup> S Absolute multi-turn HIPERFACE encoder 128 ppr SKM36 Max. speed 9 000 min <sup>-1</sup> P Absolute single-turn HIPERFACE DSL SIL2 encoder EKS36 Max. speed 12 000 min <sup>-1</sup> Q Absolute multi-turn HIPERFACE DSL SIL2 encoder EKM36 Max. speed 9 000 min <sup>-1</sup>
<b>3 Painting</b>	R Unpainted (standard) B Black mat (on request)
<b>4 Connections / Ventilation</b>	1 Shielded cables / No 7 Connectors (standard) / No 9 Terminal boxes / Yes
<b>5 Thermal protection</b>	0 Without protection (standard) 1 PTC on power connector A PTC on sensor connector C KTY on sensor connector
<b>6 Protection degree</b>	0 IP64 (standard) 1 IP65
<b>7 Fix code</b>	0

## Cables

### Motor cable

Drive	Cable reference <sup>(1)</sup>	
	Current ≤ 15 A	Current ≤ 21 A
<b>With or without brake</b>		
<b>Compax3</b>	CC3UP1F1R0xxx	CC3UP2F1R0xxx
<b>AC890</b>	CS4UP1F1R0xxx	CS4UP2F1R0xxx
<b>With or without brake &amp; thermal sensor</b>		
<b>Compax3</b>	CC3UQ1F1R0xxx	CC3UQ2F1R0xxx
<b>AC890</b>	CS4UQ1F1R0xxx	CS4UQ2F1R0xxx
<b>With or without brake &amp; Hiperface DSL encoder</b>		
<b>PSD1</b>	CP1UD1F1R0xxx	CP1UD2F1R0xxx

### Feedback cable

Drive	Cable reference <sup>(1)</sup>	
	Resolver	Hiperface encoder
<b>Compax3</b>	CC3UA1F1R0xxx	CC3UR1F1R0xxx
<b>AC890</b>	CS4UA1F1R0xxx	-

(\*) The 3 last digits indicate cable length in meters ±5 %max  
For non-standard length cable with length different from: 1/2/3/4/5/10/15/20/25/30/40/50 m please contact us.  
Example CC3UP1F1R0015: power cable, length = 15 m.





# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374



## Aerospace

### Key Markets

Aftermarket services  
Commercial transports  
Engines  
General & business aviation  
Helicopters  
Launch vehicles  
Military aircraft  
Missiles  
Power generation  
Regional transports  
Unmanned aerial vehicles

### Key Products

Control systems & actuation products  
Engine systems & components  
Fluid conveyance systems & components  
Fluid metering, delivery & atomization devices  
Fuel systems & components  
Fuel tank inerting systems  
Hydraulic systems & components  
Thermal management  
Wheels & brakes



## Climate Control

### Key Markets

Agriculture  
Air conditioning  
Construction Machinery  
Food & beverage  
Industrial machinery  
Life sciences  
Oil & gas  
Precision cooling  
Process  
Refrigeration  
Transportation

### Key Products

Accumulators  
Advanced actuators  
CO<sub>2</sub> controls  
Electronic controllers  
Filter driers  
Hand shut-off valves  
Heat exchangers  
Hose & fittings  
Pressure regulating valves  
Refrigerant distributors  
Safety relief valves  
Smart pumps  
Solenoid valves  
Thermostatic expansion valves



## Electromechanical

### Key Markets

Aerospace  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Paper machinery  
Plastics machinery & converting  
Primary metals  
Semiconductor & electronics  
Textile  
Wire & cable

### Key Products

AC/DC drives & systems  
Electric actuators, gantry robots & slides  
Electrohydraulic actuation systems  
Electromechanical actuation systems  
Human machine interface  
Linear motors  
Stepper motors, servo motors, drives & controls  
Structural extrusions



## Filtration

### Key Markets

Aerospace  
Food & beverage  
Industrial plant & equipment  
Life sciences  
Marine  
Mobile equipment  
Oil & gas  
Power generation & renewable energy  
Process  
Transportation  
Water Purification

### Key Products

Analytical gas generators  
Compressed air filters & dryers  
Engine air, coolant, fuel & oil filtration systems  
Fluid condition monitoring systems  
Hydraulic & lubrication filters  
Hydrogen, nitrogen & zero air generators  
Instrumentation filters  
Membrane & fiber filters  
Microfiltration  
Sterile air filtration  
Water desalination & purification filters & systems



## Fluid & Gas Handling

### Key Markets

Aerial lift  
Agriculture  
Bulk chemical handling  
Construction machinery  
Food & beverage  
Fuel & gas delivery  
Industrial machinery  
Life sciences  
Marine  
Mining  
Mobile  
Oil & gas  
Renewable energy  
Transportation

### Key Products

Check valves  
Connectors for low pressure fluid conveyance  
Deep sea umbilicals  
Diagnostic equipment  
Hose couplings  
Industrial hose  
Mooring systems & power cables  
PTFE hose & tubing  
Quick couplings  
Rubber & thermoplastic hose  
Tube fittings & adapters  
Tubing & plastic fittings



## Hydraulics

### Key Markets

Aerial lift  
Agriculture  
Alternative energy  
Construction machinery  
Forestry  
Industrial machinery  
Machine tools  
Marine  
Material handling  
Mining  
Oil & gas  
Power generation  
Refuse vehicles  
Renewable energy  
Truck hydraulics  
Turf equipment

### Key Products

Accumulators  
Cartridge valves  
Electrohydraulic actuators  
Human machine interfaces  
Hybrid drives  
Hydraulic cylinders  
Hydraulic motors & pumps  
Hydraulic systems  
Hydraulic valves & controls  
Hydrostatic steering  
Integrated hydraulic circuits  
Power take-offs  
Power units  
Rotary actuators  
Sensors



## Pneumatics

### Key Markets

Aerospace  
Conveyor & material handling  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Transportation & automotive

### Key Products

Air preparation  
Brass fittings & valves  
Manifolds  
Pneumatic accessories  
Pneumatic actuators & grippers  
Pneumatic valves & controls  
Quick disconnects  
Rotary actuators  
Rubber & thermoplastic hose & couplings  
Structural extrusions  
Thermoplastic tubing & fittings  
Vacuum generators, cups & sensors



## Process Control

### Key Markets

Alternative fuels  
Biopharmaceuticals  
Chemical & refining  
Food & beverage  
Marine & shipbuilding  
Medical & dental  
Microelectronics  
Nuclear Power  
Offshore oil exploration  
Oil & gas  
Pharmaceuticals  
Power generation  
Pulp & paper  
Steel  
Water/wastewater

### Key Products

Analytical Instruments  
Analytical sample conditioning products & systems  
Chemical injection fittings & valves  
Fluoropolymer chemical delivery fittings, valves & pumps  
High purity gas delivery fittings, valves, regulators & digital flow controllers  
Industrial mass flow meters/ controllers  
Permanent no-weld tube fittings  
Precision industrial regulators & flow controllers  
Process control double block & bleeds  
Process control fittings, valves, regulators & manifold valves



## Sealing & Shielding

### Key Markets

Aerospace  
Chemical processing  
Consumer  
Fluid power  
General industrial  
Information technology  
Life sciences  
Microelectronics  
Military  
Oil & gas  
Power generation  
Renewable energy  
Telecommunications  
Transportation

### Key Products

Dynamic seals  
Elastomeric o-rings  
Electro-medical instrument design & assembly  
EMI shielding  
Extruded & precision-cut, fabricated elastomeric seals  
High temperature metal seals  
Homogeneous & inserted elastomeric shapes  
Medical device fabrication & assembly  
Metal & plastic retained composite seals  
Shielded optical windows  
Silicone tubing & extrusions  
Thermal management  
Vibration dampening



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