



aerospace
climate control
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process control
sealing & shielding



MGV Series

High-Speed Motors for Test Rigs



ENGINEERING YOUR SUCCESS.



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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.

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Europe

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

Asia

Shanghai, China
Chennai, India

North America

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



Offenburg, Germany

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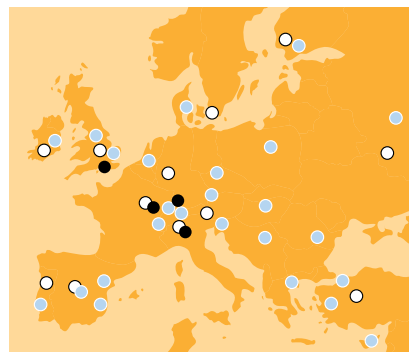
For contact information, please refer to the Sales Offices on the back cover of this document or visit www.parker.com



Milan, Italy



Littlehampton, UK



- Manufacturing
- Parker Sales Offices
- Distributors



Dijon, France

High-Speed Motors for Test Rigs - MGV

Overview

Description

MGV Series Servomotors are innovative direct drive solutions specially designed for applications that require high speeds and low inertias.

MGV motors can be found in many automotive or aeronautical component test rigs (starters, pumps, alternators, gearboxes...).

Highly responsive with exceptional dynamic performance, MGV motors are ideally suited to the needs of simulation testing: speed in urban cycle or motor racing, speed acyclism of an internal combustion engine, etc...

Features

- High maximum speeds avoid the need for mechanical gearing
- Low inertia allows very fast acceleration/deceleration
- Constant power operation above nominal speed removes the requirement to oversize the drive
- Water cooling ensures compact size and low noise operation
- High dynamic capabilities allow the operating conditions of the tested product to be accurately reproduced

Applikations

- **Engine testing**
 - Lorries
 - Cars
 - Motorbikes
- **Components testing**
 - Gearboxes
 - Differentials
 - Bearings
 - Belts
 - ...



Technical Characteristics - Overview

Power	Up to 230 kW
Speed	Up to 45 000 min ⁻¹
Field weakening	Depending on the capabilities of the drive
Mounting*	Flange B3
Protection degree	IP40 as standard
Cooling method	Water jacket
Supply voltage	400 VAC
Connections	<ul style="list-style-type: none"> • 1.2 m flying cable for power and thermal probe • Connector for feedback sensor signal
Stator winding isolation	Class F in accordance with EN60034-1 (overmolding)
Thermal protection	1 PTC 150 probe as standard
Rotor balancing	G1 quality
Shaft end	Solid smooth shaft as standard
Bearings	Steel or ceramic depending on speed and load
Feedback sensor	2 poles resolver

* **Note:** the motors are designed for horizontal operation. In case of vertical installation, please contact us.

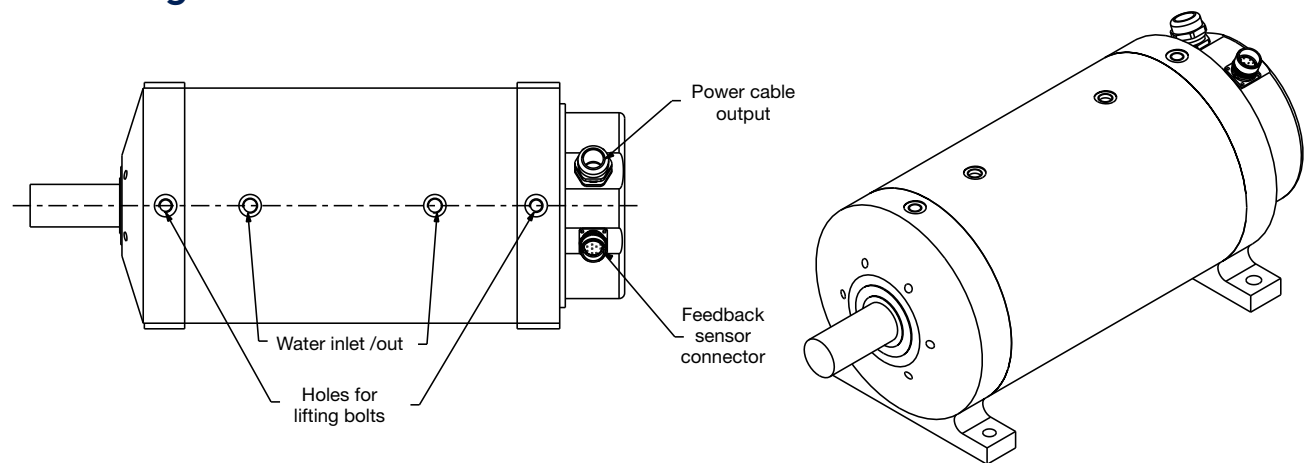
MGV Series are permanent magnet brushless servomotors integrated into a compact water cooled frame.

MGV Series servomotors are especially suitable for Automotive and Aerospace components testing, where they offer a large number of advantages over traditional fan ventilated induction motors:

- **Increased maximum speeds**
- **Removal of mechanical gearing**
- **Reduced size**
- **Reduced noise**

A large number of winding variants are available, meeting any desired torque / speed characteristics up to 230 kW.

Drawings



Drive Associations

Motor	Drive	S1 Power P S1 [kW]	Low speed torque S1 M ₀ [Nm]	Base speed N _b [min ⁻¹]	Max. speed N [min ⁻¹]	Permanent current at low speed I ₀ [A _{rms}]	Inertia J [kgmm ²]
MGV430BAL	Drive 25/51 - 400	10	7.3	13 100	45 000	24.7	890
MGV430BAI	Drive 35/79 - 400	15.6	6.8	21 900	45 000	35	890
MGV635CAF	Drive 37/57 - 400	15.6	20	7450	30 000	36.6	3520
MGV635CAD	Drive 55/85 - 400	25	20	11 900	30 000	54.8	3520
MGV840CAR	Drive 24/37 - 400	10	68	1410	24 000	23.2	18 600
MGV840CAH	Drive 73/114 - 400	32	68	4500	24 000	72.6	18 600
MGV840CAF	Drive 94/151 - 400	44	66	6370	24 000	93.8	18 600
MGV840CAD	Drive 123/227 - 400	63	58	10 300	24 000	123	18 600
MGV950CAC	Drive 222/456 - 400	105	200	5010	20 000	252	63 000
MGV950CAX	Drive 454/821 - 400	175	200	8350	20 000	454	63 000
MGV970CBX	Drive 542/661 - 400	230	390	5630	12 000	542	86 600
MGVA50DAC	Drive 154/191 - 400	67	480	1330	12 000	154	292 000
MGVA50DAB	Drive 230/287 - 400	101	480	2010	12 000	230	292 000
MGVA50DAA	Drive 439/598 - 400	200	460	4150	12 000	439	292 000
MGVA50DBB	Drive 470/660 - 400	195	620	3000	12 000	465.2	292 000

Global solution

Easy integration

Parker Hiross has been designing and manufacturing equipment for industrial water cooling since 1964. Using closed circuits, pollution and waste water are eliminated and efficiency is improved, resulting in energy savings. Hyperchill products can be used to cool the MG motor enabling you to benefit from a completed integrated Parker solution. We can also help you in the selection, assembly and use of a torque measuring flange that meets your needs.



Benefits

- A complete solution from a single supplier
- Maximum reliability
- An optimized system
- Low noise system (deported system)

Drive Associations

Complete and powerful AFE 4Q solution

When using Parker's drives in an AFE configuration, harmonic distortion is reduced to (THD < 3%) in accordance with IEEE519 and allows power to be fed back onto the supply grid.

In addition, MGV motors benefit from the use of field-weakening which enable them to deliver high torque at low speed as well as constant power from nominal up to maximum speed.

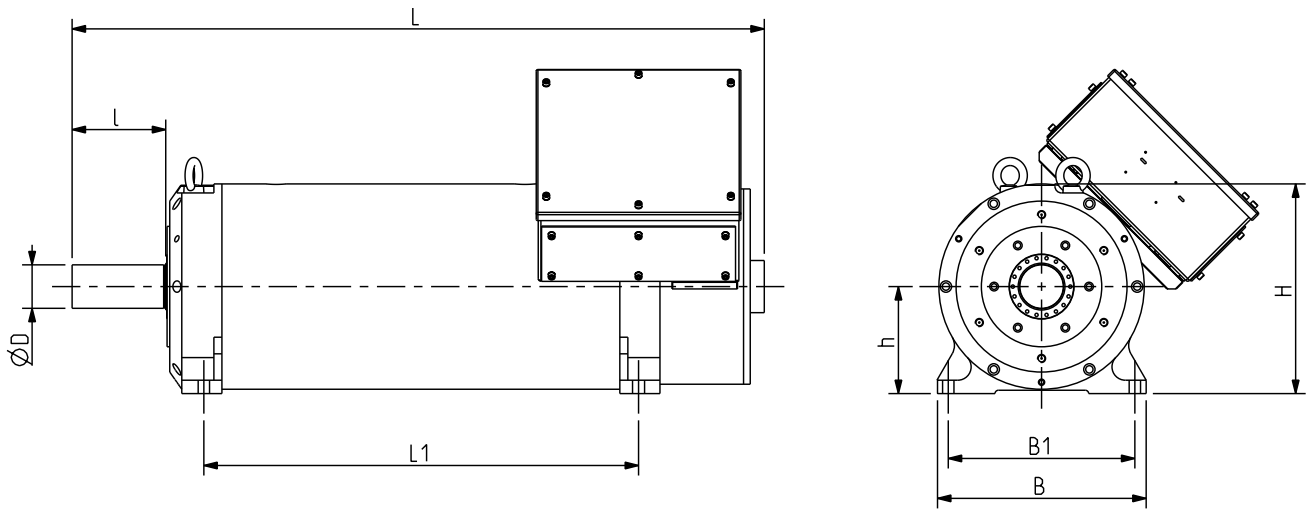
This removes the need to oversize the drive.

Motor	AC890 drive	S1 power P S1 [kW]	Low speed torque S1 M _o [Nm]	Base speed Nb [min ⁻¹]	Max. speed N [min ⁻¹]
MGV430BAL	890SD-53230SC	10	7.3	13 000	27 900
MGV430BAI	890SD-532450D	16	6.8	22 000	30 000
MGV635CAF	890SD-532450D	16	20	7 500	15 800
MGV635CAD	890SD-532590D	24	18	13 000	20 000
MGV635CAD	890SD-432730E	25	20	12 000	16 000
MGV840CAP	890SD-532450D	16	68	2 300	4 510
MGV840CAH	890SD-432870E	32	68	4 500	9 010
MGV840CAF	890SD-433105F	44	66	6 400	12 000
MGV840CAD	890SD-433145F	63	58	10 000	16 000
MGV950CAC	890SD-433316G	110	200	5 000	10 200
MGV950CAX	890SD-433420H	160	170	8 900	16 000
MGV950CAX	890SD-433520H	180	200	8 400	16 000
MGV970CBX	890SD-433520H	220	350	6 000	10 900
MGVA50DAC	890SD-433145F	66	450	1 400	2 500
MGVA50DAB	890SD-433250G	100	480	2 000	3 750
MGVA50DAA	890SD-433520H	200	460	4 200	7 510
MGVA50DBB	890SD-433520H	200	620	3 000	5 780

Motor	Digivex drive	S1 power P S1 [kW]	Low speed torque S1 M _o [Nm]	Base speed Nb [min ⁻¹]	Max. speed N [min ⁻¹]
MGV430BAL	DIGIVEX 32/64	9.7	6.9	13 000	45 000
MGV430BAI	DIGIVEX 50/80	16	6.8	22 000	45 000
MGV635CAF	DIGIVEX 50/80	16	19	7 600	30 000
MGV635CAD	DIGIVEX 100/120	25	20	12 000	30 000
MGV840CAP	DIGIVEX 50/80	16	66	2 300	24 000
MGV840CAH	DIGIVEX 100/120	32	66	4 600	24 000
MGV840CAF	DIGIVEX 150	44	66	6 400	24 000
MGV840CAD	DIGIVEX 300	63	58	10 000	24 000
MGVA50DAC	DIGIVEX 300	67	480	1 300	12 000



Dimensions



Motor	Dimensions [mm]								Weight [kg]
	L	L1	B	B1	H	h	l	ØD	
MGV430	376	225	150	125	150	80	50	24	33
MGV635	444	275	160	140	170	90	58	32	50
MGV840	531	334	220	190	217	112	80	38	100
MGV950	1050	496	290	254	295	160	110	48	250
MGV970	1250	658	290	254	295	160	110	42	270
MGVA50	1300	650	312	277	313	160	140	65	400

Order Code

MGV Series

	1	2	3	4	5	6	7	8	9
Order example	MGV	840	CAE	A	B3	L	R	1	000

1	Product series	
	MGV	Water cooling high speed motors
2	Size	
	430	see "Drive Associations" tables
	635	
	840	
	...	
3	Torque/Speed characteristics	
	BAL	see "Drive Associations" tables
	BAI	
	CAF	
	...	
4	Feedback sensor	
	A	Resolver
	K	Sin/cos encoder (option)
5	Mounting	
	B3	Horizontal, Foot mounting (standard)
6	Design	
	L	High speed design
	H	Very high speed design
	X	Ultra high speed design
7	Fix Code	
	R	
8	Electrical connections	
	1	Power out cables 1.2 m, PTC and connector for encoder signals (standard)
	6	Terminal box (option)
9	Interface	
	000	Standard motor
		Other code: customer specificity

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

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



CLIMATE CONTROL

Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products

- CO₂ controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



ELECTROMECHANICAL

Key Markets

- Aerospace
- Factory automation
- Food & beverage
- 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
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



FILTRATION

Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



FLUID & GAS HANDLING

Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



HYDRAULICS

Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



PNEUMATICS

Key Markets

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

Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



PROCESS CONTROL

Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



SEALING & SHIELDING

Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management

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US Product Information Centre
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