



MGV SERIES HIGH-SPEED MOTORS FOR TEST RIGS



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HIGH-SPEED MOTORS FOR TEST RIGS - SERIES MGVS

Overview

The MGVS motors are brushless synchronous servomotors with permanent magnets specially designed for applications that require high speeds and low inertias.

For qualification process MGVS motors can be used in many automotive or aeronautical component test rigs (ev motors, starters, pumps, alternators, gearboxes, combustion engine...).

Highly responsive with exceptional dynamic performance, MGVS 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...



Advantages

- High maximum speeds avoid the need for mechanical gearing
- Low inertia allows very fast acceleration/deceleration
- Constant power operation (field weakening mode) 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
- Compactness

Features

- Feet mounting (B3) or feet and flange (B34)
- Mechanical interface
 - Solid smooth shaft
 - Flange with pilot
 - Feet
- 2 pole resolver or Sine/cosine encoder
- Steel or ceramic bearings depending on speed
- Thermal protection by 1 PTC probe and 1 KTY84-130 sensor
- 2 thread holes (on the front and the rear) for bearing temperature measurement
- 2 thread holes (on the front and the rear) for vibration measurement
- Terminal box for power connection and connector for feedback sensor

Technical Characteristics - Overview

Power	Up to 500 kW
Speed	Up to 45 000 min ⁻¹ with sin/cos encoder. Up to 26 000 min ⁻¹ with resolver
Continuous torque	Up to 1.500 Nm
Peak torque	Up to 2.700 Nm
Inertia	From 8.9 up to 10.400 kg.cm ²
Protection degree	IP40
Operating temperature	0 °C to 40 °C
Cooling method	Water cooled
Supply voltage	400 VAC
Stator winding isolation	Class F in accordance with EN60034-1
Rotor balancing	G1 class
Painting	Black RAL9005

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

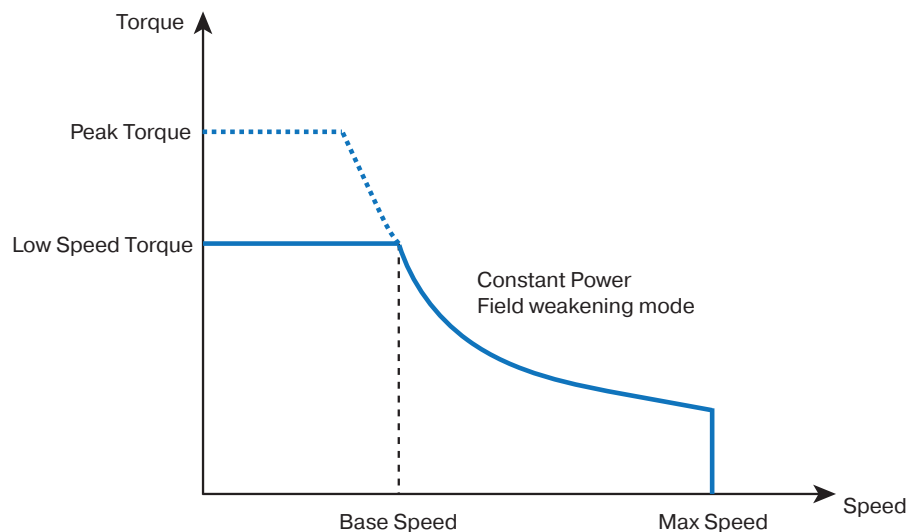
Applications

- Engine testing
- Lorries
- Cars
- Motorbikes
- Components testing
- Gearboxes
- Differentials
- Bearings
- Belts
- Starters
- Alternators
- Pumps

Technical Data

Motor	S1 Power PS1 (at 540 VDC)	Max. Speed with steel bearings	Max. Speed with ceramic bearings	Max. Speed with X-life bearings	Max. Frequency	Low speed Torque Mo	Low speed Current Io	Low speed S6 Torque	S6 current at low speed	Base Speed Nb	Moment of Inertia J	Polarity
	[kW]	[min ⁻¹]	[min ⁻¹]	[min ⁻¹]	[Hz]	[Nm]	[Arms]	[Nm]	[Arms]	[min ⁻¹]	[kgm ²]	—
MGV430BAI	15.7	26 000	33 000 ¹⁾	45 000 ¹⁾	1500 ¹⁾	6.8	35.0	11	78.1	22000	0.00089	4
MGV635CAD	25	18 500	25 000	30 000 ¹⁾	1500 ¹⁾	20	49.4	30	74.3	11900	0.00352	6
MGV635CAF	15.6	18 500	25 000	30 000 ¹⁾	1500 ¹⁾	20	32.9	30	49.6	7450	0.00352	6
MGV840CAD	63	14 300	18 000	24 000	1200	58	123	100	227	10400	0.0186	6
MGV860CBD	94	14 300	18 000	24 000	1200	120	136	170	202	7500	0.0264	6
MGV950CAX	175	11 700	16 000	20 000	1000	200	454	300	821	8350	0.063	6
MGV950CAC	105	11 700	16 000	20 000	1000	200	252	300	456	5010	0.063	6
MGV966DAX	250	—	—	8 000	533	520	505	900	982	4600	0.076	8
MGVA50DAX	260	—	12 000	—	800	440	558	600	798	5600	0.292	8
MGVA50DBY	290	—	12 000	—	800	570	560	800	870	4820	0.292	8
MGVB50HBS	500	—	8 000	—	1067	1500	1010	2700	1900	3200	1.04	16

¹⁾ With sin/cos encoder only, not available with resolver.



COMPLETE DRIVE ENGINEERED SOLUTION

Description

The modularity of the AC30 allows you to build the system architecture specific to your needs. The power bridge up to 450 kW can drive the AFE 4-quadrant power supply or drive high-speed motors. The range is available with different types of speed / position feedback: Resolver or sin/cos for perfect stability. The switching frequency can reach 9 kHz to go to output frequencies up to 1250 Hz with field weakening control allowing the highest rotational speeds.

For the control of the most powerful motors, the AC30 allows a master / slave combination which doubles the available power.

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.



Benefits

- Compact drive
- Low-maintenance ensures maximum machine availability and productivity
- Total flexibility for easy integration
- 4Q version available with THDI < 10 %
- Active Front-End (AFE) version - energy regeneration with low harmonic distortion < 3 %

Motor	AC30 drive	S1 Power PS1 (at 540 VDC)	Base Speed Nb	Speed limit with drive association No OVP ⁽¹⁾	Speed limit with drive association with OVP ⁽¹⁾	Low speed Torque
		[kW]	[min ⁻¹]	[min ⁻¹]	[min ⁻¹]	[Nm]
MGV430BAI	710-4G0045 + 30A-2S	15.7	22000	30 000 ⁽²⁾	30 000 ⁽²⁾	6.8
MGV635CAD	710-4H0145 + 30A-2S	25	11900	28 000 ⁽²⁾	30 000 ⁽²⁾	20
MGV635CAF	710-4G0060 + 30A-2S	15.6	7450	18 800	24 000	20
MGV840CAD	710-4J0205 + 30A-2S	63	10400	21 500	24 000	58
MGV860CBD	710-4J0260 + 30A-2S	94	7500	11 200	24 000	120
MGV950CAX	710-4M0700 + 30A-2S	175	8350	20 000	20 000	200
MGV950CAC	710-4K0380 + 30A-2S	105	5010	12 000	20 000	200
MGV966DAX	710-4M0650 + 30A-2S	250	4600	8 000	8 000	520
MGVA50DAX	710-4M0700 + 30A-2S	260	5600	12 000	12 000	440
MGVA50DBY	710-4M0700 + 30A-2S	290	4820	9 200	12 000	570
MGVB50HBS	—	500	3200	6 200	—	1500

⁽¹⁾ used with additional Over Voltage Protection Module to limit the DC-link voltage at the inverter when a fault occurs by short-circuiting the motor terminals.

⁽²⁾ With sin/cos encoder only, not available with resolver.

WATER CHILLER FOR PRECISION COOLING

Description

Extremely compact and easy to use, Hyperchill Plus is designed for safe and reliable operation in the most varied working conditions, providing a precise and accurate control of the process fluid temperature. The availability of a wide range of accessories and options makes Hyperchill Plus a very flexible solution that fits the needs of all industrial applications.

Cooling Capacity: 1.7 to 23.6 kW

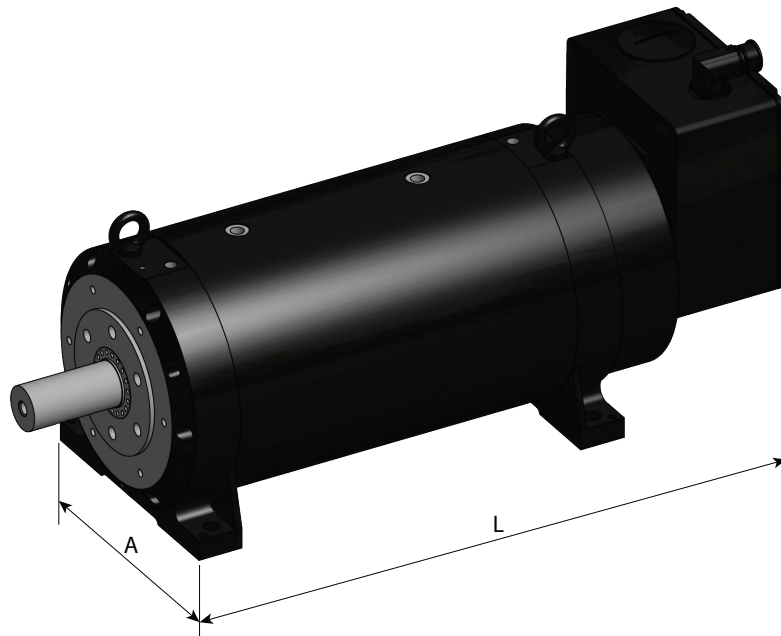


Benefits

- A complete integrated solution from a single supplier
- Because of its compact design the Hyperchill Plus provides a space saving and easy to install solution
- The non-ferrous hydraulic circuit maintains the quality of the coolant ensuring stable working conditions and decreasing maintenance costs.
- One Hyperchill Plus is able to cool several MGV motors

Motor	Water flow necessary for cooling (with water + 30 % glycol)	Maxi drop pressure @ nominal water flow in the motor	Motor power losses at max speed and continuous operation	Hyperchill Plus with single pump 5 bar : P5 option (mandatory)
	[l/min]			
MGV430BAI	3.3	3 maxi	1.6	ICEP003-WASP5T0xxxxxx1
MGV635CAD	5.6		2.5	ICEP003-WASP5T0xxxxxx1
MGV840CAD	11		4.3	ICEP005-WATP5T0xxxxxx1
MGV860CBD	17		6.8	ICEP007-WATP5T0xxxxxx1
MGV950CAX	18		7	ICEP010-WATP5T0xxxxxx1
MGV966DAX	28		11.7	ICEP014-WATP5T0xxxxxx1
MGVA50DAX	28		12	ICEP014-WATP5T0xxxxxx1
MGVA50DBY	28		12	ICEP014-WATP5T0xxxxxx1
MGVB50HBS	50		20	ICEP024-WATP5T0xxxxxx1

Dimensions



Motor	Dimensions [mm]				Weight [kg]
	A	L	Shaft Height	Shaft diameter x length	
MGV430	150	407	80	24 x 50	35
MGV635	160	469	90	32 x 58	55
MGV840	220	572	112	38 x 80	115
MGV860	220	647	112	38 x 80	135
MGV950	290	788	160	48 x 110	270
MGV966	290	881	160	48 x 110	300
MGVA50	312	895	160	65 x 140	395
MGVB50	410	1050	200	75 x 140	740

Order Code MGV Series

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

1	Product series	
	MGV	Water cooling high speed motors
2	Motor Size	
	430, 635, 840, 860, 950, 966, A50, B50	In relation with the diameter and length of the motor. see "Technical Data"
3	Torque/Speed characteristics	
	BAI, CAD, CBD, CAX, DAX, DBY, HBS	see "Technical Data"
4	Feedback sensor	
	A	Resolver
	S	Sincos encoder
5	Mounting	
	B3	Horizontal, Foot mounting (standard)
6	Design (see table "Technical data" for available configurations)	
	L	High speed design (steel balls)
	H	Very high speed design (ceramic balls)
	X	Ultra high speed design (X-Life bearing)
7	Fix Code	
	R	
8	Electrical connection	
	6	Terminal box (standard)
9	Mechanical option	
	000	Standard motor

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