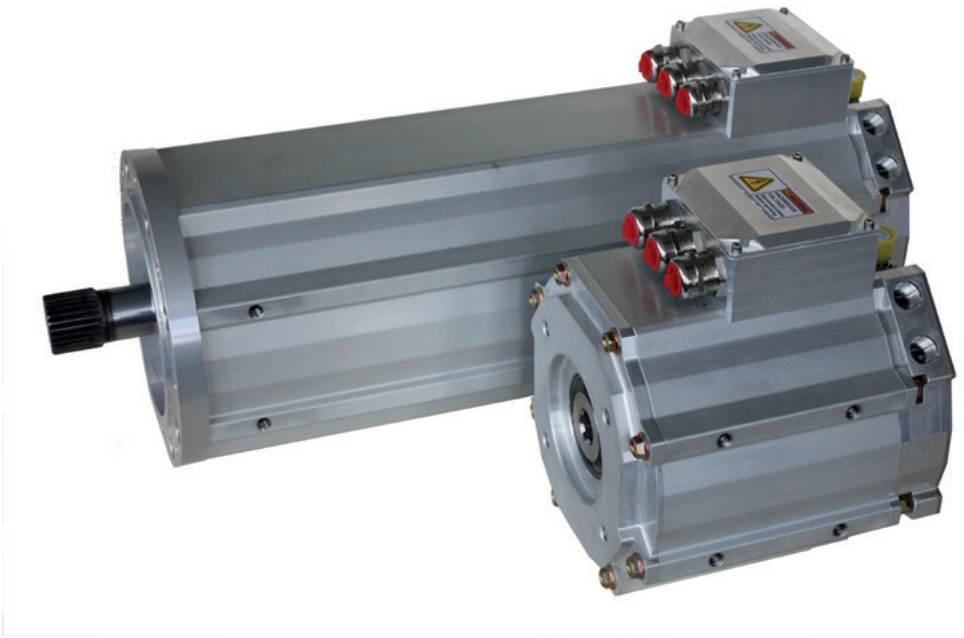
aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



GVM Global Vehicle Motor

Permanent Magnet (PMAC) Motors and Generators for Traction, Electro-Hydraulic Pumps (EHP) and Auxiliary Systems

Parker

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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

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

Asia
Wuxi, China
Chennai, India

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

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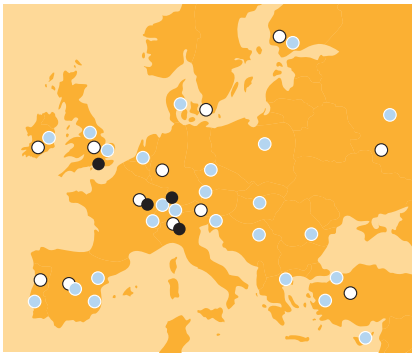
Milan, Italy

Littlehampton, UK



Electromechanical Manufacturing
Parker Sales Offices
Distributors

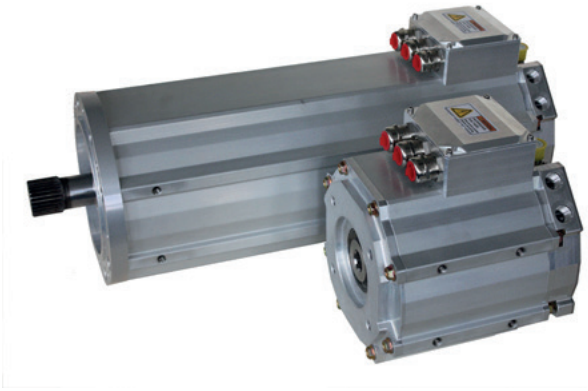
Dijon, France

Global Vehicle Motor - GVM

Overview

Description

PMAC servomotors offer the best solution to meet the requirements of vehicle duty performance. The torque density and speed capabilities of Parker Permanent Magnet AC motors (PMAC) combined with a voltage-matched inverter provide the speed and torque required to achieve breakthrough performance in a variety of vehicle platforms.
The GVM is a powerful choice for both on- and off-road vehicles, engineered for Traction, Electro-hydraulic Pumps (EHP) and auxiliary applications.
The GVM motor line was designed to be used in a wide variety of vehicle applications including; construction vehicles, refuse truck, city buses, street sweeper, motorcycles and scooters, light commercial vehicles and watercraft.



Features

- High efficiency
- Compactness (High power density)
- Customisation capability including specific mechanical design
- Can be used either as motor or generator
- Operating voltages available from 24 to 640 VDC
- Rare earth magnets allow high temperature operation
- Patent pending cooling

Typical Applications

- Electric motors/generators for hybrid applications
- Electric motors for motorbikes, scooters...
- Traction applications
- Electro-hydraulic pumps for high power cylinders
- Electric power steering
- Auxiliary applications as fan/compressors for air conditionning

Technical Characteristics - Overview

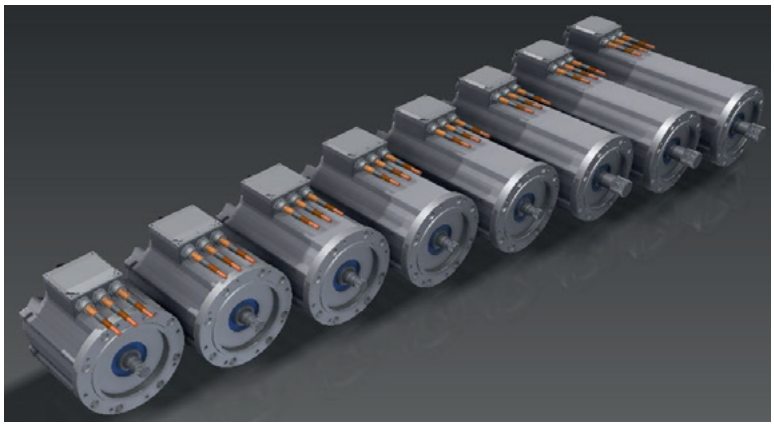
Motor type	Permanent Magnet synchronous motor
Magnet materials	Rare earth magnets
Number of poles	12
Rated voltage	24 to 640 VDC
Power range	up to 170 kW (continuous)
Torque range	up to 710 Nm max.
Speed range	up to 8000 min^{-1}
Ambient temperature*	liquid cooled: -40 °C…+120 °C natural convection: -40 °C…+65 °C
Storage temperature*	-40 °C…+120 °C
Sensor	Resolver or SinCos encoder
Insulation of the stator winding	Class H with potting
Protection	IP65 as standard IP67 and IP6K9K on request
Random Vibration	0,1 g^2/Hz in frequency range 5-2000 Hz (12 g rms – 3 x 8h)
Operational Shock	25 g, 11 ms, 3 x 6 (with 2 directions per axis)
Thermal protection	1 PTC probes and 1 KTY84-130 sensor
Shaft end	Spline shaft (male or female), other possibilities on request
Connections	Terminal box (flying cables on request); Connector for feedback
Marking	CE

* With resolver as feedback

GVM Motors: A Powerful Range

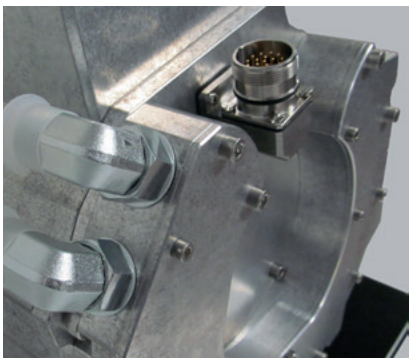
Overview

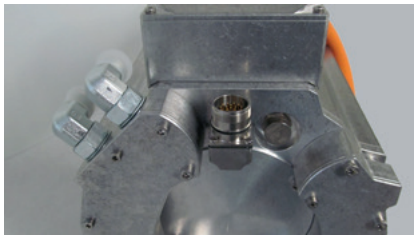
- Continuous power up to 170 kW
- High power density & compactness
- Peak torque up to 710 Nm
- Rotational speed up to 8000 min^{-1} max.
- Low inertia / high dynamic
- Low and high voltage options 24 VDC to 640 VDC
- High modularity of standard lamination stack length
- Hollow spline shaft available for EHP and solid spline shaft for traction application



Cooling System

- Enables high power density
- Oil or water can be used in the same system
- Circular stator comprising the cooling system can be inserted in any circular housing (Parker or customer)
- Possibility for natural convection cooling



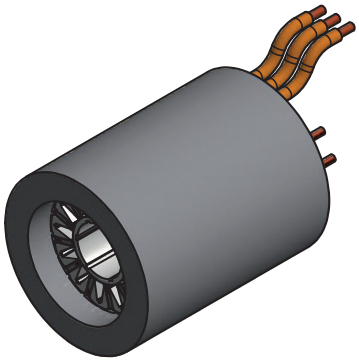


Rugged Design

- Designed to be shock-proof, vibration-proof, salt spray resistant
- Gore vent: to avoid condensation in case of sudden T° variation or during storage at low T°
- Ambient T°: -40 °C to +120 °C (liquid cooling)
- IP65 standard; IP67 / 6K9K on request

The GVM is also available as a Kit (GVK)

- Available as a potted circular stator including the cooling system
- Provides the customer with a bespoke and integrated mechanical design
- Parker is able to offer support in the integration of GVM kits
- GVK range has the same electrical characteristics as GVM range



Typical Efficiency Maps

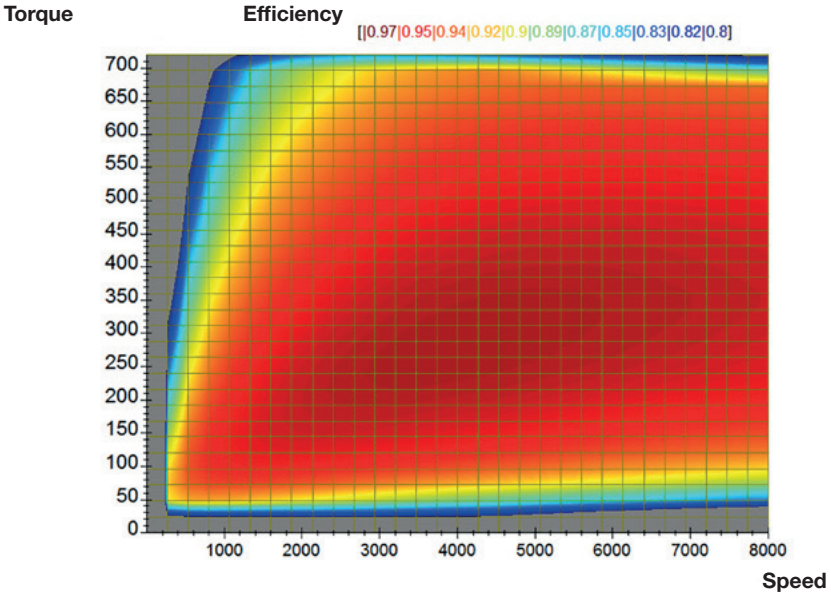
GVM Motors: an efficient range.

The PMAC efficiency is far higher than induction motor efficiency of the same power range.

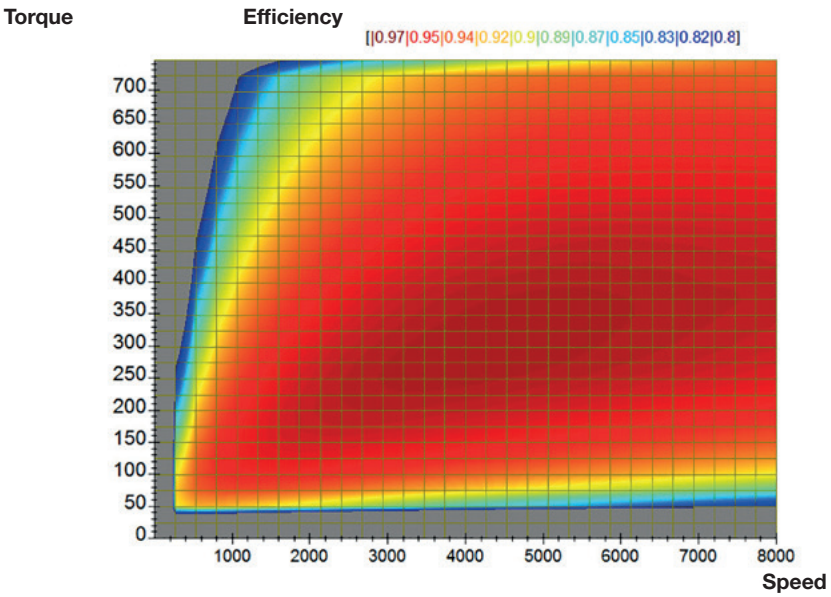
Only when using the best component technology and optimal design characteristics do traction motors/ generators and controllers minimize losses both during motoring and power generation - increasing vehicle range.

Variable speed system allows higher efficiency even at low speed

GVM210-400 in Motor operation mode



GVM210-400 in Generator operation mode



Characteristics are given for an optimal drive/motor association: DC voltage supply 640V , GVM210-400 motor/ MA3-80-400 drive
Efficiency calculated with a constant temperature of 125°C. Without current harmonic and cable losses.

Technical Characteristics

Characteristics with Natural Convection - Low Voltage Windings

GVM210 Stator connected to a heat-exchange surface at 60 °C without water cooling
(Characteristics are given for an optimal drive of the motor)
These associations without liquid cooling are typically dedicated to EHP due to the low speed level available.

Motor	DC Voltage Supply [V]	Rated Torque Mn [Nm]	Rated Power Pn [kW]	Rated Current In [Arms]	Rated Speed Nn [min^{-1}]	Peak Torque Mp [Nm]	Peak Power Pp [kW]	Peak Current Ip [Arms]	Maximum Speed Nmax [min^{-1}]
GVM210-050-APN	24	22.7	3.91	176	1650	82	8.7	711.3	2100
GVM210-050-APN	36	17	5.5	134	3090	82	14.8	711.3	3300
GVM210-050-APN	48	13.2	5.23	105	3800	82	20.5	711.2	4000
GVM210-050-MPN	72	13.2	5.23	69.3	3800	82	20.4	467.4	4000
GVM210-050-SPN	80	14.3	5.39	64	3600	82	19.3	399.0	3900
GVM210-050-XPN	96	14.9	5.45	53.4	3500	82	18.7	320.8	3800
GVM210-050-DQN	120	15.1	5.47	43.9	3450	82	18.5	259.7	3800
GVM210-100-YNN	24	45	4.2	184	893	173	9.8	815.7	1100
GVM210-100-YNN	36	39.5	6.13	163	1480	173	16.2	815.7	1600
GVM210-100-YNN	48	33.1	6.93	138	2000	173	22.6	815.7	2100
GVM210-100-DPN	72	25.5	6.67	90.3	2500	173	29.3	685.1	2800
GVM210-100-GPN	80	27.1	6.82	82.6	2400	173	28.1	590.6	2700
GVM210-100-MPN	96	26.3	6.75	66.5	2450	173	28.0	489.4	2600
GVM210-100-SPN	120	24.7	6.58	53.3	2550	173	29.3	417.8	2700
GVM210-150-YNN	36	58.4	5.79	159	948	262	15.7	818.4	1050
GVM210-150-YNN	48	52	7.16	142	1310	262	22.1	818.3	1450
GVM210-150-APN	72	41.4	7.8	104	1800	262	31.6	747.2	2000
GVM210-150-DPN	80	40.1	7.77	93.1	1850	262	32.5	687.4	2000
GVM210-150-JPN	96	41.4	7.8	77.4	1800	262	31.5	554.3	1950
GVM210-150-QPN	120	40.1	7.77	62.9	1850	262	32.4	464.5	2000

Characteristics with Liquid Cooling - Low Voltage Windings

GVM210 Input cooling liquid at 65 °C (Characteristics are given for an optimal inverter / motor association)
(for other cooling temperature please contact us)

Motor	DC Voltage Supply [V]	Rated Torque Mn [Nm]	Rated Power Pn [kW]	Rated Current In [Arms]	Rated Speed Nn [min^{-1}]	Peak Torque Mp [Nm]	Peak Power Pp [kW]	Peak Current Ip [Arms]	Maximum Speed Nmax [min^{-1}]
GVM210-050-DPW	24	38.7	5.66	272	1400	82	8.4	654.8	2100
GVM210-050-DPW	36	38.4	9.03	271	2250	82	13.6	654.8	3370
GVM210-050-DPW	48	38.1	12.3	269	3100	82	18.7	654.8	4650
GVM210-050-DPW	72	37.3	18.3	265	4690	82	28.9	654.8	7050
GVM210-050-DPW	80	37	20.9	263	5390	82	32.3	654.7	8000
GVM210-050-DPW	96	36.4	24.3	260	6390	82	39.0	654.7	8000
GVM210-050-JPW	120	36.4	24.3	209	6390	82	38.5	528.0	8000
GVM210-100-DPW	36	88.2	9.7	300	1050	173	13.3	685.8	1570
GVM210-100-DPW	48	87.8	13.3	299	1450	173	18.7	685.8	2170
GVM210-100-DPW	72	86.9	20	297	2200	173	29.3	685.8	3300
GVM210-100-DPW	80	86.5	22.6	296	2500	173	32.9	685.8	3750
GVM210-100-DPW	96	85.7	26.9	293	3000	173	39.7	685.8	4500
GVM210-100-DPW	120	84.4	33.6	290	3800	173	49.1	685.8	5700
GVM210-150-DPW	48	138	13	310	900	262	18.1	688.2	1350
GVM210-150-DPW	72	137	20.8	308	1450	262	28.9	688.2	2170
GVM210-150-DPW	80	136	22.9	307	1600	262	32.5	688.2	2400
GVM210-150-DPW	96	136	27.7	305	1950	262	39.6	688.1	2920
GVM210-150-DPW	120	134	34.4	303	2450	262	48.9	688.1	3670
GVM210-200-DPW	72	186	20.5	312	1050	352	28.4	692.3	1575
GVM210-200-DPW	80	186	23.3	312	1200	352	32.0	692.3	1800
GVM210-200-DPW	96	185	28.1	310	1450	352	39.2	692.3	2175
GVM210-200-DPW	120	183	34.6	308	1800	352	48.6	692.3	2700
GVM210-250-DPW	80	234	22.8	314	930	442	31.5	694.8	1395
GVM210-250-DPW	96	234	28.1	313	1150	442	38.7	694.8	1725
GVM210-250-DPW	120	232	34.1	311	1400	442	48.1	694.8	2100
GVM210-300-DPW	80	283	22.5	314	760	530	30.8	692.3	1140
GVM210-300-DPW	96	282	28	314	950	530	38.1	692.3	1420
GVM210-300-DPW	120	281	33.8	312	1150	530	47.5	692.3	1720
GVM210-400-DPW	120	376	33.4	312	850	710	46.4	695.4	1275

Characteristics with Liquid Cooling - High Voltage Windings

GVM210 Input cooling liquid at 65 °C (Characteristics are given for an optimal inverter / motor association)
(for other cooling temperature please contact us)

Motor	DC Voltage Supply [V]	Rated Torque Mn [Nm]	Rated Power Pn [kW]	Rated Current In [Arms]	Rated Speed Nn [min^{-1}]	Peak Torque Mp [Nm]	Peak Power Pp [kW]	Peak Current Ip [Arms]	Maximum Speed Nmax [min^{-1}]
GVM210-050-QQW	320	36.9	21.2	66.4	5490	82	32.9	165.3	8000
GVM210-050-VQW	400	36.8	22.1	55	5740	82	34.4	137.6	8000
GVM210-050-VQW	480	36	26.2	54.1	6940	82	41.4	137.5	8000
GVM210-050-FRW	640	36	26	40	6890	82	40.9	101.7	8000
GVM210-100-SPW	320	78.6	53.5	166	6500	173	82.3	418.1	8000
GVM210-100-XPW	400	78.6	53.5	133	6500	173	83.2	336.1	8000
GVM210-100-DQW	480	79.1	52.2	108	6300	173	81.0	272.1	8000
GVM210-100-MQW	640	78.3	54.1	83.6	6600	173	84.3	211.6	8000
GVM210-150-DPW	320	115	84.1	262	7000	262	136.5	687.9	8000
GVM210-150-JPW	400	114	84.9	210	7100	262	138.1	554.7	8000
GVM210-150-SPW	480	118	80	163	6500	262	125.6	419.5	8000
GVM210-150-ZPW	640	118	80	122	6500	262	125.1	312.7	8000
GVM210-200-DPW	320	164	89.4	278	5200	352	137.1	692.1	7800
GVM210-200-DPW	400	152	105	259	6610	352	172.2	692.0	8000
GVM210-200-JPW	480	154	103	211	6410	352	167.0	558.1	8000
GVM210-200-SPW	640	153	104	159	6510	352	168.8	421.9	8000
GVM210-250-DPW	320	213	91.6	287	4100	442	137.2	694.6	6150
GVM210-250-DPW	400	202	110	273	5200	442	172.6	694.5	7800
GVM210-250-DPW	480	188	126	254	6410	442	207.8	694.4	8000
GVM210-250-JPW	640	181	131	198	6910	442	223.8	560.0	8000
GVM210-300-DPW	320	262	93.2	293	3400	530	136.9	692.2	5100
GVM210-300-DPW	400	251	113	281	4300	530	172.1	692.1	6450
GVM210-300-DPW	480	238	132	267	5300	530	207.6	692.0	7950
GVM210-300-DPW	640	205	155	232	7220	530	277.8	691.9	8000
GVM210-400-DPW	320	358	93.6	299	2500	710	136.0	695.3	3750
GVM210-400-DPW	400	348	116	290	3190	710	172.0	695.2	4800
GVM210-400-DPW	480	336	137	281	3900	710	207.6	695.1	5850
GVM210-400-DPW	640	306	170	257	5310	710	278.6	695.0	7950

Drive Associations with Low Voltage Motors

Natural convection (stator connected to a heat-exchange surface at 60 °C)

Motor	Drive	DC Voltage Supply [V]	Rated Torque Mn [Nm]	Rated Power Pn [kW]	Rated Current In [Arms]	Rated Speed Nn [min^{-1}]	Peak Torque Mp [Nm]	Peak Power Pp [kW]	Peak Current Ip [Arms]	Maximum Speed Nmax [min^{-1}]
GVM210-050-PNN	MCF-03-0500	24	19.9	5.1	234	2450	42.9	9.4	500	2450
GVM210-050-PNN	MCF-03-0650	24	19.9	5.1	234	2450	54.4	10.8	650	2450
GVM210-050-LNN	MCE-03-0500	24	17.5	5.22	240	2850	37.4	9.8	500	2850
GVM210-050-LNN	MCF-03-0650	24	18.1	5.41	248	2850	47.9	11.8	650	2850
GVM210-050-FNN	MCF-03-0650	24	15.4	5.48	252	3400	41	12.4	650	3400
GVM210-050-FPN	MCE-04-0350	48	17.4	5.48	115	3000	52.9	13.3	350	3000
GVM210-050-FPN	MCE-04-0450	48	17.4	5.48	115	3000	65.4	14.7	450	3000
GVM210-100-FNN	MCF-03-0650	24	37.6	6.49	292	1650	84.7	12.4	650	1650
GVM210-100-LNN	MCF-04-0650	48	25.5	6.67	171	2500	98.8	24.6	650	2500

Liquid cooling (input cooling liquid at 65 °C)

Motor	Drive	DC Voltage Supply [V]	Rated Torque Mn [Nm]	Rated Power Pn [kW]	Rated Current In [Arms]	Rated Speed Nn [min^{-1}]	Peak Torque Mp [Nm]	Peak Power Pp [kW]	Peak Current Ip [Arms]	Maximum Speed Nmax [min^{-1}]
GVM210-050-DPW	MCF-04-0650	48	38.2	11.4	269	2850	81.2	17.6	650	2850
GVM210-050-QPW	MCF-08-0550	72	38.1	11.6	181	2900	82	18.2	445	2900
GVM210-050-QPW	MCF-09-0650	96	37.7	15.8	180	4000	82	24.9	445	4000
GVM210-100-FPW	MCF-04-0650	48	88	11.1	278	1200	173	16.3	638	1200
GVM210-100-SPW	MCF-08-0550	72	88	11.1	183	1200	173	16.3	420	1200
GVM210-100-QPW	MCF-09-0650	96	87	16.9	201	1850	173	25.1	466	1850
GVM210-150-YNW	MCF-09-0650	96	75	17.3	201	2200	222	41.8	650	2200

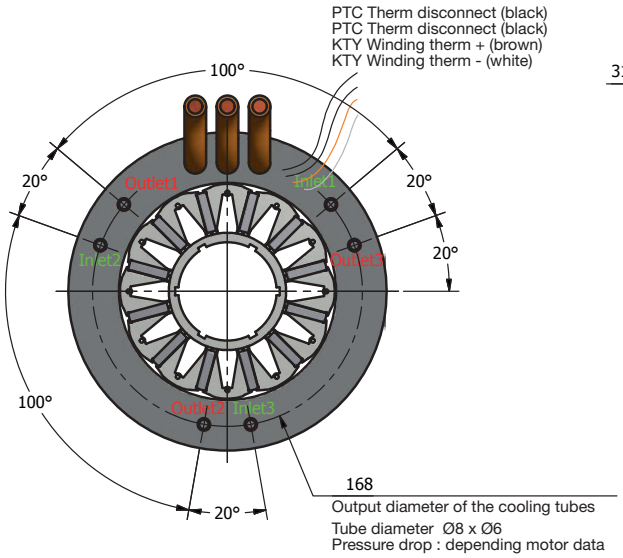
Drive Associations with High Voltage Motors

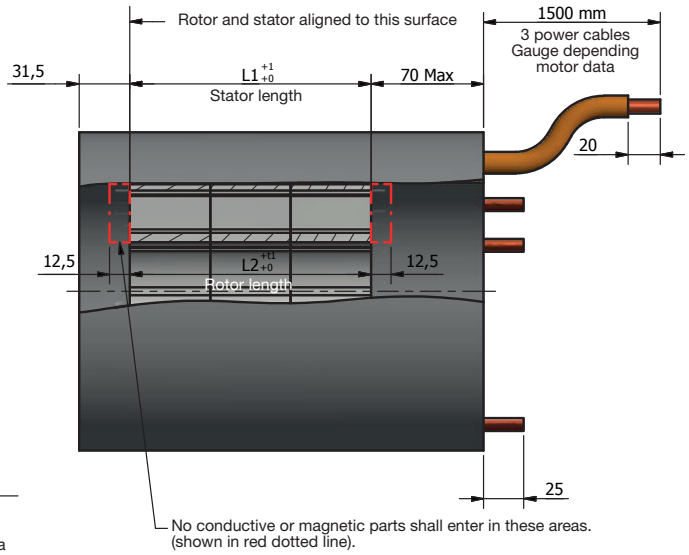
Liquid cooling (input cooling liquid at 65 °C)

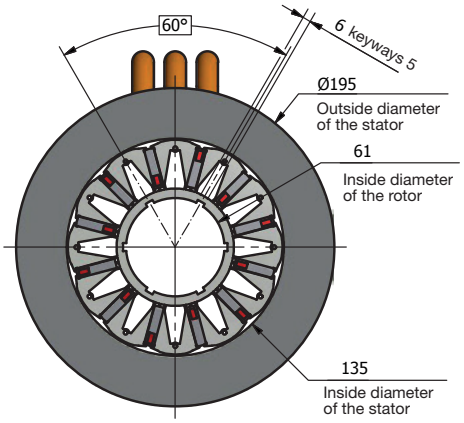
Motor	Drives	DC Voltage Supply [V]	Rated Torque Mn [Nm]	Rated Power Pn [kW]	Rated Current In [Arms]	Rated Speed Nn [min^{-1}]	Peak Torque Mp [Nm]	Peak Power Pp [kW]	Peak Current Ip [Arms]	Maximum Speed Nmax [min^{-1}]
GVM210-100-DQW	MA3-40-0225	320	83.9	36	114	4100	152	49.8	225	6000
GVM210-100-XPW	MA3-40-0325	320	81.9	43.7	138	5100	169	65.0	325	7400
GVM210-100-QPW	MA3-40-0400	320	77	57.3	180	7100	157	86.9	400	8000
GVM210-100-DQW	MA3-60-0225	480	79.1	52.2	108	6300	152	75.6	225	8000
GVM210-150-DQW	MA3-40-0225	320	134	37.1	120	2650	230	50.3	225	3900
GVM210-150-XPW	MA3-40-0325	320	132	45.5	146	3300	256	64.9	325	4800
GVM210-150-QPW	MA3-40-0400	320	127	61	194	4600	237	87.5	400	6700
GVM210-150-DQW	MA3-60-0225	480	129	55.2	116	4100	230	76.5	225	5900
GVM210-150-XPW	MA3-60-0325	480	124	66.5	139	5100	256	98.5	325	7300
GVM210-150-SPW	MA3-60-0400	480	118	80	163	6500	254	122.0	400	8000
GVM210-150-DQW	MA3-80-0225	640	122	71.6	110	5600	230	101.8	225	7900
GVM210-150-XPW	MA3-80-0325	640	115	84.1	128	7000	256	131.5	325	8000
GVM210-200-DQW	MA3-40-0225	320	183	37.9	122	1980	300	49.9	218	2900
GVM210-200-XPW	MA3-40-0325	320	181	46.4	149	2450	340	64.6	321	3600
GVM210-200-SPW	MA3-40-0400	320	178	57.6	182	3100	340	80.9	400	4500
GVM210-200-DQW	MA3-60-0225	480	178	56.8	119	3050	300	76.3	218	4400
GVM210-200-XPW	MA3-60-0325	480	174	69.1	144	3800	342	98.4	325	5400
GVM210-200-SPW	MA3-60-0400	480	168	82.6	173	4700	340	122.9	400	6700
GVM210-200-DQW	MA3-80-0225	640	172	73.7	115	4100	300	102.7	218	5800
GVM210-200-XPW	MA3-80-0325	640	165	88	137	5100	342	132.1	325	7200
GVM210-200-SPW	MA3-80-0400	640	154	103	160	6410	340	164.5	400	8000
GVM210-300-DQW	MA3-40-0225	320	280	37.5	124	1280	463	49.0	225	1950
GVM210-300-XPW	MA3-40-0325	320	278	46.5	152	1600	515	64.1	325	2400
GVM210-300-QPW	MA3-40-0400	320	273	64.3	206	2250	477	87.3	400	3300
GVM210-300-DQW	MA3-60-0225	480	275	56.7	122	1970	463	75.6	225	2900
GVM210-300-XPW	MA3-60-0325	480	271	69.5	148	2450	515	98.5	325	3600
GVM210-300-QPW	MA3-60-0400	480	262	93.2	198	3400	477	132.9	400	4900
GVM210-300-DQW	MA3-80-0225	640	269	76	119	2700	463	102.0	225	3900
GVM210-300-XPW	MA3-80-0325	640	263	92	144	3350	515	131.7	325	4800
GVM210-300-QPW	MA3-80-0400	640	246	121	186	4700	477	178.7	400	6600
GVM210-400-DQW	MA3-40-0225	320	375	37.3	124	950	618	48.0	225	1450
GVM210-400-XPW	MA3-40-0325	320	373	46.4	152	1190	689	63.1	325	1800
GVM210-400-QPW	MA3-40-0400	320	368	63.6	207	1650	638	86.0	400	2400
GVM210-400-DQW	MA3-60-0225	480	370	56.9	122	1470	618	74.7	225	2150
GVM210-400-XPW	MA3-60-0325	480	366	69.8	150	1820	689	97.7	325	2700
GVM210-400-QPW	MA3-60-0400	480	357	95.3	201	2550	638	131.8	400	3700
GVM210-400-DQW	MA3-80-0225	640	364	76.2	121	2000	618	101.2	225	2900
GVM210-400-XPW	MA3-80-0325	640	358	93.6	146	2500	689	132.1	325	3600
GVM210-400-QPW	MA3-80-0400	640	343	125	193	3490	638	177.4	400	4900

Dimensions (kit version*)

GVK210







Motor size	L1 [mm]	L2 [mm]	t1	Weight [kg]
GVK210-050	50	50	0.5	14
GVK210-100	100	100	1	22
GVK210-150	150	150	1.5	30
GVK210-200	200	200	2	38.5
GVK210-250	250	250	2.5	47
GVK210-300	300	300	3	54.5
GVK210-350	350	350	3.5	63
GVK210-400	400	400	4	71

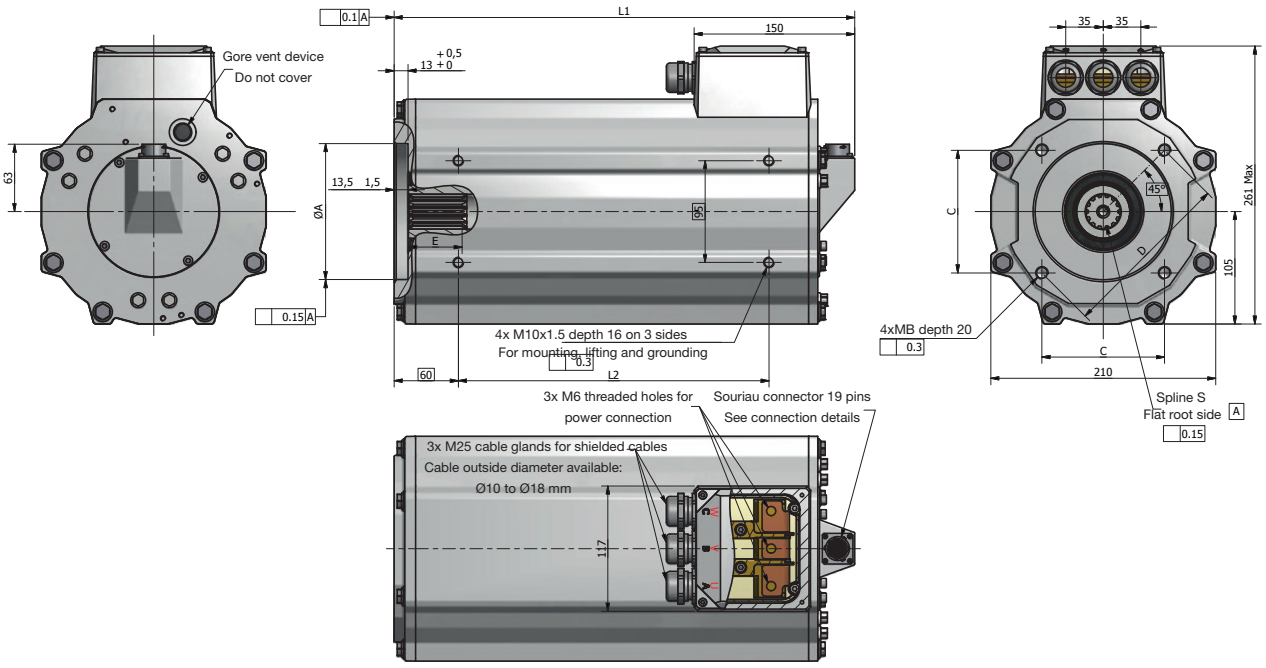
WARNING
The motor has to be shrinked in the customer housing by Parker
Parker will support the customer to determine part dimensions

To have the pressure drop given by Parker :
Connect all of the InletN in // to the cooling system input
Connect all of the OutletN in // to the cooling system output

* Outside dimensions are subject to change depending on the winding symbol

Dimensions Natural Convection Version

For Electro-Hydraulic Pumps (EHP) Applications



Motor size	L1 [mm]	L2 [mm]	Weight [kg]
GVM210-050	232 max	90	26.5
GVM210-100	282 max	140	36.5
GVM210-150	332 max	190	47
GVM210-200	382 max	240	57
GVM210-250	432 max	290	67.5
GVM210-300	482 max	340	77

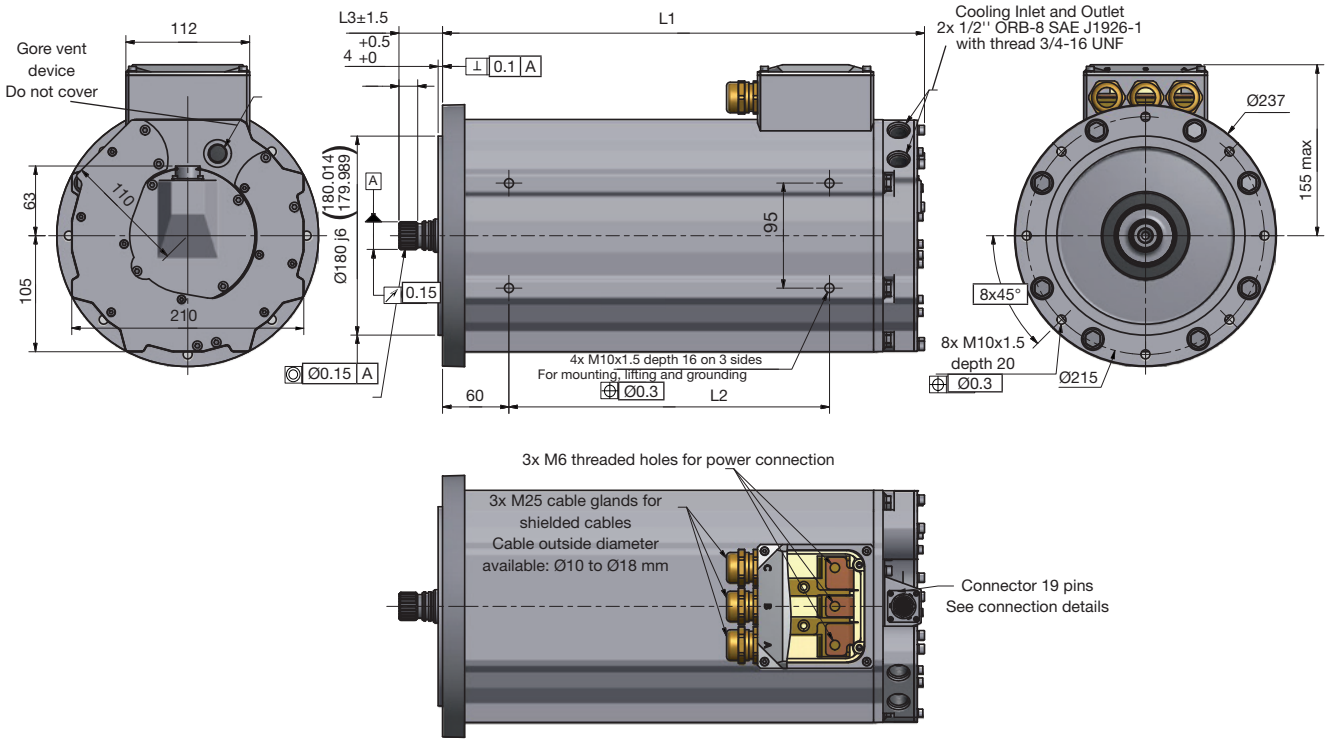
Front interface data						
SAE choice	ØA	B	C	D	E	S
SAE A	Ø82.55 G7	10	/	Ø106.4	25	SAE A 9T 16/32 DP
SAE B	Ø101.6 G7	12	/	Ø146	35	SAE B 13T 16/32 DP
SAE C	Ø127 G7	12	114.5	/	50	SAE C 14T 12/24 DP

Dimensions (water cooled version)

For Traction Applications

GVM210

Dimensions [mm]



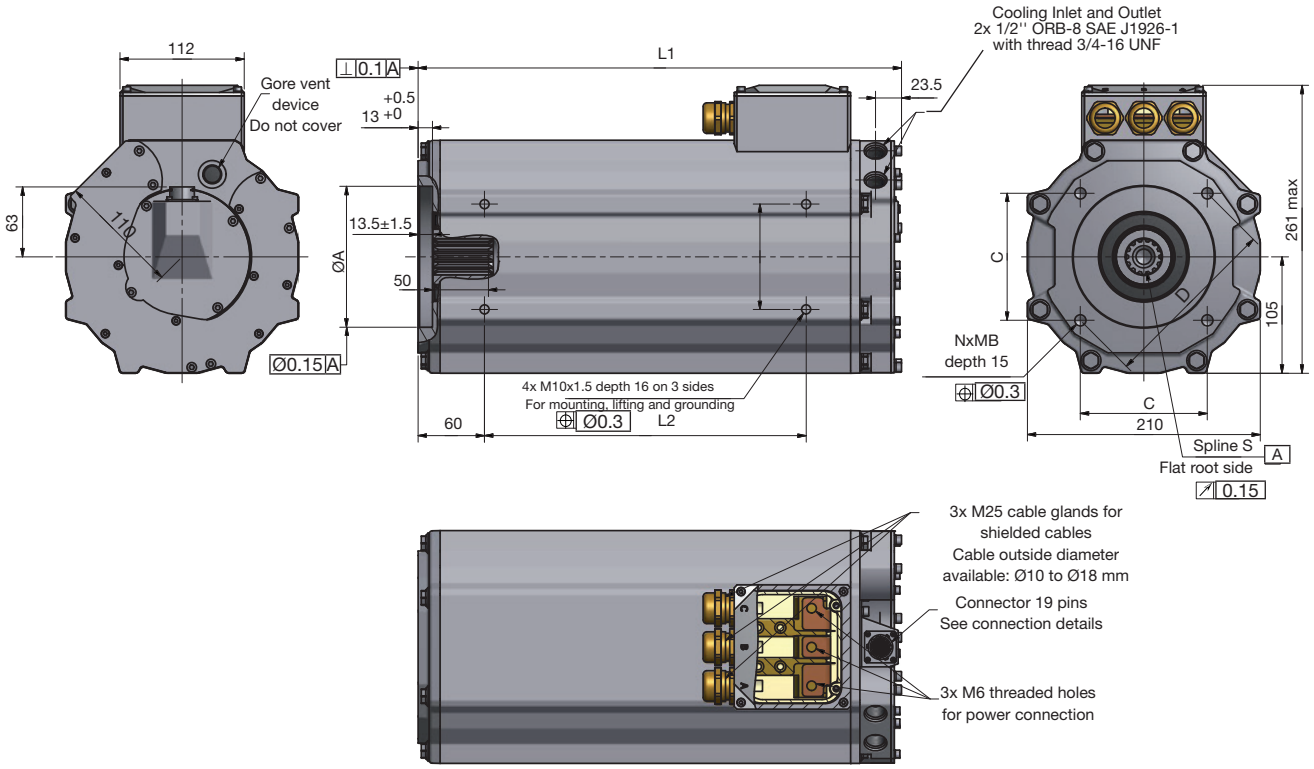
Motor size	L1 [mm]	L2 [mm]	Shaft interface	L3 [mm]	L4 [mm]	Weight [kg]
GVM210-050	234 max	90	TA	39.4	16.8	36.5 kg
GVM210-100	285 max	140	TA	39.4	16.8	45.5 kg
GVM210-150	336 max	190	TA	39.4	16.8	54.5 kg
GVM210-200	387 max	240	TA	39.4	16.8	63.5 kg
GVM210-250	438 max	290	TA	39.4	16.8	72.5 kg
GVM210-300	489 max	340	TB	63.5	38.1	81.5 kg
GVM210-350	540 max	390	TB	63.5	38.1	90.5 kg
GVM210-400	591 max	440	TB	63.5	38.1	99.5 kg

	Spline interface TA		Spline interface TB
GVM210 Motor frame size	050 - 250		300 - 400
Involute Spline	ANSI B92.2M		ANSI B92.1
Flat root side fit	Class 6h		Class 5
Number of teeth	24		27
Module	1.000		-
Spline pitch	-		16/32
Pressure angle	30°		30°
Pitch diameter (Ref)	Ø24.000		Ø42.863
Base diameter (Ref)	Ø20.785		Ø37.12
Major diameter	Ø25.00/Ø24.75		Ø44.45/Ø44.32
Minor diameter	Ø22.50/Ø22.26		Ø39.27
Form diameter (max)	Ø22.89		Ø41.17
Circular tooth thickness (max effective)	1.571		2.456
Circular tooth thickness (min actual)	1.485		2.421
Pin diameter	2.12		3.048
Measurement over pins (Ref)	Ø27.479/Ø27.399		Ø47.460/Ø47.407

For Electro-Hydraulic Pumps (EHP) Applications

GVM210

Dimensions [mm]

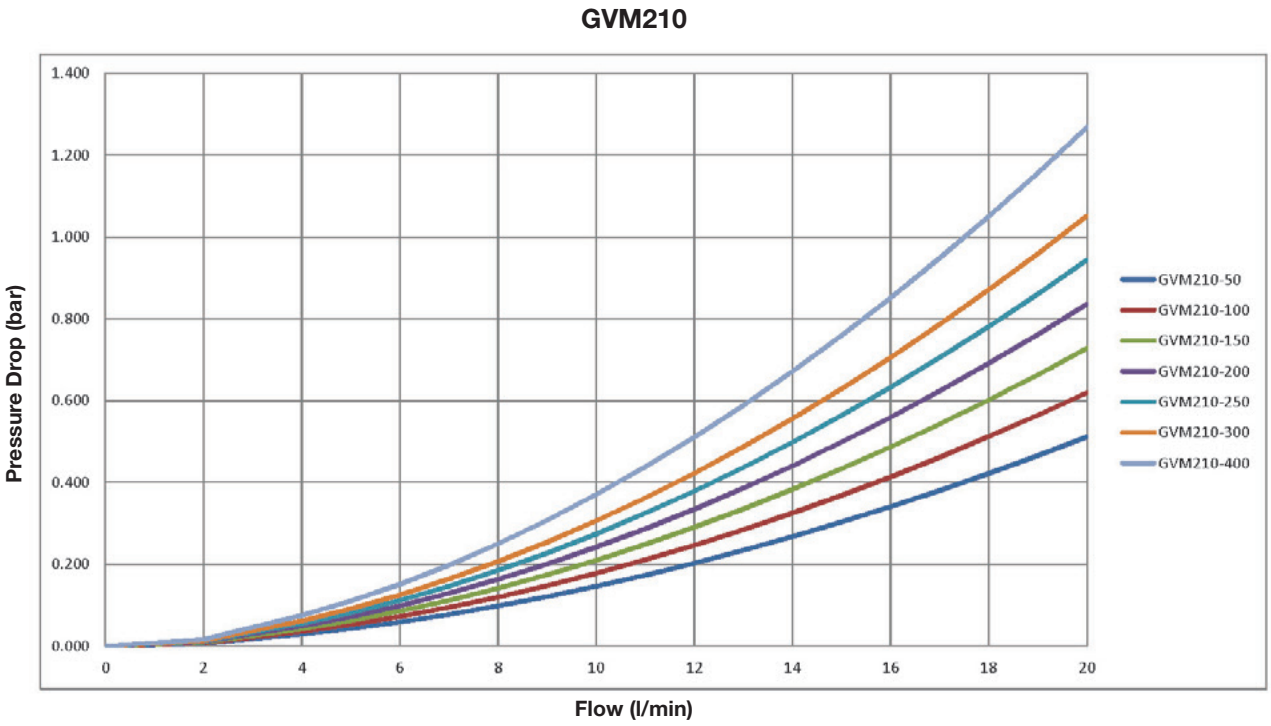


Motor size	L1 [mm]	L2 [mm]	Weight [kg]
GVM210-050	234 max	90	38
GVM210-100	285 max	140	47
GVM210-150	336 max	190	56
GVM210-200	387 max	240	65
GVM210-250	438 max	290	74
GVM210-300	489 max	340	83
GVM210-350	540 max	390	92
GVM210-400	591 max	440	101

Front interface data						
SAE choice	ØA	N	B	C	D	S
SAE A	Ø82.55 G7	2	10	/	106.4	SAE A 9T 16/32 DP
SAE B	Ø101.6 G7	4	12	89.8	/	SAE B 13T 16/32 DP
SAE B	Ø101.6 G7	4	12	89.8	/	SAE B-B 15T 16/32 DP
SAE B	Ø101.6 G7	2	12	/	146	SAE B 13T 16/32 DP
SAE B	Ø101.6 G7	2	12	/	146	SAE B-B 15T 16/32 DP
SAE C	Ø127 G7	4	12	114.5	/	SAE C 14T 12/24 DP

Liquid Cooling Pressure Drop

With Water-Glycol 50% - Input at 65°C



Please refer to the motor datasheet or technical manual for more information.
For other types of cooling liquid thank you to consult us.

Order Code

	1	2	3	4	5	6	7	8	9	10	11
Order example	**GVM**	**210**	**150**	**EP**	**W**	**A**	**A**	**A**	**TA**	**1**	**G**

1	**Motor series**	
	GVM	Global Vehicle Motor
	GVK	Global Vehicle Kit Motor

2	**Frame size (outer width)**	
	210	210 mm

3	**Stack length***	
	50	data see chapter "Technical Characteristics"
	100	
	150	
	200	
	250	
	300	
	350	
	400	

4	**Winding symbol**	
	....	see motor tables

5	**Cooling system**	
	N	Natural cooling
	W	Water cooling

6	**Feedback**	
	A	Resolver (standard 2 poles)
	S	Sin/Cos RM22A (low voltage applications)

7	**Thermal switch**	
	A	PTC

8	**Thermal sensor**	
	A	Omega 44008 30 kΩ thermistor
	B	KTY84-130 thermistor

9	**Interface**	
	TA	Traction mount, shaft 24 teeth (see p10)
	TB	Traction mount, shaft 27 teeth (see p10)
	PA	EHP mount, SAE A, 2 holes
	PB	EHP mount, SAE B, 2 holes
	PC	EHP mount, SAE C, 4 holes
	PD	EHP mount, SAE B, 4 holes
	PE	EHP mount, SAE BB, 2 holes
	PF	EHP mount, SAE BB, 4 holes

10	**Power connection**	
	1	Terminal box

11	**Options**	
	G	Global (standard motor)
	N	North America (custom motor)
	E	Europe (custom motor)
	A	Asia (custom motor)

* "Technical Characteristics" (page 8)

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_2 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
Electrohydrostatic 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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