GVM 142
GLOBAL VEHICLE MOTOR

Permanent Magnet (PMAC) Motors and Generators for Vehicle Applications

Parker

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Parker Hannifin Electronic Controls & Motion Division.
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GVM Series Motors

Breakthrough Performance

The GVM (Global Vehicle Motor) is Parker's PMAC offering for electric and hybrid electric powertrain motors, and electro-hydraulic actuation.

The GVM utilizes highly engineered magnetics to achieve efficiencies in peak regions not obtainable in other designs. It uses a new patent-pending advanced cooling system that has minimal impact on the size and weight of the motor. The scalability of the GVM allows the widest performance range available.

Tested to the demanding heavy duty vehicle grade standards of SAE J1455 the GVM can handle the toughest jobs making it a powerful choice for both on and off-road vehicles.

Features

- Peak power density up to 4.2 kW/kg
- Continuous power density up to 2.3 kW/kg
- Operating voltages available from 24 to 800 VDC
- Samarium Cobalt (SmCo) magnets allow high temperature operation and removes demagnetization failure mode
- Highly efficient design reduces thermal dissipation requirements, lowering overall cooling system costs
- Very low torque ripple - even at peak current
- Low rotor inertia for high dynamic responsiveness
- Can provide up to 20% more range for a given battery pack
- Ultra-thin stator laminations with reduced slots virtually eliminates eddy currents
- Patent pending cooling configuration yields very high cooling effectiveness regardless of motor length
- Meets SAE J1455 heavyduty vehicle environmental standards

Motor Performance Definitions

GVM Series motors are designed to meet the power requirements in a wide variety of vehicle applications. The GVM has the ability to operate at different bus voltages, without loss of power.

- **Two frame sizes**
- **Multiple operating voltages**
- **Numerous rotor lengths**
- **Multiple winding configurations per length**
- **= Hundreds of unique motor size and performance configurations**

By selecting the appropriate voltage, rotor length and winding variation, the following parameters can be refined to match the vehicle's specific performance requirements:

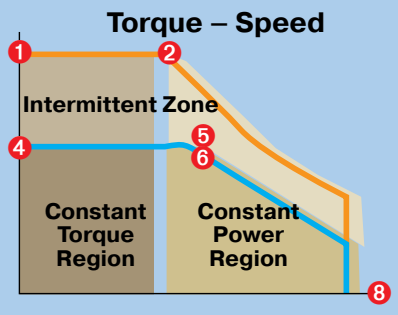
- **Peak torque**
- **Base speed**
- **Peak power**
- **Stall torque**
- **Rated torque**
- **Rated speed**
- **Rated power**
- **Maximum speed**

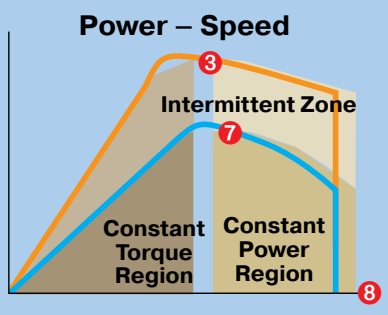
The performance data on the following pages of this catalog provide speed, torque and power performance at various specified VDC (as defined by the illustrations and chart example shown below).

To Estimate Performances at Other Voltages:

1) Calculate Voltage Ratio Vrat=(Vnew/350VDC) or Vrat = (Vnew/650VDC)
2) Multiply speed and power values by ratio (#2, #3, #6, #7, #8)
3) Do not change torque values
4) Overlay new values for #1 - #8 onto definitions chart for rough performance curve

Please contact your Parker Representative for assistance.





	Parameter	GVM210 050A	GVM210-(B
1	Peak Torque (Nm)	76	77
2	Base Speed (RPM)	843	1,37
3	Peak Power (kW)	8	1
4	Stall Torque Continuous (Nm)	42	
5	Rated Torque (Nm)	36	3
6	Rated Speed (RPM)	1,361	2,2
7	Rated Shaft Output Power (kW)	5	8
8	Max Continuous Speed* (RPM)	1,966	3
	Stall Current Peak (Amp RMS)	29	
	Stall Current Continuous (Amp RMS)	14	
	Coolant Temperature (°C)	60	
	Max Winding Temperature (°C)	180	
	Winding Temp at Rating (°C)	140	

Winding Configuration Code

Rotor Length

Frame Size

* Maximum continuous speed is reached when Bemf exceeds bus voltage. Maximum continuous mechanical speed is 8000 rpm, and maximum intermittent speed is 10,500 rpm.

GVM Series Motors

GVM142 Accessory Motors & Generators

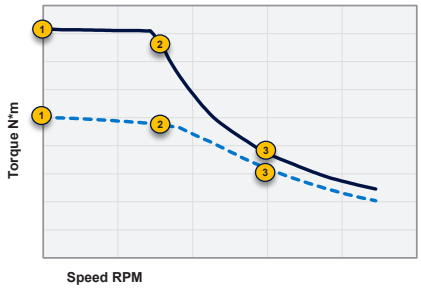


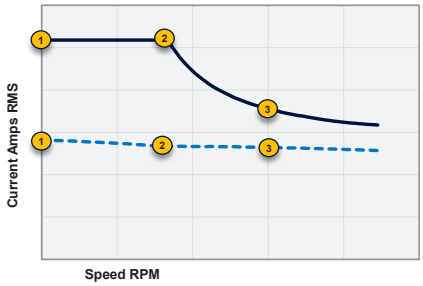
Model	GVM142-050	GVM142-075	GVM142-100
Page	6 – 11	12 – 17	18 – 23
Max. Torque Output Range (Nm)			
Peak	32.0	50.2	67.4
Continuous	17.2	26.8	36.0
Winding Choices Available			
48 VDC	12	11	11
96 VDC	10	11	11
350 VDC	8	9	9
Rated Speed[1] (RPM)			
48 VDC	1669 – 10,318	1449 – 6879	1033 – 5081
96 VDC	1729 – 11,009	1438 – 10,030	1043 – 8006
350 VDC	1699 – 12,472	1747 – 12,671	1267 – 9841
Peak Power[1] (kW)			
48 VDC	3.9 – 27.0	5.0 – 27.0	4.6 – 28.0
96 VDC	4.0 – 31.0	5.0 – 43.0	4.7 – 43.0
350 VDC	3.8 – 36.0	6.3 – 56.0	6.0 – 57.0
Rated Shaft Output Power[1] (kw)			
48 VDC	2.6 – 14.0	3.4 – 14.0	3.3 – 13.9
96 VDC	2.6 – 16.0	3.4 – 23.0	3.3 – 24.0
350 VDC	2.5 – 17.0	4.1 – 27.0	4.0 – 30.0

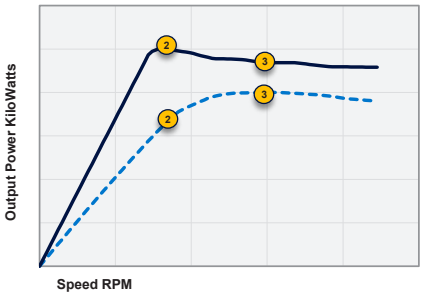
1 Rated value dependant on winding selection
2 Maximum peak power shows performance of the motor at base speeds of ~7500 rpm. Contact factory for details

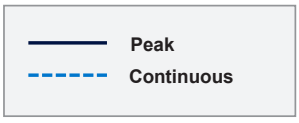
GVM142 Accessory Motors & Generators

GVM142-050 Performance @ 48 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-050M6	18	76	41	226
GVM142-050N6	18	93	42	279
GVM142-050P6	18	118	42	354
GVM142-050Q6	18	150	42	448
GVM142-050R6	18	165	42	492
GVM142-050S6	18	189	42	565
GVM142-050T6	18	210	42	627
GVM142-050V6	18	234	42	699
GVM142-050W6	17	247	41	738
GVM142-050Y6	16	264	39	786
GVM142-050Z6	15	282	38	844

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050M6	1385	17	75	3	40	226	6
GVM142-050N6	1681	18	92	3	42	279	7
GVM142-050P6	2275	17	115	4	41	354	10
GVM142-050Q6	2967	17	144	5	41	448	13
GVM142-050R6	3165	17	157	6	42	492	14
GVM142-050S6	3758	16	177	6	41	565	16
GVM142-050T6	4154	16	194	7	41	627	18
GVM142-050V6	4550	16	213	8	41	699	20
GVM142-050W6	5341	15	217	8	40	738	22
GVM142-050Y6	6231	13	215	8	38	786	25
GVM142-050Z6	7615	11	206	8	36	844	29

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050M6	2967	13	74	4	18	136	6
GVM142-050N6	3659	13	90	5	19	166	7
GVM142-050P6	4648	13	113	6	19	214	9
GVM142-050Q6	5637	13	139	8	21	282	12
GVM142-050R6	6033	13	151	8	21	305	13
GVM142-050S6	6528	13	168	9	23	374	15
GVM142-050T6	7220	13	182	10	23	408	17
GVM142-050V6	7912	13	195	11	23	455	19
GVM142-050W6	7912	12	192	10	26	543	21
GVM142-050Y6	7912	11	187	9	29	671	24
GVM142-050Z6	7912	10	201	9	34	844	28

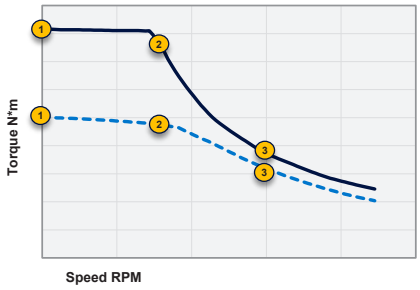
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 1.5 lpm

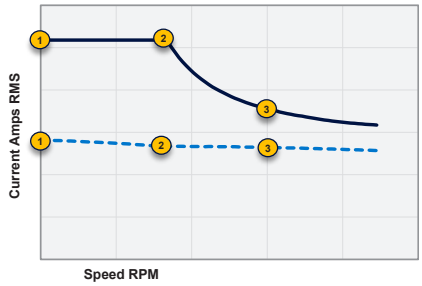
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

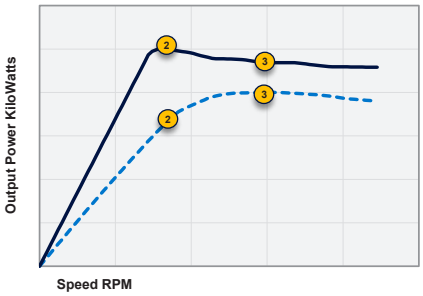
Contact Parker for compatible inverter recommendations

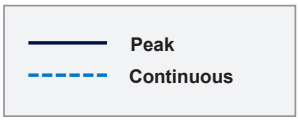
GVM142 Accessory Motors & Generators

GVM142-050 Performance @ 96 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-050J6	18	38	41	113
GVM142-050K6	18	47	41	142
GVM142-050L6	18	59	42	178
GVM142-050M6	18	76	41	226
GVM142-050N6	18	93	42	279
GVM142-050P6	18	118	42	354
GVM142-050Q6	18	150	42	448
GVM142-050R6	18	165	42	492
GVM142-050S6	18	189	42	565

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050J6	1385	17	37	2	41	113	6
GVM142-050K6	1780	17	47	3	41	142	8
GVM142-050L6	2275	17	58	4	41	178	10
GVM142-050M6	3066	17	72	5	40	226	13
GVM142-050N6	3659	17	88	6	41	279	16
GVM142-050P6	4747	16	107	8	41	354	20
GVM142-050Q6	6132	15	126	9	41	448	26
GVM142-050R6	6626	14	133	10	40	492	28
GVM142-050S6	7813	12	136	10	41	565	33

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050J6	2967	13	37	4	19	69	6
GVM142-050K6	3659	13	46	5	19	87	7
GVM142-050L6	4648	13	57	6	19	109	9
GVM142-050M6	5637	13	70	8	21	144	12
GVM142-050N6	6429	14	84	9	22	182	15
GVM142-050P6	7912	13	97	11	23	237	19
GVM142-050Q6	7912	12	107	10	30	359	25
GVM142-050R6	7912	13	118	10	33	411	27
GVM142-050S6	7912	12	135	10	40	565	33

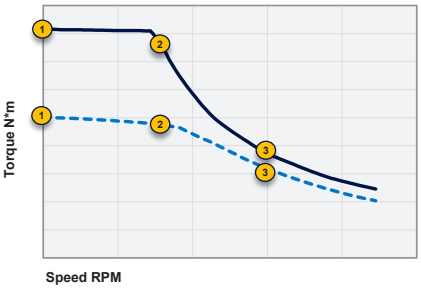
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 1.5 lpm

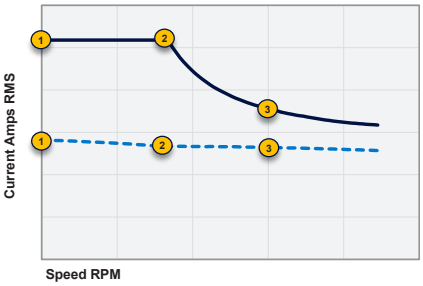
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

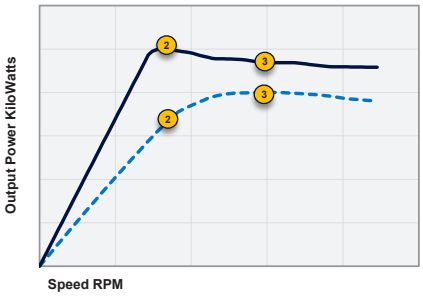
Contact Parker for compatible inverter recommendations

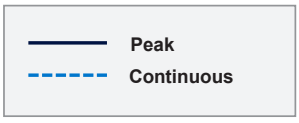
GVM142 Accessory Motors & Generators

GVM142-050 Performance @ 350 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-050D6	17	12	41	37
GVM142-050F6	17	19	41	57
GVM142-050G6	17	24	41	72
GVM142-050H6	17	30	41	90
GVM142-050J6	18	38	41	113
GVM142-050K6	18	47	41	142

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050D6	1780	17	12	3	40	37	7
GVM142-050F6	2868	16	19	5	40	57	12
GVM142-050G6	3659	16	23	6	40	72	15
GVM142-050H6	4648	16	28	8	40	90	19
GVM142-050J6	5835	15	33	9	40	113	24
GVM142-050K6	7220	13	36	10	40	142	30

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050D6	3462	13	12	5	20	24	7
GVM142-050F6	5341	13	18	7	21	37	12
GVM142-050G6	6231	13	22	9	23	49	15
GVM142-050H6	7714	12	25	10	23	61	19
GVM142-050J6	7912	12	28	10	28	87	23
GVM142-050K6	7912	12	34	10	35	132	29

Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 1.5 lpm

*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

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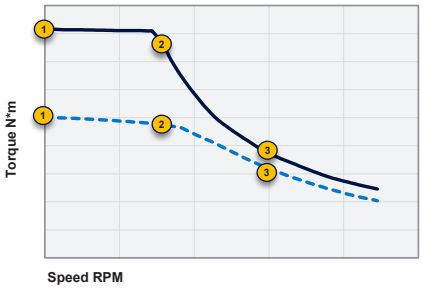
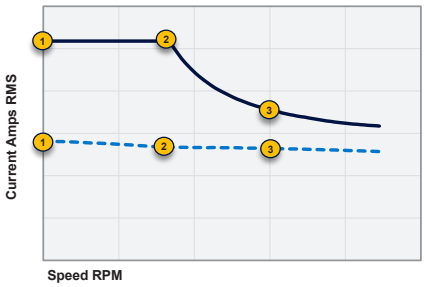
GVM142 Accessory Motors & Generators

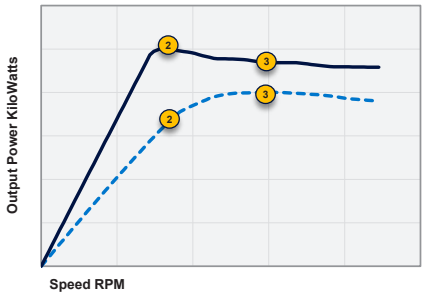
GVM142-050 Performance @ 650 VDC



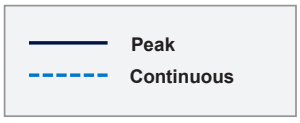
	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-050C6	17	8	40	23
GVM142-050D6	17	12	41	37
GVM142-050F6	17	19	41	57



	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050C6	2176	16	8	4	40	23	9
GVM142-050D6	3560	16	12	6	39	37	15
GVM142-050F6	5637	15	17	9	39	57	23



	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-050C6	4055	13	8	5	21	16	9
GVM142-050D6	6033	13	11	8	22	25	14
GVM142-050F6	7912	12	15	10	27	44	22



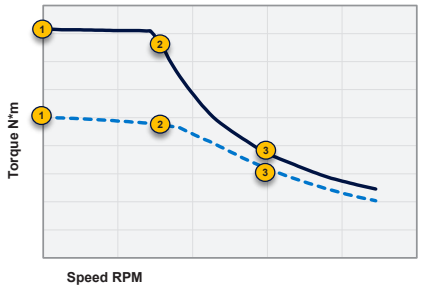
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 1.5 lpm

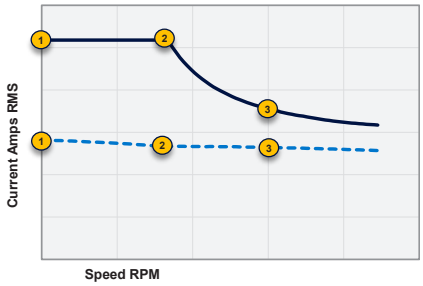
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

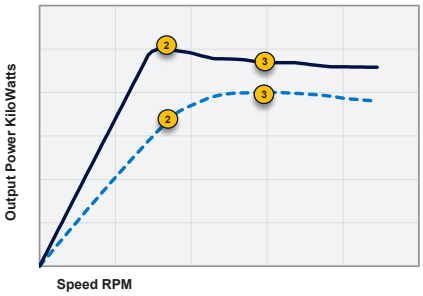
Contact Parker for compatible inverter recommendations

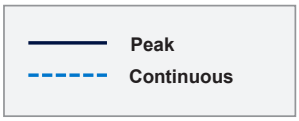
GVM142 Accessory Motors & Generators

GVM142-075 Performance @ 48 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-075P6	27	121	64	363
GVM142-075Q6	27	153	63	460
GVM142-075R6	28	168	64	500
GVM142-075S6	27	193	63	580
GVM142-075T6	28	214	64	642
GVM142-075V6	28	239	64	710
GVM142-075W6	26	252	62	758
GVM142-075Y6	25	269	60	807
GVM142-075Z6	23	289	58	866

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075P6	1385	27	119	4	63	363	9
GVM142-075Q6	1879	26	149	5	63	460	12
GVM142-075R6	2077	27	164	6	61	505	13
GVM142-075S6	2374	26	186	6	63	580	16
GVM142-075T6	2670	26	205	7	63	643	18
GVM142-075V6	2967	26	226	8	63	717	20
GVM142-075W6	3363	24	236	9	61	758	22
GVM142-075Y6	4055	22	245	9	58	807	25
GVM142-075Z6	4846	19	247	10	56	866	28

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075P6	3165	19	117	6	27	209	9
GVM142-075Q6	3956	19	146	8	29	272	12
GVM142-075R6	4253	20	160	9	29	293	13
GVM142-075S6	4945	19	180	10	29	347	15
GVM142-075T6	5341	20	197	11	30	384	17
GVM142-075V6	5736	20	216	12	31	432	19
GVM142-075W6	5934	20	225	12	34	503	21
GVM142-075Y6	6429	18	226	12	35	584	24
GVM142-075Z6	6923	16	224	12	38	702	27

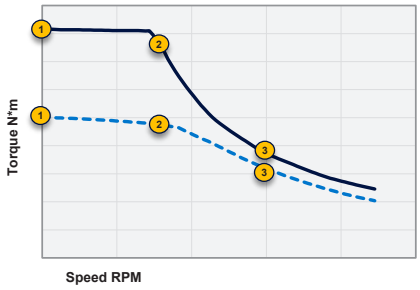
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 2 lpm

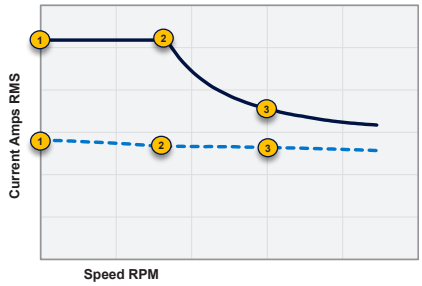
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

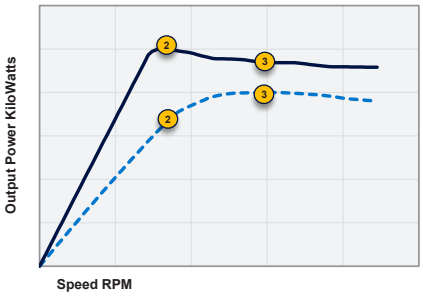
Contact Parker for compatible inverter recommendations

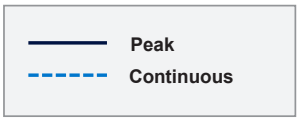
GVM142 Accessory Motors & Generators

GVM142-075 Performance @ 96 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-075L6	27	61	63	182
GVM142-075M6	27	77	63	232
GVM142-075N6	28	95	64	287
GVM142-075P6	27	121	64	363
GVM142-075Q6	27	153	63	460
GVM142-075R6	28	168	64	500
GVM142-075S6	27	193	63	580
GVM142-075T6	28	214	64	642
GVM142-075V6	28	239	64	710
GVM142-075W6	26	252	62	758
GVM142-075Y6	25	269	60	807

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075L6	1484	27	60	4	60	182	9
GVM142-075M6	1978	26	75	5	60	232	12
GVM142-075N6	2374	26	92	7	63	287	16
GVM142-075P6	3066	26	114	8	63	363	20
GVM142-075Q6	4055	25	140	10	61	460	26
GVM142-075R6	4253	25	152	11	63	505	28
GVM142-075S6	5143	23	168	13	61	580	33
GVM142-075T6	5539	23	181	13	62	643	36
GVM142-075V6	6132	22	192	14	63	717	40
GVM142-075W6	7121	18	180	14	60	758	45
GVM142-075Y6	7912	16	175	13	59	807	48

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075L6	3165	19	59	6	28	106	9
GVM142-075M6	3956	20	74	8	29	139	12
GVM142-075N6	4945	19	89	10	29	168	15
GVM142-075P6	5934	19	109	12	31	221	19
GVM142-075Q6	6923	20	130	14	34	297	25
GVM142-075R6	7418	20	139	15	34	321	27
GVM142-075S6	7912	18	142	15	38	400	32
GVM142-075T6	7912	18	145	15	42	467	35
GVM142-075V6	7813	18	157	15	47	563	39
GVM142-075W6	7912	17	164	14	52	691	43
GVM142-075Y6	7912	16	175	13	59	807	48

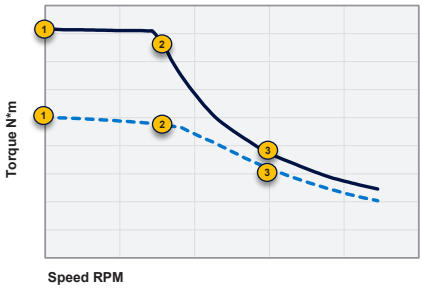
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 2 lpm

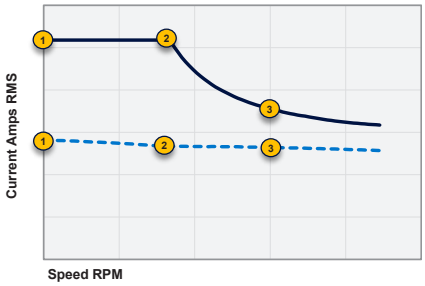
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

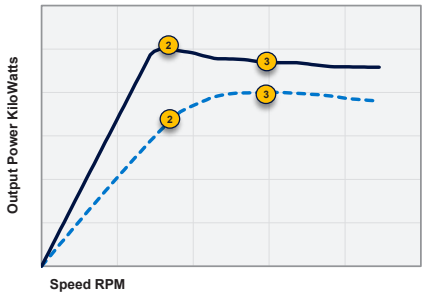
Contact Parker for compatible inverter recommendations

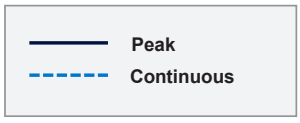
GVM142 Accessory Motors & Generators

GVM142-075 Performance @ 350 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-075F6	26	20	62	59
GVM142-075G6	27	25	62	74
GVM142-075H6	27	31	63	93
GVM142-075J6	27	39	63	116
GVM142-075K6	27	48	63	145
GVM142-075L6	27	61	63	182
GVM142-075M6	27	77	63	232

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075F6	1879	26	19	5	59	59	12
GVM142-075G6	2374	25	24	6	61	74	15
GVM142-075H6	2967	25	29	8	62	93	19
GVM142-075J6	3758	25	36	10	62	116	24
GVM142-075K6	4747	24	43	12	61	145	30
GVM142-075L6	5934	22	50	14	61	182	38
GVM142-075M6	7615	18	52	14	61	232	49

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075F6	3659	20	19	7	30	37	11
GVM142-075G6	4648	19	23	9	30	46	14
GVM142-075H6	5539	20	28	11	31	59	18
GVM142-075J6	6528	20	34	13	34	76	23
GVM142-075K6	7813	18	38	15	35	97	29
GVM142-075L6	7912	17	40	14	44	139	36
GVM142-075M6	7912	17	51	14	56	229	47

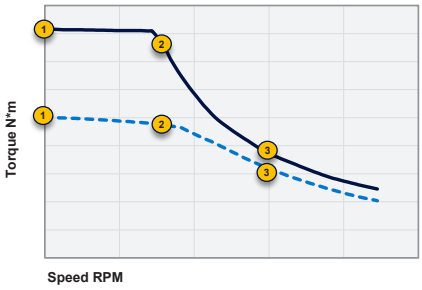
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 2 lpm

*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

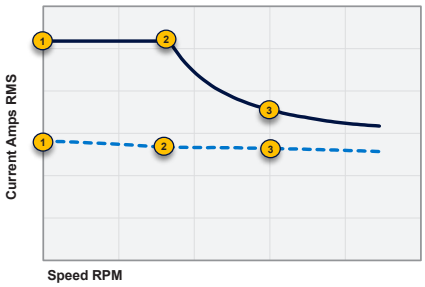
Contact Parker for compatible inverter recommendations

GVM142 Accessory Motors & Generators

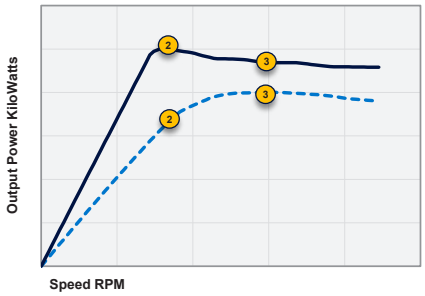
GVM142-075 Performance @ 650VDC



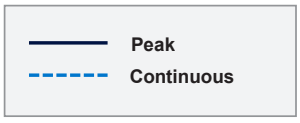
	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-075D6	26	13	62	38
GVM142-075F6	26	20	62	59
GVM142-075G6	27	25	62	74
GVM142-075H6	27	31	63	93



	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075D6	2275	25	12	6	60	38	14
GVM142-075F6	3659	24	18	9	60	59	23
GVM142-075G6	4550	23	22	11	61	74	29
GVM142-075H6	5736	22	26	13	61	93	36



	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-075D6	4352	19	12	9	30	24	14
GVM142-075F6	6231	20	17	13	34	39	22
GVM142-075G6	7615	18	20	14	35	50	28
GVM142-075H6	7912	17	21	14	42	70	35



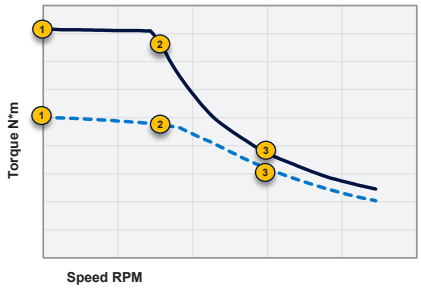
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 2 lpm

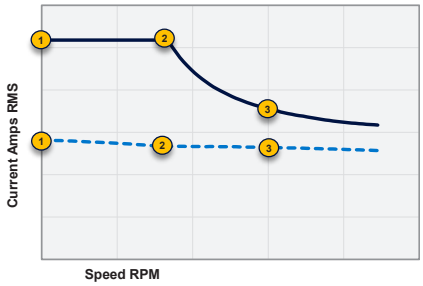
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

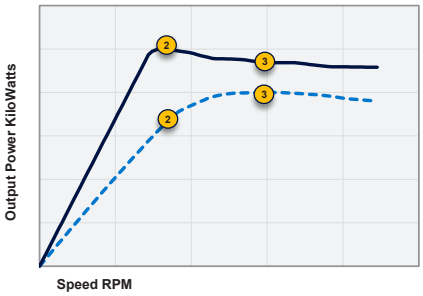
Contact Parker for compatible inverter recommendations

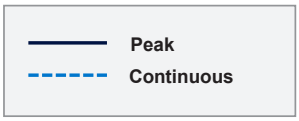
GVM142 Accessory Motors & Generators

GVM142-100 Performance @ 48 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-100Q6	37	156	85	465
GVM142-100R6	38	172	85	500
GVM142-100S6	37	197	85	586
GVM142-100T6	38	219	85	642
GVM142-100V6	38	244	85	710
GVM142-100W6	36	257	84	774
GVM142-100Y6	34	274	81	824
GVM142-100Z6	32	295	78	885

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100Q6	1385	36	154	5	81	470	12
GVM142-100R6	1780	37	168	7	69	421	13
GVM142-100S6	1780	36	192	7	84	593	16
GVM142-100T6	1978	36	213	8	83	657	17
GVM142-100V6	2176	36	236	8	85	721	19
GVM142-100W6	2473	34	247	9	83	774	22
GVM142-100Y6	2967	32	260	10	78	824	24
GVM142-100Z6	3560	28	269	11	75	885	28

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100Q6	3066	26	152	8	36	265	12
GVM142-100R6	3363	26	166	9	36	284	13
GVM142-100S6	3857	26	188	10	37	338	15
GVM142-100T6	4154	27	207	12	38	375	17
GVM142-100V6	4648	26	228	13	38	414	18
GVM142-100W6	4945	25	238	13	40	473	21
GVM142-100Y6	5044	26	251	14	44	565	23
GVM142-100Z6	5637	23	255	14	46	663	27

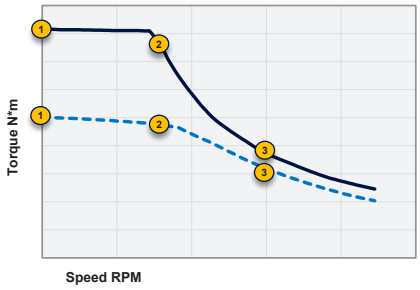
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 3 lpm

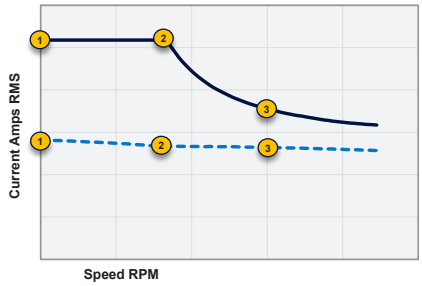
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

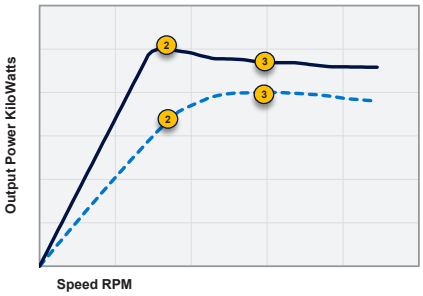
Contact Parker for compatible inverter recommendations

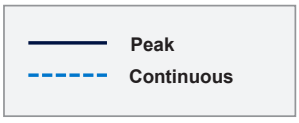
GVM142 Accessory Motors & Generators

GVM142-100 Performance @ 96 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-100M6	37	79	85	237
GVM142-100N6	37	98	85	287
GVM142-100P6	37	123	85	365
GVM142-100Q6	37	156	85	465
GVM142-100R6	38	172	85	500
GVM142-100S6	37	197	85	586
GVM142-100T6	38	219	85	642
GVM142-100V6	38	244	85	710
GVM142-100W6	36	257	84	774
GVM142-100Y6	34	274	81	824
GVM142-100Z6	32	295	78	885

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100M6	1385	36	77	5	84	237	12
GVM142-100N6	1681	36	95	6	85	290	15
GVM142-100P6	2275	36	119	9	82	371	19
GVM142-100Q6	2967	35	148	11	82	470	26
GVM142-100R6	3165	35	161	12	84	516	28
GVM142-100S6	3758	34	181	13	84	593	33
GVM142-100T6	4055	33	198	14	85	657	36
GVM142-100V6	4550	33	215	16	85	732	40
GVM142-100W6	5242	30	219	16	81	774	45
GVM142-100Y6	6132	25	212	16	79	824	50
GVM142-100Z6	7319	21	199	16	76	885	58

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100M6	3066	26	76	8	37	136	12
GVM142-100N6	3758	26	93	10	37	166	15
GVM142-100P6	4747	26	115	13	38	213	19
GVM142-100Q6	5637	27	141	16	42	283	25
GVM142-100R6	6033	27	152	17	42	306	26
GVM142-100S6	6626	27	168	19	45	373	31
GVM142-100T6	7121	27	180	20	46	414	34
GVM142-100V6	7912	25	188	21	46	457	38
GVM142-100W6	7813	23	181	19	52	550	43
GVM142-100Y6	7813	21	175	17	59	682	48
GVM142-100Z6	7912	19	187	16	68	879	56

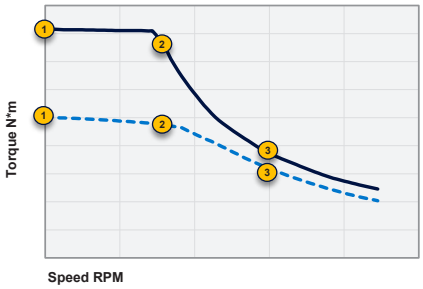
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 3 lpm

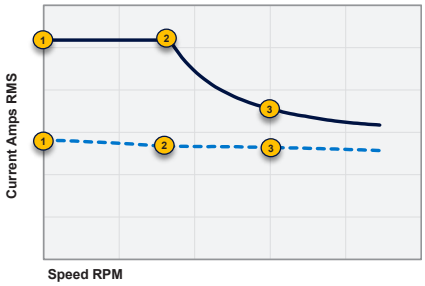
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

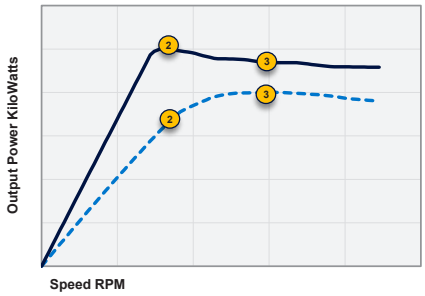
Contact Parker for compatible inverter recommendations

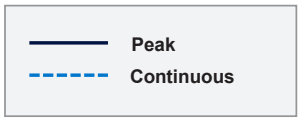
GVM142 Accessory Motors & Generators

GVM142-100 Performance @ 350 VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-100G6	36	25	84	76
GVM142-100H6	36	31	85	95
GVM142-100J6	37	39	85	119
GVM142-100K6	37	49	85	148
GVM142-100L6	37	62	85	185
GVM142-100M6	37	79	85	237
GVM142-100N6	37	98	85	287

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100G6	1681	35	25	6	84	76	15
GVM142-100H6	2176	35	30	8	83	95	19
GVM142-100J6	2769	34	38	10	82	119	24
GVM142-100K6	3462	34	46	12	83	149	30
GVM142-100L6	4253	33	56	15	84	186	37
GVM142-100M6	5637	30	65	18	83	237	49
GVM142-100N6	6725	27	72	19	84	293	59

	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100G6	3560	26	24	10	38	45	14
GVM142-100H6	4352	26	30	12	39	57	18
GVM142-100J6	5341	26	36	15	41	72	23
GVM142-100K6	6132	27	43	17	45	94	29
GVM142-100L6	7319	26	50	20	47	120	36
GVM142-100M6	7912	23	51	19	56	173	47
GVM142-100N6	7022	26	69	19	77	288	57

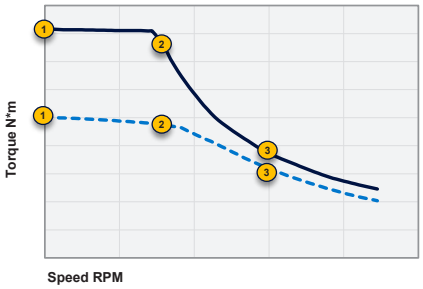
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 3 lpm

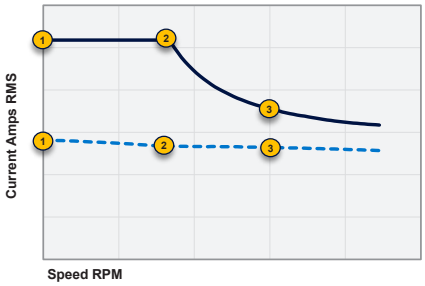
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

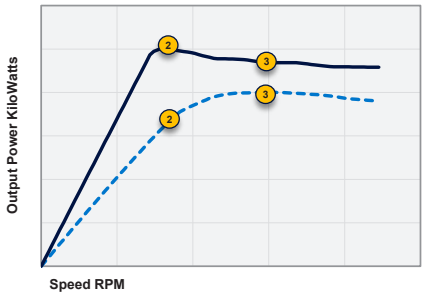
Contact Parker for compatible inverter recommendations

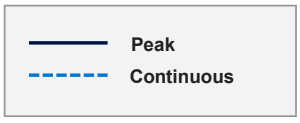
GVM142 Accessory Motors & Generators

GVM142-075 Performance @ 650VDC









	Point 1 - 0 Speed			
	Cont. Torque	Cont. Current	Peak Torque	Peak Current
	Nm	A_{rms}	Nm	A_{rms}
GVM142-100D6	35	13	83	38
GVM142-100F6	36	20	84	60
GVM142-100G6	36	25	84	76
GVM142-100H6	36	31	85	95
GVM142-100J6	37	39	85	119
GVM142-100K6	37	49	85	148

	Point 2 - Base Speed*						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100D6	1681	34	12	6	78	38	14
GVM142-100F6	2571	34	19	9	83	60	22
GVM142-100G6	3363	33	23	12	82	76	29
GVM142-100H6	4154	32	28	14	83	95	36
GVM142-100J6	5242	31	34	17	83	119	46
GVM142-100K6	6528	27	37	19	83	149	57

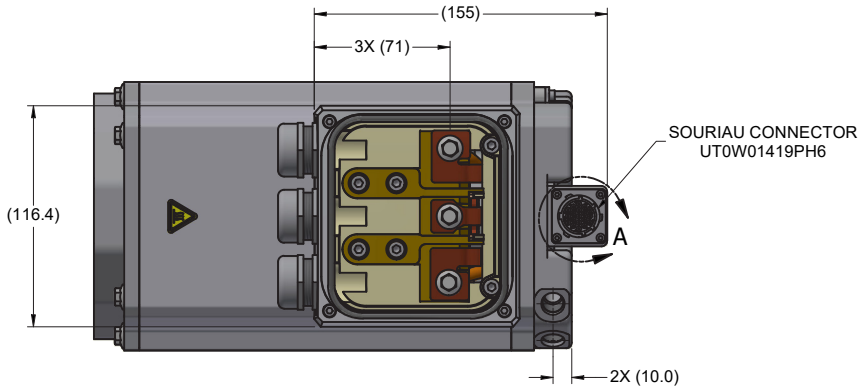
	Point 3 - Rated Speed						
	Base Speed	Cont. Torque	Cont. Current	Cont. Power	Peak Torque	Peak Current	Peak Power
	rpm	Nm	A_{rms}	kW	Nm	A_{rms}	kW
GVM142-100D6	3363	26	12	9	38	23	13
GVM142-100F6	5044	26	18	14	41	37	22
GVM142-100G6	6033	26	22	17	44	48	28
GVM142-100H6	7022	26	26	19	47	62	35
GVM142-100J6	7912	24	28	20	53	83	44
GVM142-100K6	7517	24	33	19	70	129	55

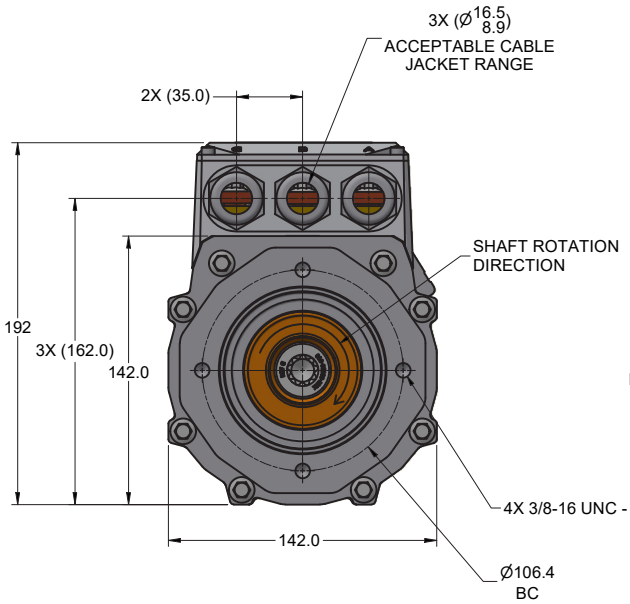
Assumes 50/50 WEG Liquid Cooling, 65°C Inlet at 3 lpm

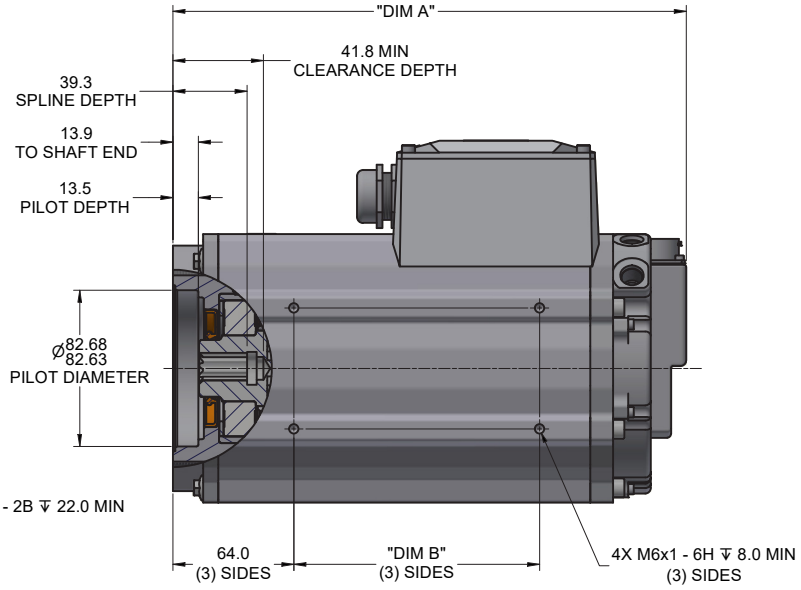
*Defined base speed is in reference to the motor alone and reflects the point at which field weakening begins under peak load conditions.
Results will vary depending on inverter current limits and system voltage

Contact Parker for compatible inverter recommendations

GVM142 Dimensions

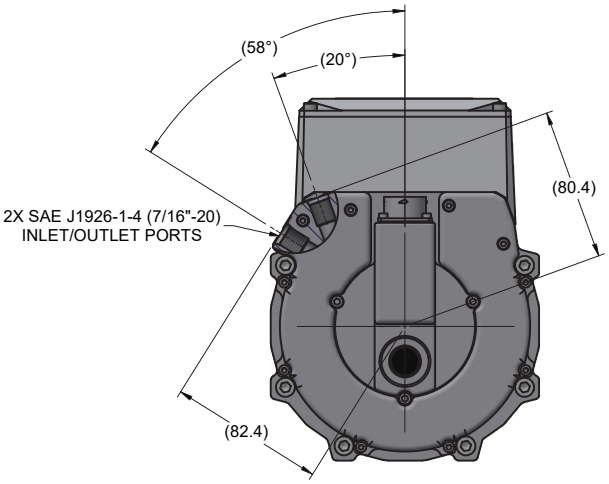






Dimension Table

STACK LENGTH	DIM A	DIM B
GVM142050	221.5	80.0
GVM142075	246.5	105.0
GVM142100	271.5	130.0



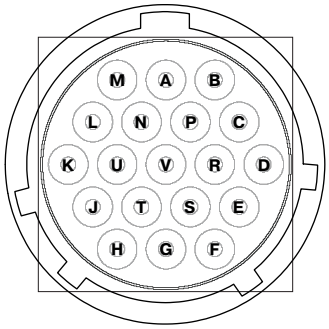
GVM 142 Accessory Motors & Generators

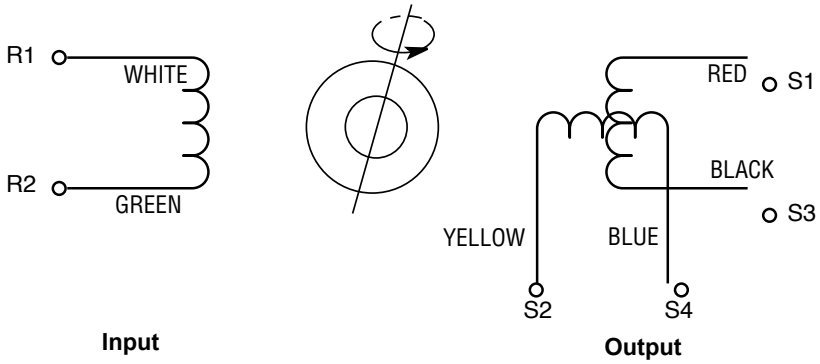
GVM 142 Feedback and Thermal Connector (all motor sizes)

The Feedback and Thermal Connector option for GVM motors feature a high-quality circular, right-angle, bayonet style connector mounted to the motor body. It is made of zinc coated brass and is rated to IP68/IP69K. It also features a long internal back shell for high vibration resistance meeting SAE J1455 shock/vibe requirements.

The connector provides access to the resolver and thermal signals.

Mating cables are specified and ordered separately.





Resolver Feedback and Thermal Connector Pin Assignment

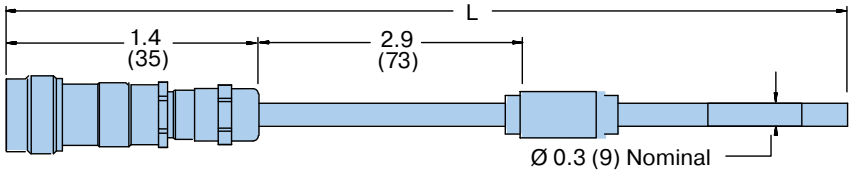
Pin Assignment	Function	Wire Color	From
A	Sin+ S2	Yellow	Resolver
B	Sin– S4	Blue	Resolver
J	Ref+ R1	White	Resolver
K	Ref– R2	Green	Resolver
E	Cos+ S1	Red	Resolver
F	Cos– S3	Black	Resolver
C	Thermistor	Black	PT1000 Therm 2
D	Thermistor	White	PT1000 Therm 2
G	Thermistor	Black	PT1000 Therm 1
H	Thermistor	White	PT1000 Therm 1

Resolver Alignment Specifications (Direction Viewed from Output Shaft)

Parameter	Value
Resolver 0° lock rotor setting	B & C+, A–
Increase feedback angle	Clockwise
Commutation direction (A-B-C)	Clockwise
Resolver poles	6 (3 pole pairs)
Input voltage	AC 7 Vrms 10 kHz
Primary	R1–R2
Transformation ratio	0.286 ±10%
Electrical error (mechanical angle)	± 45° maximum
Impedance Z_{ro}	120 ohms ±20%
Impedance Z_{ss} (at theta = 0°)	335 ohms nominal
Dielectric strength (60/50 Hz)	AC 500 Vrms 1 minute
Insulation resistance (DC 500 V)	1000 Megaohms minimum

GVM 142 Feedback Cable

The GVM feedback cable uses environmentally tested and validated cable jacket and connector. It contains all of the low voltage feedback signals. One required per motor.

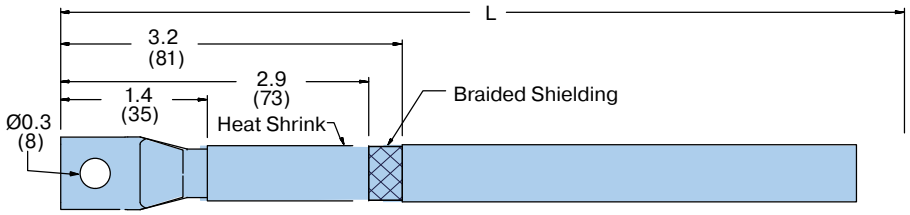


Feedback Cable

Cable Part Number	Description	Length "L" in (m)
170-00506-01	1 m Cable	39.4 (1 m)
170-00506-02	2 m Cable	78.7 (2 m)
170-00506-03	3 m Cable	118.1 (3 m)
170-00506-04	4 m Cable	157.5 (4 m)

GVM 142 Phase Power Cable

The GVM power cable uses environmentally tested and validated cable jacket. One cable is required per phase, three per motor. These cables can be field installed and replaced.



Phase Power Cable

Cable Part Number	Description	Length "L" in (m)
180-00530-01	1 m Cable	43.4 (1.1 m)
180-00530-02	2 m Cable	82.8 (2.1 m)
180-00530-03	3 m Cable	122.1 (3.1 m)
180-00530-04	4 m Cable	161.5 (4.1 m)

GVM 142 Cooling

Motor Size	Min. Required Flow Rate Gal/Min (L/Min)	Expected Pressure Drop @ Min. Flow Rate psi (bar)
GVM142-050	0.50 (1.90)	(0.0006)
GVM142-075	0.75 (2.84)	0.25 (0.016)
GVM142-1000	0.85 (3.22)	0.30 (0.020)

Recommended Parker Fittings

ID Hose Size in (mm)	Straight Barb Fitting	90° Barb Fitting
0.25 (6.35 mm)	685HB-4-4	—
0.325 (9.525 mm)	685HB-6-4	1695HB-6-4

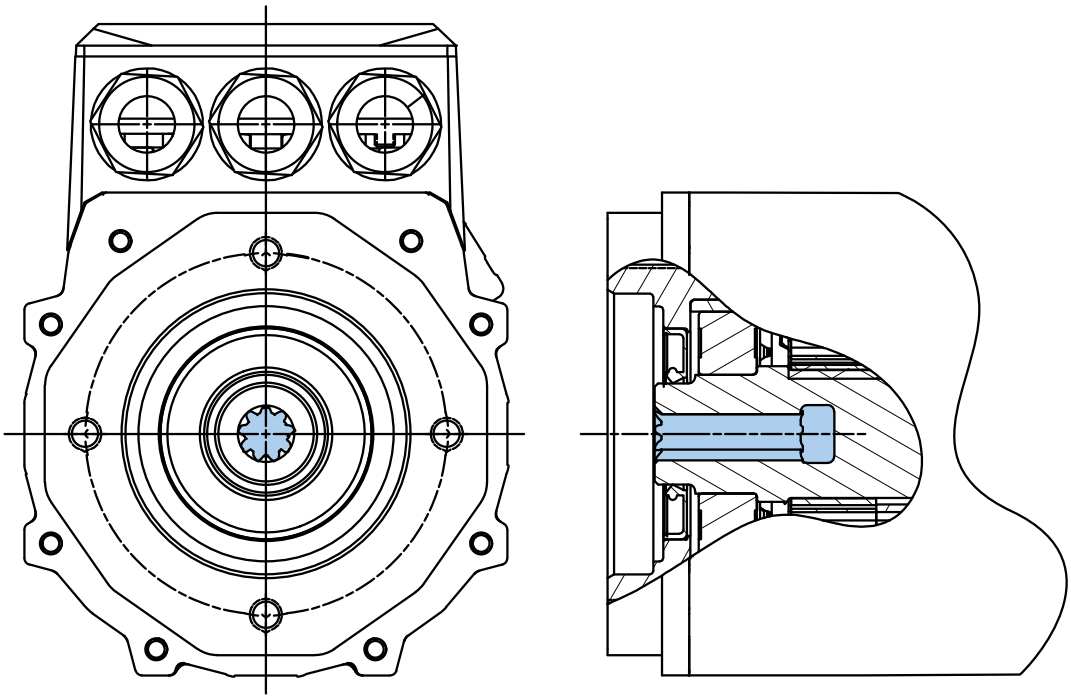
Please visit www.parkerstore.com to order fittings.

Notes:

1. The maximum allowable cooling system pressure is 60 psi.
2. To achieve continuous operation outlined for listed winding, inlet temperature held to 60 °C, 50/50 mix of water/ethylene glycol.
3. Flow rate changes with operating point and winding.

Pressure drop changes with flow rate and fluid type.

Contact Parker for specific flow and pressure requirements for the winding and operation point selected.



Spline Info —Dimensions in Inches (mm)	P2
GVM142 Motor Frame Size	050 – 100
Involute Spline	ANSI B92.1 Flat Root Class 5
Number of Teeth	9
Spline Pitch	16/32
Pressure Angle	30.0˚
Pitch Diameter (ref)	0.5625 in (14.288 mm)
Base Diameter (ref)	0.4871 in (12.373 mm)
Major Diameter	0.6469 in (16.431 mm)
Minor Diameter	0.509 (12.93 mm)
Form Diameter (max)	0.6290 in (15.977 mm)
Circular Space Width Max Actual	0.1011 in (2.568 mm)
Circular Space Width Min Actual	0.0982 (2.494 mm)
Pin Diameter (ref)	0.1080 in (2.7432 mm)
Measurement Between Pins (min)	0.3941-0.3980 (10.010-10.109 mm)

GVM 142 Ordering Information

Fill in an order code from each of the numbered fields to create a complete model order code.

Order Example:

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
GVM	142	100	M	6	W	R	C	P2	1	G

① **Series GVM** Global Vehicle Motor

② **Frame**
142

③ **Rotor Length**
050 50 mm rotor
075 75 mm rotor
100 100 mm rotor

④ **Winding Letter Code***
*Select based on appropriate performance characteristics, see specific motor size winding charts, pages 4 – 27))

⑤ **Winding Numeric Code**
6

⑥ **Cooling Configuration**
W Water cooling

⑦ **Feedback**
R Resolver
S Sine cosine

⑧ **Thermal Sensor**
C 2x PT1000's

⑨ **Output Shaft Configuration**
P2 Output Shaft Configuration

⑩ **Power Connection**
1 Terminal box

⑪ **Option**
G Option

Cables Options

Description	Phase Power Cable	Feedback Cable
1 m Cable	180-00530-01	170-00506-01
2 m Cable	180-00530-02	170-00506-02
3 m Cable	180-00530-03	170-00506-03
4 m Cable	180-00530-04	170-00506-04

* 3 separate phase cables required per GVM Motor

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192-300122N2-EU 1/2026

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