

GV3000/SE MODIFICATIONS

The GV3000/SE modification program allows you to create custom drive packages for the most commonly requested applications. A complete drive package is created by specifying the GV3000/SE drive and kits from this catalog, adding the modifications from this section, and adding the engineered modifications (if required) from page D9-33 of this guide.



How To Order

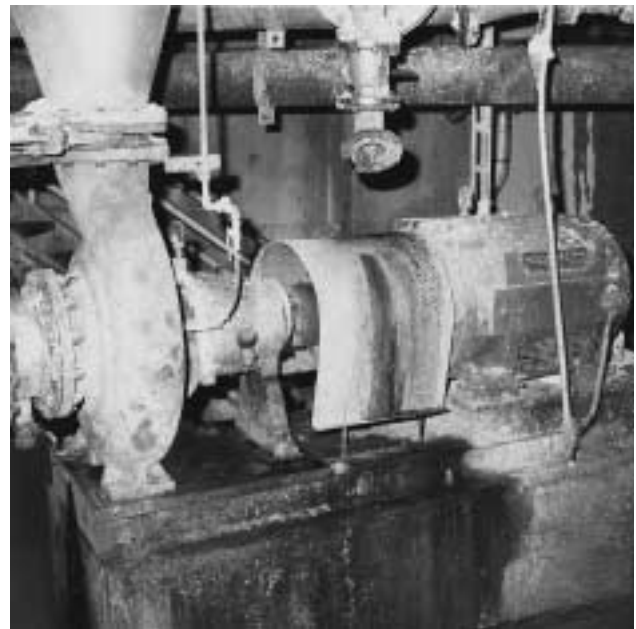
- **Step 1.** Select the GV3000/SE drive and kits from the GV3000/SE section of this catalog. List the drives and kits on the first page of the RDC order entry form. If the kits are to be installed in the GV3000/SE, price them from page D9-12 of this section. Use the “VS-1AC” multiplier to arrive at your net drive and kit price.
- **Step 2.** Items from the AC & DC Drive Accessories section of this catalog can be priced and listed in the Accessories section of the RDC order entry form. All accessories are priced at the “VS-ACS” discount multiplier.
- **Step 3.** From the following pages, select the GV3000/SE modifications. These are listed in simple categories to assist in quickly locating specific qualifications. List these options in the RDC Express Modifications section of the RDC order entry form. These options are priced at the “VS-1AC” discount multiplier.
- **Step 4.** If additional options not listed in the GV3000/SE Modifications section are required, proceed to the Engineered Modifications section and price these options. These items are priced at “VS-ACS” multiplier.
- **Step 5.** If a motor is required, price the motor from the motor section of this catalog. Follow the motor order entry instructions listed or contact the RDC nearest you.



EXAMPLE

A pumping application requires a 20 HP AC drive with the following, all mounted in a NEMA 4 enclosure:

- Manual bypass,
- Main input disconnect,
- Bypass disconnect switch,
- Super RMI kit,
- Door mounted start/stop PB,
- Auto/Manual SS,
- Manual speed pot,
- 4-20 mA signal auto speed reference



Regional Drive Centers Express

Regional Drive Centers EXPRESS ORDER ENTRY FORM	
SOLD TO XYZ Corp. 1234 Uplown Road Cleveland OH 44237	Written by <i>Joe Smith</i> Location <i>Cleveland D.O.</i> Phone/FAX <i>216-467-5309</i> E-mail: <i>jsmith@XYZ.com</i> Territory# <i>12345</i> % Split <i>100%</i> Territory# % Split
CUSTOMER NO 123456	PO# <i>1234</i> DATE <i>6/14/98</i> Total Order Net: <i>\$8,031</i> Wanted <i>2 Weeks</i> Freight <input type="checkbox"/> Collect <input type="checkbox"/> Pre Paid & Add Tax <input type="checkbox"/> Exempt <input type="checkbox"/> Charge Reference S.O.# or P.O.#: Special Shipping / Billing Instructions
SHIP TO XYZ Corp. 1234 Uplown Road Cleveland OH 44237	
REMARKS	

DRIVES AND KITS				
Model Number	Description	LIST	QTY	Extended
20V4160	20 HP GV3000 460 VAC NEMA 1	\$4,003	1	\$4,003
				TOTAL \$4,003
				"Drives" Multiplier "VS-1AC" 0.83
				NET \$3,322

ACCESSORIES				
Model Number	Description	LIST	QTY	Extended
				TOTAL 0
				"VS-ACS" Multiplier
				NET

Regional Drive Centers EXPRESS ORDER ENTRY FORM				
RDC EXPRESS MODIFICATIONS				
RDC MOD #	Description	LIST	QTY	Extended
GV4-20C	NEMA 4 Pre-configured Enclosure	\$2,698	1	\$2,698
GV-DC	115 V Transformer, DC Control	\$255	1	\$255
GV-MB	Manual Bypass	\$931	1	\$931
GV-BDS	BYPASS Disconnect Switch	\$380	1	\$380
GVD-03	Auto/Manual Selector	\$100	1	\$100
GVD-01	Start, Stop PB	\$160	1	\$160
2S13000-FI	Super RMI Card	\$650	1	\$650
GV-DS	Input Disconnect	\$380	1	\$380
GVD-04	Manual Speed Pot	\$120	1	\$120
				TOTAL \$5,674
				"Drives" or "VS-ACS" Multiplier "VS-1AC" 0.83
				NET \$4,709

ENGINEERED MODIFICATIONS				
RDC MOD#	Description	LIST	QTY	Extended
				TOTAL
				"VS-ACS" Multiplier
				NET

GV3000 ENCLOSURE PACKAGES

The following drive enclosure packages are intended for use when the standard catalog GV3000/SE enclosures do not meet the customer's requirements. These enclosures are designed for the GV3000/SE and modifications to be completely installed within a single cabinet.



Select and price GV3000/SEs with the following enclosures:

HP	Drive Category
1-60	NEMA 1 GV3000/SE
75-200	Open Chassis GV3000/SE
200-400	NEMA 1 GV3000/SE

Package Includes:

- Drive input branch fuses
- Standard 24 VDC control interface
- Enclosure, drive (priced separately) mounting & wiring
- UL listed

Control Voltage Options ⁽¹⁾		
RDC Model No.	Description	List
GV-DC	24 VDC Control with 115 VAC control transformer for options	\$255
GV-AC	115 VAC Control with transformer for options & control, includes 2LB3000 interface board	935

(1) 24 VDC control is standard with no extra voltage source (115 VAC or 24 VDC) for options, some options require 115 VAC. See footnotes.

GV3000/SE Enclosure Options Only (Price Drives Separately)						
Normal CT Drive Rating HP	IP20		IP65		IP54	
	NEMA 1		NEMA 4		NEMA 12	
	RDC Model No. ⁽³⁾	List	RDC Model No. ⁽³⁾	List	RDC Model No. ⁽³⁾	List
1-5 ⁽⁷⁾	GV1-5A	\$1,690	GV4-5B	\$1,865	GV12-5B	\$1,865
7.5-20 ⁽⁷⁾	GV1-20B	2,290	GV4-20C	2,698	GV12-20C	2,698
25-30	GV1-30C	2,698	GV4-30C ⁽⁸⁾	5,010	GV12-30C ⁽⁸⁾	4,535
40	GV1-40C	2,698	GV4-40C ⁽⁸⁾	5,510	GV12-40C ⁽⁸⁾	4,750
50	GV1-50C	2,890	GV4-50C ⁽⁸⁾	7,580	GV12-50C ⁽⁸⁾	6,946
60	GV1-60C	2,890	GV4-60C ⁽⁸⁾	8,250	GV12-60C ⁽⁸⁾	7,642
75	GV1-75D	3,550	GV4-75E ⁽¹⁾⁽⁶⁾	11,905	GV12-75D ⁽¹⁾	8,405
100	GV1-100D ⁽⁴⁾	4,560	GV4-100E ⁽¹⁾⁽⁶⁾	11,905	GV12-100D ⁽¹⁾	8,405
125	GV1-125D ⁽⁴⁾	4,560	GV4-125E ⁽¹⁾⁽⁶⁾	12,200	GV12-125D ⁽¹⁾	8,700
150	GV1-150D ⁽⁴⁾	4,980	GV4-150E ⁽¹⁾⁽⁶⁾	12,980	GV12-150D ⁽¹⁾	9,580
200	GV1-200D ⁽⁴⁾	4,980	GV4-200E ⁽¹⁾⁽⁶⁾	12,980	GV12-200D ⁽¹⁾	9,580
200	200V4160	-(2)	Contact RDC	-	Contact RDC	-
250	250V4160	-(2)	Contact RDC	-	GV12-250F(1)	13,980
300	300V4160	-(2)	Contact RDC	-	GV12-300F(1)	13,980
350	350V4160	-(2)	Contact RDC	-	GV12-350F(1)	14,850
400	400V4160	-(2)	Contact RDC	-	GV12-400F(1)	15,500

- (1) NEMA 12 and 4 cabinets above 75 HP include a closed loop air conditioner. Air conditioner will require separate non-control 115 V feed. If 115 V is not available, add \$1,145 list for Reliance to supply. Specify air conditions on right or left side of cabinet.
- (2) NEMA 1 Drives 200-400 HP catalog price includes fuses and NEMA 1 enclosure as standard. When pricing these drives start with the standard catalog M/N and add options.
- (3) RDC Mod # = GV - NEMA Type - Max HP - Cabinet Version
- (4) NEMA 1 drives 100-200 HP include a door-mounted fan and filter for positive ventilation. GV-DC control transformer option is included.
- (5) Contact RDC if Bookshelf GV3000/SE are required.
- (6) Note deliveries for these drives are 8 weeks.
- (7) 1-20 HP can be 230 VAC or 460 VAC. For 230 VAC above 20 HP contact RDC.
- (8) NEMA 12 and 4 cabinets 30-60 HP are supplied with heat exchangers. These will require 115 V feed. If 115 V is not available, add \$255 List.

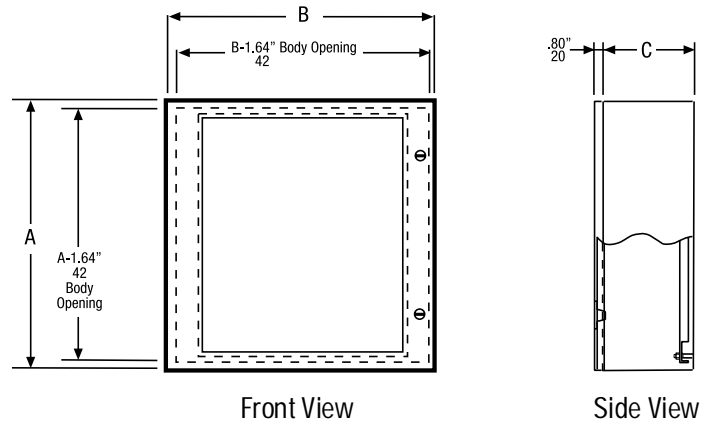
Discount: VS-1AC

GV3000/SE ENCLOSURE PACKAGES – DIMENSIONS

Wall-Mounted Cabinets

Cabinet Version	Enclosure Size (AxBxC) mm(in)	Approximate Weight kg(lb)
A	610(24)x610(24)x406(16)	40(89)
B	914(36)x762(30)x406(16)	47(103)
C	1219(48)x914(36)x406(16)	59(130)

Wall-mounted cabinets are gray with white interior panels. Enclosures with heat exchangers add 4 inches to width.

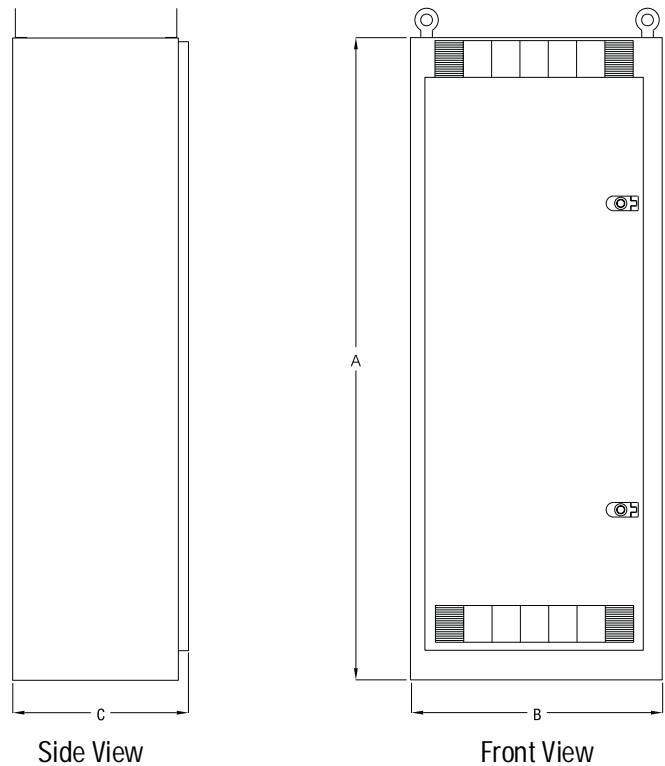


Floor-Mounted Cabinets

Cabinet Version	Enclosure Size (A x B x C) mm (in)	Approximate Weight kg (lb)
D	2204 (87) x 864 (34) x 569 (24)	328 (725)
E	1830 (72) x 914 (36) x 569 (24)	328 (725)
F	2200 (86) x 1200 (48) x 600 (24)	568 (1300)
G	2200 (86) x 1728 (64) x 600 (24)	568 (1300)

Version "E" is NEMA 4 only
 Version "D" and "G" cabinet is gray with white interior panel
 Version "E" cabinet is gray with white interior panel
 Version "F" cabinet is beige with 2 doors

Enclosures with air conditioners add 15 inches to width.



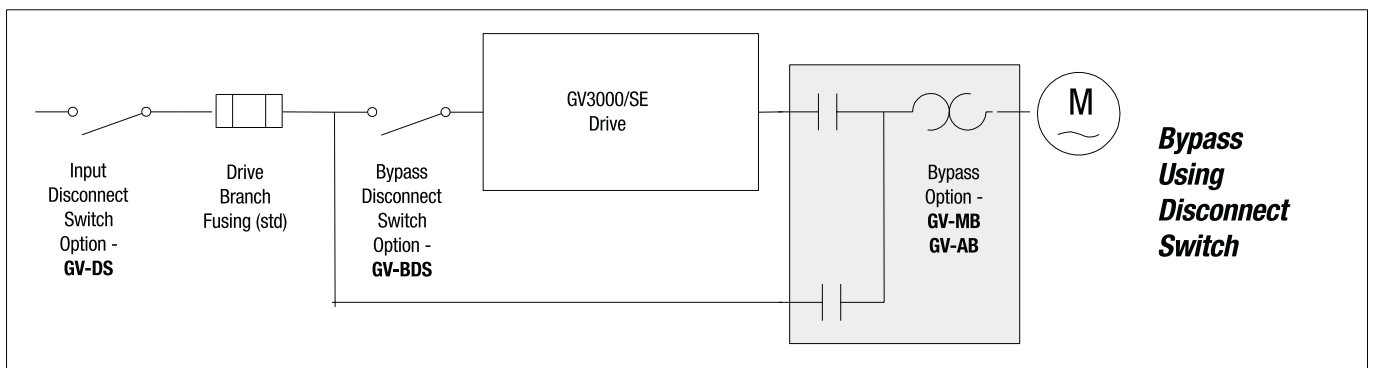
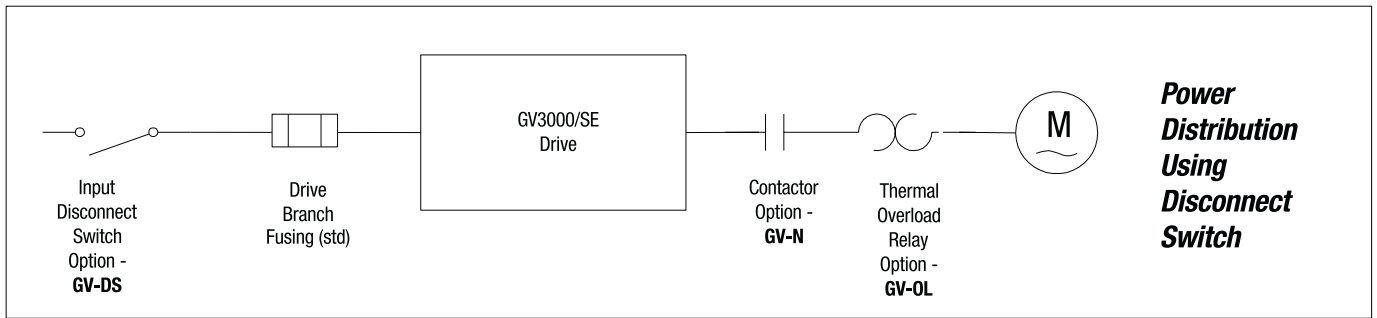
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Discount: VS-1AC

GV3000/SE POWER DISTRIBUTION PACKAGES

The following page details commonly requested power distribution modifications.

These power distribution modifications require the selection of an enclosure option (page D9-9). Be sure to check all footnotes.



Power Distribution Option ⁽⁹⁾								
Option		Input Disconnect ⁽¹⁾ Option GV-DS	Output Contactor ⁽³⁾ Option GV-N	Thermal Overload ⁽⁴⁾ Option GV-OL	3% Reactor ⁽⁸⁾ Option GV-R	Manual Bypass ⁽³⁾⁽⁵⁾ Option GV-MB	Automatic Bypass ⁽³⁾⁽⁶⁾ Option GV-AB	Bypass Disconnect ⁽⁷⁾ Option GV-BDS
Drive Rating HP								
230 V	460 V	List	List	List	List	List	List	List
1-3	1-10	\$350	\$250	\$150	\$520	\$646	\$936	\$350
5-10	15-20	380	380	150	620	931	1,231	380
15	25-30	450	380	150	690	1,322	1,612	450
20-30	40-60	550	610	310	810	1,586	1,876	550
-	75-100	920	1,070	360	1,300	2,250	2,580	920
-	125	920	1,373	360	1,480	2,655	2,955	920
-	150-200	1,650	1,373	360	1,980	3,350	3,650	1,650
-	200-250	2,850	1,400 ⁽²⁾	400 ⁽²⁾	2,400 ⁽²⁾	4,220 ⁽²⁾	4,520 ⁽²⁾	1,650
-	300-350	2,850	1,750 ⁽²⁾	432 ⁽²⁾	2,810 ⁽²⁾	5,882 ⁽²⁾	6,172 ⁽²⁾	1,650
-	400	2,850	2,100 ⁽²⁾	432 ⁽²⁾	3,150 ⁽²⁾	6,250 ⁽²⁾	6,540 ⁽²⁾	1,650

- (1) This option includes through-the-door handle.
- (2) NEMA 1 add-on enclosure is required for 200-400 HP NEMA 1 GV3000/SE. See Version D enclosure for dimensions. **Addition of \$1,700, list**, is required for the first mod only.
- (3) 115 VAC control transformer must be included for this option. See RDC MOD GV-DC or GV-AC page D9-9.
- (4) This option is redundant to the existing electronic overload protection supplied standard with the drive.
- (5) Manual bypass includes contactors, Overload, AFC-off-Bypass Selector on the door & associated logic.
- (6) Automatic Bypass is the same as “Manual Bypass” except it includes additional logic to automatically switch to motor bypass on a drive fault.
- (7) This option must be used in conjunction with a Bypass option; circuit breakers are used on 200-400 HP units.
- (8) Specify Reactor as input or output.
- (9) Specify horsepower when ordering.

Discount: VS-1AC

GV3000/SE MODIFICATIONS AND OPTIONS

Factory Installation of Standard Kits

In most cases kits are supplied “loose only.” The following installation options allow kits to be preinstalled. Note: the price includes installation and the kit only. The drive is to be priced separately.

Factory Installed Kits (Kits price is included, price drive from this catalog)				
Kit M/N ⁽¹⁾	Description	Kit and Installation List	Enclosure Required	Notes
2SI3000	Super RMI Card ⁽²⁾	\$650	no	
2LB3000	115 V Control Interface	700	no	Std. with Control voltage option GV-AC
2RK3000	Cabinet Mounted OIM	600	yes	Not available on NEMA 4 applications
2AX3000	AutoMax Network Card ⁽²⁾	600	no	Passive Tap not included
GVN-01	Passive Tap, Cable Installed	380	yes	Add to AutoMax Network Card
2DV3000	DeviceNet Card ⁽²⁾	870	no	
2NB3000	Interbus S Network ⁽²⁾	955	no	
2CN3000	ControlNet 1.5 ⁽²⁾	955	no	
2PB3000	Profibus DP Card	955	no	
2STXXXX	Snubber Transistor & Resistor	Call RDC	Call RDC	Requires minimal engineering

(1) When ordering add an “FI” (factory installed) to the end of the kit number. Enter along with drive and kit on RDC Order Entry Form.

(2) Only one I/O or communication card can be added in the GV3000. A 2LB3000 can also be added in addition, but must be supplied loose or will be panel mounted in the GV3000/SE pre-configured enclosure.

Motor Interface Options

The following are commonly requested options for interfacing to variable speed motors. These options require an enclosure option to also be selected.

Motor Interface Options			
Model No.	Description	List	Notes
GVM-01	Blower Motor Starter ⁽¹⁾	\$420	Required for blower cooled motors
GVM-02	Motor Heater Control, 115 V, 360W ⁽¹⁾	300	Heater must be added to motor

(1) 115 VAC control transformer must be included for this option. See RDC MOD GV-DC or GV-AC, page D9-9.

Pre-Defined Operator Interface

The following are commonly requested operator interface functions and devices. Each option includes the appropriate operator device(s), engraved nameplate(s) and any additional control hardware required for the pre-defined function. These options require an enclosure option to also be selected.

Pre-Defined Operator Interface (See Page D9-40 for Other Operator Device Options)			
Model No.	Description	List	Notes
GVD-01	Start, Stop PB	\$160	
GVD-02	Jog PB	80	
GVD-03	Auto/Manual SS	100	
GVD-04	Speed Pot	120	
GVD-05	E-stop PB	110	
GVD-06	E-stop PB, Reset PB	190	
GVD-07	Drive Mode, Bypass Mode PLs ⁽¹⁾	160	Requires Bypass Option (page D9-11)
GVD-08	Forward/Reverse SS	100	
GVD-09	Power On, Run & Drive Fault PLs ⁽¹⁾⁽²⁾	275	
GVD-10	Nameplate, lamacoid	35	Specify wording on order form

(1) 115 VAC control transformer must be included for this option. See RDC MOD GV-DC or GV-AC, page D9-9.

(2) Super RMI card is required for this modification. Add 2SI3000.

Discount: VS-1AC

SS4000 REGENERATIVE DC BUS SUPPLIES

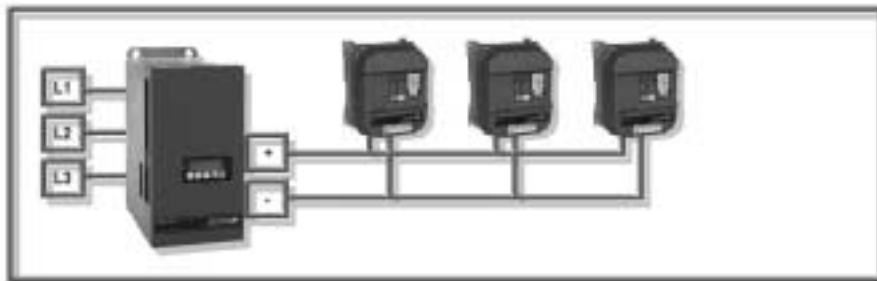
The SS4000 Synchronous Rectifier acts as a line regeneration module to recover energy, as well as a DC bus supply. Line regeneration allows for the dissipation of high DC Bus voltages created when the load causes the motor to regenerate. This regeneration takes place without the use of snubbers and resistors.

- Line regeneration for high Inertia loads
- Ideal for multi-drive applications requiring common DC bus

The SS4000 pre-configured package comes complete with the following features:

- Input Voltage 3-phase, 50/60 Hz 460 VAC
- 150% overload for one minute
- 4-LED display/keypad to monitor and program the SS4000. The module displays:
 - Amps - Volts - KW
 - Status - Fault condition
- Input Module Fuses
- Input Module Contactor
- Reactor
- Harmonic Filter
- Components panel-mounted

Options (cabinets, operator devices, etc.) can be selected from the Engineered Modification section (page D9-33).



Sizing Regenerative Bus Supplies

1. Determine the number of GV3000/SEs to be connected to the SS4000.
2. Total the horsepower of these units.
3. Select the pre-configured SS4000 from the tables below. If the requirement exceeds these ratings, call the RDC nearest you.
4. Powering GV3000/SE drives from a common DC bus requires special application considerations. See the GV3000/SE instruction manual or contact your nearest RDC.

SS4000 Model Number	Total Drive HP	Panel Dimensions			Wt. (lb)
		H (in)	W (in)	D (in)	
GV-20R	20	33	27	16	150
GV-50R	50	33	27	16	150
GV-100R	100	72	30	16	350
GV-150R	150	72	30	20	350
GV-300R	300	72	30	20	500
GV-450R	450	72	60	20	600

Panel Mount Option

SS4000 Model Number	Total Drive Horsepower	Continuous Amps	Panel Mount List
GV-20R	20	27	\$7,415
GV-50R	50	64	9,600
GV-100R	100	128	19,200
GV-150R	150	192	27,800
GV-300R	300	400	51,445
GV-450R	450	600	75,257

Cabinet Option

SS4000 Model Number	Total Drive Horsepower	Cabinet Ver. (pg. D9-10) ⁽¹⁾	Cabinet List
GV-20RC	20	B	\$8,220
GV-50RC	50	B	10,405
GV-100RC	100	D	20,910
GV-150RC	150	D	29,200
GV-300RC	300	G	54,045
GV-450RC	450	G	77,857

(1) Cabinet pricing and size is for NEMA 1 rated enclosures. If different ratings are required, call the RDC nearest you.

Input Disconnect Option

Model Number	Table Drive Horsepower	List
GV-20DS	20	\$380
GV-50DS	50	550
GV-100DS	100	920
GV-150DS	150	1,650
GV-300DS	300	2,850
GV-450DS	450	2,850

- Drives are powered directly through the DC bus instead of the AC line and diode bridge.
- Regenerative energy is shared between motoring and regenerating drives, saving power.
- Energy is recovered back to the 3-phase AC line instead of being dissipated into heat.

Discount: VS-1AC

NOTES