

**RELIANCE  
ELECTRIC**

# MODIFIED STANDARD DRIVES CATALOG



**Rockwell  
Automation**

## MODIFIED STANDARD V\*S DRIVES

The Modified Standard V\*S Drive (MSV\*SD) program is designed to provide modifications to standard drives for quick delivery at a competitive price. The most common modifications are listed and priced in this catalog. MSV\*SD options are not limited to those items listed here. If your application requires other modifications, contact Reliance Electric.

### THE BASICS

- Freight Terms are either collect or prepaid and add (@ 2.5%)
- Order motors separately
- Standard documentation supplied is listed on page D-43 MOD
- Delivery cycles for drives, kits, accessories, and modifications are as follows

LiquiFlo Modifications	12 weeks
GV3000/SE Modifications	5-6 weeks
SP600 Modifications	5-6 weeks
FlexPak 3000 Modifications	5-6 weeks
High Horsepower FlexPak 3000 <sup>(1)</sup>	12 weeks
Engineered Modifications	6-8 weeks

(1) 700 - 1000 HP

## HOW TO BUILD A MODIFIED STANDARD V\*S DRIVE ORDER

Ordering MSV\*SD modifications is easy. You begin by selecting basic drives, kits, and accessories from the standard Motor and Drive Catalog. Then locate the modifications you need in this catalog and use the order forms at the end of the catalog to write up your order. Here's a step-by-step description of the process.

*Step 1.* Determine the model number drive, kits, and accessories, as well as their list prices, from the standard product price pages in the Motor and Drive Catalog.

*Step 2.* Determine the MSV\*SD Express modifications required for your application from this catalog.

*Step 3.* Make a copy of the MSV\*SD Express order form from pages D-41 MOD and D-42 MOD.

*Step 4.* Write up your order and price each item as described in the following steps under "How To Price Your Order."

### HOW TO PRICE YOUR ORDER

The steps below apply to all MSV\*SD orders. Refer to the appropriate section in this catalog for product-specific ordering information, such as multipliers to use.

*Step 1.* Enter the model number, description, and list price for standard drives, kits, and loose accessories to be modified in the first two sections of the order form, "Drives and Kits," and "Accessories."

*Step 2.* Enter the model number, description, and list price for MSV\*SD modifications in the section of the order form entitled "MSV\*SD Modifications."

*Step 3.* Calculate the net price for stock drives, kits, accessories, and modifications using the appropriate discount multiplier. Discount multiplier symbols are typically listed on the bottom of each page of the catalog. The corresponding discount percentages are listed on your Standard Drives multiplier sheet.

*Step 4.* Add up all of the "NET" fields on the form to arrive at the total and enter this information in the "Total Order Net" field in the upper right hand section of the first page of the order form.

*Step 5.* Fill in all information on the top of the first page of the order form.

#### **Pricing Example:**

30 HP, SP600, 460 VAC, 110% O.L.	=	\$4,784
NEMA 1 Enclosure*	=	3,950
Fused Disconnect	=	757
Door Mounted OIM	=	600
Output Contactor	=	467
Control Power	=	375
3% Input Line Reactor	=	511
<b>Total List</b>	<b>=</b>	<b>\$11,444</b>

\*Note: An enclosure adder must be made before hardware modifications can be added to the drive.

### HOW TO PLACE YOUR ORDER

Fax your order and a copy of the purchase order to your sales office or a Reliance Electric Customer Service representative at (864-284-5075).

**MODIFIED STANDARD DRIVES PRICING GUIDE**

The Modified Standard V\*S Drive program is designed to allow quick, easy pricing of common modifications to Reliance Electric Standard Drives. Simply price the drives and kits separately and then add modifications from this catalog.

**CONTENTS**

*General Pricing and Delivery Information* ..... i

*SP600 Modifications* ..... 1

*GV6000 Modifications* ..... 9

*GV3000/SE Modifications* ..... 17

*LiquiFlo* ..... 27

*FlexPak 3000 Modifications* ..... 29

*High Horsepower FlexPak 3000* ..... 34

*Operator Controls* ..... 39

*Order Entry Form* ..... 41

*Start-Up and Field Support* ..... 44

**MODIFIED STANDARD V\*S DRIVES**

**SP600 Drives: 480 VAC<sup>(3)</sup>**

**SP Models:<sup>(4)</sup>**

- Analog Input #1 (0 -10 VDC or 4-20 ma)
- Analog Input #2 (+ 10VDC, 0-10 VDC or 4-20 ma)
- Analog Output (0 -10 VDC)

Refer to the Standard Motors and Drives Catalog for Standard features and Standard options.



480 VAC Base Drive Model Number	6SP401-3P4CTNN	6SP401-005CTNN	6SP401-008CTNN	6SP401-011CTAN	6SP401-014CTAN	6SP401-022CTAN	6SP401-027CTAN	6SP401-034CTAN	6SP401-040CTAN	6SP401-052CTAN	6SP401-065CTAN
HP Rating (110% Overload)	2	3	5	7.5	10	15	20	25	30	40	50
HP Rating (150% Overload)	1.5	2	3	5	7.5	10	15	20	25	30	40
FLA @ 4 kHz	3.4	5.0	8.0	11.0	14.0	22.0	27.0	34.0	40.0	52.0	65.0
Base Drive List	\$1,217	\$1,321	\$1,513	\$1,896	\$2,007	\$2,584	\$3,099	\$3,848	\$4,784	\$5,720	\$7,176
<b>Enclosure Options</b>											
NEMA 1 Cabinet	3,350	3,350	3,350	3,650	3,650	3,650	3,650	3,650	3,950	3,950	3,950
NEMA 4/12 Cabinet <sup>(5)</sup>	3,500	3,500	3,500	3,800	3,800	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	8,200 <sup>(2)</sup>	8,600 <sup>(2)</sup>
<b>Input Protection &amp; Disconnect Options</b>											
Input Fuses Only	158	158	158	158	158	178	178	245	317	317	611
Fused Disconnect Switch & Door Handle	403	403	403	403	403	438	438	505	757	757	1,208
Circuit Breaker Only	752	752	752	752	752	865	865	865	865	865	911
Circuit Breaker Disconnect & Door Handle	1,018	1,018	1,018	1,018	1,018	1,131	1,131	1,131	1,131	1,131	1,177
<b>Door Mounted Operator Devices</b>											
Door Mounted OIM	600	600	600	600	600	600	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86	86	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>											
Input Contactor <sup>(1)</sup>	342	342	342	467	467	467	467	467	467	467	467
Output Contactor <sup>(1)</sup>	342	342	342	467	467	467	467	467	467	467	467
Drive Bypass Control <sup>(1)</sup>	932	932	932	1,185	1,185	1,185	1,185	1,185	1,185	1,185	1,286
Motor Overload Relay	181	181	181	181	181	181	181	181	181	181	376
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408	408	408	408	408	408
Control Transformer: 460:120 VAC, 250VA	375	375	375	375	375	375	375	375	375	375	375
3% Impedance Input Line Reactor	291	323	323	384	384	461	461	496	511	640	774
<b>Dynamic Braking - Transistor + Resistor</b>											
6-10% Duty Braking	256	256	256	256	256	256	256	256	CF	CF	CF
20% Duty	CF	CF	CF	CF	CF	CF	CF	CF	CF	CF	CF

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Contact Factory for 230 VAC Drives

(4) SB models available (15/20 HP) and up at additional cost. Refer to the 2005 Industrial Motors and Drives Catalog for models and list prices.

(5) Flange style units are available in some ratings, which may reduce the enclosure size and/or the cost. Contact the factory for pricing.

CF = Contact Factory

Photo shown with optional OIM installed.

**DISCOUNT: MS-1AC**

# SP600 AC Drives

## MODIFIED STANDARD V\*S DRIVES

### SP600 Drives: 480 VAC

#### SB Models:

- Analog Input #1 (0 + / - 10 VDC or 4-20 ma)
- Analog Input #2 (+ 10VDC, 0-10 VDC or 4-20 ma)
- Analog Output (0 + / -10 VDC or 4-20 ma))

480 VAC Base Drive Model Number	6SB401-077CNANA	6SB401-096CNANA	6SB401-125CNANA	6SB401-156CNANA	6SB401-180CNANA	6SB401-248CNANA
HP Rating (110% Overload)	60	75	100	125	150	200
HP Rating (150% Overload)	50	60	75	100	125	150
FLA @ 4 kHz	77	96	125	156	180	248
Base Drive List	\$8,388	\$9,386	\$11,367	\$12,641	\$13,692	\$19,068
<b>Enclosure Options</b>						
NEMA 1 Cabinet	3,950	5,525	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>
NEMA 1A - Force Vent w/ Fan & Filter <sup>(3)</sup>	692	692	Std.	Std.	Std.	Std.
NEMA 4/12 Cabinet <sup>(2)</sup>	9,500	14,475	14,475	14,475	14,475	CF
<b>Input Protection &amp; Disconnect Options</b>						
Input Fuses Only	611	611	1,054	1,102	1,102	1,274
Fused Disconnect Switch & Door Handle	1,208	1,208	2,114	2,162	2,162	2,334
Circuit Breaker Only	911	911	1,074	1,074	1,363	1,363
Circuit Breaker Disconnect & Door Handle	1,177	1,177	1,426	1,426	1,715	1,715
<b>Door Mounted Operator Devices</b>						
Door Mounted OIM	600	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120
2 or 3 Position Selection Switch	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>						
Input Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951	1,951
Output Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951	1,951
Drive Bypass Control <sup>(1)</sup>	3,220	3,220	3,220	4,080	4,080	4,080
Motor Overload Relay	376	376	376	430	430	430
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408
Control Transformer: 460:120 VAC, 250VA	375	375	375	375	375	375
3% Impedance Input Line Reactor	900	1114	1292	1480	2,101	2,745
<b>Dynamic Braking - Transistor + Resistor</b>						
10% Duty Braking (requires BTANA or CTANA model)						Contact Factory
>10% Duty Braking						Contact Factory

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Add to NEMA 1 Option

CF = Contact Factory

DISCOUNT: MS-1AC

**MODIFIED STANDARD V\*S DRIVES**  
**SP600 Drives: 575 VAC**



**SP Models:<sup>(3)</sup>**

- Analog Input #1 (0-10 VDC or 4-20 ma)
- Analog Input #2 (+ 10VDC, 0-10 VDC or 4-20 ma)
- Analog Output (0-10 VDC)

Refer to the Standard Motors and Drives Catalog for Standard features and Standard options.

575 VAC Base Drive Model Number	6SP501-2P7CTNN	6SP501-3P9CTNN	6SP501-6P1CTNN	6SP501-9P0CTNN	6SP501-011CTNN	6SP501-017CTNN	6SP501-022CTNN	6SP501-027CTNN	6SP501-032CTNN	6SP501-041CTNN	6SP501-052CTNN
HP Rating (110% Overload)	2	3	5	7.5	10	15	20	25	30	40	50
HP Rating (150% Overload)	1.5	2	3	5	7.5	10	15	20	25	30	40
FLA @ 4 kHz	2.7	3.9	6.1	9.0	11.0	17.0	22.0	27.0	32.0	40.0	50.0
Base Drive List	\$1,544	\$1,596	\$1,685	\$1,903	\$2,246	\$2,787	\$3,328	\$4,207	\$5,268	\$6,214	\$7,748
<b>Enclosure Options</b>											
NEMA 1 Cabinet	3,350	3,350	3,350	3,650	3,650	3,650	3,650	3,650	3,950	3,950	3,950
NEMA 4/12 Cabinet <sup>(5)</sup>	3,500	3,500	3,500	3,800	3,800	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	8,200 <sup>(2)</sup>	8,600 <sup>(2)</sup>
<b>Input Protection &amp; Disconnect Options</b>											
Input Fuses Only	158	158	158	158	158	178	178	245	317	317	611
Fused Disconnect Switch & Door Handle	403	403	403	403	403	423	423	505	757	757	1,208
Circuit Breaker Only	752	752	752	752	752	752	865	865	865	865	911
Circuit Breaker Disconnect & Door Handle	1,018	1,018	1,018	1,018	1,018	1,018	1,131	1,131	1,131	1,131	1,177
<b>Door Mounted Operator Devices</b>											
Door Mounted OIM	600	600	600	600	600	600	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86	86	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>											
Input Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467	467	467
Output Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467	467	467
Drive Bypass Control <sup>(1)</sup>	932	932	932	932	1,185	1,185	1,185	1,185	1,185	1,185	1,286
Motor Overload Relay	181	181	181	181	181	181	181	181	181	181	376
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408	408	408	408	408	408
Control Transformer: 575:120 VAC, 250VA	375	375	375	375	375	375	375	375	375	375	375
3% Impedance Input Line Reactor	323	323	323	384	437	461	461	496	511	640	774
<b>Dynamic Braking - Transistor + Resistor</b>											
6-10% Duty Braking	Contact Factory										
>10% Duty Braking	Contact Factory										

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) SB models available 20-25 HP and up at additional cost. Refer to the 2005 Industrial Motors and Drives Catalog for models and list prices.

(4) Flange style units are available in some ratings, which may reduce the enclosure size and/or the cost. Please contact the factory for pricing.

**DISCOUNT: MS-1AC**

# SP600 AC Drives

## MODIFIED STANDARD DRIVES

### SP600 Drives: 575 VAC

#### SB Models:

- Analog Input #1 (0 + / - 10 VDC or 4-20 ma)
- Analog Input #2 (+ 10VDC, 0-10 VDC or 4-20 ma)
- Analog Output (0 + / - 10 VDC or 4-20 ma)

575 Base Drive Model Number	6SB501-062CNNNA	6SB501-077CNNNA	6SB501-099CNNNA	6SB501-125CNNNA	6SB501-144CNNNA
HP Rating (110% Overload)	60	75	100	125	150
HP Rating (150% Overload)	50	60	75	100	125
FLA @ 4 kHz	62	77	99	125	144
Base Drive List	\$9,532	\$10,977	\$13,052	\$14,565	\$15,954
<b>Enclosure Options</b>					
NEMA 1 Cabinet	3,950	5,525	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>
NEMA 1A Force Vent with Fan & Filter	692	692	Std.	Std.	Std.
NEMA 4/12 Cabinet <sup>(2)</sup>	9,500	14,475	14,475	CF	CF
<b>Input Protection &amp; Disconnect Options</b>					
Input Fuses Only	611	611	1,054	1,102	1,102
Fused Disconnect Switch & Door Handle	1,208	1,208	2,114	2,162	2,162
Circuit Breaker Only	911	911	1,074	1,074	1,363
Circuit Breaker Disconnect & Door Handle	1,177	1,177	1,426	1,426	1,715
<b>Door Mounted Operator Devices</b>					
Door Mounted OIM	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>					
Input Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951
Output Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951
Drive Bypass Control <sup>(1)</sup>	3,220	3,220	3,220	4,080	4,080
Motor Overload Relay	376	376	376	430	430
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408
Control Transformer: 575:120 VAC, 250VA	375	375	375	375	375
3% Impedance Input Line Reactor	900	1,114	1,292	1,480	2,101
<b>Dynamic Braking - Transistor + Resistor</b>					
6-10% Duty Braking	Contact Factory				
>10% Duty Braking	Contact Factory				

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Add to NEMA 1 Option

CF = Contact Factory

DISCOUNT: MS-1AC

**Communication Modules - Network Options**

Network connectivity can be achieved by adding one of the options listed below:

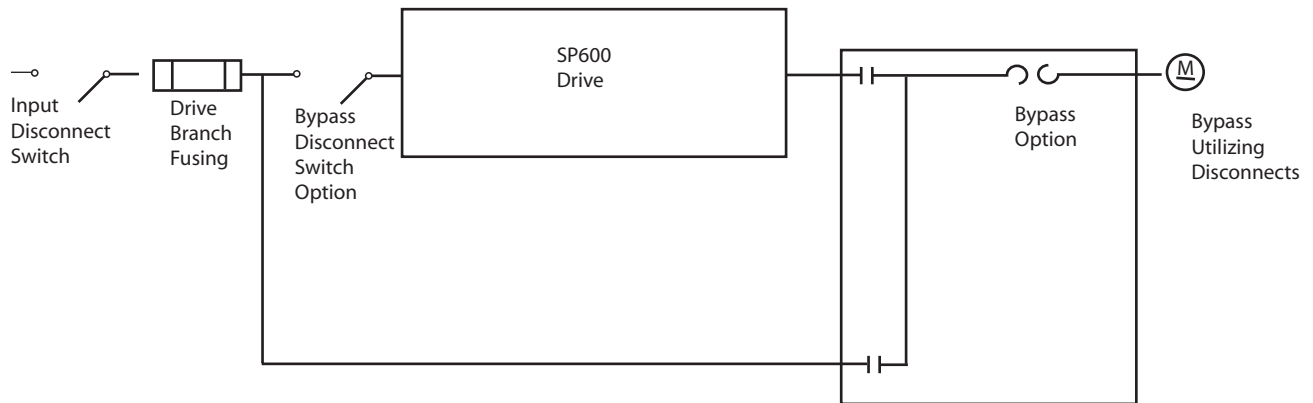
Model Number	Description	List
RECOMM-DNET	DeviceNet	\$428
RECOMM-CNET	ControlNet	568
RECOMM-PBUS	Profibus	594
RECOMM-IBUS	Interbus-s	776
RECOMM-ENET	EtherNet IP	594
RECOMM-485	RS485 DF1	407
RECOMM-H485	P1, N2, or modbus RTLL	640

**SP600 Optional I/O**

Model Number	Description	List
6SB-024A	24V I/O Card (6SB Only)	\$450
6SB-115B	115V I/O Card (6SB Only)	450
AK-M9-115VAC-1	115V I/O Card (6SP Only)	204

**SP600 Power Distribution Options**

The following section details commonly requested power distribution modifications. These modifications require the selection of an enclosure option.



DISCOUNT: MS-1AC



# SP600 AC Drives

## SP600 ENCLOSURE DIMENSIONS

HP VAC	Cabinet Version		
	460/575 AC	IP20 / NEMA 1	IP65 / NEMA 4
.5 - 3	A	B	B
5.0	A	B	B
7.5 - 15	B	C <sup>(2)</sup>	C <sup>(2)</sup>
20	B	C <sup>(2)</sup>	C <sup>(2)</sup>
25 - 30	C	C <sup>(2)</sup>	C <sup>(2)</sup>
40	C	C <sup>(2)</sup>	C <sup>(2)</sup>
50	C	C <sup>(2)</sup>	C <sup>(2)</sup>
60	C	C <sup>(2)</sup>	C <sup>(2)</sup>
75	D	E <sup>(2)</sup>	D <sup>(2)</sup>
100	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
125	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
150	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
200	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>

- (1) NEMA 1 drives 100 - 200 HP will usually include a door mounted fan and filter.
- (2) NEMA 4 - 12 drives 30 - 200 HP are usually supplied with a cooling device.

## 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 610 (24)	328 (725)
E	1830 (72) x 914 (36) x 610 (24)	328 (725)

- Version "E" is NEMA 4 only.
- Version "D" cabinet is gray with a white interior panel.
- Version "E" cabinet is gray with a white interior panel.

Enclosures with heat exchanges add about 10 inches to the width.

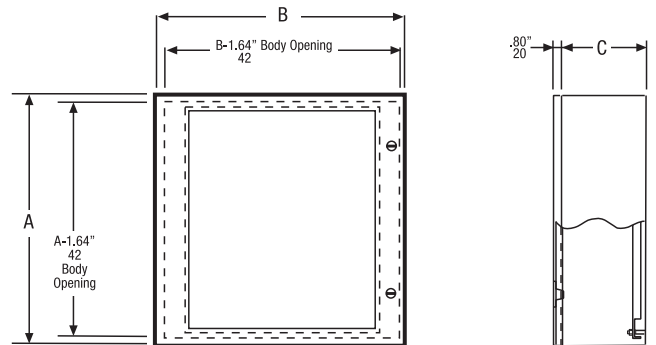
Enclosures with air conditioners add 15 inches to the width.

\* Dimensions are estimates and are subject to change after engineering and drafting.

## Wall-Mounted Cabinets\*

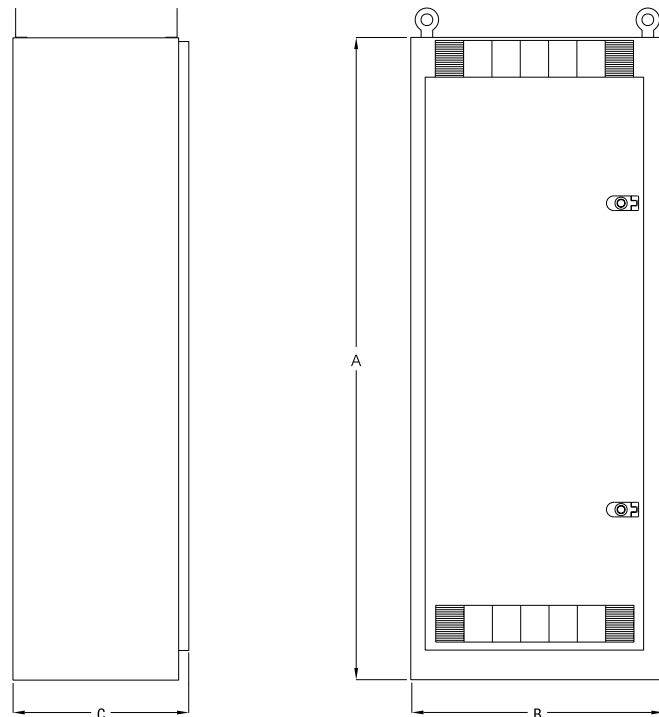
Cabinet Version	Enclosure Size (AxBxC) mm(in)	Approximate Weight kg(lb)
A	610(24)x610(24)x406(16)	40(89)
B	914(36)x762(30)x406(16)	47(103)
C	1219(48)x914(36)x406(16)	59(130)

Wall-mounted cabinets are gray with white interior panels. Add 8 inches to the width if cooling device is supplied.



Front View

Side View



Front View

Side View

## Modified Standard NEMA 4X/12 Wall Mount Drives with Disconnect <sup>(1)</sup>

- Motor Power Rating: 0.5 to 20 HP (0.33 to 15 kW)
- Input Voltage: 230, 480 VAC, 50/60 Hz
- Operator Functions include: Start/Stop, Jog, Preset Speeds, Accel/Decel Rate 1 or 2 selection, Forward/Reverse, etc.
- Braking resistors mount to the rear on the extended heatsink
- Door Mounted Graphical LCD OIM for drive configuration and operation
- Added Safety of a fused input with rotary through the door disconnect handle includes lock-out/tag out capability



### 240, 50/60 Hz Input: Ratings 0.5 to 10 HP

Modified Standard Model Number <sup>1</sup>	Frame Size	Horsepower Rating		Maximum Drive Current (Amps)			List	
		110% OL	150% OL	Continuous	1 Min.	2 Sec.		
6SP2DS	-2P2CTNN	A	0.5	0.33	2.2	2.4	3.3	\$3,530
	-4P2CTNN	A	1	0.75	4.2	4.8	6.4	3,530
	-6P8CTNN	B	2	1.5	6.8	9	12	3,705
	-9P6CTNN	B	3	2	9.6	10.6	14.4	3,780
	-015CTAN	C	5	3	15.3	17.4	23.2	4,130
	-022CTAN	D	7.5	5	22	24.2	33	4,940
	-028CTAN	D	10	7.5	28	33	44	5,220

### 460, 50/60 Hz Input: Ratings 0.5 to 20 HP

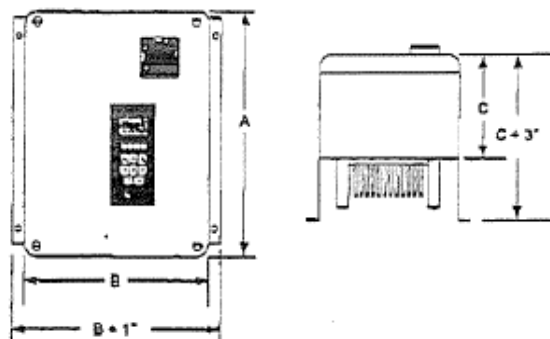
Modified Standard Model Number <sup>(1)</sup>	Frame Size	Horsepower Rating		Maximum Drive Current (Amps)			List	
		110% OL	150% OL <sup>(2)</sup>	Continuous	1 Min.	2 Sec.		
6SP4DS	-1P1CTNN	A	0.5	0.33	1.1	1.2	1.6	\$3,565
	-2P1CTNN	A	1	0.75	2.1	2.4	3.2	3,565
	-3P4CTNN	A	2	1.5	3.4	4.5	6	3,595
	-005CTNN	B	3	2	5	5.5	7.5	3,705
	-008CTNN	B	5	3	8	8.8	12	3,750
	-011CTAN	C	7.5	5	11	12.1	16.5	4,270
	-014CTAN	C	10	7.5	14	16.5	22	4,345
	-022CTAN	D	15	10	22	24.2	33	5,275
	-027CTAN	D	20	15	27	33	44	5,420

(1) These units cannot be modified with any additional modifications without consulting the factory.

(2) Overload of 150% or more for 1 minute. Dependent upon actual motor full load amp rating versus the drive continuous amp rating.

### Dimensions

Frame Size	Enclosure Size inches (mm)	Depth
A & B	15.75 x 11.81 (400 x 300)	6.81 (173)
C & D	23.62 x 11.81 (600 x 600)	6.81 (173)



Contact the factory for information on 575 VAC.

DISCOUNT: MS-1AC

# SP600 AC Drives

NOTES:

## MODIFIED STANDARD V\*S DRIVES

### GV6000 Drives: 480 VAC<sup>(3)</sup>

- Standard LCD OIM included on power modules
- Encoder feedback

Refer to the Standard Motors and Drives Catalog for Standard features and Standard options.



480 VAC Base Drive Model Number <sup>(4)</sup>	6V41-3P4TA	6V41-5P0TA	6V41-8P0TA	6V41-011TA	6V41-014TA	6V41-022TA	6V41-027TA	6V41-034TA	6V41-040TA	6V41-052TA	6V41-065TA
HP Rating (110% Overload)	2	3	5	7.5	10	15	20	25	30	40	50
HP Rating (150% Overload)	1.5	2	3	5	7.5	10	15	20	25	30	40
FLA @ 4 kHz	3.4	5.0	8.0	11.0	14.0	22.0	27.0	34.0	40.0	52.0	65.0
Base Drive List	\$1,711	\$1,711	\$1,877	\$2,205	\$2,449	\$3,000	\$3,536	\$4,290	\$5,221	\$6,209	\$7,753
<b>Enclosure Options</b>											
NEMA 1 Cabinet	3,350	3,350	3,350	3,650	3,650	3,650	3,650	3,650	3,950	3,950	3,950
NEMA 4/12 Cabinet	3,500	3,500	3,500	3,800	3,800	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	8,200 <sup>(2)</sup>	8,600 <sup>(2)</sup>
<b>Input Protection &amp; Disconnect Options</b>											
Input Fuses Only	158	158	158	158	158	178	178	245	317	317	611
Fused Disconnect Switch & Door Handle	403	403	403	403	403	438	438	505	757	757	1,208
Circuit Breaker Only	752	752	752	752	752	865	865	865	865	865	911
Circuit Breaker Disconnect & Door Handle	1,018	1,018	1,018	1,018	1,018	1,131	1,131	1,131	1,131	1,131	1,177
<b>Door Mounted Operator Devices</b>											
Door Mounted OIM	600	600	600	600	600	600	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86	86	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>											
Input Contactor <sup>(1)</sup>	342	342	342	467	467	467	467	467	467	467	467
Output Contactor <sup>(1)</sup>	342	342	342	467	467	467	467	467	467	467	467
Drive Bypass Control <sup>(1)</sup>	932	932	932	1,185	1,185	1,185	1,185	1,185	1,185	1,185	1,286
Motor Overload Relay	181	181	181	181	181	181	181	181	181	181	376
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408	408	408	408	408	408
Control Transformer: 460:120 VAC, 250VA	375	375	375	375	375	375	375	375	375	375	375
3% Impedance Input Line Reactor	291	323	323	384	384	461	461	496	511	640	774
<b>Dynamic Braking - Transistor + Resistor</b>											
6-10% Duty Braking	256	256	256	256	256	256	256	256	CF	CF	CF
20% Duty	CF	CF	CF	CF	CF	CF	CF	CF	CF	CF	CF

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Contact Factory for 230 VAC Drives

(4) For 115 VAC I/O, change the last alpha digit of the model number from A to B. A = 24 VDC I/O and B = 115 VAC I/O

CF = Contact Factory

Photo shown with optional OIM installed.

**DISCOUNT: MS-1AC**

# GV6000 AC Drives

## MODIFIED STANDARD V\*S DRIVES

### GV6000 Drives: 480 VAC

480 VAC Base Drive Model Number <sup>(4)</sup>	6V41-0777A	6V41-096NA	6V41-125NA	6V41-156NA	6V41-180NA	6V41-248NA
HP Rating (110% Overload)	60	75	100	125	150	200
HP Rating (150% Overload)	50	60	75	100	125	150
FLA @ 4 kHz	77	96	125	156	180	248
Base Drive List	\$8,923	\$9,511	\$11,492	\$12,766	\$14,087	\$19,193
<b>Enclosure Options</b>						
NEMA 1 Cabinet	3,950	5,525	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>
NEMA 1A - Force Vent w/ Fan & Filter <sup>(3)</sup>	692	692	Std.	Std.	Std.	Std.
NEMA 4/12 Cabinet <sup>(2)</sup>	9,500	14,475	14,475	14,475	14,475	CF
<b>Input Protection &amp; Disconnect Options</b>						
Input Fuses Only	611	611	1,054	1,102	1,102	1,274
Fused Disconnect Switch & Door Handle	1,208	1,208	2,114	2,162	2,162	2,334
Circuit Breaker Only	911	911	1,074	1,074	1,363	1,363
Circuit Breaker Disconnect & Door Handle	1,177	1,177	1,426	1,426	1,715	1,715
<b>Door Mounted Operator Devices</b>						
Door Mounted OIM	600	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120
2 or 3 Position Selection Switch	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>						
Input Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951	1,951
Output Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951	1,951
Drive Bypass Control <sup>(1)</sup>	3,220	3,220	3,220	4,080	4,080	4,080
Motor Overload Relay	376	376	376	430	430	430
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408
Control Transformer: 460:120 VAC, 250VA	375	375	375	375	375	375
3% Impedance Input Line Reactor	900	1114	1292	1480	2,101	2,745
<b>Dynamic Braking - Transistor + Resistor (requires substituting TA or TB model)</b>						
10% Duty Braking	Contact Factory					
>10% Duty Braking	Contact Factory					

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Add to NEMA 1 Option

(4) For 115 VAC I/O, change the last alpha digit of the model number from A to B. A = 24 VDC I/O and B = 115 VAC I/O

CF = Contact Factory

DISCOUNT: MS-1AC

## MODIFIED STANDARD V\*S DRIVES

### GV6000 Drives: 575 VAC

- Standard LCD OIM included on power modules
- Encoder feedback

Refer to the Standard Motors and Drives Catalog for Standard features and Standard options.



575 VAC Base Drive Model Number <sup>(3)</sup>	6V51-2P7TA	6V51-3P9TA	6V51-6P1TA	6V51-9P0TA	6V51-011TA	6V51-017TA	6V51-022TA	6V51-027TA	6V51-032TA	6V51-041TA	6V51-052TA
HP Rating (110% Overload)	2	3	5	7.5	10	15	20	25	30	40	50
HP Rating (150% Overload)	1.5	2	3	5	7.5	10	15	20	25	30	40
FLA @ 4 kHz	2.7	3.9	6.1	9.0	11.0	17.0	22.0	27.0	32.0	40.0	50.0
Base Drive List	\$1,945	\$1,945	\$2,064	\$2,387	\$2,751	\$3,292	\$3,817	\$4,644	\$5,704	\$6,703	\$8,325
<b>Enclosure Options</b>											
NEMA 1 Cabinet	3,350	3,350	3,350	3,650	3,650	3,650	3,650	3,650	3,950	3,950	3,950
NEMA 4/12 Cabinet	3,500	3,500	3,500	3,800	3,800	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	8,200 <sup>(2)</sup>	8,600 <sup>(2)</sup>
<b>Input Protection &amp; Disconnect Options</b>											
Input Fuses Only	158	158	158	158	158	178	178	245	317	317	611
Fused Disconnect Switch & Door Handle	403	403	403	403	403	423	423	505	757	757	1,208
Circuit Breaker Only	752	752	752	752	752	752	865	865	865	865	911
Circuit Breaker Disconnect & Door Handle	1,018	1,018	1,018	1,018	1,018	1,018	1,131	1,131	1,131	1,131	1,177
<b>Door Mounted Operator Devices</b>											
Door Mounted OIM	600	600	600	600	600	600	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86	86	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>											
Input Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467	467	467
Output Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467	467	467
Drive Bypass Control <sup>(1)</sup>	932	932	932	932	1,185	1,185	1,185	1,185	1,185	1,185	1,286
Motor Overload Relay	181	181	181	181	181	181	181	181	181	181	376
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408	408	408	408	408	408
Control Transformer: 575:120 VAC, 250VA	375	375	375	375	375	375	375	375	375	375	375
3% Impedance Input Line Reactor	323	323	323	384	437	461	461	496	511	640	774
<b>Dynamic Braking - Transistor + Resistor</b>											
6-10% Duty Braking	Contact Factory										
>10% Duty Braking	Contact Factory										

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) For 115 VAC I/O, change the last alpha digit of the model number from A to B. A = 24 VDC I/O and B = 115 VAC I/O

DISCOUNT: MS-1AC

# GV6000 AC Drives

## MODIFIED STANDARD DRIVES

### GV6000 Drives: 575 VAC

575 Base Drive Model Number	6V51-062TA	6V51-077NA	6V51-099NA	6V51-125NA	6V51-144NA
HP Rating (110% Overload)	60	75	100	125	150
HP Rating (150% Overload)	50	60	75	100	125
FLA @ 4 kHz	62	77	99	125	144
Base Drive List	\$10,067	\$11,102	\$13,177	\$14,690	\$16,078
<b>Enclosure Options</b>					
NEMA 1 Cabinet	3,950	5,525	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>
NEMA 1A Force Vent with Fan & Filter <sup>(3)</sup>	692	692	Std.	Std.	Std.
NEMA 4/12 Cabinet <sup>(2)</sup>	9,500	14,475	14,475	CF	CF
<b>Input Protection &amp; Disconnect Options</b>					
Input Fuses Only	611	611	1,054	1,102	1,102
Fused Disconnect Switch & Door Handle	1,208	1,208	2,114	2,162	2,162
Circuit Breaker Only	911	911	1,074	1,074	1,363
Circuit Breaker Disconnect & Door Handle	1,177	1,177	1,426	1,426	1,715
<b>Door Mounted Operator Devices</b>					
Door Mounted OIM	600	600	600	600	600
Maintained Start/Stop Switch	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>					
Input Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951
Output Contactor <sup>(1)</sup>	1,260	1,260	1,260	1,951	1,951
Drive Bypass Control <sup>(1)</sup>	3,220	3,220	3,220	4,080	4,080
Motor Overload Relay	376	376	376	430	430
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408
Control Transformer: 575:120 VAC, 250VA	375	375	375	375	375
3% Impedance Input Line Reactor	900	1,114	1,292	1,480	2,101
<b>Dynamic Braking - Transistor + Resistor (requires substituting TA or TB model)</b>					
6-10% Duty Braking	Contact Factory				
>10% Duty Braking	Contact Factory				

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Add to NEMA 1 Option

CF = Contact Factory

DISCOUNT: MS-1AC

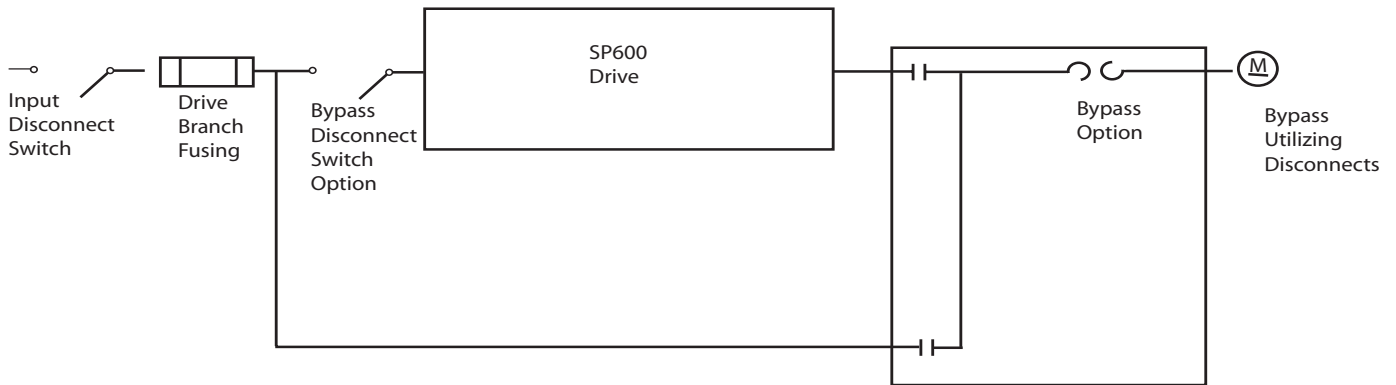
### Communication Modules - Network Options

Network connectivity can be achieved by adding one of the options listed below:

Model Number	Description	List
RECOMM-DNET	DeviceNet	5428
RECOMM-CNET	ControlNet	568
RECOMM-PBUS	Profibus	594
RECOMM-IBUS	Interbus-s	776
RECOMM-ENET	EtherNet IP	594
RECOMM-485	RS485 DF1	407
RECOMM-H85	Modbus-RTU	640

### GV6000 Power Distribution Options

The following section details commonly requested power distribution modifications. These modifications require the selection of an enclosure option.



DISCOUNT: MS-1AC



# GV6000 AC Drives

## GV6000 ENCLOSURE DIMENSIONS

HP VAC	Cabinet Version		
	460/575 AC	IP20 / NEMA 1	IP65 / NEMA 4
.5 - 3	A	B	B
5.0	A	B	B
7.5 - 15	B	C	C
20	B	C <sup>(2)</sup>	C <sup>(2)</sup>
25 - 30	C	C <sup>(2)</sup>	C <sup>(2)</sup>
40	C	C <sup>(2)</sup>	C <sup>(2)</sup>
50	C	C <sup>(2)</sup>	C <sup>(2)</sup>
60	C	C <sup>(2)</sup>	C <sup>(2)</sup>
75	D	E <sup>(2)</sup>	D <sup>(2)</sup>
100	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
125	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
150	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
200	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>

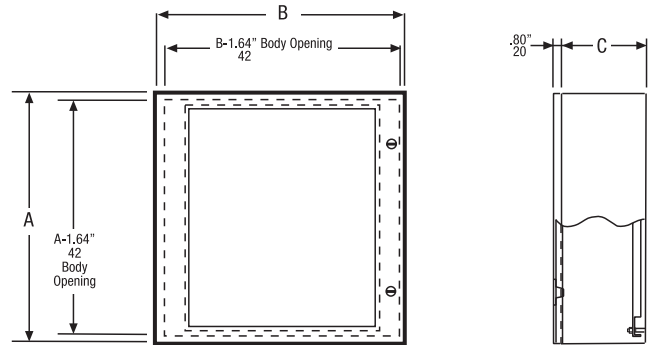
(1) NEMA 1 drives 100 - 200 HP will usually include a door mounted fan and filter.

(2) NEMA 4 - 12 drives 30 - 200 HP are usually supplied with a cooling device.

## 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. Add 8 inches to the width if cooling device is supplied.



Front View

Side View

## Floor-Mounted Cabinets\*

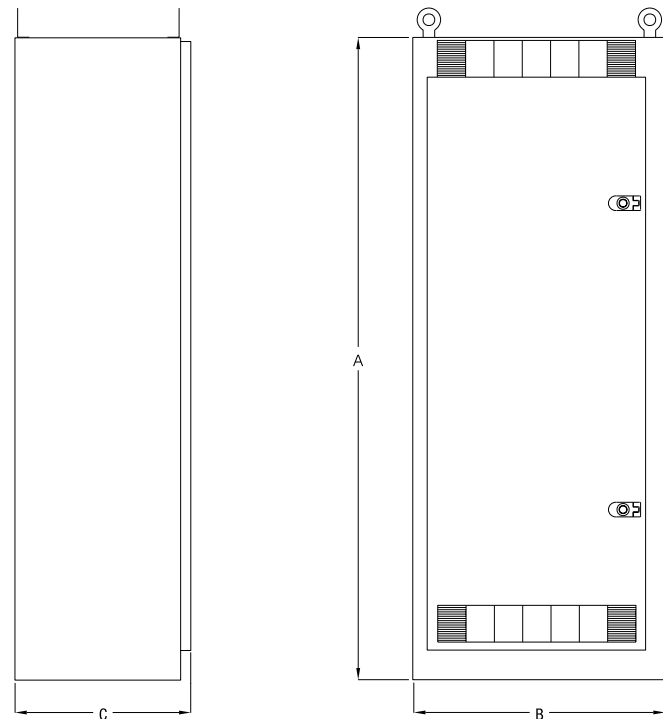
Cabinet Version	Enclosure Size (A x B x C) mm (in)	Approximate Weight kg(lb)
D	2204 (87) x 864 (34) x 610 (24)	328 (725)
E	1830 (72) x 914 (36) x 610 (24)	328 (725)

- Version "E" is NEMA 4 only.
- Version "D" cabinet is gray with a white interior panel.
- Version "E" cabinet is gray with a white interior panel.

Enclosures with heat exchanges add about 10 inches to the width.

Enclosures with air conditioners add 15 inches to the width.

\* Dimensions are estimates and are subject to change after engineering and drafting.



Front View

Side View

**NOTES:**



## MODIFIED STANDARD V\*S DRIVES GV3000/SE Bookshelf Drives: 460 VAC

Refer to the Standard Motor and Drives Catalog for Standard features and Standard options.



Base Drive Model Number	31ER4060	38ER4060	55ER4060	85ER4060	126ER4060	150ER4060	240ER4060	300ER4060	430ER4060
V/Hz HP Rating	1.5	2	3	5	7.5	10	15	20	30
V/Hz FLA @ 2 kHz	3.1	3.8	5.5	8.5	12.6	15.0	24.0	30.0	43.0
Vector HP Rating	1	1.5	2	3	5	7.5	10	15	25
Vector FLA @ 2 kHz	2.1	3.1	3.8	6.7	9.3	11.0	16.5	22.0	32.0
Base Drive List	\$1,670	\$1,691	\$1,728	\$1,791	\$1,942	\$2,340	\$2,883	\$3,614	\$3,927
<b>Enclosure Options</b>									
NEMA 1	3,350	3,350	3,350	3,350	3,350	3,650	3,650	3,650	3,950
Adder: NEMA 1A - Force Vent w/ Fan & Filter (Add to NEMA 1 List Price)	NA	NA	NA	NA	NA	NA	693	693	693
NEMA 4/12	3,500	3,500	3,500	3,500	3,500	3,800	4,365	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>
<b>Input Protection &amp; Disconnect Options</b>									
Input Fuses Only	158	158	158	158	158	178	178	245	317
Fused Disconnect Switch & Door Handle	403	403	403	403	403	423	438	505	757
Circuit Breaker Only	752	752	752	752	752	752	865	865	865
Circuit Breaker Disconnect & Door Handle	1,018	1,018	1,018	1,018	1,018	1,018	1,131	1,131	1,131
<b>Door Mounted Operator Devices</b>									
Door Mounted OIM <sup>(4)</sup>	754	754	754	754	754	754	754	754	754
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>									
Input Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467
Output Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467
Drive Bypass Control <sup>(1)</sup>	932	932	932	932	1,185	1,185	1,185	1,185	1,185
Motor Overload Relay	181	181	181	181	181	181	181	181	181
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408	408	408	408
Control Transformer: 460:120 VAC, 250 VA	375	375	375	375	375	375	375	375	375
3% Impedance Input Line Reactor	291	323	323	323	384	437	461	496	640
<b>Dynamic Braking - Resistor Only</b>									
20% Duty Braking <sup>(3)</sup>	1,450	1,500	1,500	1,550	1,600	1,650	1,800	2,000	2,610
>20% Duty Braking <sup>(3)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF

- (1) Requires Control Transformer option
  - (2) Usually includes a cooling device and control transformer
  - (3) Dynamic Braking resistors may be mounted externally on top of cabinet
  - (4) Not available on NEMA 4 enclosures
- CF = Contact Factory

DISCOUNT: MS-1AC

# GV3000/SE AC Drives

## MODIFIED STANDARD V\*S DRIVES

### GV3000/SE Power Module Style Drives: 460 VAC<sup>(4)</sup>

Refer to the Standard Motor and Drives Catalog for Standard features and Standard options.



Base Drive Model Number	30V4060	40V4060	50V4060	60V4060	75V4060	100V4060	125V4060	150V4060	200V4060
HP Rating	30	40	50	60	75	100	125	150	200
FLA @ 4kHz	40	54	67	78	100	140	170	200	240
Base Drive List	\$6,550	\$7,238	\$8,160	\$9,437	\$12,100	\$12,481	\$14,369	\$17,698	\$18,152
<b>Enclosure Options</b>									
NEMA 1 Cabinet	3,950	3,950	3,950	3,950	5,525	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>	6,050 <sup>(2)</sup>
NEMA 12/4 Cabinet <sup>(2)</sup>	7,800	7,800	8,200	8,600	14,475	14,475	14,475	14,475	14,475
<b>Input Protection &amp; Disconnect Options</b>									
Input Fuses Only	317	317	611	611	1,054	1,102	1,102	1,274	1,274
Fused Disconnect Switch & Door Handle	757	757	1,208	1,208	2,114	2,162	2,162	2,334	2,334
Circuit Breaker Only	865	911	911	911	1,074	1,074	1,363	1,363	1,363
Circuit Breaker Disconnect & Door Handle	1,131	1,177	1,177	1,177	1,426	1,426	1,715	1,715	1,715
<b>Door Mounted Operator Devices</b>									
Door Mounted OIM <sup>(5)</sup>	754	754	754	754	754	754	754	754	754
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120	120	120	120	120
Pilot Lights <sup>(1)</sup>	86	86	86	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>									
Input Contactor <sup>(1)</sup>	467	467	467	1,260	1,260	1,951	1,951	1,951	1,951
Output Contactor <sup>(1)</sup>	467	467	467	1,260	1,260	1,951	1,951	1,951	1,951
Drive Bypass Control <sup>(1)</sup>	1,185	1,286	1,286	3,220	3,220	4,080	4,080	4,080	4,080
Motor Overload Relay	181	376	376	376	376	430	430	430	430
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408	408	408	408
Control Transformer: 460:120 VAC, 250 VA	375	375	375	375	375	375	375	375	375
3% Impedance Input Line Reactor	640	706	774	1,114	1,292	1,480	2,101	2,356	2,745
<b>Dynamic Braking - Transistor + Resistor</b>									
20% Duty Braking <sup>(3)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF
>20% Duty Braking <sup>(3)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Dynamic Braking resistors may be mounted externally on top of cabinet

(4) Contact the factory for 230 VAC Drives

(5) Not available on NEMA 4 enclosures

CF = Contact Factory

DISCOUNT: MS-1AC

## MODIFIED STANDARD V\*S DRIVES GV3000/SE NEMA Style Drives: 460 VAC<sup>(4)</sup>

Refer to the Standard Motor and Drives Catalog for Standard features and Standard options.



Base Drive Model Number	1V4160	2V4160	3V4160	5V4160	7V4160	10V4160	15V4160	20V4160	25V4160
HP Rating	1	2	3	5	7.5	10	15	20	25
FLA @ 8kHz	2.1	3.4	5.3	8.2	11.1	14.2	21.0	27.0	34.5
Base Drive List	\$1,295	\$1,400	\$1,590	\$2,014	\$2,311	\$2,867	\$3,641	\$4,330	\$6,238
<b>Enclosure Options</b>									
NEMA 1 Cabinet	3,350	3,350	3,350	3,350	3,650	3,650	3,650	3,650	3,950
NEMA 1A - Force Vent w/ Fan & Filter <sup>(6)</sup>	NA	NA	NA	NA	NA	NA	693	693	693
NEMA 12/4 Cabinet	3,500	3,500	3,500	3,500	3,800	3,800	4,365	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>
<b>Input Protection &amp; Disconnect Options</b>									
Input Fuses Only	158	158	158	158	158	178	178	245	317
Fused Disconnect Switch & Door Handle	403	403	403	403	403	423	438	505	757
Circuit Breaker Only	752	752	752	752	752	752	865	865	865
Circuit Breaker Disconnect & Door Handle	1,018	1,018	1,018	1,018	1,018	1,018	1,131	1,131	1,131
<b>Door Mounted Operator Devices</b>									
Door Mounted OIM <sup>(5)</sup>	754	754	754	754	754	754	754	754	754
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	120	120	120
Jog Pushbutton	86	86	86	86	86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120	120	120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86	86	86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>									
Input Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467
Output Contactor <sup>(1)</sup>	342	342	342	342	467	467	467	467	467
Drive Bypass Control <sup>(1)</sup>	932	932	932	932	1,185	1,185	1,185	1,185	1,185
Motor Overload Relay	181	181	181	181	181	181	181	181	181
Blower Motor Starter <sup>(1)</sup>	408	408	408	408	408	408	408	408	408
Control Transformer: 460:120 VAC, 250 VA	375	375	375	375	375	375	375	375	375
3% Impedance Input Line Reactor	291	323	323	323	384	437	461	496	565
<b>Dynamic Braking - Transistor + Resistor</b>									
20% Duty Braking <sup>(3)(7)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF
>20% Duty Braking <sup>(3)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Dynamic Braking resistors may be mounted externally on top of cabinet

(4) Contact the factory for 230 VAC Drives.

(5) Not available on NEMA 4 enclosures

(6) Add to NEMA 1 List Price

(7) Consider using a bookshelf style drive (that includes a braking transistor (page D-17)) for 1-25 HP drives requiring dynamic braking.

CF = Contact Factory

**DISCOUNT: MS-1AC**

# GV3000/SE AC Drives

## MODIFIED STANDARD V\*S DRIVES GV3000/SE NEMA Style Drives: 460 VAC

Refer to the Standard Motor and Drives Catalog for Standard features and Standard options.



Base Drive MN	30V4160	40V4160	50V4160		200V4160	250V4160	300V4160	350V4160	400V4160
HP Rating	30	40	50	See Power Module pricing for ratings from 60 to 200	200	250	300	350	400
FLA @ 4 kHz	40	54	67		240	302	361	414	477
Base Drive List	\$7,722	\$8,692	\$9,249		\$27,950	\$30,900	\$36,668	\$38,561	\$42,053
<b>Enclosure Options</b>									
NEMA 1 Cabinet	3,950	3,950	3,950		Standard	Standard	Standard	Standard	Standard
NEMA 1A - Force Vent w/ Fan & Filter (Add to NEMA 1 List Price)	693	693	693		Standard	Standard	Standard	Standard	Standard
NEMA 12/4 Cabinet	7,800 <sup>(2)</sup>	7,800 <sup>(2)</sup>	8,200 <sup>(2)</sup>		CF	CF	CF	CF	CF
2nd Bay - 24" Rittal Structure	NA	NA	NA		3,285	3,285	3,285	3,285	3,285
<b>Input Protection &amp; Disconnect Options</b>									
Input Fuses Only	317	317	611		Standard	Standard	Standard	Standard	Standard
Fused Disconnect Switch & Door Handle	757	757	1,208		2,825	2,825	2,825	2,825	2,825
Circuit Breaker Only	865	911	911		NA	NA	NA	NA	NA
Circuit Breaker Disconnect & Door Handle	1,131	1,177	1,177		NA	NA	NA	NA	NA
<b>Door Mounted Operator Devices</b>									
Door Mounted OIM <sup>(6)</sup>	754	754	754		LED OIM Standard	LED OIM Standard	LED OIM Standard	LED OIM Standard	LED OIM Standard
Maintained Start/Stop Switch	106	106	106		106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172		172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	120	120	120		120	120	120	120	120
Jog Pushbutton	86	86	86		86	86	86	86	86
2 or 3 Position Selection Switch	120	120	120		120	120	120	120	120
Pilot Light <sup>(1)</sup>	86	86	86		86	86	86	86	86
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>									
Input Contactor <sup>(1)</sup>	467	467	467		<sup>(5)</sup>	2,966 <sup>(4)</sup>	2,966 <sup>(4)</sup>	2,966 <sup>(4)</sup>	2,966 <sup>(4)</sup>
Output Contactor <sup>(1)</sup>	467	467	467		<sup>(5)</sup>	2,966 <sup>(4)</sup>	2,966 <sup>(4)</sup>	2,966 <sup>(4)</sup>	2,966 <sup>(4)</sup>
Drive Bypass Control <sup>(1)</sup>	1,185	1,286	1,286		<sup>(5)</sup>	6,763 <sup>(4)</sup>	6,763 <sup>(4)</sup>	6,763 <sup>(4)</sup>	6,763 <sup>(4)</sup>
Motor Overload Relay	181	376	376		<sup>(5)</sup>	430 <sup>(4)</sup>	430 <sup>(4)</sup>	430 <sup>(4)</sup>	430 <sup>(4)</sup>
Blower Motor Starter <sup>(1)</sup>	408	408	408		<sup>(5)</sup>	408	408	408	408
Control Transformer: 460:120 VAC, 250 VA	375	375	375		<sup>(5)</sup>	375 <sup>(4)</sup>	375 <sup>(4)</sup>	375 <sup>(4)</sup>	375 <sup>(4)</sup>
3% Impedance Input Line Reactor	640	706	774		<sup>(5)</sup>	2,966 <sup>(4)</sup>	3,101 <sup>(4)</sup>	4,018 <sup>(4)</sup>	4,369 <sup>(4)</sup>
<b>Dynamic Braking - Transistor + Resistor</b>									
20% Duty Braking <sup>(3)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF
>20% Duty Braking <sup>(3)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF

(1) Requires Control Transformer option

(2) Usually includes a cooling device and control transformer

(3) Dynamic Braking resistors may be mounted externally on top of cabinet

(4) Requires the Adder for a second cabinet bay

(5) Price Power Module Style Drive (page D-18MOD) for 200 HP GV3000 drives requiring these modifications.

(6) Not available on NEMA 4 enclosures

CF = Contact Factory

DISCOUNT: MS-1AC

## GV3000 ENCLOSURE DIMENSIONS

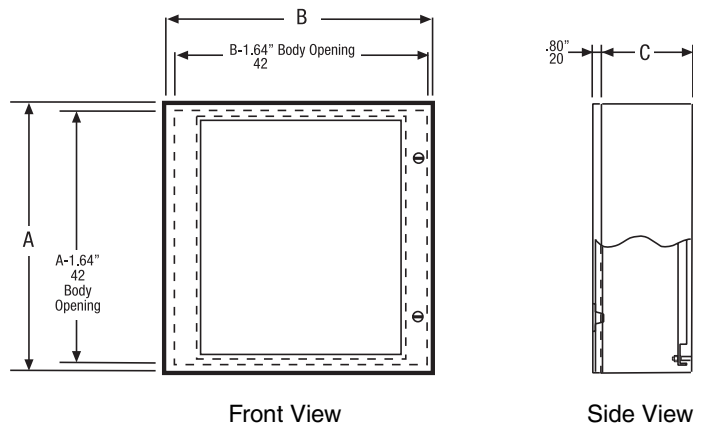
GV3000 HP	IP20 / NEMA 1	IP65 / NEMA 4	IP54 / NEMA 12
1.0 - .5.0	A	B	B
7.5 - 15	B	C	C
20	B	C <sup>(2)</sup>	C <sup>(2)</sup>
25 - 30	C	C <sup>(2)</sup>	C <sup>(2)</sup>
40	C	C <sup>(2)</sup>	C <sup>(2)</sup>
50	C	C <sup>(2)</sup>	C <sup>(2)</sup>
60	C	C <sup>(2)</sup>	C <sup>(2)</sup>
75	D	E <sup>(2)</sup>	D <sup>(2)</sup>
100	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
125	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
150	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
200	D <sup>(1)</sup>	E <sup>(2)</sup>	D <sup>(2)</sup>
200V4160	Standard	N/A	Consult Factory
250V4160	Standard	N/A	
300V4160	Standard	N/A	
350V4160	Standard	N/A	
400V4160	Standard	N/A	

- (1) NEMA 1 drives will usually include a fan and filter for positive pressure ventilation.
- (2) NEMA 4 and 12 drives usually include a cooling device.

## 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 8 inches to width.



## Floor-Mounted Cabinets\*

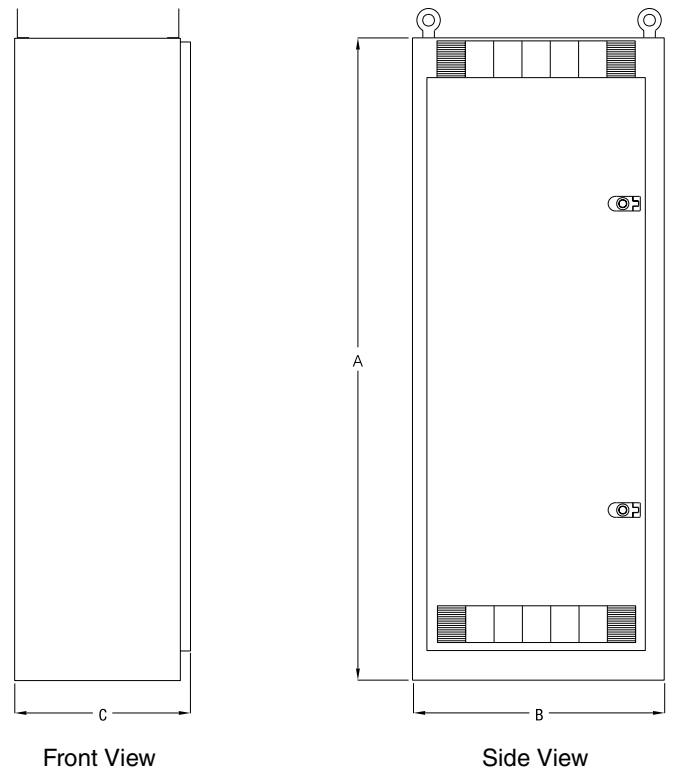
Cabinet Version	Enclosure Size (A x B x C) mm (in)	Approximate Weight kg(lb)
D	2204 (87) x 864 (34) x 610 (24)	328 (725)
E	1830 (72) x 914 (36) x 610 (24)	328 (725)

- Version "E" is NEMA 4 only.
- Versions "D" and "G" cabinets are gray with white interior panels.

Enclosures with heat exchanges add about 10 inches to the width.

Enclosures with air conditioners add 15 inches to the width.

\* Dimensions are estimates and are subject to change after engineering and drafting.





# GV3000/SE AC Drives

## GV3000/SE MODIFICATIONS AND OPTIONS

### Factory Installation of Standard Kits

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				
Kit M/N	Description	Kit and Installation List	Enclosure Required	Notes
2SI3000	Super RMI Card <sup>(1)</sup>	\$675	no	
2LB3000	115 V Control Interface	930	no	
2RK3000	Cabinet Mounted OIM	754	yes	Not available on NEMA 4 applications
2AX3000	AutoMax Network Card <sup>(1)</sup>	630	no	
2DV3000	DeviceNet Card <sup>(1)</sup>	1,050	no	
2NB3000	Interbus S Network <sup>(1)</sup>	980	no	
2CN3000	ControlNet 1.5 <sup>(1)</sup>	980	no	
2PB3000	Profibus DP Card	1,150	no	

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

### 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) (if specified), 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		
Description	List	Notes
Start, Stop PB	\$172	
Jog PB	86	
Auto/Manual SS	120	
Speed Pot	150	
E-stop PB	190	
E-stop PB, Reset PB	190	
Drive Mode, Bypass Mode PL's <sup>(1)</sup>	270	Requires Bypass Option
Forward/Reverse SS	120	
Power On, Run & Drive Fault PL's <sup>(1)(2)</sup>	405	
Nameplate, lamacoid	35	Specify wording on order form
Relay, Plug-in 24 VDC/115 VAC coil <sup>(1)</sup>	270	
Timer Relay Electronic - 2 Form C Contacts <sup>(1)</sup>	360	
Voltage Relay - Electronic - 2 Form C Contacts <sup>(1)</sup>	360	
Brake Control AC Type with Contactor and Fuses <sup>(1)</sup>	655	
Cabinet Space Heater	600	Requires customer supplied 115 VAC

(1) 115 VAC control transformer must be included for this option

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

DISCOUNT: MS-1AC

## OPTIONS - Pre-Engineered HVAC - ACI Construction Packages

The following packaged options are available for GV3000/SE. These options are factory installed only and are supplied in pre-engineered enclosure packages:

- **Main Input Disconnect** - provides a positive disconnect of all input power leads to the GV3000/SE. Each disconnect is supplied with a thru-the-door, padlockable handle.
- **Input Line Fuses** - consists of three Class J fuses in a fuse block. These fuses have an interrupting rating of 200,000 AIC.
- **Manual Contactor Bypass** - provides the means to run a motor directly on line power by effectively bypassing the GV3000/SE. This option consists of two magnetic contactors, one motor overload relay, and a separate inverter only disconnect.
- **Output Contactor** - provides a positive disconnect between the GV3000/SE and the motor.
- **Input Line Reactor** - consists of a three-phase, 3% impedance line reactor to minimize harmonics on the AC line and to protect the GV3000/SE from damaging electrical transients.
- **Enclosure Packages** - allows for housing the packaged options. Option enclosures for 1 HP through 50 and 60 HP (General Purpose) are available rated for NEMA 1 or NEMA 12 (except for the Multi-purpose Accessory box).

For 1 HP through 60 HP (General Purpose) applications, the GV3000/SE and the option enclosure are mounted to a common backpanel which is designed for wall mounting.



Enclosure packages will only be sold as completely assembled units with a mounted GV3000/SE. Four pre-engineered option package configurations are available and are as follows:

### **Disconnect Accessory Box**

Includes a Main Disconnect  
Optional Input Line Fuses

### **Output Contactor Accessory Box**

Includes an Output Contactor  
Optional Input Line Fuses  
Optional Main Input Disconnect

### **Bypass Accessory Box**

Includes Manual Bypass  
Optional Input Line Fuses  
Optional Main Input Disconnect

### **Multi-Purpose Accessory Box**

Includes an Input Line Reactor  
Optional Input Line Fuses  
Optional Main Input Disconnect  
Optional Manual Bypass  
or  
Optional Output Contactor

DISCOUNT: MS-1AC

# GV3000/SE AC Drives

## OPTIONS - Pre-Engineered HVAC - ACI Construction Packages

### 230 V GV3000/SE Packages - Wall Mount 1 - 20 HP<sup>1</sup>

Horsepower	1	2	3	5	7.5	10	15	20
NEMA 1 GV3000/SE List	\$1,431	1,495	1,553	1,606	1,956	2,083	3,445	4,267
NEMA 12 GV3000/SE List	1,463	1,524	1,586	1,653	2,065	2,189	3,461	4,269
<b>Disconnect Accessory Box Options</b>								
NEMA 1 Option Enclosure w/ Main Input Disconnect List	1,268	1,268	1,268	1,268	1,268	1,505	2,257	2,257
Input Line Fuses List	158	158	158	178	185	337	337	488
NEMA 12 Option Enclosure List	300	300	300	300	300	300	300	300
<b>Output Contactor or Bypass Accessory Box Options</b>								
NEMA 1 Enclosures w/Output Contactor List or	1,630	1,630	1,630	1,630	1,643	1,961	2,364	2,377
NEMA 1 Enclosure w/Manual Bypass List	1,932	2,182	2,182	2,293	2,424	2,852	3,663	3,663
Input Line Fuses List	158	158	158	178	185	337	337	488
Main Input Disconnect List	262	262	262	262	262	413	737	1,702
NEMA 12 Option Enclosure List	300	300	300	300	300	300	300	300
<b>Multi-Purpose Accessory Box Options</b>								
NEMA 1 Option Enclosures w/ Input Line Reactor List	2,003	2,035	2,035	2,035	2,180	2,233	2,451	2,485
Manual Bypass List	932	932	1,185	1,185	1,185	1,323	1,603	1,714
Input Line Fuses List	158	158	158	178	185	337	337	488
Main Input Disconnect List	262	262	262	262	262	413	737	1,702
Output Contactor List	667	667	667	667	694	694	909	909

**Note:** When pricing an option package, shaded items must be included in total price before adding other options.

(1) Contact Reliance Electric for modifications other than those listed on this page.

DISCOUNT: MS-1AC

## OPTIONS - Pre-Engineered HVAC - ACI Construction Packages 460 V GV3000/SE Packages - Wall Mount 1 - 15 HP<sup>1</sup>

Horsepower	1	2	3	5	7.5	10	15
NEMA 1 GV3000/SE List	\$1,295	1,400	1,590	2,014	2,311	2,867	3,641
NEMA 12 GV3000/SE List	1,310	1,414	1,607	2,030	2,331	2,897	3,682
<b>Disconnect Accessory Box Options</b>							
NEMA 1 Option Enclosure w/Main Input Disconnect List	1,268	1,268	1,268	1,268	1,268	1,268	1,268
Input Line Fuses List	135	135	135	135	135	135	135
NEMA 12 Option Enclosure List	300	300	300	300	300	300	300
<b>Output Contactor or Bypass Accessory Box Options</b>							
NEMA 1 Enclosures w/Output Contactor List or	1,630	1,630	1,630	1,630	1,630	1,630	1,643
NEMA 1 Enclosure w/Manual Bypass List	1,932	1,932	1,932	1,932	2,185	2,185	2,185
Input Line Fuses List	135	135	135	135	135	135	175
Main Input Disconnect List	268	268	268	268	268	268	268
NEMA 12 Option Enclosure List	300	300	300	300	300	300	300
<b>Multi-Purpose Accessory Box Options</b>							
NEMA 1 Option Enclosures w/Input Line Reactor List	2,003	2,035	2,035	2,035	2,180	2,233	2,353
Manual Bypass List	932	932	932	932	1,185	1,185	1,185
Input Line Fuses List	135	135	135	135	135	135	175
Main Input Disconnect List	268	268	268	268	268	268	268
Output Contactor List	630	630	630	630	630	630	643

## 460 V GV3000/SE Packages - Wall Mount 20 - 60 HP<sup>1</sup>

Horsepower	20	25G <sup>(2)</sup>	25V <sup>(2)</sup>	30	40	50	60G <sup>(2)</sup>
NEMA 1 GV3000/SE List	\$4,330	4,701	6,238	7,722	8,692	9,249	11,342
NEMA 12 GV3000/SE List	4,376	4,748	6,304	7,803	8,787	9,348	11,455
<b>Disconnect Accessory Box Options</b>							
NEMA 1 Option Enclosure w/Main Input Disconnect List	1,505	1,757	1,757	2,257	2,257	3,208	3,208
Input Line Fuses List	175	310	310	317	317	611	611
NEMA 12 Option Enclosure List	300	300	300	300	300	300	300
<b>Output Contactor or Bypass Accessory Box Options</b>							
NEMA 1 Enclosures w/Output Contactor List or	1,961	1,961	1,961	2,364	2,377	2,475	2,613
NEMA 1 Enclosure w/Manual Bypass List	2,685	2,685	2,685	3,057	3,256	3,428	3,805
Input Line Fuses List	175	310	310	310	317	611	611
Main Input Disconnect List	330	447	447	572	572	781	781
NEMA 12 Option Enclosure List	300	300	300	300	300	300	300
<b>Multi-Purpose Accessory Box Options</b>							
NEMA 1 Option Enclosures w/Input Line Reactor List	2,388	2,457	2,565	2,791	2,842	3,114	3,114
Manual Bypass List	1,185	1,185	1,185	1,522	1,714	1,714	3,220
Input Line Fuses List	245	317	317	317	317	611	611
Main Input Disconnect List	330	447	447	572	572	781	781
Output Contactor List	714	714	714	835	835	835	1,260

**Note:** When pricing an option package, shaded items must be included in total price before adding other options.

(1) Contact Reliance Electric for modifications other than those listed on this page.

(2) "G" Indicates General Purpose (V/Hz) model. "V" indicates Vector Duty (UEC) and General Purpose (V/Hz) models.

Example #1: 1 HP GV3000/SE with input Disconnect and Fuses:	Example #2: 5 HP GV3000/SE with Bypass, line reactor, and Fuses:
1V4160 = \$1,295	5V4160 = \$2,014
Disconnect Accessory Box = \$1,268	Multipurpose Accessory Box = \$2,035
Input Fuses = \$135	Input Fuses = \$135
Total List = \$2,698 x VS-1AC	Bypass = \$932
	Total List = \$5,116 x VS-1AC

**DISCOUNT: MS-1AC**

# GV3000/SE AC Drives

## OPTIONS - Pre-Engineered HVAC - ACI Construction Packages

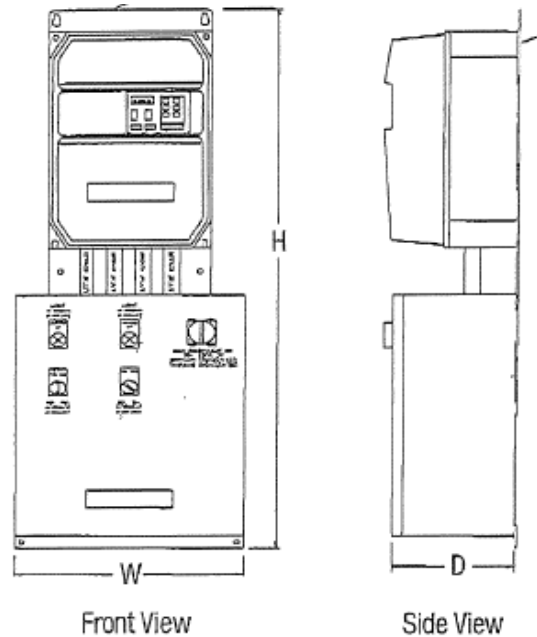
### 1 - 20 HP 230 V Wall Mount Enclosures

### 1 - 60 HP 460 V Wall Mount Enclosures

GV3000'SE & Disconnect Accessory Box				
HP @ 230 Volt	H	W	D	Wt.
1 - 7.5 HP	29.5"	12.3"	7.9"	30-36 lb.
10 HP	32"	12.3"	7.9"	36 lb.
15 - 20 HP	38.6"	14"	12.3"	51 lb.
HP @ 460 Volt	H	W	D	Wt.
1.5 HP	29.5"	12.3"	7.9"	30 lb.
7.5 - 10 HP	32"	12.3"	7.9"	36 lb.
15 - 20 HP	37"	12.3"	7.9"	51 lb.
25 (G) HP	37"	12.3"	9.5"	51 lb.
25(V) - 40 HP	44.9"	14"	13.8"	106 lb.
50 - 60(G) HP	54.7"	24"	13.8"	140 lb.

GV3000'SE & Output Contactor/Bypass Accessory Box				
HP @ 230 Volt	H	W	D	Wt.
1 - 5 HP	33.5"	16"	8.2"	40 lb.
7.5 HP	36"	16"	8.2"	46 lb.
10 HP	40"	16"	10.2"	46 lb.
15 - 20 HP	54.9"	24"	13.3"	61 lb.
HP @ 460 Volt	H	W	D	Wt.
1.5 HP	33.5"	16"	8.2"	40 lb.
7.5 - 10 HP	36"	16"	8.2"	46 lb.
15 - 20 HP	41"	16"	9.5"	51 lb.
25 (G) HP	45"	16"	10.9"	63 lb.
25(V) - 40 HP	54.7"	24"	13.8"	155 lb.
50 - 60(G) HP	60.7"	24"	13.8"	175 lb.

GV3000'SE & Output Contactor/Bypass Accessory Box				
HP @ 230 Volt	H	W	D	Wt.
1 - 5 HP	37.5"	16"	10.2"	50 lb.
7.5 HP	40"	16"	10.2"	56 lb.
10 HP	44"	16"	10.9"	56 lb.
15 HP	61"	24"	13.3"	73 lb.
20 HP	61"	24"	13.3"	73 lb.
HP @ 460 Volt	H	W	D	Wt.
1.5 HP	37.5"	16"	10.2"	50 lb.
7.5 - 10 HP	40"	16"	10.2"	56 lb.
15 - 20 HP	45"	16"	10.2"	73 lb.
25 (G) HP	49"	16"	10.9"	78 lb.
25(V) - 40 HP	60.7"	24"	13.8"	175 lb.
50 - 60(G) HP	66.7"	24"	13.8"	210 lb.



This drawing represents a typical GV3000/SE with the bypass accessory box.

## MODIFIED STANDARD V\*S DRIVES

### LiquiFlo 1.0 AC Drives: 460 VAC

Vector Mode: 150% overload for 3 seconds

V/Hz Mode: 110% overload continuous



Base Drive Model Number	41L4060	50LW4060	64LW4060	120L4060	120L4060	120L4060	Comments
HP Rating	350	400	500	600	800	1000	
FLA @ 2kHz	414	500	643	1,157	1,157	1,157	
Base Drive List <sup>(1)</sup>	\$23,650	\$36,850	\$42,240	\$67,320	\$67,320	\$67,320	
<b>Enclosure Options: Must select appropriate enclosure adder</b>							
NEMA 4/12 Cabinet	20,865	20,960	20,960	23,326	27,554	27,554	Drive must be ordered w/cabinet
<b>Cooling Options: Must pick one of these options</b>							
Self-Contained Chiller System 104° F	15,030	16,910	16,910	20,015	20,015	20,015	Chiller ships separate
Water to Air System 90° F	10,940	11,740	11,740	15,260	15,260	15,260	Heat exchanger ships separate
Water to Water System 104° F	8,617	8,617	8,617	9,212	9,212	9,212	Heat exchanger ships separate
<b>Input Protection &amp; Disconnect Options</b>							
Circuit Breaker Disconnect & Flanged Handle (65kA)	Standard	Standard	Standard	Standard	Standard	Standard	
<b>Door Mounted Operator Devices</b>							
LCD OIM Door Mounted: NEMA 12 Enclosures Only	754	754	754	754	754	754	Replaces Viewing Window with LCD OIM
Maintained Start/Stop Switch	106	106	106	106	106	106	
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	
E-Stop Pushbutton (Mushroom Head)	120	120	120	120	120	120	
Jog Pushbutton	86	86	86	86	86	86	
2 or 3 Position Selection Switch	120	120	120	120	120	120	
Pilot Lights (each)	86	86	86	86	86	86	Define Function
<b>Contactors, Overloads, Starters, Control Transformers &amp; Line Reactors</b>							
Input Contactor	3,538	3,538	3,724	CF	CF	CF	Consult factory for cabinet size
Output Contactor	3,538	3,538	3,724	CF	CF	CF	Consult factory for cabinet size
Drive Bypass Control	12,846	12,846	12,846	CF	CF	CF	Consult factory for cabinet size
Motor Overload Relay	1,200	1,200	2,426	CF	CF	CF	
Blower Motor Starter	408	408	408	408	408	408	
Control Transformer: 460:120 VAC, 500 VA	Standard	Standard	Standard	Standard	Standard	Standard	
3% Impedance Input Line Reactor	4,018	4,369	4,455	CF	CF	CF	Consult factory for cabinet size

(1) A chiller, water-to-air, water-to-water, or other approved cooling device must be priced and included in every order.

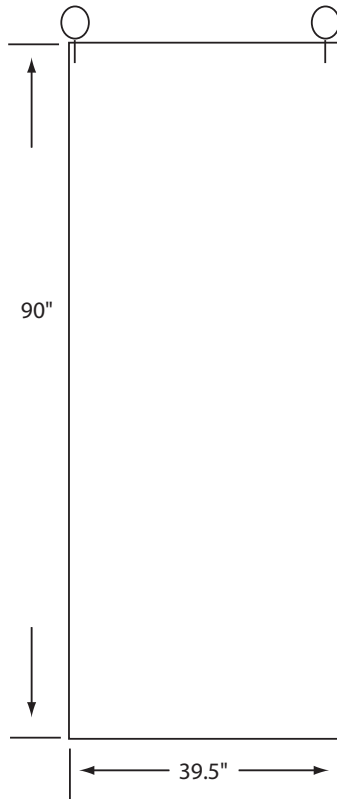
CF = Contact Factory

DISCOUNT: MS-1AC

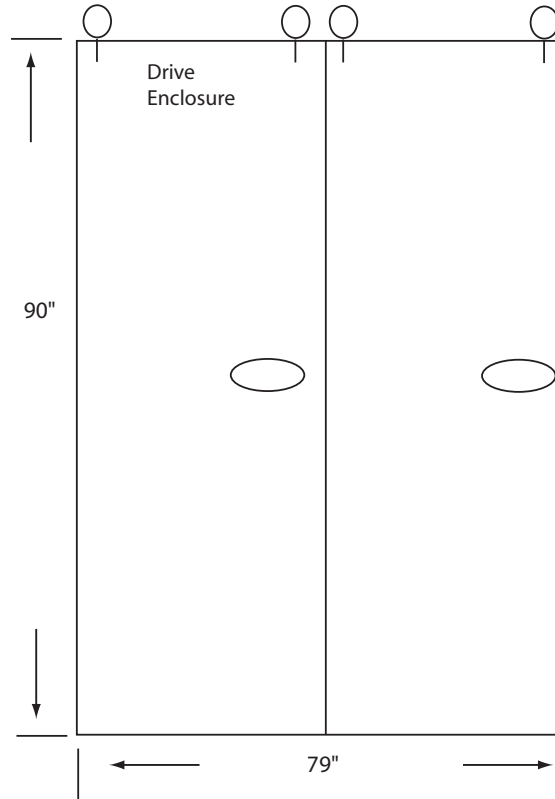
# LiquiFlo AC Drives

## LiquiFlo Packaged Drives Enclosure Dimensions

The enclosure dimensions of the LiquiFlo packaged AC drive will depend on the complement of options selected. The complete enclosure line-up will consist of a drive bay (required) and option bays. Use for estimating purposes.



41 L, 50 LW, 64 LW Basic Dimensions



120 L Basic Dimensions

Dimensions are for a basic drive without modifications. An additional bay of cabinets may be required for options.

DISCOUNT: MS-1AC

## MODIFIED STANDARD V\*S DRIVES FlexPak 3000 Drives: 230 VAC



Base Non-Regen MN	2FN2042	3FN2042	5FN2042	7FN2042	10FN2042	15FN2042	20FN2042	25FN2042	30FN2042
HP Rating	2	3	5	7.5	10	15	20	25	30
Base Drive List	\$3,870	\$3,870	\$3,890	\$4,040	\$4,070	\$4,385	\$4,815	\$5,025	\$5,090
Base Regen MN	2FR2042	3FR2042	5FR2042	7FR2042	10FR2042	15FR2042	20FR2042	25FR2042	30FR2042
HP Rating	2	3	5	7.5	10	15	20	25	30
Base Drive List	\$4,380	\$4,380	\$4,395	\$4,550	\$4,580	\$4,895	\$5,425	\$5,635	\$5,700
Enclosure Options									
NEMA 1	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900
NEMA 1A-Force Vent w/Fan & Filter	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NEMA 12/4	2,900	2,900	2,900	2,900	2,900	3,000	3,000	3,000	4,900
Input Protection & Disconnect Options									
Input Fuses Only	STD	STD	STD	STD	STD	STD	STD	STD	STD
Disconnect Switch & Door Handle	630	630	630	630	630	630	630	630	735
Inverting Circuit Breaker <sup>(3)</sup>	975	975	975	975	975	1,100	1,100	1,150	1,150
Door Mounted Operator Devices									
Door Mounted OIM <sup>(6)</sup>	320	320	320	320	320	320	320	320	320
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	106	106	106	106	106	106	106	106	106
Jog Pushbutton	86	86	86	86	86	86	86	86	86
Pilot Lights (each) <sup>(1)</sup>	86	86	86	86	86	86	86	86	86
Contactors, Control Transformers & Line Reactors									
Input Contactor <sup>(1)</sup>	STD	STD	STD	STD	STD	STD	STD	STD	STD
Output DC Contactor <sup>(1)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF
Blower Motor Starter <sup>(1)</sup>	500	500	500	500	500	500	500	500	500
ESP Brush Monitor	950	950	950	950	950	950	950	950	950
240 VDC, V&F Supply	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220
Control Transformer: 460:120 VAC, 250 VA	300	300	300	300	300	300	300	300	300
3% Impedance Input Line Reactor	310	310	373	373	450	450	783	783	783
Dynamic Braking									
Contactor & Resistors <sup>(1)(4)</sup>	1,400	1,400	1,400	1,400	1,500	1,500	1,700	1,700	1,750

- (1) Requires Control Transformer option
  - (2) Usually includes a cooling device and control transformer
  - (3) Available for regenerative drives only
  - (4) Dynamic Braking may require resistors to be mounted on top of cabinet
  - (5) Not available on NEMA 4 drives
- CF = Contact Factory

DISCOUNT: MS-50D



# FlexPak 3000 DC Drives

## MODIFIED STANDARD V\*S DRIVES

### FlexPak 3000 Drives: 230 VAC



Base Non-Regen MN	40FN2042	50FN2042	60FN2042	75FN2042	(3)	(3)	(3)	(3)	(3)	(3)
HP Rating	40	50	60	75	100	125	150	200	250	300
Base Drive List	\$6,120	\$6,835	\$7,140	\$7,750	\$12,035	\$12,545	\$12,545	\$19,025	\$19,280	\$19,890
Base Regen MN	40FR2042	50FR2042	60FR2042	75FR2042	(3)	(3)	(3)	(3)	(3)	(3)
HP Rating	40	50	60	75	100	125	150	200	250	300
Base Drive List	\$6,935	\$7,650	\$7,955	\$8,570	\$19,100	\$19,360	\$20,300	\$30,090	\$30,600	\$31,110
Enclosure Options										
NEMA 1	3,150	3,150	3,150	4,150	4,150	4,150	4,150	5,171	5,171	5,171
NEMA 1A-Force Vent w Fan & Filter <sup>(6)</sup>	725	725	725	725	725	725	725	STD	STD	STD
NEMA 12/4 <sup>(2)</sup>	13,000	13,000	13,000	13,000	13,000	13,000	13,000	CF	CF	CF
Input Protection & Disconnect Options										
Input Fuses Only	STD	STD	STD	STD	STD	STD	STD	STD	STD	STD
Disconnect Switch & Door Handle	1,425	1,425	1,425	2,175	2,575	4,150	4,150	5,170	5,170	7,725
Inverting Circuit Breaker <sup>(7)</sup>	1800	1800	1800	2,550	STD	STD	STD	STD <sup>(5)</sup>	STD <sup>(5)</sup>	STD <sup>(5)</sup>
Door Mounted Operator Devices										
Door Mounted OIM <sup>(8)</sup>	320	320	320	320	320	320	320	320	320	320
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	106	106	106	106	106	106	106	106	106	106
Jog Pushbutton	86	86	86	86	86	86	86	86	86	86
Pilot Lights (each) <sup>(1)</sup>	86	86	86	86	86	86	86	86	86	86
Contactors, Control Transformers & Line Reactors										
Input Contactor <sup>(1)</sup>	STD	STD	STD	STD	STD	STD	STD	CF	CF	CF
Output DC Contactor <sup>(1)</sup>	CF	CF	CF	CF	CF	CF	CF	STD	STD	STD
Blower Motor Starter <sup>(1)</sup>	500	500	500	500	500	500	500	500	500	500
ESP Brush Monitor	950	950	950	950	950	950	950	950	950	950
240 VDC, V&F Supply	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220	1,220
Control Transformer: 460:120 VAC, 250 VA	300	300	300	300	300	300	300	300	300	300
3% Impedance Input Line Reactor	897	897	1,273	1,663	1,663	1,796	1,878	2,646	3,206	4,372
Dynamic Braking										
Contactor & Resistors <sup>(1)(4)</sup>	2,125	2,125	2,400	2,600	2,600	3,200	3,500	3,500	3,500	3,500

- (1) Requires Control Transformer option
  - (2) Usually includes a cooling device and control transformer
  - (3) 230VAC model does not exist
  - (4) Dynamic Braking may require resistors to be mounted on top of cabinet
  - (5) Included in the base price of the drive. Add \$300 to the list price for mounting and wiring
  - (6) Adder to NEMA 1 Price
  - (7) Available for regenerative drives only
  - (8) Not available on NEMA 4 drives
- CF = Contact Factory

DISCOUNT: MS-50D

## MODIFIED STANDARD V\*S DRIVES FlexPak 3000 Drives: 460 VAC



Base Non-Regen MN	3FN4042	5FN4042	7FN4042	10FN4042	15FN4042	20FN4042	25FN4042	30FN4042	40FN4042	50FN4042	60FN4042
HP Rating	3	5	7.5	10	15	20	25	30	40	50	60
Base Drive List	\$3,870	\$3,870	\$3,870	\$3,885	\$4,040	\$4,070	\$4,335	\$4,385	\$4,815	\$5,025	\$5,090
Base Regen MN	3FR4042	5FR4042	7FR4042	10FR4042	15FR4042	20FR4042	25FR4042	30FR4042	40FR4042	50FR4042	60FR4042
HP Rating	3	5	7.5	10	15	20	25	30	40	50	60
Base Drive List	\$4,380	\$4,380	\$4,380	\$4,395	\$4,550	\$4,580	\$4,845	\$4,895	\$5,425	\$5,635	\$5,700
Enclosure Options											
NEMA 1	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900
NEMA 1A-Force Vent w/ Fan & Filter	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NEMA 12/4	2,900	2,900	2,900	2,900	2,900	3,000	3,000	3,000	4,900	4,900	4,900
Input Protection & Disconnect Options											
Input Fuses Only	STD	STD	STD	STD	STD	STD	STD	STD	STD	STD	STD
Disconnect Switch & Door Handle	630	630	630	630	630	630	630	630	630	630	735
Inverting Circuit Breaker <sup>(3)</sup>	975	975	975	975	975	975	1100	1100	1,100	1,150	1,150
Door Mounted Operator Devices											
Door Mounted OIM <sup>(5)</sup>	320	320	320	320	320	320	320	320	320	320	320
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	106	106	106	106	106	106	106	106	106	106	106
Jog Pushbutton	86	86	86	86	86	86	86	86	86	86	86
Pilot Lights (each) <sup>(1)</sup>	86	86	86	86	86	86	86	86	86	86	86
Contactors, Control Transformers & Line Reactors											
Input Contactor <sup>(1)</sup>	STD	STD	STD	STD	STD	STD	STD	STD	STD	STD	STD
Output DC Contactor <sup>(1)</sup>	CF	CF	CF	CF	CF	CF	CF	CF	CF	CF	CF
Blower Motor Starter <sup>(1)</sup>	500	500	500	500	500	500	500	500	500	500	500
ESP Brush Monitor	950	950	950	950	950	950	950	950	950	950	950
Control Transformer: 460:120 VAC, 250 VA	300	300	300	300	300	300	300	300	300	300	300
3% Impedance Input Line Reactor	310	310	310	373	373	450	450	450	783	783	783
Dynamic Braking											
Contactor & Resistors <sup>(1)(4)</sup>	1,200	1,200	1,200	1,350	1,350	1,700	1,700	1,700	1,700	1,700	1,700

- (1) Requires Control Transformer option
  - (2) Usually includes a cooling device and control transformer
  - (3) Available for regenerative drives only
  - (4) Dynamic Braking may require resistors to be mounted on top of cabinet.
  - (5) Not available on NEMA 4 drives
- CF = Contact Factory

DISCOUNT: MS-50D

# FlexPak 3000 DC Drives

## MODIFIED STANDARD V\*S DRIVES

### FlexPak 3000 Drives: 460 VAC



Base Non-Regen MN	75FN4042	100FN4042	125FN4042	150FN4042	200FN4042	250FN4042	300FN4042	400FN4041	500FN4041	600FN4041
HP Rating	75	100	125	150	200	250	300	400	500	600
Base Drive List	\$6,120	\$6,835	\$7,140	\$7,750	\$12,035	\$12,545	\$12,545	\$19,025	\$19,280	\$19,890
Base Regen MN	75FR4042	100FR4042	125FR4042	150FR4042	200FB4042	250FB4042	300FB4042	400FR4041	500FR4041	600FR4041
HP Rating	75	100	125	150	200	250	300	400	500	600
Base Drive List	\$6,935	\$7,650	\$7,955	\$8,570	\$19,100	\$19,360	\$20,300	\$30,090	\$30,600	\$31,110
Enclosure Options										
NEMA 1	3,150	3,150	3,150	4,150	4,150	4,150	4,150	5,171	5,171	5,171
NEMA 1A-Force Vent w/Fan & Filter <sup>(5)</sup>	N/A	N/A	N/A	725	725	725	725	STD	STD	STD
NEMA 12/4 <sup>(2)</sup>	13,000	13,000	13,000	13,000	13,000	13,000	13,000	CF	CF	CF
Input Protection & Disconnect Options										
Input Fuses Only	STD	STD	STD	STD	STD	STD	STD	STD	STD	STD
Disconnect Switch & Door Handle	1,425	1,425	1,425	2,175	2,575	4,150	4,150	5,170	5,170	5,170
Inverting Circuit Breaker <sup>(6)</sup>	1,800	1,800	1,800	2,550	STD	STD	STD	(4)	(4)	(4)
Door Mounted Operator Devices										
Door Mounted OIM <sup>(7)</sup>	320	320	320	320	320	320	320	320	320	320
Maintained Start/Stop Switch	106	106	106	106	106	106	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172	172	172	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	106	106	106	106	106	106	106	106	106	106
Jog Pushbutton	86	86	86	86	86	86	86	86	86	86
Pilot Lights (each) <sup>(1)</sup>	86	86	86	86	86	86	86	86	86	86
Contactors, Control Transformers & Line Reactors										
Input Contactor <sup>(1)</sup>	STD	STD	STD	STD	STD	STD	STD	CF	CF	CF
Output DC Contactor <sup>(1)</sup>	CF	CF	CF	CF	CF	CF	CF	STD	STD	STD
Blower Motor Starter <sup>(1)</sup>	500	500	500	500	500	500	500	500	500	500
ESP Brush Monitor	950	950	950	950	950	950	950	950	950	950
Control Transformer: 460:120 VAC, 250 VA	300	300	300	300	300	300	300	300	300	300
3% Impedance Input Line Reactor	897	897	1,273	1,663	1,663	1,796	1,878	2,646	3206	4372
Dynamic Braking										
Contactor & Resistors <sup>(1)(3)</sup>	2,125	2,125	2,400	2,600	2,700	4,150	4,300	3,300	3,400	3,700

- (1) Requires Control Transformer option
  - (2) Usually includes a cooling device and control transformer
  - (3) Dynamic Braking may require resistors to be mounted on top of cabinet
  - (4) Included in base price of the drive. Add \$300 to the list price for mounting.
  - (5) Adder to NEMA 1 price
  - (6) Available on regenerative drives only
  - (7) Not available on NEMA 4 drives
- CF = Contact Factory

DISCOUNT: MS-50D

## FlexPak 3000 ENCLOSURE DIMENSIONS

FlexPak3000 HP	IP20 / NEMA 1	IP65 / NEMA 4	IP54 / NEMA 12
1.0 - 15	B	B	B
20 - 30	B	C	C
40 - 60	B	E	D
75	C	E	D
100	C	E	D
125	C	E <sup>(2)</sup>	D <sup>(2)</sup>
150	D	E <sup>(2)</sup>	D <sup>(2)</sup>
200	D	E <sup>(2)</sup>	D <sup>(2)</sup>
250	D	E <sup>(2)</sup>	D <sup>(2)</sup>
300	D	E <sup>(2)</sup>	D <sup>(2)</sup>
400	D <sup>(1)</sup>	N/A	(3)
500	D <sup>(1)</sup>	N/A	(3)
600	D <sup>(1)</sup>	N/A	(3)

- (1) Include door mounted fan and filter for positive pressure ventilation
- (2) Include a cooling device
- (3) Contact factory

## 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 610 (24)	328 (725)
E	1830 (72) x 914 (36) x 610 (24)	328 (725)

- Version "E" is NEMA 4 only.
- Version "D" cabinet is gray with a white interior panel.
- Version "E" cabinet is gray with a white interior panel.

Enclosures with heat exchange add about 10 inches to the width.

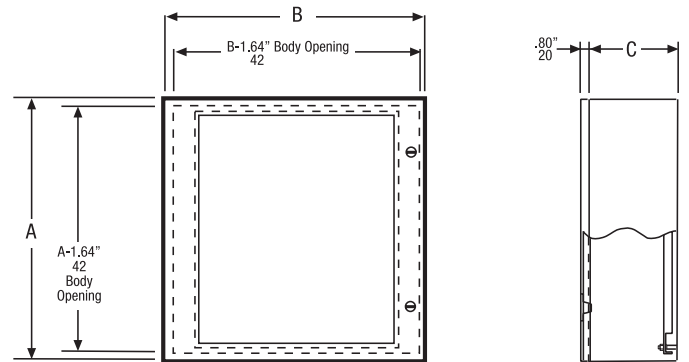
Enclosures with air conditioners add 15 inches to the width.

\* Dimensions are estimates and are subject to change after engineering and drafting.

## Wall-Mounted Cabinets\*

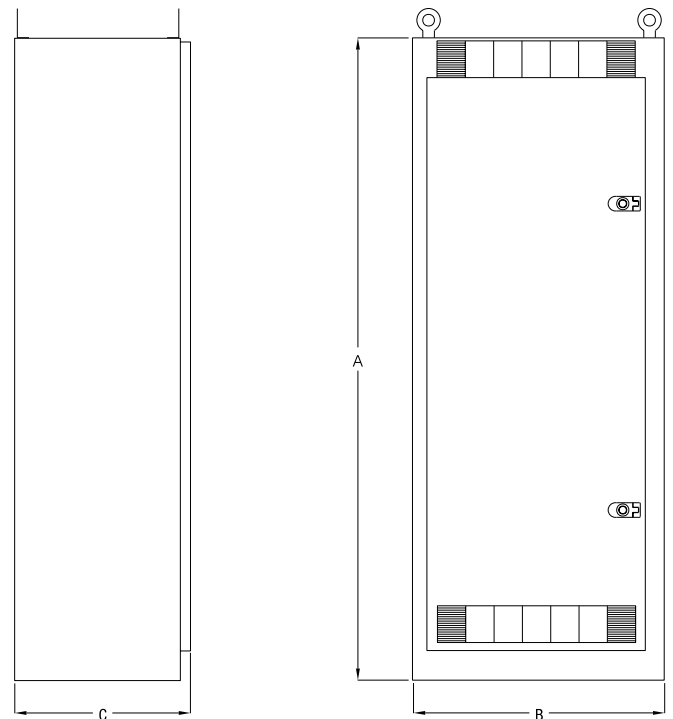
Cabinet Version	Enclosure Size (AxBxC) mm(in)	Approximate Weight kg(lb)
A	610(24)x610(24)x406(16)	40(89)
B	914(36)x762(30)x406(16)	47(103)
C	1219(48)x914(36)x406(16)	59(130)

Wall-mounted cabinets are gray with white interior panels. Enclosures with heat exchangers add 8 inches to width.



Front View

Side View



Front View

Side View

## FlexPak 3000 DC Drives

### A THREE-PHASE DIGITAL DC DRIVE FOR REGENERATIVE AND NON-REGENERATIVE APPLICATIONS FROM 700-1000 HP

#### Pre-Configured Drive

The FlexPak 3000 digital DC drive for high horsepower applications has the same features, options, operator interface and simple startup configuration as the standard drive. The standard offering will be configured into the following package:

- NEMA 1 cabinet with door-mounted fan for positive pressure ventilation
- Input drive fusing
- Field regulator
- Output DC contactor
- 115 VAC control transformer
- DC fusing for regenerative applications
- Top entry AC, bottom exit DC

#### Optional Features

- Incoming AC Line disconnect
- Blower motor starter
- Speed feedback kit (specify type of feedback device)
- Remote-mountable OIM kit for cabinet door
- Dynamic braking
- I/O Expansion card
- AutoMax, ControlNet, or DeviceNet interface cards
- 115 VAC control interface

#### Service Conditions

- Standard altitude: to 3300 ft
- Standard ambient: 40°C
- AC line voltage variation: +/- 10%
- AC line frequency: 50 or 60 Hz (specify)
- Frequency variation: +/- 2 Hz
- Atmosphere: non-condensing Relative humidity 5-90%



#### Drive Ratings

HP	Full load AC line current		Full Load DC Arm. Current		Field Current
	460 V	575 V	500 V	600 V	300 V
700	952	795	1120	935	20
800	1088	905	1280	1065	20
900	1224	1020	1440	1200	20
1000	1360	1135	1585	1335	20

#### Overload Ratings

- All 700 HP, 800 HP, and 900 HP drives are capable of 150% overload for one minute.
- 1000 HP 460 VAC drives are capable of 140% overload for one minute.
- 1000 HP 575 VAC drives are capable of 140% overload for one minute.

DISCOUNT: MS-50D

## MODIFIED STANDARD V\*S DRIVES

FlexPak 3000 Drives: 460 VAC<sup>(5)</sup>

Base Non-Regen MN	700RDC4	800RDC4	900RDC4	1000RDC4
HP Rating	700	800	900	1000 <sup>(6)</sup>
Base Drive List	\$41,000	\$41,310	\$42,075	\$43,095
Base Regen MN	700RDC4R	800RDC4R	900RDC4R	1000RDC4R
HP Rating	700	800	900	1000 <sup>(6)</sup>
Base Drive List	\$44,880	\$45,185	\$47,940	\$48,960
Enclosure Options				
NEMA 1	STD	STD	STD	STD
NEMA 1A-Force Vent w Fan & Filter	STD	STD	STD	STD
Additional Bay of Cabinet NEMA 1A (2)	5,171	5,171	5,171	5,171
NEMA 12/4	CF	CF	CF	CF
Input Protection & Disconnect Options				
Input Fuses Only	STD	STD	STD	STD
Disconnect Switch & Door Handle	CF	CF	CF	CF
Inverting Circuit Breaker	CF	CF	CF	CF
Circuit Breaker Disconnect & Door Handle	9,495 <sup>(3)</sup>	13,385 <sup>(3)</sup>	13,385 <sup>(3)</sup>	13,385 <sup>(3)</sup>
Door Mounted Operator Devices				
Door Mounted OIM	320	320	320	320
Maintained Start/Stop Switch	106	106	106	106
Momentary Start/Stop Pushbuttons	172	172	172	172
E-Stop Pushbutton (Mushroom Head)	106	106	106	106
Jog Pushbutton	86	86	86	86
Pilot Lights (each) <sup>(1)</sup>	86	86	86	86
Contactors, Control Transformers & Line Reactors				
Input Contactor <sup>(1)</sup>	CF	CF	CF	CF
Output DC Contactor <sup>(1)</sup>	STD	STD	STD	STD
Blower Motor Starter <sup>(1)</sup> (Each)	500	500	500	500
Control Transformer: 460:120 VAC, 250 VA	300	300	300	300
3% Impedance Input Line Reactor	CF	CF	CF	CF
Dynamic Braking				
Contactor & Resistors <sup>(1)(4)</sup>	6,543	6,906	7,511	7,960

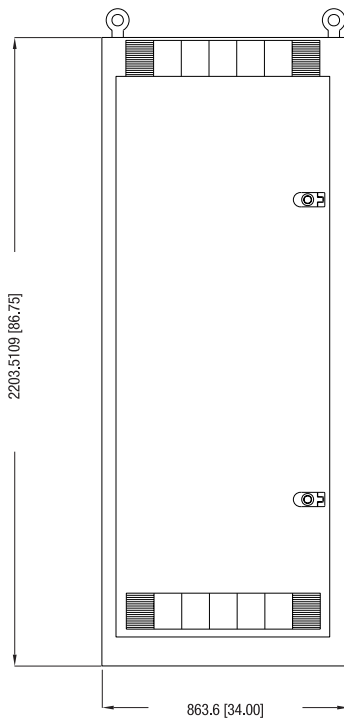
- (1) Requires Control Transformer option
  - (2) Usually includes a cooling device and control transformer
  - (3) Requires additional bay of cabinet
  - (4) Dynamic Braking may require resistors to be mounted on top of cabinet
  - (5) Contact factory for 575 VAC Drives
  - (6) 1000 HP Drive is limited to 140% overload for 1 minute
- CF = Contact Factory

DISCOUNT: MS-50D

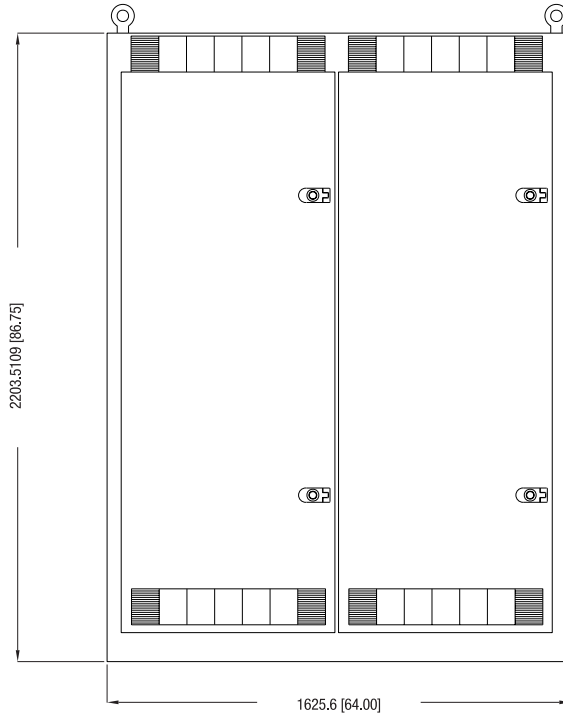
# FlexPak 3000 DC Drives

## Cabinet Dimensions

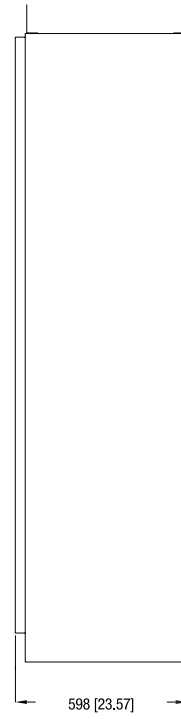
(mm/ins.)



1FD86 Basic



2FD86 Basic & Option



Side View

DISCOUNT: MS-50D

## FLEXPAK 3000 MODIFICATIONS AND OPTIONS

In most cases kits are supplied “loose only.” The following installed options allow kits to be pre-installed.

**Note:** The price includes installation and the kit only. The drive is priced separately.

Kit M/N	Description	Kit and Installation List	Enclosure Required	Notes
917FK0101	115 V Control Interface	\$680	yes	
911FKXX01	Field Current Regulator	420	no	Specify HP, Std. above 125HP
923FK0101	10 Amp Non-Standard, Voltage Field Supply	600	no	Cannot be used with field current regulator
923FK0201	20 Amp Non-Standard, Voltage Field Supply	750	no	Cannot be used with field current regulator
914FK0101	I/O Expansion Card	780	no	
915FK0101	AutoMax Network Card	561	no	Only one network card per drive
-	Passive Tap Installed	380	yes	Add to AutoMax network card
915FK2101	ControlNet Card	855	no	Only one network card per drive
915FK1100	DeviceNet Card	735	no	Only one network card per drive
915FK3101	Interbus-S Card	855	no	Only one network card per drive
907FK4101	Profibus Card	855	no	Only one network card per drive
905FK0101	Cabinet Mounted OIM	320	yes	n/a on NEMA 4
907FK0301	AC Tach Feedback Card	385	no	n/a on regenerative drives
907FK0101	Encoder Feedback Kit	385	no	

### Motor Interface Options

The following are commonly requested options for interfacing to variable speed motors. These options require an enclosure option as well.

Motor Interface Options		
Description	List	Notes
Blower Motor Starter	\$500	See FlexPak 3000 options; price as factory installed
E.S.P. Brush Monitor <sup>(1)(2)</sup>	950	Price Brushes from Reliance DC Motor Catalog
240 VDC Field Regulator <sup>(3)</sup>	1,220	Transformer & Fuses for FlexPak 3000 Field Regulator
Motor Heater Control, 115 V, 360W <sup>(2)</sup>	475	Heater must be added to motor

### 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 as well.

Pre-Defined Operator Interface		
Description	List	Notes
Start, Stop PB	\$172	
Jog PB	80	
Auto/Manual SS	100	
Speed Pot	106	
E-stop PB	110	
E-stop PB, Reset PB	190	
Forward/Reverse SS	100	For Regenerative Drives only
Power On, Run & Drive Fault PLs <sup>(2)</sup>	275	
Nameplate, lamacoid	35	Specify wording on order form
Relay, Plug-in 24 VDC / 115 VAC Coil <sup>(2)</sup>	215	
Timer Relay - Electronic - 2 Form C Contact <sup>(2)</sup>	287	
Voltage Relay - Electronic - 2 Form C Contact <sup>(2)</sup>	287	
Brake Control - AC Type with Contactor and Fuses <sup>(2)</sup>	520	

(1) Monitor is compatible with Reliance DC motors only

(2) 115 VAC control transformer must be included for this option or customer supplied 115 VAC

**DISCOUNT: MS-50D** (3) Select the FlexPak 3000 field current regulator as factory installed from above



# FlexPak 3000 DC Drives

NOTES:

## ENGINEERED MODIFICATIONS

### OPERATOR CONTROLS<sup>(1)</sup>

This section allows you to create custom operator panels and pushbutton stations. Operator controls are priced from this section by adding the desired operators' devices to the required enclosure price. Devices can also be selected for mounting and wiring in control cabinets. All devices include a legend and appropriate contact blocks

#### Operator Controls<sup>(1)</sup>

The operator panels supplied have hinged covers and are suitable for wall mounting. Operator components are mounted in the cover and wired

to terminals on the inside of the enclosure. Use mounted and wired device prices, and add the price for the operator's enclosure having an area factor larger than the sum of the devices selected area factor. On the order form or via attached sketch, detail the device names and location.

Operator Panels				
Mod No.	Description	Area Factor	NEMA 4/12	NEMA 4X
E01	16"x16"x6"	150	\$450	\$1,300
E02	24"x16"x6"	300	600	1,500
E03	30"x24"x6"	580	820	2,060
E04	36"x30"x16"	950	900	2,720
E05	48"x36"x16"	1,560	1,370	3,500

#### Pushbutton Stations<sup>(1)</sup>

The pushbutton stations in the table at right can contain any of the operator devices below whose model numbers begin with a "P." Use mounted only prices. Unused element locations will have plugs installed. On the order entry form or via attached sketch, detail the device names and locations.

Pushbutton Stations			
Mod. No.	Description	NEMA 12	NEMA 4X
E06	1 Device	\$80	\$180
E07	2 Devices	95	210
E08	3 Devices	105	240
E09	4 Devices	120	272
E10	6 Devices	145	-
E11	12 Devices	180	-
E12	16 Devices	205	670

Operator Devices and Meters <sup>(1)</sup>					
Mod. No.	Description	Area Factor	Mounted and Wired	Mounted ONLY	Separate Mounting
METERS					
M01	3.5" Ammeter (AC or DC)	25	\$260	\$180	\$160
M02	3.5" Loadmeter w/calibration	25	260	180	160
M03	3.5" Voltmeter (AC or DC)	25	260	180	160
M04	KWH Meter	25	2,215	2,100	2,000
M05	Elapse Time Meter	20	500	390	360
SPEED METERS					
M07	3.5" Analog	25	405	330	305
M08	3.5" Digital (analog input)	30	810	680	655
M09	Digital (frequency input)	30	720	635	585
PUSHBUTTONS					
P01	Standard Pushbutton	10	150	70	35
P02	Standard Pilot Light	10	135	70	30
P03	Illuminated Pushbutton	10	150	75	45
P04	Push to test Pilot Light	10	150	75	40
P05	Add Standard Accessories - Mushroom head, Levers, Guards, etc.	10	50	50	30
SELECTOR SWITCHES					
P06	Pushbutton type Selector Switch	10	120	70	50
POTENTIOMETER - with legend plates					
P07	Pushbutton type - Single Turn	10	120	70	30
P08	10 Turn with Dial	15	230	145	95
P09	NEMA 4 Single Turn	10	145	105	65

(1) Available only with a modified drive package

DISCOUNT: MS-50D

# Modified Standard V\*S Drives

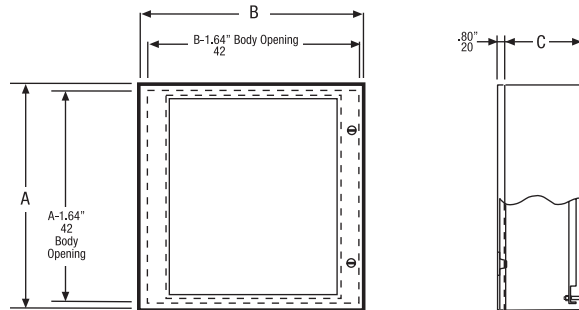
## ENGINEERED MODIFICATIONS

## OPERATORS' CABINETS DIMENSIONS

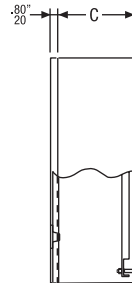
### Wall-Mount Enclosures

Mod. No.	Enclosure Size (AxBxC) mm (in.)	Approx. Weight kg(lb)	Area Factor
E01	406(16)x305(12)x152(6)	30(63)	150
E02	610(16)x406(16)x152(6)	30(63)	300
E03	762(30)x610(24)x152(6)	40(89)	580
E04	914(36)x762(30)x305(12)	47(103)	950
E05	1219(48)x914(36)x305(12)	59(130)	1560

Wall mount cabinets are painted gray with white panels.



Front View



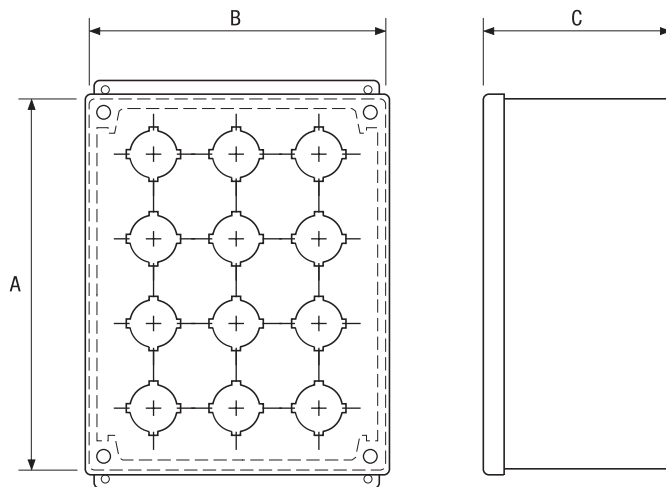
Side View

### Pushbutton Stations

Mod. No	Enclosure Size (AxBxC) mm (inc.)	Holes
E06	102(4) x 102(4) x 121(4.75)	1
E07	152(6) x 102(4) x 121(4.75)	2
E08	203(8) x 102(4) x 121(4.75)	3
E09	184(7.25) x 102(4) x 121(4.75)	4
E10	241(9.5) x 159(6.25) x 121(4.75)	6
E11	298(11.75) x 216(8.5) x 121(4.75)	12
E12	298(11.75) x 273(10.75) x 121(4.75)	16

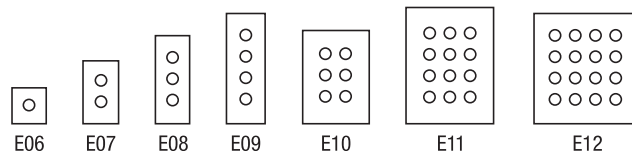
Pushbutton cabinets are painted gray.

(NEMA 4X are Stainless 304.)



Front View

Side View



DISCOUNT: MS-1AC

# Modified Standard V\*S Drives

## Modified Standard V\*S Drives ORDER ENTRY FORM

SOLD TO	Written by
	Location
	Phone/FAX
	E-mail
	Territory# <span style="float: right;">% Split</span>
	Territory # <span style="float: right;">% Split</span>
CUSTOMER NO	PO#
SHIP TO	Date
	Total Order Net
	Wanted
	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.#:
REMARKS	Special Shipping / Billing Instructions

### DRIVES AND KITS

Model Number	Description	LIST	QTY	Extended

TOTAL

*“Drives” Multiplier* <sup>(1)</sup>

NET

### ACCESSORIES

Model Number	Description	LIST	QTY	Extended

TOTAL

*“VS-ACS” Multiplier*

NET

<sup>(1)</sup> AC Drives - MS-1AC; DC Drives - MS-50D

FAX: 864-284-5075

Page \_\_\_\_ of \_\_\_\_



# Modified Standard V\*S Drives

**Modified Standard  
V\*S Drives  
ORDER ENTRY FORM**

**MSV\*SD MODIFICATIONS**

MOD. #	Description	LIST	QTY	Extended

	TOTAL
<i>"Drives" or "VS-ACS" Multiplier</i>	
	NET
	NET

FAX: 864-284-5075



## DOCUMENTATION

Standard documentation should meet most customers' requirements. Each modification from the table below must be specified on the MSV\*SD order entry form in the Modification section.

### Standard Documentation/ Drawings

Standard at no charge:

- Dimension sheets
- As shipped Wiring Diagrams
- Instruction Manuals
- Parts Lists

One set of these documents will be shipped with the equipment.

### Definitions

1. Wiring Diagram – Also called line or schematic diagram. A functional diagram showing the control sequencing, motor circuit, power units, and regulator functions and their relationship. Terminal numbers are provided for all customers' wiring.
2. Approval Drawings – Wiring diagrams are normally supplied when the customer requests approval of control equipment. Release to manufacturing is held until the approved drawings are returned (not standard)
3. "As Shipped" Diagrams – Issued after the equipment has shipped, incorporating all prior changes. These diagrams include panel and operator panel layouts when required

4. Data Book – A bound collection of documents as follows:
  - a. Title page
  - b. Equipment list – Itemized description of each component on the order, with identification of associated technical data; dimension sheets, wiring diagram, motor data, instruction manuals and sub or purchase order numbers
  - c. Manuals – Instruction manuals on equipment supplied by Rockwell Automation
  - d. Dimension Sheets – For all items requiring customer mounting.
  - e. Wiring Diagrams – As shipped wiring diagrams
  - f. Parts list without prices

Documentation		
Mod. No.	Description	List
Standard documentation includes any unique drawings required for the order & (1) copy of the Drive Instruction Manual		
W01	Data Books - Includes Equipment list, manuals, D/S, W/D and Parts List (3 complete sets)	\$660
W02	Extra Data Book, above the quantity of 3 in Mod. W01	75
W03	AutoCad, disk copy of "final as shipped wiring diagrams" (specify dxf or dwg format)	250
W06	Approval drawings of wiring diagrams, manufacturing held until prints are approved	500
W07	Multiple sets of drawings, up to five sets of additional paper prints.	215

# Modified Standard V\*S Drives

## START-UP AND FIELD SUPPORT

### Start Up Services

Start Up Services can be provided for all standard and configured model numbered AC and DC V\*S Drives. This start up service offers:

- General physical inspection of the drive package including checking all outgoing terminals for required wires, checking transformer connections and load wiring to avoid unsafe conditions when power is applied
  - Operational checks for all control logic (within drive), relays, contactors, operator devices and safety devices to verify that operation is consistent with the Reliance Electric wiring diagrams and to verify that AC line by-pass is properly interlocked when used
  - Basic static and dynamic checks and adjustments on individual motors, power modules, regulators, and feedback devices to assure proper performance
- Customer to supply personnel familiar with the facility layout, applications and operations as well as capable of assisting the engineer with all operations of the equipment and process.
  - If the drive package and the driven equipment are to be tested under load, the customer's material or process must be ready for load test immediately following preliminary checkout.

### Equipment Covered

The start up services covers only model numbered or configured Reliance Electric AC and DC V\*S Drives that are stand alone drives. Start up of current, tension or position regulated drives or model number drives used in these applications (which may require speed matching or have common reference and AC logic control interlocking as part of a process line) are not covered. Refer to other start up service published rates or ask for a custom start up service proposal.

For start-up service, contact one of the following centers:

New England  
Ph: 508.357.8431  
Fax: 508.485.5059  
Boston, MA

Southeast  
Ph: 770.277.0277  
Fax: 770.682.6491  
Atlanta, GA

Southwest  
Ph: 281.233.0300  
Fax: 281.233.0101  
Houston, TX

West Coast  
Ph: 626.969.7647  
Fax: 626.334.8320  
Los Angeles, CA

Eastern  
Ph: 732.225.1360  
Fax: 732.225.7833  
Edison, NJ

Rocky Mountain  
Ph: 303.279.6444  
Fax: 303.279.8809  
Denver, CO

Midwest  
Ph: 630.860.1090  
Fax: 630.787.0309  
Chicago, IL

Carolinas  
Ph: 704.525.1455  
Fax: 704.525.9025  
Charlotte, NC

Ohio Valley  
Ph: 513.943.1145  
Fax: 513.943.7438  
Cincinnati, OH

St. Louis MO  
Ph: 314.770.0168  
Fax: 314.770.0268  
St. Louis, MO

North Central  
Ph: 651.633.8015  
Fax: 651.633.7181  
Minneapolis, MN

Great Lakes  
Ph: 440.646.7226  
Fax: 440.646.7399  
Cleveland, OH

### Customer Responsibilities

- Drives and all associated devices or hardware necessary for drive operation must be mechanically installed and aligned.
- Power and control wiring along with any process interface signals (electric or pneumatic) must be connected per the Reliance Electric wiring diagram and ready for operation. All local codes must be followed.
- Any interruption or delays of the start up due to field wiring errors, mechanical problems, or unpreparedness on the part of site personnel affecting a timely start up will be the customer's responsibility. In such cases, a return trip or stand by time will be invoiced at prevailing published service rates.

## START-UP AND FIELD SUPPORT

### Net Pricing

AC or DC	Product Name	HP	Operated Mode	Standard Pricing 1st Drive <sup>(1)</sup>	Standard Pricing Additional Units <sup>(2)</sup>	Overnights <sup>(3)</sup>	Additional Travel Charge Over 50 Miles <sup>(4)</sup>
AC	SP600 Standard or Modified	0.5-200 HP	All	\$902	\$656	\$202	\$102.0/25miles
AC	GV3000/SE Standard	1-400 HP	V/Hz & Sensorless Vec	1,066	820	202	\$102.0/25miles
AC	GV3000/SE Standard	1-400 HP	Closed Loop	1,230	985	202	\$102.0/25miles
AC	GV3000/SE Pre-configured	1-400 HP	All	1,230	985	202	\$102.0/25miles
AC	LiquiFlo Standard or Modified	350-500 HP 1000 HP	V/Hz & Sensorless Vec	1,230 2,215 <sup>(5)</sup>	985 1,970 <sup>(5)</sup>	202 202	\$102.0/25miles \$102.0/25miles
AC	LiquiFlo Standard or Modified	350-500 HP 1000 HP	Closed Loop	1,395 2,375 <sup>(5)</sup>	1,148 2,134 <sup>(5)</sup>	202 202	\$102.0/25miles \$102.0/25miles
DC	FlexPak3000 Standard or Modified	1.5-150 HP 200-600 HP	All	902 1,230	650 985	202 202	\$102.0/25miles \$102.0/25miles
DC	FlexPak3000 Modified	700-1000HP	All	2,222 <sup>(5)</sup>	1,970 <sup>(5)</sup>	202	\$102.0/25miles

Notes:

- (1) Pricing does NOT include checkout of optional components that might be ordered in conjunction with a Standard Drives product order. Pricing for optional component checkout will be at US\$120.00 per component. Rates are listed for standard 8-hr working days - Monday-Friday (7:00 AM - 6:00 PM). Any site assistance that is provided and determined to be outside the standard coverage for startup will be invoiced at the time and material rate of US\$160.00/hr; standard overtime (x1.5) and premium time (x2.00) multipliers will apply.
- (2) Standard Products drives scheduled for startup at "Additional Units" pricing must be installed and available for concurrent startup activity.
- (3) Overnights are NOT included in standard startup pricing. Careful scheduling of Rockwell Automation field engineering resources should be made to minimize overnight charges. Overnights are invoiced at the flat rate of US\$202.00 per night (hotel and meal expenses).
- (4) Included in standard startup pricing is coverage for up to 50 portal-to-portal miles of travel time and expense. US\$102.00 will be invoiced per additional 25 miles. Any expense for airfare, railfare, car rental, etc. will be invoiced at cost.
- (5) These drives will most likely require an overnight per drive. Pricing should include an overnight adder. CS3000 software installation and introduction will be invoiced at time and material rates. Startup/setup associated with hardwiring or software programming of any included I/O and/or network communication options will be invoiced at time and material rates.



# Modified Standard V\*S Drives

NOTES:



[www.rockwellautomation.com](http://www.rockwellautomation.com) [www.ptplace.com](http://www.ptplace.com) [www.dodge-pt.com](http://www.dodge-pt.com) [www.reliance.com](http://www.reliance.com)



**Motors, Drives and Power Transmission Solutions Headquarters**

Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433

Europe/Middle East/Africa: Rockwell Automation, Herman-Heinrich-Gossen-Strasse 3, 50858 Köln, Germany, Tel: (49) 2234 37941252, Fax: (49) 2234 3794164

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887.4788, Fax: (852) 2508.1846

RAPS-1103-4 10/05-POD-M Copyright © 2005 Rockwell Automation, Inc. All Rights Reserved. Printed in USA. This material is not intended to provide operational instructions. Appropriate Rockwell Automation instruction manuals and precautions should be studied prior to installation, operation or maintenance of equipment.