

### AC Motor Adjustable Speed Range Capabilities

#### Inverter Drive, Vector Drive, V\*S Master and RPMAC Motors

Inverter Drive, Vector Drive, V\*S Master and RPMAC Motors exceed all requirements of NEMA MG-1 Parts 30 and 31 for AC induction motors powered from adjustable speed inverter control. Satisfactory motor performance depends on proper drive setup.

#### Super-E® Motors

Super-E motors are Inverter-Ready and meet NEMA MG 1 Part 31.4.4.2. Super-E motors are suitable for use with inverter drives. Motor inverter setup is unique to each specific application. Proper setup and wiring procedures must be closely followed.

#### Application Considerations

It is necessary that motor-drive applications are commissioned by persons familiar with the operation and setup of adjustable speed drives, applicable electrical codes and any other regulations.

Each drive must be tuned to the motor for the specific application. System operating parameters must be checked, including voltage at motor power leads, to insure that motor/drive setup has been successfully completed.

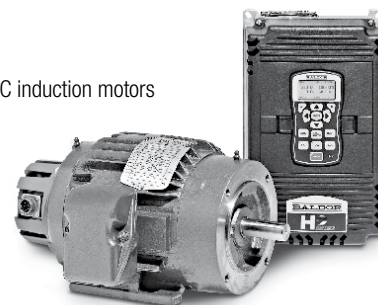
Applications that are not properly setup can lead to substandard performance and failure of system components. In some installations, shaft grounding and isolated bearings may prevent bearing fluting and are available as an option or through Mod Express.

Reference the chart below for constant torque and variable torque capabilities for each product family. Torque performance depends upon proper drive setup.

Motors 48 body style and smaller are suitable for maximum 230V inverter operation.

#### Efficiency Savings

Significant energy savings can be achieved when applying Inverter Ready motors such as the Baldor Super-E to centrifugal load applications (fan and centrifugal pump) and running at reduced speed taking advantage of the affinity laws where motor load and corresponding energy consumption is reduced by the cube of the speed.



| Family   | Enclosure          | Frame Size         | Constant Torque | Variable Torque | Comments                                       |
|--|--------------------|--------------------|-----------------|-----------------|--|
| <b>Super E Motors 230, 460 and 575 Volts (2)</b>                   |                    |                    |                 |                 |  |
| EM   | TEFC               | 56-210 (1)         | 20:1            | 20:1            | General Purpose Premium Efficient              |
|  |                    | 250-320            | 10:1            | 20:1            |  |
|  |                    | 360-400            | 4:1             | 20:1            |  |
| EM   | ODP                | 444-449            | 2:1             | 20:1            | General Purpose Premium Efficient              |
|  |                    | 56-210 (1)         | 10:1            | 20:1            |  |
|  |                    | 250-320            | 5:1             | 20:1            |  |
| ECP/XEX and ECP8/841XL (3)   | TEFC               | 360 - 449          | 2:1             | 20:1            | Severe Duty Premium Efficient                  |
|  |                    | 140                | 20:1            | 20:1            |  |
|  |                    | 180-210            | 10:1            | 20:1            |  |
| EWDWM  | TENV,TEFC          | 56-256 (1)         | 20:1            | 20:1            | Washdown Duty Premium Efficient                |
|  | TEFC               | 56-250             | 2:1             | 10:1            | Stainless Steel Washdown Duty                  |
| ESS/SSE  | TENV               | 56-140             | 4:1             | 10:1            |  |
| <b>Standard-E Motors 230/460 and 575V (2) (4)</b>                  |                    |                    |                 |                 |  |
| M (TEFC)   |                    | 56-326T frames (1) | 4:1             | 20:1            | General Purpose motors                         |
|  |                    | 360T - 449T        | 2:1             | 20:1            |  |
| M (ODP)  |                    | 56-326T frames (1) | 4:1             | 20:1            | General Purpose motors                         |
|  |                    | 360T - 449T        | 2:1             | 20:1            |  |
| CP/XT  |                    | 145T frames        | 4:1             | 20:1            | Severe Duty                                    |
|  |                    | 180T-445T frames   | 2:1             | 20:1            |  |
|  |                    | 447T-449T frames   | 2:1             | 20:1            |  |
| WDM  |                    | 56-215T frames (1) | 4:1             | 20:1            | Washdown Duty                                  |
| <b>Inverter Duty and Vector Duty Motors 230, 460 and 575 Volts</b> |                    |                    |                 |                 |  |
| IDCSWDM  | TENV               | 56-140             | 5:1             | 10:1            | Inverter Duty, Paint Free                      |
| IDCSWDM  | TEFC               | 56-215             | 3:1             | 10:1            | Inverter Duty, Paint Free                      |
| IDM  | TEBC               | 143-5009           | 1000:1          | 1000:1          | Inverter Duty, Blower Cooled                   |
| IDNM   | TENV               | 143-256            | 1000:1          | 1000:1          | Inverter Duty, Totally Enclosed Non-Ventilated |
| ZDM  | TEBC               | 143-5009           | 1000:1          | 1000:1          | Vector Duty, Blower Cooled                     |
| ZDNM   | TENV               | 143-256            | 1000:1          | 1000:1          | Vector Duty, Non-Ventilated                    |
| IDXM   | TEXP               | 182-405            | 2:1             | 10:1            | Inverter Duty, Explosion Proof                 |
| (2 families)   |                    | 56-405             | 10:1            | 10:1            |  |
| IDWNM  | TENV               | 143-254            | 1000:1          | 1000:1          | Inverter Duty, Washdown, Non-Ventilated        |
| ZDWNM  | TENV               | 143-254            | 1000:1          | 1000:1          | Vector Duty, Washdown, Non-Ventilated          |
| <b>V*S Master Motors 230 &amp; 460 Volts</b>                       |                    |                    |                 |                 |  |
| IDNVSM   | TENV               | 56-256             | 1000:1          | 1000:1          | Inverter Duty, TENV, V*S Master                |
| IDVSM  | TEFC               | 182-449            | 1000:1          | 1000:1          | Inverter Duty, TEFC, V*S Master                |
| ZDNVSM   | TENV               | 56-256             | 1000:1          | 1000:1          | Vector Duty, TENV, V*S Master                  |
| ZDVSM  | TEFC               | 182-449            | 1000:1          | 1000:1          | Vector Duty, TEFC, V*S Master                  |
| ZDVSCP   | TEFC-XT            | 143-326            | 1000:1          | 1000:1          | Vector Duty, TEFC-XT, V*S Master               |
| <b>RPMAC Motors 230 &amp; 460</b>                                  |                    |                    |                 |                 |  |
| IDRPMN   | TENV               | FL180-FL210        | 1000:1          | 1000:1          | Inverter Duty, TENV, RPMAC                     |
| IDRPMN   | TEFC, TEBC, DPG-FV | FL180-FL440        | 1000:1          | 1000:1          | Inverter Duty, TEFC, TEBC, DPG-FV, RPMAC       |
| ZDRPM  | TENV               | FL180-FL210        | 1000:1          | 1000:1          | Vector Duty, TENV, RPMAC                       |
| ZDRPM  | TEFC, TEBC         | FL180-L400         | 1000:1          | 1000:1          | Vector Duty, TEFC & TEBC, RPMAC                |
| ZDPM   | TEBC               | FL180 - FL440      | 1000:1          | 1000:1          | Vector Duty, TEBC, PM, RPMAC                   |

(1) Baldor type 35M frames and larger

(2) For greater speed range capabilities, please select an Inverter Duty®, Vector Duty®, V\*S Master or RPM AC type motor, or contact your local Baldor Sales Office for a custom motor design.

(3) Stock IEEE-841 motors include Division 2 labeling as standard. These motors will require a nameplate change through Mod Express to add inverter duty markings to the motors.

(4) Standard-E EAct efficient motors are suitable for use in adjustable speed applications per NEMA MG 1 Part 30.

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**RPM AC,  
Salient Pole  
PM Rotor,  
Three Phase,  
TEBC**

**10 thru 150 Hp**

**FL1831C thru FL2890**

**Applications:** Extruders, conveyors, crane & hoist systems, converting, pumps, web processing, test stands, traction duty, winders, printing.

**Features:** Above premium efficient design utilizing salient pole PM rotor technology to achieve high efficiency, low FLA and optimized power factor. Synchronous speed performance in a compact square frame design FL180 aluminum and FL210-280 laminated steel frame design. Must be applied with VS1PM permanent magnet drive specifically designed for permanent magnet rotor performance. Speed feedback and rotor positioning provided via Tamagawa resolver (800123-5A). Continuous constant torque from base speed down to zero speed 1000:1 turn down. Premium class H insulation 40 C ambient, 1.0 S.F., ball bearings, three normally closed thermostats (one per phase). Surpasses the requirements of MG1, Part 31. Exclusive optimum pole Inverter Duty - not for across the line operation.



| Hp  | RPM  | NEMA Frame | Catalog Number | List Price (c) | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency (b) | Voltage | Full Load Amps (b) | Rotor Inertia lb-ft <sup>2</sup> | Notes (a) |
|-----|------|------------|----------------|----------------|------------|----------|----------------|--------------------------|---------|--------------------|----------------------------------|-----------|
| 10  | 1800 | FL1831C    | ZDPM18010C-BV  | 7,233          | E2         | 27.50    | 135            | 94                       | 230/460 | 11.2               | 0.46                             | 8, 77, 91 |
| 15  | 1800 | FL1838C    | ZDPM18015C-BV  | 7,315          | E2         | 29.00    | 143            | 94.6                     | 460     | 16.2               | 0.63                             | 8, 77, 92 |
| 20  | 1800 | FL1844C    | ZDPM18020C-BV  | 8,892          | E2         | 30.50    | 180            | 94.7                     | 460     | 22.5               | 0.77                             | 8, 77, 92 |
| 25  | 1800 | FL1852C    | ZDPM18025C-BV  | 8,913          | E2         | 32.50    | 209            | 95.1                     | 460     | 26.7               | 0.96                             | 8, 77, 92 |
| 30  | 1800 | FL1852C    | ZDPM18030C-BV  | 8,913          | E2         | 32.50    | 209            | 94.7                     | 460     | 32.6               | 0.96                             | 8, 77, 92 |
| 40  | 1800 | FL2162     | ZDPM21040-BV   | 9,339          | E2         | 33.50    | 290            | 94.5                     | 460     | 44.7               | 2.14                             | 8, 77, 93 |
| 50  | 1800 | FL2168     | ZDPM21050-BV   | 9,674          | E2         | 35.00    | 330            | 94.8                     | 460     | 54.8               | 2.60                             | 8, 77, 93 |
| 60  | 1800 | FL2173     | ZDPM21060-BV   | 10,597         | E2         | 36.00    | 355            | 94.8                     | 460     | 66.8               | 2.99                             | 8, 77, 93 |
| 75  | 1800 | FL2578     | ZDPM25075-BV   | 17,411         | E2         | 38.50    | 540            | 95.8                     | 460     | 82.3               | 4.90                             | 8, 77, 93 |
| 100 | 1800 | FL2586     | ZDPM25100-BV   | 18,448         | E2         | 40.50    | 605            | 96.8                     | 460     | 110.4              | 5.83                             | 8, 77, 93 |
| 125 | 1800 | FL2882     | ZDPM28125-BV   | 19,486         | E2         | 43.61    | 730            | 95.9                     | 460     | 136.9              | 9.43                             | 8, 77, 93 |
| 150 | 1800 | FL2890     | ZDPM28150-BV   | 20,523         | E2         | 45.61    | 805            | 96                       | 460     | 163.4              | 11.16                            | 8, 77, 93 |

(a) See notes on inside back flap.

(b) The data - including efficiency - is for fundamental sinewave components of amps and volts and does not include losses due to inverter pwm waveshapes.

(c) List price includes magnet surcharge and resolver.

All TEBC have integral blower rated 230/460 volts 3 phase. See VS1PM Drives on next page for matched performance drive.

**MUST BE APPLIED WITH DRIVE FROM PAGE 178-179 SPECIFICALLY DESIGNED FOR PERMANENT MAGNET ROTOR PERFORMANCE.**

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

### VS1PM Permanent Magnet Drive

**10 Hp  
10 thru 200 Hp**

**230 VAC  
460 VAC**

**3 Phase - 50/60 Hz  
3 Phase - 50/60 Hz**



**Applications:** Constant or Variable Torque Applications. New installations and original equipment manufactures (OEM).

**Features:** Exclusively for use with our RMAC Interior Permanent Magnet Motors. Very high efficiency motor/drive packages. NEMA 1 Enclosures. Output frequency 0 to 66 Hz with peak overload capacity of 175%. Built-in two and three input PID process control loop. Automatically tuned to Baldor RMAC Interior PM Motors. Uses same Graphic Keypad and Expansion Boards as the VS1SP/GV Families.

|  |  |  |
|--|--|--|
| <b>Output Ratings</b>                    | Horsepower                                 | 10 HP @ 230VAC, 3PH; 10-200 HP @ 460VAC, 3PH   |
|  | Overload Capacity                          | Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds<br>Normal Duty (Variable Torque) = 115% for 60 seconds  |
|  | Frequency                                  | 0-66 Hz  |
|  | Voltage                                    | 0-Maximum input voltage (RMS)  |
| <b>Input Ratings</b>                     | Frequency                                  | 50 or 60 Hz ±5%  |
|  | Voltage                                    | 230 = 180-234 & 460 = 340-528  |
|  | Phase                                      | Three Phase (single phase with derating)   |
|  | Impedance                                  | 1% minimum from mains connection   |
| <b>Control Spec</b>                      | Control Method                             | Microprocessor controlled PWM, selectable closed loop vector   |
|  | PWM Frequency                              | Adjustable 4-5 kHz STD, 5-16 kHz quiet   |
|  | Speed Setting                              | ±5 VDC, 0-5 VDC ±10 VDC, 0-10 VDC, 4-20 mA or 0-20 mA; digital (keypad), Serial Comms/USB 2.0, and Modbus RTU  |
|  | Accel/Decel                                | 0-3600 sec   |
|  | Brake Torque                               | 20% standard on Sizes AA and B, 1% standard on Size C, D, E requires external resistor   |
|  | Motor Matching                             | Automatic tuning to motor with manual override   |
|  | PC Setup Software                          | Mint WorkBench Software available using the USB 2.0 port for commissioning wizard, firmware download, parameter viewer scope capture and cloning,  |
|  | Maximum Output Frequency                   | 66 Hz  |
|  | Selectable Operating Modes                 | Keypad, Standard Run, 2-Wire, Standard Run 3-Wire, 15 Preset Speeds, Fan Pump 2-Wire, Fan Pump 3-Wire, Process Control, 3-SPD ANA 2-Wire, 3-SPD ANA 3-Wire, Electronic Pot 2-Wire, Electronic Pot 3-Wire, Network Profile Run, Bipolar |
|  | <b>Motor Feedback Protective Functions</b> | Feedback Type  |
| Trip                                     |  | Missing control power, over current, over voltage, under voltage, over temperature (motor or control), output shorted or grounded, motor overload, encoder loss.   |
| Stall Prevention                         |  | Over voltage suppression, overcurrent suppression  |
| External Output                          |  | LED trip condition indicators, 4 assignable logic outputs, 2 assignable analog outputs   |
| Short Circuit                            |  | Phase to phase, phase to ground  |
| Electronic Motor Overload                |  | Meets UL508C (I <sup>2</sup> T)  |
| <b>Environmental Conditions</b>          | Temperature                                | 10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°C.   |
|  | Cooling                                    | Forced air   |
|  | Enclosure                                  | NEMA 1 (-1B, -1T)  |
|  | Altitude                                   | Sea level to 3300 Feet (1000 Meters) Derate 2% per 1000 Feet (303 Meters) above 3300 Feet  |
|  | Humidity                                   | NEMA 1: 10 to 90% RH Non-Condensing  |
|  | Shock/Vibration                            | 1G / 0.5G at 10Hz to 60Hz  |
|  | Storage Temperature                        | -10 to +65°C   |
| <b>Keypad Display</b>                    | Display                                    | LCD Graphical 128x64 Pixel   |
|  | Keys                                       | 14 key membrane with tactile feedback  |
|  | Functions                                  | Output status monitoring, Digital speed control, Parameter setting and display, Diagnostic and Fault log display, Motor run and jog, Local/Remote toggle, One-step tuning  |
|  | LED Indicators                             | Forward run command, Reverse run command, Stop command, Jog active   |
|  | Remote Mount                               | 200 feet (60.6m) maximum from control, NEMA 4 Rated  |
|  | Trip                                       | Separate message and trace log for each trip, last 10 trips retained in memory   |
|  | Input Impedance                            | 80 kOhms (Volt mode); 500 Ohms (Current mode)  |
| <b>Analog Inputs</b>                     | One Differential                           | ±5VDC, ±10VDC, 4-20 mA and 0-20 mA, 11-bit + sign  |
|  | One Single Ended                           | 0 - 10 VDC, 11-bit   |
|  | Resolution                                 | 9 bits   |
|  | Input Impedance                            | 80 kOhms (Volt mode); 500 Ohms (Current mode)  |
| <b>Analog Outputs</b>                    | Analog Outputs                             | 2 Assignable   |
|  | Full Scale Range                           | AOUT1 (0-5V, 0-10V, 0-20mA or 4-20mA), AOUT2 (+5V, +10V)   |
|  | Source Current                             | 1 mA maximum (volt mode), 20mA (current mode)  |
|  | Resolution                                 | 9 bits   |
| <b>Digital Inputs</b>                    | Opto-isolated Inputs                       | 8 Assignable, 1 dedicated input (Drive Enable)   |
|  | Rated Voltage                              | 10 - 30 VDC (closed contacts std)  |
|  | Input Impedance                            | 4.71 k Ohms  |
|  | Leakage Current                            | 10 mA maximum  |
|  | Update Rate                                | 16 msec  |
|  | Output Conditions                          | 31 Conditions  |
| <b>Digital Outputs (2 Opto Outputs)</b>  | Rated Voltage                              | 5 to 30VDC   |
|  | Maximum Current                            | 60 mA Maximum  |
|  | ON Voltage Drop                            | 2 VDC Maximum  |
|  | OFF Leakage Current                        | 0.1 mA Maximum   |
| <b>Digital Outputs (2 Relay Outputs)</b> | Rated Voltage                              | 5 to 30VDC or 240VAC   |
|  | Maximum Current                            | 5A Maximum non-inductive   |
|  | Output Conditions                          | 31 Conditions  |
|  | Output Conditions                          | 31 Conditions  |

## VS1PM Permanent Magnet Drive Output Ratings

| Catalog Number                 | Size | Heavy Duty |            |       | Normal Duty |            |       | List Price | Mult. Sym. |
|--------------------------------|------|------------|------------|-------|-------------|------------|-------|------------|------------|
|                                |      | Hp/kW      | Continuous | Peak  | Hp/kW       | Continuous | Peak  |            |            |
| <b>460 Volts - Three Phase</b> |      |            |            |       |             |            |       |            |            |
| VS1PM410-1B                    | AA   | 10/7.5     | 11.9       | 20.8  | 10/7.5      | 11.9       | 13.7  | 3,146      | EC         |
| VS1PM415-1B                    | B    | 15/11      | 17.9       | 31.2  | 20/15       | 23.0       | 26.4  | 3,945      | EC         |
| VS1PM420-1B                    | B    | 20/15      | 23.0       | 40.2  | 25/18.7     | 28.9       | 33.2  | 4,603      | EC         |
| VS1PM425-1B                    | B    | 25/18.7    | 28.9       | 50.6  | 30/22       | 34.0       | 39.1  | 5,806      | EC         |
| VS1PM430-1B                    | C    | 30/22      | 35.2       | 61.6  | 40/30       | 45.1       | 51.9  | 6,793      | EC         |
| VS1PM440-1B                    | C    | 40/30      | 44.2       | 77.4  | 50/37       | 55.3       | 63.5  | 8,546      | EC         |
| VS1PM450-1B                    | C    | 50/37      | 55.3       | 96.7  | 60/45       | 65.5       | 75.3  | 10,079     | EC         |
| VS1PM460-1B                    | D    | 60/45      | 74.2       | 129.9 | 75/55       | 90.8       | 104.4 | 10,846     | EC         |
| VS1PM475-1B                    | D    | 75/55      | 90.8       | 158.9 | 100/75      | 116.6      | 134.0 | 12,708     | EC         |
| VS1PM4100-1B                   | D    | 100/75     | 106.9      | 187.1 | 125/93      | 136.3      | 156.8 | 14,680     | EC         |
| VS1PM4125-1B                   | D    | 125/93     | 137.3      | 240.2 | 125/93      | 143.8      | 165.4 | 15,556     | EC         |
| VS1PM4150-1T *                 | E    | 150/112    | 153.0      | 262.8 | 200/150     | 204.0      | 234.6 | 18,691     | EC         |
| VS1PM4200-1T *                 | E    | 200/150    | 204.0      | 357.0 | 250/187     | 256.7      | 295.2 | 24,921     | EC         |
| VS1PM4250-1T *                 | E    | 250/187    | 256.7      | 449.2 | 300/224     | 306.7      | 352.9 | 31,152     | EC         |

\* VS1PM "-1T" drives include an internal braking transistor. An integral braking resistor is not included.

## Dimensions in/(mm)

| Size | Outside     |            |            | Mounting    |            | Ap'x Shpg. Wgt.<br>Lbs. (kg) |
|------|-------------|------------|------------|-------------|------------|------------------------------|
|      | Height      | Width      | Depth      | Height      | Width      |                              |
| AA   | 12.27(312)  | 7.97(202)  | 8.21(209)  | 11.75(298)  | 7.38(187)  | 20(9.1)                      |
| B    | 18.00(457)  | 9.10(231)  | 9.77(248)  | 17.25(438)  | 7.00(178)  | 30(13.6)                     |
| C    | 22.00(559)  | 9.10(231)  | 9.77(248)  | 21.25(540)  | 7.00(178)  | 60(27.2)                     |
| D    | 28.00(711)  | 11.50(292) | 13.00(330) | 27.25(692)  | 9.50(241)  | 120(54.4)                    |
| E    | 41.00(1041) | 18.75(476) | 16.00(406) | 39.75(1010) | 15.75(400) | 250(113.4)                   |

**RPM AC,  
Inverter Duty,  
Three Phase**

**5 thru 1000 Hp**

**FL1838 thru L4461**

**Applications:** Extruders, conveyors, crane & hoist systems, converting, pumps, web processing, test stands, traction duty, winders, printing.



**Features:** Compact square laminated steel frame FL210-L440 (FL180 is extruded aluminum) for inverter duty and vector duty 1000:1 constant torque. Premium class H insulation, 40 C ambient, 1.0 S.F. Ball bearing. Three normally closed thermostats (one per phase). Surpasses the requirements of MG1, Part 31. VPI insulation & insulated O.D.E. bearing is standard on all L440 frames. Exclusive optimum pole Inverter Duty - not for across the line operation.

| Hp  | RPM   | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price   | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Voltage | Full Load Amps | Notes (a) |
|-----|-------|----------|------------|-----------|----------------|--------------|------------|----------|----------------|---------|----------------|-----------|
| 5   | 1800  | 3500     | FL1838C    | TENV      | IDNRPM18054C   | 3,666        | E2         | 17.87    | 170            | 230/460 | 7.4            | 90        |
|     | 7 1/2 | 1800     | 3500       | FL1852C   | TENV           | IDNRPM18074C | 4,215      | E2       | 21.87          | 210     | 230/460        | 11        |
| 10  | 1800  | 3500     | FL1844C    | TEFC      | IDFRPM18104C   | 4,376        | E2         | 23.26    | 214            | 230/460 | 13.9           | 91        |
|     |       |          | FL2162C    | TENV      | IDNRPM21104C   | 4,990        | E2         | 23.11    | 285            | 230/460 | 13.6           | 91        |
| 15  | 1800  | 3500     | FL1844C    | TEBC      | IDBRPM18154C   | 4,522        | E2         | 23.89    | 216            | 460     | 21             | 92        |
|     |       |          | FL2162C    | TEFC      | IDFRPM21154C   | 5,450        | E2         | 26.74    | 307            | 460     | 20             | 92        |
| 20  | 1800  | 3500     | FL1852C    | TEBC      | IDBRPM18204C   | 4,983        | E2         | 25.89    | 286            | 460     | 12.5           | 92        |
|     |       |          | FL2162C    | TEFC      | IDFRPM21204C   | 5,450        | E2         | 26.74    | 325            | 460     | 27             | 92        |
| 25  | 1800  | 3500     | FL2162C    | TEBC      | IDBRPM21254C   | 5,800        | E2         | 26.74    | 320            | 460     | 34             | 92        |
|     |       | 2600     | FL1844C    | DPG-FV    | IDDRPM18254C   | 5,244        | E2         | 22.32    | 215            | 460     | 33             | 92        |
|     |       | 3500     | FL2173C    | TEFC      | IDFRPM21254C   | 5,886        | E2         | 29.50    | 375            | 460     | 34             | 92        |
| 30  | 1800  | 3500     | FL2162C    | TEBC      | IDBRPM21304C   | 5,800        | E2         | 26.74    | 315            | 460     | 40             | 92        |
|     |       | 3475     | FL1852C    | DPG-FV    | IDDRPM18304C   | 5,456        | E2         | 23.32    | 215            | 460     | 39             | 92        |
|     |       | 3500     | FL2570C    | TEFC      | IDFRPM25304C   | 6,195        | E2         | 29.54    | 215            | 460     | 38             | 92        |
| 40  | 1800  | 3500     | FL2173     | TEBC      | IDBRPM21404    | 6,409        | E2         | 29.25    | 428            | 460     | 51             | 93        |
|     |       | 2000     | RL2162     | DPG-FV    | IDDRPM21404    | 6,356        | E2         | 23.12    | 370            | 460     | 50             | 93        |
|     |       | 3550     | FL2586     | TEFC      | IDFRPM25404    | 6,739        | E2         | 33.79    | 215            | 460     | 51             | 93        |
| 50  | 1800  | 3500     | FL2570     | TEBC      | IDBRPM25504    | 7,147        | E2         | 29.79    | 510            | 460     | 65             | 93        |
|     |       | 2000     | RL2168     | DPG-FV    | IDDRPM21504    | 8,556        | E2         | 24.62    | 420            | 460     | 62             | 93        |
|     |       | 3550     | FL2882     | TEFC      | IDFRPM28504    | 11,510       | E2         | 34.59    | 775            | 460     | 64             | 93        |
| 60  | 1800  | 1300     | RL2570     | DPG-FV    | IDDRPM25506    | 10,275       | E2         | 26.38    | 552            | 460     | 64             | 93        |
|     |       | 3500     | FL2578     | TEBC      | IDBRPM25604    | 10,549       | E2         | 31.79    | 580            | 460     | 75             | 93        |
|     |       | 2200     | RL2168     | DPG-FV    | IDDRPM21604    | 8,556        | E2         | 24.62    | 438            | 460     | 74             | 93        |
| 75  | 1800  | 3550     | FL2890     | TEFC      | IDFRPM28604    | 11,510       | E2         | 36.59    | 855            | 460     | 76             | 93        |
|     |       | 1300     | RL2578     | DPG-FV    | IDDRPM25606    | 12,458       | E2         | 28.38    | 624            | 460     | 73             | 93        |
|     |       | 3500     | FL2586     | TEBC      | IDBRPM25754    | 12,599       | E2         | 33.79    | 686            | 460     | 92             | 93        |
| 100 | 1800  | 2500     | RL2570     | DPG-FV    | IDDRPM25754    | 10,275       | E2         | 26.38    | 565            | 460     | 96             | 93        |
|     |       | 3550     | FL2898     | TEFC      | IDFRPM28754    | 13,751       | E2         | 38.59    | 800            | 460     | 94             | 93        |
|     |       | 1300     | RL2586     | DPG-FV    | IDDRPM25756    | 16,509       | E2         | 30.38    | 687            | 460     | 91             | 93        |
| 125 | 1800  | 3550     | FL2890     | TEBC      | IDBRPM281004R1 | 14,259       | E2         | 41.11    | 785            | 460     | 124            | 93        |
|     |       | 2000     | RL2578     | DPG-FV    | IDDRPM251004   | 12,458       | E2         | 28.38    | 630            | 460     | 119            | 93        |
|     |       | 1450     | RL2882     | DPG-FV    | IDDRPM281006   | 18,432       | E2         | 31.14    | 785            | 460     | 124            | 93        |
| 150 | 1800  | 3550     | FL2898     | TEBC      | IDBRPM281254   | 15,089       | E2         | 43.11    | 930            | 460     | 156            | 93        |
|     |       | 3500     | L3203      | TEBC      | IDBRPM321254   | 21,135       | E2         | 44.25    | 1170           | 460     | 150            | 93        |
|     |       | 2000     | RL2586     | DPG-FV    | IDDRPM251254   | 16,509       | E2         | 30.38    | 710            | 460     | 148            | 93        |
| 200 | 1800  | 2000     | RL2898     | DPG-FV    | IDDRPM281256   | 24,030       | E2         | 35.14    | 810            | 460     | 159            | 93        |
|     |       | 3500     | L3213      | TEBC      | IDBRPM321504   | 28,276       | E2         | 46.75    | 1340           | 460     | 177            | 93        |
|     |       | 2000     | RL2882     | DPG-FV    | IDDRPM281504   | 18,432       | E2         | 31.14    | 770            | 460     | 156            | 93        |
| 200 | 1200  | 1600     | L3203      | DPG-FV    | IDDRPM321506   | 28,276       | E2         | 39.88    | 1145           | 460     | 180            | 93        |
|     |       | 3500     | L3614      | TEBC      | IDBRPM362004   | 31,281       | E2         | 42.75    | 1746           | 460     | 227            | 93        |
|     |       | 2700     | RL2898     | DPG-FV    | IDDRPM282004   | 24,030       | E2         | 35.14    | 940            | 460     | 241            | 93        |
|     |       | 2000     | L3213      | DPG-FV    | IDDRPM322006   | 32,927       | E2         | 42.38    | 1325           | 460     | 236            | 93        |

(a) See notes on inside back flap.

All TEBC and DPG-FV have integral blower rated 230/460 volts 3 phase. All TENV, TEFC and TEBC have top mounted conduit box. All DPG-FV are F1.

**ENCODER MOUNTING PROVISIONS - INCLUDE MACHINED ODE BRACKET AND SHAFT TAPPED FOR STUB SHAFT. FOR CLOSED LOOP CONTROL SEE ENCODER FEEDBACK KITS ON PAGES 183 AND 184 FOR USE WITH ID-RPM AC MOTORS. FOR RPM AC MOD EXPRESS, CONTACT YOUR BALDOR•RELIANCE DISTRICT OFFICE.**

**RPM AC, Inverter Duty, Three Phase**

| Hp    | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number       | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Voltage | Full Load Amps | Notes (a) |
|-------|------|----------|------------|-----------|----------------------|------------|------------|----------|----------------|---------|----------------|-----------|
| 250   | 1800 | 3500     | L4034      | TEBC      | <b>IDBRPM402504</b>  | 39,164     | E2         | 45.12    | 2244           | 460     | 283            | 93        |
|       |      | 2945     | L3203      | DPG-FV    | <b>IDDRPM322504</b>  | 28,276     | E2         | 39.88    | 1150           | 460     | 290            | 93        |
|       | 1200 | 2000     | L3614      | DPG-FV    | <b>IDDRPM362504</b>  | 41,696     | E2         | 45.00    | 1750           | 460     | 289            | 93        |
| 300   | 1800 | 3500     | L4046      | TEBC      | <b>IDBRPM403004</b>  | 48,044     | E2         | 48.12    | 2540           | 460     | 336            | 93        |
|       |      | 2500     | L3213      | DPG-FV    | <b>IDDRPM323004</b>  | 32,927     | E2         | 42.88    | 1360           | 460     | 350            | 93        |
|       | 1200 | 2000     | L4034      | DPG-FV    | <b>IDDRPM403006</b>  | 55,045     | E2         | 52.00    | 2289           | 460     | 360            | 93        |
| 350   | 1800 | 2200     | L3614      | DPG-FV    | <b>IDDRPM363504</b>  | 41,696     | E2         | 45.00    | 1812           | 460     | 401            | 93        |
| 400   | 1800 | 2500     | L3614      | DPG-FV    | <b>IDDRPM364004</b>  | 41,696     | E2         | 45.00    | 1742           | 460     | 477            | 93        |
|       |      | 2700     | FL4440     | TEBC      | <b>IDBRPM444004</b>  | 64,562     | E2         | 78.57    | 3940           | 460     | 479            | 93        |
|       | 1200 | 2000     | L4046      | DPG-FV    | <b>IDDRPM404006</b>  | 67,104     | E2         | 55.00    | 2485           | 460     | 451            | 93        |
| 500   | 1800 | 2700     | FL4440     | TEBC      | <b>IDBRPM445004</b>  | 74,643     | E2         | 78.57    | 3940           | 460     | 591            | 93        |
|       |      | 2400     | L4034      | DPG-FV    | <b>IDDRPM405004</b>  | 55,045     | E2         | 52.00    | 2310           | 460     | 557            | 94        |
|       | 1200 | 2380     | L4461      | DPG-FV    | <b>IDDRPM445006</b>  | 104,952    | E2         | 63.63    | 3875           | 460     | 669            | 95        |
| 600   | 1800 | 2200     | L4046      | DPG-FV    | <b>IDDRPM406004</b>  | 67,104     | E2         | 55.00    | 2100           | 460     | 666            | 94        |
|       |      | 2500     | FL4461     | TEBC      | <b>IDBRPM446004</b>  | 75,188     | E2         | 86.82    | 4905           | 460     | 708            | 93        |
| 700   | 1800 | 2300     | L4429      | DPG-FV    | <b>IDDRPM447004</b>  | 83,747     | E2         | 55.63    | 3000           | 460     | 875            | 94        |
| 1,000 | 1800 | 2000     | L4461      | DPG-FV    | <b>IDDRPM4410004</b> | 104,952    | E2         | 63.63    | 3890           | 460     | 1202           | 94        |

(a) See notes on inside back flap.

All TEBC and DPG-FV have integral blower rated 230/460 volts 3 phase. All TENV, TEFC and TEBC have top mounted conduit box. All DPG-FV are F1.

**ENCODER MOUNTING PROVISIONS - INCLUDE MACHINED ODE BRACKET AND SHAFT TAPPED FOR STUB SHAFT. FOR CLOSED LOOP CONTROL SEE ENCODER FEEDBACK KITS ON PAGES 183 AND 184 FOR USE WITH ID-RPM AC MOTORS. FOR RPM AC MOD EXPRESS, CONTACT YOUR BALDOR•RELIANCE DISTRICT OFFICE.**

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes



**RPM AC,  
Vector Duty,  
Three Phase,  
Totally Enclosed**

**5 thru 200 Hp**

**FL1838 thru L4022**

**Applications:** Test stands, extruders, conveyors, crane & hoist systems, converting, web processing, traction duty, winders, printing.



**Features:** Compact square laminated steel frame FL210-L440 (FL180 is extruded aluminum) for vector duty 1000:1 constant torque. Premium class H insulation, 40 C ambient, 1.0 S.F. Ball bearing. Three normally closed thermostats (one per phase). Surpasses the requirements of MG1, Part 31. VPI insulation & insulated O.D.E. bearing is standard on all L440 frames. Exclusive optimum pole Inverter Duty - not for across the line operation. Includes BEI HS35 1024 ppr hollow shaft encoder with MS twist lock connector, mating connector and protective cover.

| Hp    | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number        | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Voltage | Full Load Amps | Notes (a) |
|-------|------|----------|------------|-----------|-----------------------|------------|------------|----------|----------------|---------|----------------|-----------|
| 5     | 1800 | 3500     | FL1838C    | TENV      | <b>ZDNRPM18054C</b>   | 5,692      | E2         | 17.87    | 175            | 230/460 | 7.4            | 90        |
| 7 1/2 | 1800 | 3500     | FL1852C    | TENV      | <b>ZDNRPM18074C</b>   | 6,241      | E2         | 21.87    | 220            | 230/460 | 11             | 91        |
| 10    | 1800 | 3500     | FL1844C    | TEFC      | <b>ZDFRPM18104C</b>   | 6,402      | E2         | 23.23    | 179            | 230/460 | 13.9           | 91        |
|       |      |          | FL2162C    | TENV      | <b>ZDNRPM21104C</b>   | 7,017      | E2         | 23.11    | 280            | 230/460 | 13.6           | 91        |
| 15    | 1800 | 3500     | FL1844C    | TEBC      | <b>ZDBRPM18154C</b>   | 6,548      | E2         | 28.93    | 180            | 460     | 21             | 92        |
| 20    | 1800 | 3500     | FL1852C    | TEBC      | <b>ZDBRPM18204C</b>   | 7,010      | E2         | 30.39    | 209            | 460     | 27             | 92        |
|       |      | 2500     | FL2162C    | TEFC      | <b>ZDFRPM21204C</b>   | 7,827      | E2         | 26.74    | 290            | 460     | 27             | 92        |
| 25    | 1800 | 3500     | FL2173C    | TEFC      | <b>ZDFRPM21254C</b>   | 7,912      | E2         | 29.50    | 355            | 460     | 34             | 92        |
| 30    | 1800 | 3500     | FL2162C    | TEBC      | <b>ZDBRPM21304C</b>   | 7,827      | E2         | 31.24    | 290            | 460     | 40             | 92        |
|       |      |          | FL2570C    | TEFC      | <b>ZDFRPM25304C</b>   | 8,221      | E2         | 29.54    | 475            | 460     | 40             | 92        |
| 40    | 1800 | 3500     | FL2173     | TEBC      | <b>ZDBRPM21404</b>    | 8,242      | E2         | 33.75    | 355            | 460     | 52             | 93        |
|       |      |          | FL2586     | TEFC      | <b>ZDFRPM25404</b>    | 8,572      | E2         | 33.79    | 605            | 460     | 52             | 93        |
| 50    | 1800 | 3500     | FL2570     | TEBC      | <b>ZDBRPM25504</b>    | 8,981      | E2         | 34.26    | 558            | 460     | 61             | 93        |
| 60    | 1800 | 3500     | FL2578     | TEBC      | <b>ZDBRPM25604</b>    | 12,383     | E2         | 36.29    | 540            | 460     | 74             | 93        |
| 75    | 1800 | 3500     | FL2586     | TEBC      | <b>ZDBRPM25754</b>    | 14,432     | E2         | 38.29    | 605            | 460     | 94             | 93        |
| 100   | 1800 | 3550     | FL2890     | TEBC      | <b>ZDBRPM281004R1</b> | 16,091     | E2         | 45.61    | 805            | 460     | 124            | 93        |
| 125   | 1800 | 3550     | FL2898     | TEBC      | <b>ZDBRPM281254</b>   | 16,923     | E2         | 47.61    | 985            | 460     | 156            | 93        |
|       |      | 3500     | L3203      | TEBC      | <b>ZDBRPM321254</b>   | 22,967     | E2         | 44.25    | 1170           | 460     | 150            | 93        |
| 150   | 1800 | 3500     | L3213      | TEBC      | <b>ZDBRPM321504</b>   | 30,109     | E2         | 46.75    | 1310           | 460     | 177            | 93        |
| 200   | 1800 | 3500     | L3614      | TEBC      | <b>ZDBRPM362004</b>   | 33,113     | E2         | 46.75    | 1700           | 460     | 240            | 93        |
|       |      |          | L4022      | TEBC      | <b>ZDBRPM402004</b>   | 35,581     | E2         | 49.12    | 2103           | 460     | 240            | 93        |

(a) See notes on inside back flap.  
All TEBC have integral blower rated 230/460 volts 3 phase.

**CONTINUOUS CONSTANT TORQUE TO ZERO SPEED**

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

## Encoder Feedback Kits

1024 PPR, Includes all Mounting Hardware and Mating Connector

The following kits for use with RPM AC motors on pages 180-181.

| Catalog Number | Motor Enclosure | Type  | Frame Size         | Mfg.    | Mag or Optical | Conn Type | Input Voltage VDC | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. |
|----------------|-----------------|-------|--------------------|---------|----------------|-----------|-------------------|------------|------------|------------------|
| 417077-136     | TENV            | HS35  | FL180-FL/RL280 (1) | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 4                |
| 417077-208TL   | TENV            | HS35  | FL180-FL280 (1)    | BEI     | 0              | MS-TL     | 5-28              | 1,442      | E8         | 6                |
| 417077-153     | TENV            | H20   | FL180-FL/RL280 (1) | Dynapar | 0              | MS-ST     | 5-15              | 1,598      | E8         | 9                |
| 417077-156     | TENV            | RL67  | FL180-FL/RL280 (1) | Dynapar | M              | Latch     | 5-15              | 2,060      | E8         | 9                |
| 417077-170     | TENV            | HS35M | FL180-FL/RL280 (1) | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 10               |
| 417077-133     | TEFC            | HS35  | FL180-FL/RL280 (1) | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 5                |
| 417077-165     | TEBC            | HS35  | FL180              | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 15               |
| 417077-188     | TEBC            | HS35  | FL210 Only         | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 10               |
| 417077-189     | TEBC            | HS35  | FL250 Only         | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 10               |
| 417077-212TL   | TEBC            | HS35  | FL250              | BEI     | 0              | MS-TL     | 5-28              | 1,442      | E8         | 6                |
| 417708-140     | TEBC            | HS35  | L320               | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 10               |
| 417708-142     | TEBC            | HS35  | L400               | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 15               |
| 417077-173     | TEBC            | HS35M | FL180              | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 10               |
| 417077-182     | TEBC            | HS35M | FL210 Only         | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 10               |
| 417077-176     | TEBC            | HS35M | L280               | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 15               |
| 417077-177     | TEBC            | HS35M | L320               | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 35               |
| 417077-179     | TEBC            | HS35M | L400               | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 35               |
| 417077-167     | TEBC            | H20   | FL180              | Dynapar | 0              | MS-ST     | 5-15              | 1,598      | E8         | 20               |
| 417077-191     | TEBC            | H20   | FL250 Only         | Dynapar | 0              | MS-ST     | 5-15              | 1,598      | E8         | 10               |
| 417708-90      | TEBC            | H20   | L280               | Dynapar | 0              | MS-ST     | 5-15              | 1,598      | E8         | 13               |
| 417708-91      | TEBC            | H20   | L320               | Dynapar | 0              | MS-ST     | 5-15              | 1,598      | E8         | 15               |
| 417077-168     | TEBC            | RL67  | FL180              | Dynapar | M              | Latch     | 5-15              | 2,060      | E8         | 10               |
| 417077-193     | TEBC            | RL67  | FL250 Only         | Dynapar | M              | Latch     | 5-15              | 2,060      | E8         | 10               |
| 417077-136     | DPFV            | HS35  | FL180-RL280 (2)    | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 4                |
| 417077-208TL   | DPFV            | HS35  | FL180-RL280 (2)    | BEI     | 0              | MS-TL     | 5-28              | 1,442      | E8         | 6                |
| 417708-130     | DPFV            | HS35  | L280-L400          | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 5                |
| 417077-218TL   | DPFV            | HS35  | L320-L400          | BEI     | 0              | MS-TL     | 5-28              | 1,442      | E8         | 6                |
| 417077-170     | DPFV            | HS35M | FL180-RL280 (2)    | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 10               |
| 417077-171     | DPFV            | HS35M | L280-L400          | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 5                |

Farm Duty  
MotorsDefinite Purpose  
MotorsUnit Handling  
Motors

Brake Motors

200 & 575 Volt  
MotorsIEC Frame  
Motors50 Hertz  
MotorsInverter/Vector  
Motors & ControlsDC Motors  
and ControlsSoft Starters &  
Dynamic Brakes



**Encoder Feedback Kits RPM AC Designs**

| Catalog Number    | Motor Encl | Type | Frame Size      | Mfg.    | Mag or Optical | Conn Type | Input Voltage VDC | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. |
|-------------------|------------|------|-----------------|---------|----------------|-----------|-------------------|------------|------------|------------------|
| <b>417077-153</b> | DPFV       | H20  | FL180-RL280 (2) | Dynapar | 0              | MS-ST     | 5-15              | 1,598      | E8         | 9                |
| <b>417708-85</b>  | DPFV       | H20  | L280-L400       | Dynapar | 0              | MS-ST     | 5-15              | 1,598      | E8         | 5                |
| <b>417077-156</b> | DPFV       | RL67 | FL180-RL280 (2) | Dynapar | M              | Latch     | 5-15              | 2,060      | E8         | 9                |
| <b>417708-87</b>  | DPFV       | RL67 | L280-L400       | Dynapar | M              | Latch     | 5-15              | 2,060      | E8         | 6                |
| <b>417708-120</b> | DPFV       | RL67 | L440            | Dynapar | M              | Latch     | 5-15              | 2,060      | E8         | 23               |

(1) Includes FL180, FL210, FL250, RL210, RL250, FL280 and RL280

(2) Includes FL180, RL210, RL250 and RL280

**Encoder Mounting Kits - no encoder**

Kit includes stub shaft only (no encoder) - unmounted - for RPM AC motor frames FL180-L440.

| Encoder (reference)       | Frame              | Enclosure                  | Catalog Number    | List Price | Mult. Sym. |
|---------------------------|--------------------|----------------------------|-------------------|------------|------------|
| BEI HS35<br>(1 inch dia.) | FL180-FL/RL250 (3) | DPFV, TENV, TEFC, TEBC (2) | <b>417708-201</b> | 165        | E8         |
|                           | FL/RL280 thru L400 | DPFV & TEBC (2)            | <b>417708-202</b> | 165        | E8         |
|                           | L440               | DPFV & TEAO-P/B            | <b>417708-203</b> | 165        | E8         |

(2) Note: encoder addition requires an extended blower cover on TEBC motors in all frames except L320.

Cover is included in complete kits only.

(3) Includes FL180, FL210, FL250, RL210, RL250

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**RPM AC Slide Bases**

**Application:** Used for adjustable belt tension on belted application not suitable for wall or ceiling mounting.

| Frame       | Catalog Number | List Price | Mult. Symbol | Dimension Sheet | Approx. Wt. (Lb.) |
|-------------|----------------|------------|--------------|-----------------|-------------------|
| FL1831      | 419914-9A      | 469        | E8           | 609957-9        | 13                |
| FL1838      | 419914-9B      | 469        | E8           | 609957-9        | 14                |
| FL1844      | 419914-9C      | 469        | E8           | 609957-9        | 15                |
| FL1852      | 419914-9D      | 469        | E8           | 609957-9        | 17                |
| FL/RL2153   | 419914-10A     | 469        | E8           | 609957-10       | 39                |
| FL/RL2158   | 419914-10B     | 469        | E8           | 609957-10       | 27                |
| FL/RL2162   | 419914-10D     | 547        | E8           | 609957-10       | 48                |
| FL/RL2168   | 419914-10L     | 547        | E8           | 609957-10       | 52                |
| FL/RL2173   | 419914-10M     | 547        | E8           | 609957-10       | 28                |
| FL/RL2570   | 419914-10G     | 547        | E8           | 609957-10       | 55                |
| FL/RL2578   | 419914-10N     | 703        | E8           | 609957-10       | 58                |
| FL/RL2586   | 419914-10P     | 703        | E8           | 609957-10       | 56                |
| L2875       | 419914-10J     | 703        | E8           | 609957-10       | 37                |
| FL/RL/L2882 | 419914-10K     | 1,006      | E8           | 609957-10       | 80                |
| FL/RL/L2890 | 419914-10R     | 1,006      | E8           | 609957-10       | 80                |
| FL/RL/L2898 | 419914-10S     | 1,006      | E8           | 609957-10       | 90                |
| L3203       | 419914-11P     | 1,110      | E8           | 609977-10       | 90                |
| L3213       | 419914-11R     | 1,110      | E8           | 609977-10       | 90                |
| UL3698      | 419914-11M     | 1,300      | E8           | 609977-10       | 105               |
| UL3699      | 419914-11C     | 1,300      | E8           | 609977-10       | 105               |
| UL3607      | 419914-11D     | 1,300      | E8           | 609977-10       | 74                |
| UL3614      | 419914-11N     | 1,300      | E8           | 609977-10       | 124               |
| UL4022      | 419914-11E     | 2,476      | E8           | 609977-10       | 105               |
| UL4034      | 419914-11F     | 2,476      | E8           | 609977-10       | 132               |
| UL4046      | 419914-11G     | 2,476      | E8           | 609977-10       | 141               |
| UL4429      | 419914-11H     | 4,672      | E8           | 609977-10       | 140               |
| UL4440      | 419914-11J     | 4,672      | E8           | 609977-10       | 150               |
| UL4451      | 419914-11K     | 4,672      | E8           | 609977-10       | 160               |
| UL4461      | 419914-11L     | 4,672      | E8           | 609977-10       | 165               |

**RPM AC Filter Kits**

**Application:** For use with DPFV enclosures

| Frame   | Catalog Number | List Price | Mult. Symbol | Description                       | Approx. Wt. (Lb.) |
|---------|----------------|------------|--------------|-----------------------------------|-------------------|
| FL180   | 417077-57      | 911        | A8           | Washable Wire Mesh Canister Type  | 2                 |
| RL210   | 417077-59      | 911        | A8           | Washable Wire Mesh Canister Type  | 4                 |
| RL250   | 417077-59      | 911        | A8           | Washable Wire Mesh Canister Type  | 4                 |
| RL/L280 | 417077-59      | 911        | A8           | Washable Wire Mesh Canister Type  | 4                 |
| L320    | 417077-59      | 911        | A8           | Washable Wire Mesh Canister Type  | 4                 |
| L360    | 417077-65      | 1,165      | A8           | Washable Wire Mesh Canister Type  | 7                 |
| L400    | 417077-102     | 1,642      | A8           | Washable Wire Mesh Canister Type  | 6                 |
| L440    | 417077-124     | 1,893      | A8           | Square Replaceable Polyester Type | 18                |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**RPM AC Mounting Conversion Kits for FL180-FL280 Frames**

Kits are for relocation of the conduit box of stock FL180 - FL280 frame motors as noted. Installation of this kit requires complete disassembly/reassembly of motor. Price is for kit only.

| Frame                         | Catalog Number    | List Price | Mult. Sym. | Enclosure        | Relocate Conduit Box:  |
|-------------------------------|-------------------|------------|------------|------------------|------------------------|
| <b>For FL180-FL280 Frames</b> |                   |            |            |                  |                        |
| FL180                         | <b>417077-184</b> | 503        | E8         | TENV, TEBC, TEFC | From Top to F-1 or F-2 |
| FL180                         | <b>417077-185</b> | 503        | E8         | DPFV             | From F-1 to F-2        |
| FL210                         | <b>417077-186</b> | 591        | E8         | TENV, TEBC, TEFC | From Top to F-1 or F-2 |
| FL250                         | <b>417077-187</b> | 591        | E8         | TENV, TEBC, TEFC | From Top to F-1 or F-2 |
| FL280                         | <b>417077-201</b> | 632        | E8         | TENV, TEBC, TEFC | From Top to F-1 or F-2 |
| <b>For RL210-RL280 Frames</b> |                   |            |            |                  |                        |
| RL2153 thru RL2173            | <b>417077-129</b> | 503        | E8         | DPFV             | From F-1 to F-2        |
| RL250 thru RL2586             | <b>417077-131</b> | 503        | E8         | DPFV             | From F-1 to F-2        |
| RL2153 thru RL2173            | <b>417077-130</b> | 591        | E8         | TENV, TEBC, TEFC | From Top to F-1 or F-2 |
| RL2570 thru RL2586            | <b>417077-132</b> | 591        | E8         | TENV, TEBC, TEFC | From Top to F-1 or F-2 |
| RL2882 thru RL2898            | <b>417077-202</b> | 632        | E8         | DPFV             | From F-1 to F-2        |

**Replacement Blower Kits for DPG-FV RPM AC Motors**

Kit includes blower motor and shroud, blower wheel and all mounting hardware. Filter is not included.

| DPFV Frame | Catalog Number    | List Price | Mult. Sym. |
|------------|-------------------|------------|------------|
| RL210      | <b>417077-144</b> | 897        | E8         |
| RL250      | <b>417077-145</b> | 1,753      | E8         |
| L280       | <b>419947-31</b>  | 1,747      | E8         |
| L320       | <b>419947-33</b>  | 1,944      | E8         |
| L360       | <b>417077-127</b> | 2,123      | A8         |
| L400       | <b>417077-75</b>  | 2,324      | A8         |
| L440       | <b>417077-126</b> | 4,738      | A8         |

Kit includes terminal box and blower motor only.

| TEBC Frame      | Catalog Number    | List Price | Mult. Sym. |
|-----------------|-------------------|------------|------------|
| FL180 (3)       | <b>417077-143</b> | 897        | E8         |
| FL/RL210-320(3) | <b>417077-141</b> | 1,142      | E8         |

(3) Compact inline blower used on stock models (IP44 rating)

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**V\*S Master  
Inverter Drive,  
Three Phase,  
Totally Enclosed**

**1/3 thru 300 Hp**

**NEMA 56C thru 449T**

**Applications:** Conveyors, extruders, printing lines, converting, test stands, anywhere constant torque is required over a wide speed range.



**Features:** Designed specifically for Inverter operation where up to 1000:1 constant torque speed range is required. Includes provisions for stub shaft for hollow shaft encoder, three thermostats, and all 440T frames include an ODE insulated bearing. Meets NEMA MG 1, Part 31. Continuous constant torque to zero speed.

| Hp    | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price  | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a) |       |
|-------|------|----------|------------|-----------|----------------|-------------|------------|----------|----------------|----------------------|---------|----------------|-----------|-------|
| 1/3   | 1800 | 6000     | 56C        | TENV      | IDVSNM3534     | 495         | E2         | 13.84    | 35             | 80                   | 230/460 | 0.6            | 2, 48     |       |
| 1/2   | 1800 | 6000     | 56C        | TENV      | IDVSNM3538     | 579         | E2         | 13.84    | 35             | 84                   | 230/460 | 0.9            | 2, 48     |       |
| 3/4   | 1800 | 6000     | 56C        | TENV      | IDVSNM3542     | 645         | E2         | 13.84    | 34             | 84                   | 230/460 | 1.2            | 2, 48     |       |
| 1     | 1800 | 6000     | 56C        | TENV      | IDVSNM3546     | 1,048       | K          | 14.84    | 45             | 82.5                 | 230/460 | 1.4            | 2, 48     |       |
|       |      |          | 143TC      | TENV      | IDVSNM3581T    | 1,315       | E2         | 14.65    | 58             | 85.5                 | 230/460 | 1.5            | 2, 48     |       |
|       |      |          | 143TC      | TENV      | IDVSNM3581T-5  | 1,256       | E2         | 14.65    | 62             | 84                   | 575     | 1.2            | 2, 48     |       |
| 1 1/2 | 1800 | 1200     | 2800       | 145TC     | TENV           | IDVSNM3582T | 1,715      | E2       | 14.65          | 61                   | 82.5    | 230/460        | 1.8       | 2, 48 |
|       |      | 5000     | 145TC      | TENV      | IDVSNM3584T-5  | 1,451       | E2         | 14.65    | 64             | 86.5                 | 575     | 1.7            | 2, 48     |       |
| 2     | 1800 | 6000     | 6000       | 145TC     | TENV           | IDVSNM3584T | 1,451      | E2       | 14.65          | 64                   | 82.5    | 230/460        | 2.1       | 2, 48 |
|       |      |          | 145TC      | TENV      | IDVSNM3587T-5  | 1,448       | E2         | 14.65    | 62             | 86.5                 | 575     | 2.2            | 2, 48     |       |
| 3     | 1800 | 2700     | 145TC      | TENV      | IDVSNM3587T    | 1,516       | E2         | 14.65    | 67             | 86.5                 | 230/460 | 2.8            | 2, 48     |       |
|       |      |          | 182TC      | TEFC      | IDVSM3661T     | 1,674       | E2         | 16.38    | 124            | 88.5                 | 230/460 | 3.8            | 2, 48     |       |
| 5     | 1800 | 2700     | 182TC      | TENV      | IDVSNM3661T    | 1,722       | E2         | 14.94    | 126            | 87.5                 | 230/460 | 3.8            | 2, 48     |       |
|       |      |          | L184TC     | TEFC      | IDVSM3665T     | 1,941       | E2         | 17.88    | 142            | 90.5                 | 230/460 | 6.4            | 2, 48     |       |
| 7 1/2 | 1800 | 2700     | L184TC     | TENV      | IDVSNM3665T    | 1,995       | E2         | 14.94    | 153            | 90.3                 | 230/460 | 6.4            | 2, 48     |       |
|       |      |          | 213TC      | TEFC      | IDVSM3770T     | 2,497       | E2         | 20.00    | 180            | 91.8                 | 230/460 | 9.6            | 2, 48     |       |
| 10    | 1800 | 2700     | L215TC     | TENV      | IDVSNM3237T    | 2,567       | E2         | 19.25    | 212            | 91                   | 230/460 | 9.2            | 2, 48     |       |
|       |      |          | 254TC      | TEFC      | IDVSM3774T     | 3,255       | E2         | 20.88    | 205            | 91                   | 230/460 | 12.4           | 2, 48     |       |
| 15    | 1800 | 2700     | 254TC      | TENV      | IDVSNM2238T    | 3,521       | E2         | 24.05    | 305            | 91.7                 | 230/460 | 13             | 2, 48     |       |
|       |      |          | 254TC      | TEFC      | IDVSM2333T     | 3,787       | E2         | 26.71    | 334            | 92.4                 | 230/460 | 18             | 2, 48     |       |
| 20    | 1800 | 2700     | 256TC      | TENV      | IDVSNM2333T    | 4,235       | E2         | 24.05    | 335            | 94.1                 | 230/460 | 18.5           | 2, 48     |       |
|       |      |          | 256TC      | TEFC      | IDVSM2334T     | 4,106       | E2         | 26.71    | 366            | 93                   | 230/460 | 24             | 2, 48     |       |
| 25    | 1800 | 2700     | 284TC      | TEFC      | IDVSM4103T     | 5,214       | E2         | 30.42    | 451            | 93.6                 | 230/460 | 30             | 2, 48     |       |
| 30    | 1800 | 2700     | 286TC      | TEFC      | IDVSM4104T     | 5,696       | E2         | 30.42    | 475            | 94.1                 | 230/460 | 36             | 2, 48     |       |
| 40    | 1800 | 2700     | 324T       | TEFC      | IDVSM4110T     | 6,571       | E2         | 30.44    | 695            | 93.9                 | 230/460 | 49.8           | 2, 48     |       |
| 50    | 1800 | 2700     | 326T       | TEFC      | IDVSM4115T     | 8,031       | E2         | 30.28    | 697            | 94                   | 230/460 | 60             | 2, 48     |       |
| 60    | 1800 | 2700     | 364T       | TEFC      | IDVSM4314T     | 9,948       | E2         | 33.44    | 830            | 94.2                 | 230/460 | 71.2           | 2, 48     |       |
| 75    | 1800 | 2700     | 365T       | TEFC      | IDVSM4316T     | 12,459      | E2         | 33.44    | 901            | 94.3                 | 230/460 | 89.2           | 2, 48     |       |
| 100   | 1800 | 2700     | 405T       | TEFC      | IDVSM4400T-4   | 16,102      | E2         | 38.31    | 1259           | 94.1                 | 460     | 115            | 2, 48     |       |
| 125   | 1800 | 2700     | 444T       | TEFC      | IDVSM4410T-4   | 19,987      | E2         | 44.62    | 1664           | 94.1                 | 460     | 150            | 2, 48     |       |
| 150   | 1800 | 2700     | 445T       | TEFC      | IDVSM4406T-4   | 23,853      | E2         | 44.62    | 1832           | 95                   | 460     | 177            | 2, 48     |       |
| 200   | 1800 | 2700     | 447T       | TEFC      | IDVSM4407T-4   | 28,263      | E2         | 48.40    | 2226           | 95.4                 | 460     | 226            | 2, 48     |       |
| 250   | 1800 | 2700     | 449T       | TEFC      | IDVSM4408T-4   | 39,946      | E2         | 53.40    | 2567           | 95.8                 | 460     | 277            | 2, 48     |       |
| 300   | 1800 | 2700     | 449T       | TEFC      | IDVSM44304T-4  | 39,946      | E2         | 53.40    | 2857           | 96.2                 | 460     | 338            | 2, 48     |       |

(a) See notes on inside back flap.

**CONTINUOUS CONSTANT TORQUE TO ZERO SPEED**

■ Cast Iron Frame

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**V\*S Master  
Vector Drive,  
Three Phase,  
Totally Enclosed**

**1/2 thru 300 Hp**

**NEMA 56C thru 449T**

**Applications:** Conveyors, extruders, printing lines, converting, test stands, anywhere constant torque is required over a wide speed range.

**Features:** Designed specifically for Inverter operation where up to 1000:1 constant torque speed range is required. Includes 1024 ppr hollow shaft encoder, three thermostats, and all 440T frames include an ODE insulated bearing. Meets NEMA MG 1, Part 31. Continuous constant torque to zero speed.



| Hp    | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a) |
|-------|------|----------|------------|-----------|----------------|------------|------------|----------|----------------|----------------------|---------|----------------|-----------|
| 1/2   | 1800 | 6000     | 56C        | TENV      | ZDVSNM3538     | 2,136      | E2         | 13.84    | 35             | 84                   | 230/460 | 0.9            | 2, 46, 48 |
| 3/4   | 1800 | 6000     | 56C        | TENV      | ZDVSNM3542     | 2,201      | E2         | 13.84    | 38             | 82.5                 | 230/460 | 1.1            | 2, 46, 48 |
| 1     | 1800 | 6000     | 145TC      | TENV      | ZDVSNM3581T    | 2,872      | E2         | 14.65    | 58             | 85.5                 | 230/460 | 1.5            | 2, 46, 48 |
| 1 1/2 | 1800 | 6000     | 145TC      | TENV      | ZDVSNM3584T    | 3,006      | E2         | 14.65    | 65             | 86.5                 | 230/460 | 2.1            | 2, 46, 48 |
| 2     | 1800 | 6000     | 145TC      | TENV      | ZDVSNM3587T    | 3,315      | E2         | 14.65    | 67             | 86.5                 | 230/460 | 2.8            | 2, 46, 48 |
| 3     | 1800 | 2700     | 182TC      | TEFC      | ZDVS3661T      | 3,508      | E2         | 19.69    | 127            | 88.5                 | 230/460 | 3.8            | 2, 46, 48 |
|       |      |          | 182TC      | TENV      | ZDVS3661T      | 3,556      | E2         | 14.69    | 132            | 87.5                 | 230/460 | 3.8            | 2, 46, 48 |
| 5     | 1800 | 2700     | L184TC     | TEFC      | ZDVS3665T      | 3,773      | E2         | 21.19    | 145            | 90.5                 | 230/460 | 6.4            | 2, 46, 48 |
|       |      |          | L184TC     | TENV      | ZDVS3665T      | 3,828      | E2         | 16.19    | 152            | 90.3                 | 230/460 | 6.4            | 2, 46, 48 |
| 7 1/2 | 1800 | 2700     | 213TC      | TEFC      | ZDVS3770T      | 4,329      | E2         | 23.31    | 184            | 91.8                 | 230/460 | 9.6            | 2, 46, 48 |
|       |      |          | L215TC     | TENV      | ZDVS2237T      | 4,399      | E2         | 19.25    | 211            | 91                   | 230/460 | 9.2            | 2, 46, 48 |
| 10    | 1800 | 2700     | L215TC     | TEFC      | ZDVS3774T      | 5,088      | E2         | 24.19    | 210            | 91                   | 230/460 | 12.4           | 2, 46, 48 |
|       |      |          | 254TC      | TENV      | ZDVS2238T      | 5,354      | E2         | 27.09    | 314            | 92.4                 | 230/460 | 12.7           | 2, 46, 48 |
| 15    | 1800 | 2700     | 254TC      | TEFC      | ZDVS2333T      | 5,620      | E2         | 28.37    | 343            | 92.4                 | 230/460 | 18.4           | 2, 46, 48 |
|       |      |          | 256TC      | TENV      | ZDVS2333T      | 6,069      | E2         | 27.09    | 342            | 92.4                 | 230/460 | 18.7           | 2, 46, 48 |
| 20    | 1800 | 2700     | 256TC      | TEFC      | ZDVS2334T      | 5,939      | E2         | 28.37    | 361            | 93                   | 230/460 | 25.5           | 2, 46, 48 |
| 25    | 1800 | 2700     | 284TC      | TEFC      | ZDVS4103T      | 7,046      | E2         | 30.75    | 458            | 93.6                 | 230/460 | 31             | 2, 46, 48 |
| 30    | 1800 | 2700     | 286TC      | TEFC      | ZDVS4104T      | 7,528      | E2         | 30.75    | 458            | 94.1                 | 230/460 | 38.1           | 2, 46, 48 |
| 40    | 1800 | 2700     | 324T       | TEFC      | ZDVS4110T      | 8,404      | E2         | 33.75    | 716            | 93.9                 | 230/460 | 49.8           | 2, 46, 48 |
| 50    | 1800 | 2700     | 326T       | TEFC      | ZDVS4115T      | 9,863      | E2         | 33.75    | 716            | 94                   | 230/460 | 62.5           | 2, 46, 48 |
| 60    | 1800 | 2700     | 364T       | TEFC      | ZDVS4314T      | 11,781     | E2         | 36.75    | 890            | 94.2                 | 230/460 | 71.2           | 2, 46, 48 |
| 75    | 1800 | 2700     | 365T       | TEFC      | ZDVS4316T      | 14,292     | E2         | 36.75    | 930            | 94.3                 | 230/460 | 89.2           | 2, 46, 48 |
| 100   | 1800 | 2700     | 405T       | TEFC      | ZDVS4400T-4    | 17,935     | E2         | 41.62    | 1191           | 94.1                 | 460     | 115            | 2, 46, 48 |
| 125   | 1800 | 2700     | 444T       | TEFC      | ZDVS4410T-4    | 21,819     | E2         | 47.93    | 1771           | 94.1                 | 460     | 150            | 2, 46, 48 |
| 150   | 1800 | 2700     | 445T       | TEFC      | ZDVS4406T-4    | 25,685     | E2         | 47.93    | 1860           | 95                   | 460     | 177            | 2, 46, 48 |
| 200   | 1800 | 2700     | 447T       | TEFC      | ZDVS4407T-4    | 30,096     | E2         | 51.71    | 2268           | 95.4                 | 460     | 226            | 2, 46, 48 |
| 250   | 1800 | 2700     | 449T       | TEFC      | ZDVS4408T-4    | 41,779     | E2         | 56.71    | 2601           | 95.8                 | 460     | 277            | 2, 46, 48 |
| 300   | 1800 | 2700     | 449T       | TEFC      | ZDVS44304T-4   | 41,779     | E2         | 56.71    | 2852           | 96.2                 | 460     | 338            | 2, 46, 48 |

(a) See notes on inside back flap.

**CONTINUOUS CONSTANT TORQUE TO ZERO SPEED**

■ Cast Iron Frame

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**V\*S Master Severe Duty Vector Drive, Three Phase, Totally Enclosed**

1/2 thru 50 Hp

NEMA 140T thru 320T



**Applications:** Conveyors, extruders, printing lines, converting, test stands, anywhere constant torque is required over a wide speed range. These Severe Duty motors are designed for harsh industrial environments by protecting motor components from moisture, chemicals, corrosion and abrasives.

**Features:** Designed specifically for Inverter operation where up to 1000:1 constant torque speed range is required. Includes 1024 ppr hollow shaft encoder and three thermostats. Uses Dynapar HSD38M encoder on 180 frame and up. Meets NEMA MG 1, Part 31. Continuous constant torque to zero speed.

| Hp    | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a) |
|-------|------|----------|------------|-----------|----------------|------------|------------|----------|----------------|----------------------|---------|----------------|-----------|
| 1     | 1800 | 6000     | 143TC      | TENV      | ZDVSNCP3581T   | 3,016      | E2         | 14.61    | 58             | 87.5                 | 230/460 | 1.5            | 2, 46, 48 |
| 1 1/2 | 1800 | 6000     | 145TC      | TENV      | ZDVSNCP3584T   | 3,150      | E2         | 14.61    | 65             | 86.5                 | 230/460 | 2.1            | 2, 46, 48 |
| 2     | 1800 | 6000     | 145TC      | TENV      | ZDVSNCP3587T   | 3,459      | E2         | 14.61    | 67             | 86.5                 | 230/460 | 2.8            | 2, 46, 48 |
| 3     | 1800 | 2700     | 182TC      | TEFC      | ZDVSCP3661T    | 3,902      | E2         | 19.78    | 135            | 88.5                 | 230/460 | 3.8            | 2, 46, 48 |
| 5     | 1800 | 2700     | L184TC     | TEFC      | ZDVSCP3665T    | 4,234      | E2         | 21.28    | 158            | 90.5                 | 230/460 | 6.4            | 2, 46, 48 |
| 7 1/2 | 1800 | 2700     | 213TC      | TEFC      | ZDVSCP3770T    | 4,905      | E2         | 23.46    | 201            | 91.8                 | 230/460 | 9.6            | 2, 46, 48 |
| 10    | 1800 | 2700     | L215TC     | TEFC      | ZDVSCP3774T    | 5,368      | E2         | 24.34    | 218            | 91                   | 230/460 | 12.4           | 2, 46, 48 |
| 15    | 1800 | 2700     | 254TC      | TEFC      | ZDVSCP2333T    | 6,421      | E2         | 28.46    | 367            | 92.4                 | 230/460 | 18.4           | 2, 46, 48 |
| 20    | 1800 | 2700     | 256TC      | TEFC      | ZDVSCP2334T    | 6,819      | E2         | 28.46    | 381            | 93                   | 230/460 | 25.5           | 2, 46, 48 |
| 25    | 1800 | 2700     | 284TC      | TEFC      | ZDVSCP4103T    | 8,157      | E2         | 30.84    | 473            | 93.6                 | 230/460 | 31             | 2, 46, 48 |
| 30    | 1800 | 2700     | 286TC      | TEFC      | ZDVSCP4104T    | 8,760      | E2         | 30.84    | 481            | 94.1                 | 230/460 | 38.1           | 2, 46, 48 |
| 40    | 1800 | 2700     | 324T       | TEFC      | ZDVSCP4110T    | 10,047     | E2         | 33.84    | 762            | 93.9                 | 230/460 | 49.8           | 2, 46, 48 |
| 50    | 1800 | 2700     | 326T       | TEFC      | ZDVSCP4115T    | 11,872     | E2         | 33.84    | 746            | 94                   | 230/460 | 62.5           | 2, 46, 48 |

(a) See notes on inside back flap.

**CONTINUOUS CONSTANT TORQUE TO ZERO SPEED**

■ Cast Iron Frame

**V\*S Master Encoder Feedback Kits**

Encoder kits below feature 1024 pulses per revolution unless otherwise noted in the encoder type column. Connector styles include the MS twist lock (MS-TL), military style 10 pin screw tight (MS-ST), and the EPIC latch style (Latch). HS35, RAHS35M and HSD35 feature hollow shaft mounting. The HSD35 carry the Northstar brand. Encoder kits include the encoder and all mounting hardware. IDVSM & IDRPM kits include the mating connector.

| Catalog Number | Motor Enclosure | Type      | PPR  | Frame Size | Mfg.    | Mag or Optical | Conn Type | Input Voltage VDC | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. |
|----------------|-----------------|-----------|------|------------|---------|----------------|-----------|-------------------|------------|------------|------------------|
| K99G72         | TENV            | HS35      | 1024 | 180T-250T  | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 6                |
| K99G74         | TENV            | HS35-2048 | 2048 | 180T-250T  | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 6                |
| K99G76         | TENV            | HS35      | 1024 | 180T-250T  | BEI     | 0              | MS-ST     | 5-24              | 1,442      | E8         | 6                |
| K99G70         | TENV            | RAHS35M   | 1024 | 180T-250T  | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 9                |
| K99G78         | TENV            | HSD35     | 1024 | 180T-250T  | Dynapar | 0              | Latch     | 5-26              | 1,622      | E8         | 8                |
| K99G73         | TEFC            | HS35      | 1024 | 180T-440T  | BEI     | 0              | MS-ST     | 5-15              | 1,442      | E8         | 6                |
| K99G75         | TEFC            | HS35-2048 | 2048 | 180T-440T  | BEI     | 0              | MS-ST     | 5-24              | 1,442      | E8         | 6                |
| K99G77         | TEFC            | HS35      | 1024 | 180T-440T  | BEI     | 0              | MS-ST     | 5-24              | 1,442      | E8         | 6                |
| K99G71         | TEFC            | RAHS35M   | 1024 | 180T-440T  | Avtron  | M              | MS-ST     | 5-24              | 1,442      | E8         | 9                |
| K99G79         | TEFC            | HSD35     | 1024 | 180T-440T  | Dynapar | 0              | Latch     | 5-26              | 1,622      | E8         | 8                |
| K99G80         | TENV            | HS35      | 1024 | 180T-250T  | BEI     | 0              | MS-TL     | 5-28              | 1,442      | E8         | 6                |
| K99G81         | TEFC            | HS35      | 1024 | 180T-440T  | BEI     | 0              | MS-TL     | 5-28              | 1,442      | E8         | 6                |

**NOTE:** For 56 and 140 IDVSM frame sizes use the kits from the IDM product table.



**Inverter,  
Three Phase,  
TEBC and TENV,  
C-Face,  
Foot Mounted**

**1/3 thru 200 Hp**

**NEMA 56C thru 447T**

**Applications:** Conveyors, pumps, fans, metal processing, compressors, test stands, and material handling equipment.

**Features:** Designed for inverter or vector applications where up to a 1000:1 constant torque speed range is required. Compatible with optional encoder feedback devices for use in closed loop velocity or position control. Meets NEMA MG 1, Part 31. Encoder has mating connector.



| Hp    | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a)    |          |              |
|-------|------|----------|------------|-----------|----------------|------------|------------|----------|----------------|----------------------|---------|----------------|--------------|----------|--------------|
| 1/3   | 1800 | 6000     | 56C        | TENV      | IDNM3534       | 495        | E2         | 13.84    | 33             | 76                   | 230/460 | 0.6            | 2, 8, 60     |          |              |
| 1/2   | 1800 | 6000     | 56C        | TENV      | IDNM3538       | 579        | E2         | 13.84    | 31             | 80                   | 230/460 | 0.8            | 2, 8, 60     |          |              |
| 3/4   | 1800 | 6000     | 56C        | TENV      | IDNM3542       | 645        | E2         | 13.84    | 33             | 78.5                 | 230/460 | 1.4            | 2, 8, 60     |          |              |
| 1     | 1800 | 6000     | 143TC      | TENV      | IDNM3581T      | 1,315      | E2         | 14.65    | 58             | 85.5                 | 230/460 | 1.5            | 2, 8, 60     |          |              |
|       |      |          | 143TC      | TEBC      | IDM3581T       | 1,737      | E2         | 19.15    | 58             | 87.5                 | 230/460 | 1.5            | 2, 8, 70     |          |              |
|       |      |          | 143TC      | TEBC      | IDM3581T-5     | 1,737      | E2         | 19.02    | 56             | 85.5                 | 575     | 1.2            | 2, 8, 70     |          |              |
| 1     | 1200 | 2800     | 145TC      | TEBC      | IDM3582T       | 2,040      | E2         | 19.15    | 62             | 82.5                 | 230/460 | 1.8            | 2, 8, 70     |          |              |
|       |      |          | 145TC      | TENV      | IDNM3584T      | 1,451      | E2         | 14.65    | 58             | 84                   | 230/460 | 2.3            | 2, 8, 60     |          |              |
|       |      |          | 145TC      | TEBC      | IDM3584T       | 1,837      | E2         | 19.02    | 70             | 88.5                 | 230/460 | 2.1            | 2, 8, 70     |          |              |
| 1 1/2 | 1800 | 6000     | 145TC      | TEBC      | IDM3584T-5     | 1,837      | E2         | 19.02    | 63             | 88.5                 | 575     | 1.7            | 2, 8, 70     |          |              |
|       |      |          | 182TC      | TEBC      | IDM3667T       | 2,294      | E2         | 21.71    | 112            | 87.5                 | 230/460 | 2.5            | 2, 8, 70     |          |              |
|       |      |          | 145TC      | TEBC      | IDM3587T       | 1,964      | E2         | 19.15    | 65             | 88.5                 | 230/460 | 2.7            | 2, 8, 70     |          |              |
| 2     | 1800 | 6000     | 145TC      | TEBC      | IDM3587T-5     | 1,964      | E2         | 19.02    | 73             | 88.5                 | 575     | 2.3            | 2, 8, 70     |          |              |
|       |      |          | 184TC      | TEBC      | IDM3664T       | 2,356      | E2         | 21.71    | 113            | 88.5                 | 230/460 | 3.2            | 2, 8, 70     |          |              |
|       |      |          | 145TC      | TENV      | IDNM3587T      | 1,516      | E2         | 14.65    | 67             | 86.5                 | 230/460 | 2.8            | 2, 8, 60     |          |              |
| 2     | 1200 | 6000     | 182TC      | TENV      | IDNM3669T      | 1,759      | E2         | 17.21    | 94             | 84                   | 230/460 | 2.9            | 2, 8, 60     |          |              |
|       |      |          | 184TC      | TEBC      | IDM3661T       | 2,509      | E2         | 21.71    | 111            | 89.5                 | 230/460 | 4.1            | 2, 8, 70     |          |              |
|       |      |          | 184TC      | TEBC      | IDM3661T-5     | 2,509      | E2         | 21.71    | 100            | 89.5                 | 575     | 3.3            | 2, 8, 70     |          |              |
| 3     | 1800 | 6000     | 213TC      | TEBC      | IDM3764T       | 3,082      | E2         | 29.14    | 187            | 90.2                 | 230/460 | 4.5            | 2, 8, 70     |          |              |
|       |      |          | 184TC      | TENV      | IDNM3661T      | 1,986      | E2         | 17.21    | 108            | 88.5                 | 230/460 | 4              | 2, 8, 60     |          |              |
|       |      |          | 184TC      | TEBC      | IDM3665T       | 2,654      | E2         | 21.71    | 118            | 90.2                 | 230/460 | 6.5            | 2, 8, 70     |          |              |
| 5     | 1800 | 6000     | 184TC      | TEBC      | IDM3665T-5     | 2,654      | E2         | 21.71    | 100            | 90.2                 | 575     | 5.2            | 2, 8, 70     |          |              |
|       |      |          | 215TC      | TEBC      | IDM3768T       | 3,772      | E2         | 29.14    | 226            | 90.2                 | 230/460 | 7.3            | 2, 8, 70     |          |              |
|       |      |          | 184TC      | TENV      | IDNM3665T      | 2,215      | E2         | 17.21    | 118            | 89.5                 | 230/460 | 6.6            | 2, 8, 60     |          |              |
| 7 1/2 | 1800 | 6000     | 213TC      | TENV      | IDNM3767T      | 2,469      | E2         | 20.40    | 170            | 89.5                 | 230/460 | 6.7            | 2, 8, 60     |          |              |
|       |      |          | 1200       | 5000      | 254TC          | TEBC       | IDM2276T   | 5,423    | E2             | 33.07                | 310     | 91.7           | 230/460      | 10.7     | 2, 8, 70     |
|       |      |          | 1800       | 4000      | 213TC          | TEBC       | IDM3770T   | 3,200    | E2             | 29.14                | 170     | 91.7           | 230/460      | 9.5      | 2, 8, 70     |
| 10    | 1800 | 6000     | 213TC      | TEBC      | IDM3770T-5     | 3,200      | E2         | 30.07    | 170            | 91.7                 | 575     | 7.5            | 2, 8, 70     |          |              |
|       |      |          | 5000       | 254TC     | TENV           | IDNM2237T  | 3,071      | E2       | 24.05          | 270                  | 90.2    | 230/460        | 9.1          | 2, 8, 60 |              |
|       |      |          | 6000       | 213TC     | TENV           | IDNM3770T  | 2,563      | E2       | 20.40          | 196                  | 91.7    | 230/460        | 10.1         | 2, 8, 60 |              |
| 15    | 1800 | 5000     | 256TC      | TEBC      | IDM2332T       | 6,626      | E2         | 33.07    | 345            | 91.7                 | 230/460 | 14.2           | 2, 8, 70     |          |              |
|       |      |          | 6000       | 215TC     | TEBC           | IDM3774T   | 3,428      | E2       | 29.14          | 231                  | 92.4    | 230/460        | 12.5         | 2, 8, 70 |              |
|       |      |          | 4000       | 215TC     | TEBC           | IDM3774T-5 | 3,428      | E2       | 30.07          | 231                  | 92.4    | 575            | 10           | 2, 8, 70 |              |
| 20    | 1800 | 5000     | 5000       | 256TC     | TENV           | IDNM2238T  | 3,213      | E2       | 24.05          | 286                  | 91.7    | 230/460        | 13           | 2, 8, 60 |              |
|       |      |          | 256TC      | TEBC      | IDM2333T       | 3,726      | E2         | 33.07    | 255            | 92.4                 | 230/460 | 18.5           | 2, 8, 70     |          |              |
|       |      |          | 256TC      | TEBC      | IDM2333T-5     | 3,726      | E2         | 34.15    | 255            | 92.4                 | 575     | 14.8           | 2, 8, 70     |          |              |
| 20    | 1200 | 4000     | 284T       | TEBC      | IDM4100T       | 7,855      | E2         | 36.48    | 425            | 93                   | 230/460 | 19.7           | 2, 8, 45, 70 |          |              |
|       |      |          | 1800       | 5000      | 254TC          | TENV       | IDNM2333T  | 3,310    | E2             | 24.05                | 286     | 94.1           | 230/460      | 18.5     | 2, 8, 60     |
|       |      |          | 1800       | 5000      | 256TC          | TEBC       | IDM2334T   | 3,980    | E2             | 33.07                | 286     | 93             | 230/460      | 24       | 2, 8, 70     |
| 20    | 1800 | 4000     | 256TC      | TEBC      | IDM2334T-5     | 3,980      | E2         | 34.15    | 286            | 93                   | 575     | 19             | 2, 8, 70     |          |              |
|       |      |          | 286T       | TEBC      | IDM4102T       | 8,844      | E2         | 36.48    | 455            | 93                   | 230/460 | 26             | 2, 8, 45, 70 |          |              |
|       |      |          | 1800       | 4000      | 284T           | TENV       | IDNM2334T  | 4,573    | E2             | 27.36                | 437     | 94.5           | 230/460      | 25.5     | 2, 8, 45, 60 |

(a) See notes on inside back flap.

Constant velocity fan: 115 volts, single phase from 143TC through 184TC and all 575 volt drive motors.  
 Constant velocity fan: 230/460, three phase from 213 TC through 447T.  
 May be converted to C-Face in Mod Express or built as custom motors.  
 Consult District Office for availability of 2 pole motors and C-Face motors for 284T through 5009L frames.

**1000:1 CONSTANT TORQUE SPEED RANGE**

■ Cast Iron Frame

Inverter, Three Phase, TEBC and TENV, C-Face, Foot Mounted

| Hp | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a)    |
|----|------|----------|------------|-----------|----------------|------------|------------|----------|----------------|----------------------|---------|----------------|--------------|
| 25 | 1800 | 4000     | 286T       | TEBC      | IDM4103T       | 4,908      | E2         | 36.48    | 427            | 93.6                 | 230/460 | 30             | 2, 8, 45, 70 |
|    | 1200 | 3900     | 324T       | TEBC      | IDM4111T       | 10,079     | E2         | 39.24    | 605            | 93                   | 230/460 | 32             | 2, 8, 45, 70 |
| 30 | 1800 | 4000     | 286T       | TEBC      | IDM4104T       | 5,629      | E2         | 36.48    | 437            | 94.1                 | 230/460 | 36             | 2, 8, 45, 70 |
|    | 1200 | 3900     | 326T       | TEBC      | IDM4117T       | 11,217     | E2         | 39.24    | 650            | 93                   | 230/460 | 39             | 2, 8, 45, 70 |
| 40 | 1800 | 3900     | 324T       | TEBC      | IDM4110T       | 7,612      | E2         | 39.24    | 578            | 94.5                 | 230/460 | 47             | 2, 8, 45, 70 |
| 50 | 1800 | 3900     | 326T       | TEBC      | IDM4115T       | 8,543      | E2         | 39.24    | 608            | 94.5                 | 230/460 | 57             | 2, 8, 45, 70 |
| 75 | 1200 | 2800     | 405T       | TEBC      | IDM4404T       | 20,302     | E2         | 46.68    | 1196           | 95                   | 230/460 | 88             | 2, 8, 45, 70 |

(a) See notes on inside back flap.

Constant velocity fan: 115 volts, single phase from 143TC through 184TC and all 575 volt drive motors.

Constant velocity fan: 230/460, three phase from 213 TC through 447T.

May be converted to C-Face in Mod Express or built as custom motors.

Consult District Office for availability of 2 pole motors and C-Face motors for 284T through 5009L frames.

1000:1 CONSTANT TORQUE SPEED RANGE

■ Cast Iron Frame

Inverter Motor,  
Paint Free,  
Three Phase,  
Totally Enclosed,  
C-Face



1/2 thru 10 Hp

NEMA 56C thru 215TC

**Applications:** Conveyors, pumps and other equipment in food processing and severe environments where motors receive washdown on a regular basis.

**Features:** Includes all the advantages of our standard "Paint Free" washdown duty motors. Specifically designed and built for use on adjustable speed drives. For adjustable speed applications not requiring full torque at zero speed. Not encoder adaptable. 1.00 Service Factor. Class "H" insulated.

| Hp                          | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage     | Full Load Amps | Notes (a) |
|-----------------------------|------|----------|------------|-----------|----------------|------------|------------|----------|----------------|----------------------|-------------|----------------|-----------|
| <b>C-Face, Foot Mounted</b> |      |          |            |           |                |            |            |          |                |                      |             |                |           |
| 1/2                         | 1800 | 6000     | 56C        | TENV      | IDCSWDM3538    | 1,551      | E2         | 11.06    | 35             | 82.5                 | 208-230/460 | 0.8            | 48, 60    |
| 3/4                         | 1800 | 6000     | 56C        | TENV      | IDCSWDM3542    | 1,756      | E2         | 11.06    | 35             | 82.5                 | 208-230/460 | 1.1            | 48, 60    |
| 1                           | 1800 | 3600     | 56C        | TENV      | IDCSWDM3546    | 1,823      | E2         | 12.06    | 40             | 85.5                 | 208-230/460 | 1.5            | 48, 60    |
|                             |      |          | 143TC      | TENV      | IDCSWDM3546T   | 1,823      | E2         | 12.12    | 39             | 85.5                 | 230/460     | 1.5            | 48, 60    |
| 1 1/2                       | 1800 | 4000     | 56C        | TEFC      | IDCSWDM3554    | 1,950      | E2         | 14.12    | 52             | 88.5                 | 230/460     | 2.1            | 48        |
|                             |      |          | 145TC      | TEFC      | IDCSWDM3554T   | 1,950      | E2         | 14.17    | 50             | 88.5                 | 230/460     | 2.1            | 48        |
| 2                           | 1800 | 3600     | 56C        | TEFC      | IDCSWDM3558    | 2,083      | E2         | 13.24    | 45             | 86.5                 | 230/460     | 2.9            | 48        |
|                             |      | 4500     | 145TC      | TEFC      | IDCSWDM3558T   | 2,083      | E2         | 13.29    | 45             | 86.5                 | 230/460     | 2.9            | 48        |
| 3                           | 1800 | 6000     | 182TC      | TEFC      | IDCSWDM3611T   | 2,284      | E2         | 16.56    | 72             | 89.5                 | 230/460     | 4              | 48        |
| 5                           | 1800 | 6000     | 184TC      | TEFC      | IDCSWDM3615T   | 2,658      | E2         | 18.06    | 101            | 90.2                 | 230/460     | 6.4            | 48        |
| 7 1/2                       | 1800 | 6000     | 213TC      | TEFC      | IDCSWDM3710T   | 4,024      | E2         | 19.81    | 135            | 91.7                 | 230/460     | 9.5            | 48        |
| 10                          | 1800 | 6000     | 215TC      | TEFC      | IDCSWDM3714T   | 4,601      | E2         | 21.31    | 187            | 92.4                 | 230/460     | 12.5           | 48        |
| <b>C-Face, Footless</b>     |      |          |            |           |                |            |            |          |                |                      |             |                |           |
| 1/2                         | 1800 | 6000     | 56C        | TENV      | IDVSWDM3538    | 1,538      | E2         | 11.06    | 35             | 84                   | 230/460     | 0.9            | 48, 60    |
| 3/4                         | 1800 | 6000     | 56C        | TENV      | IDVSWDM3542    | 1,748      | E2         | 11.06    | 38             | 82.5                 | 230/460     | 1.1            | 48, 60    |
| 1                           | 1800 | 3600     | 56C        | TENV      | IDVSWDM3546    | 1,814      | E2         | 12.06    | 39             | 85.5                 | 208-230/460 | 1.5            | 48, 60    |
|                             |      | 6000     | 143TC      | TENV      | IDVSWDM3546T   | 1,814      | E2         | 12.12    | 39             | 85.5                 | 208-230/460 | 1.5            | 48, 60    |
| 1 1/2                       | 1800 | 4000     | 56C        | TEFC      | IDVSWDM3554    | 1,940      | E2         | 14.12    | 52             | 88.5                 | 230/460     | 2.1            | 48        |
|                             |      |          | 145TC      | TEFC      | IDVSWDM3554T   | 1,940      | E2         | 14.17    | 50             | 88.5                 | 230/460     | 2.1            | 48        |
| 2                           | 1800 | 3600     | 56C        | TEFC      | IDVSWDM3558    | 2,066      | E2         | 13.24    | 45             | 86.5                 | 230/460     | 2.9            | 48        |
|                             |      | 4500     | 145TC      | TEFC      | IDVSWDM3558T   | 2,066      | E2         | 13.29    | 45             | 86.5                 | 230/460     | 2.9            | 48        |
| 3                           | 1800 | 6000     | 182TC      | TEFC      | IDVSWDM3611T   | 2,172      | E2         | 16.56    | 72             | 89.5                 | 230/460     | 4              | 48        |
| 5                           | 1800 | 6000     | 184TC      | TEFC      | IDVSWDM3615T   | 2,532      | E2         | 18.06    | 101            | 90.2                 | 230/460     | 6.4            | 48        |

(a) See notes on inside back flap.

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**Inverter,  
Explosion Proof,  
Three Phase, TEFC,  
Class I, Group D**

1/2 thru 75 Hp

NEMA 56C thru 405T

**Applications:** Designed for use in hazardous locations with Inverters.



**Features:** UL and CSA approved for hazardous locations. 1/3 through 2 Hp Division, Class I, Group D, Class II, Groups F & G, Temperature Code T3C (160°C). 3 Hp and larger, Division 1, Class I, Group D only, Temperature Code T2B (280°C). Class F insulation, ISR (Inverter Spike Resistant) magnet wire, 1.0 service factor, thermostats. All ratings constant horsepower 60 to 90 Hz. Not encoder adaptable. Meets NEMA MG 1, Part 31.

| Hp   | RPM  | Max. RPM | NEMA Frame | Catalog Number | XP Cls/Grp | Temp Code | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage     | Full Load Amps | Notes (a) |
|--|------|----------|------------|----------------|------------|-----------|------------|------------|----------|----------------|----------------------|-------------|----------------|-----------|
| <b>2:1 Constant Torque, 10:1 Variable Torque Ratings</b> |      |          |            |                |            |           |            |            |          |                |                      |             |                |           |
| 3  | 1800 | 2700     | 182TC      | IDXM7142T      | ①          | T2B       | 1,715      | E2         | 18.24    | 127            | 89.5                 | 230/460     | 4.1            | 2, 20     |
| 5  | 1800 | 2700     | 184TC      | IDXM7144T      | ①          | T2B       | 2,040      | E2         | 18.24    | 161            | 89.5                 | 230/460     | 6.5            | 2, 20     |
| 7 1/2  | 1800 | 2700     | 213TC      | IDXM7147T      | ①          | T2B       | 2,565      | E2         | 20.69    | 227            | 91.7                 | 230/460     | 9.5            | 2, 20     |
| 10   | 1800 | 2700     | 215TC      | IDXM7170T      | ①          | T2B       | 3,516      | E2         | 20.69    | 231            | 92.4                 | 208-230/460 | 12.5           | 2, 20     |
| 15   | 1800 | 2700     | 254TC      | IDXM7054T      | ①          | T2B       | 4,026      | E2         | 26.00    | 356            | 92.4                 | 230/460     | 18             | 2, 20     |
| 20   | 1800 | 3600     | 256TC      | IDXM7056T      | ①          | T2B       | 5,224      | E2         | 26.00    | 393            | 93                   | 230/460     | 24             | 2, 20     |
| 25   | 1800 | 2700     | 284T       | IDXM7058T      | ①          | T2B       | 6,190      | E2         | 28.61    | 494            | 93.6                 | 230/460     | 30.5           | 2, 20     |
| 30   | 1800 | 2700     | 286T       | IDXM7060T      | ①          | T2B       | 7,550      | E2         | 28.61    | 518            | 94.1                 | 230/460     | 36             | 2, 20     |
| 40   | 1800 | 2700     | 324T       | IDXM7062T      | ①          | T2B       | 10,113     | E2         | 32.12    | 608            | 94.5                 | 230/460     | 46             | 2, 20     |
| 50   | 1800 | 2700     | 326T       | IDXM7064T      | ①          | T2B       | 11,765     | E2         | 32.00    | 764            | 94.5                 | 230/460     | 57             | 2, 20     |
| 60   | 1800 | 2700     | 364T       | IDXM7066T      | ①          | T2B       | 13,433     | E2         | 33.44    | 910            | 95                   | 230/460     | 68             | 2, 20     |
| 75   | 1800 | 2700     | 405T       | IDXM7068T      | ①          | T2B       | 14,892     | E2         | 38.31    | 1407           | 95                   | 230/460     | 83             | 2, 20, 45 |
| <b>10:1 Constant Torque and Variable Torque Ratings</b>  |      |          |            |                |            |           |            |            |          |                |                      |             |                |           |
| 1/3  | 1800 | 2700     | 56C        | IDXM7002       | ②          | T3C       | 1,190      | E2         | 14.30    | 45             | 80                   | 230/460     | 0.6            | 2, 20     |
| 1/2  | 1800 | 2700     | 56C        | IDXM7006       | ②          | T3C       | 1,223      | E2         | 14.30    | 37             | 82.5                 | 230/460     | 0.8            | 2, 20     |
| 3/4  | 1800 | 2700     | 56C        | IDXM7010       | ②          | T3C       | 1,250      | E2         | 14.30    | 46             | 84                   | 230/460     | 1.1            | 2, 20     |
| 1  | 1800 | 2700     | 143TC      | IDXM7014T      | ②          | T3C       | 1,392      | E2         | 15.23    | 52             | 87.5                 | 230/460     | 1.5            | 2, 20     |
| 1 1/2  | 1800 | 2700     | 145TC      | IDXM7034T      | ②          | T3C       | 1,442      | E2         | 16.10    | 60             | 88.5                 | 230/460     | 2.1            | 2, 20     |
| 2  | 1800 | 2700     | 145TC      | IDXM7037T      | ②          | T3C       | 1,577      | E2         | 16.10    | 63             | 88.5                 | 230/460     | 2.8            | 2, 20     |
| 3  | 1800 | 2700     | 182TC      | IDXM7542T      | ①          | T2B       | 1,799      | E2         | 18.24    | 137            | 89.5                 | 230/460     | 4.1            | 2, 20     |
| 5  | 1800 | 2700     | 213TC      | IDXM7544T      | ①          | T2B       | 2,621      | E2         | 20.65    | 212            | 90.2                 | 230/460     | 6.3            | 2, 20     |
| 7 1/2  | 1800 | 2700     | 215TC      | IDXM7547T      | ①          | T2B       | 3,685      | E2         | 20.65    | 226            | 91.7                 | 230/460     | 9.5            | 2, 20     |
| 10   | 1800 | 2700     | 254TC      | IDXM7570T      | ①          | T2B       | 4,124      | E2         | 26.00    | 382            | 91.7                 | 230/460     | 13             | 2, 20     |
| 15   | 1800 | 2700     | 256TC      | IDXM7554T      | ①          | T2B       | 5,348      | E2         | 26.00    | 381            | 92.4                 | 230/460     | 17             | 2, 20     |
| 20   | 1800 | 2700     | 284T       | IDXM7556T      | ①          | T2B       | 6,485      | E2         | 28.61    | 550            | 93                   | 230/460     | 23             | 2, 20     |
| 25   | 1800 | 2700     | 324T       | IDXM7558T      | ①          | T2B       | 7,808      | E2         | 32.00    | 704            | 93.6                 | 230/460     | 30             | 2, 20     |
| 30   | 1800 | 3900     | 326T       | IDXM7560T      | ①          | T2B       | 9,088      | E2         | 32.12    | 713            | 94.5                 | 230/460     | 35             | 2, 20     |
| 40   | 1800 | 2700     | 364T       | IDXM7562T      | ①          | T2B       | 10,165     | E2         | 33.44    | 910            | 95                   | 230/460     | 48.2           | 2, 20     |
| 50   | 1800 | 2700     | 365T       | IDXM7564T      | ①          | T2B       | 12,680     | E2         | 33.44    | 910            | 93.6                 | 230/460     | 61.6           | 2, 20     |
| 60   | 1800 | 2700     | 405T       | IDXM7566T      | ①          | T2B       | 15,021     | E2         | 38.31    | 1418           | 93.6                 | 230/460     | 67.6           | 2, 20     |

(a) See notes on inside back flap.

① = Class I, Group D; ② = Class I, Group D, Class II, Group F&G

■ Cast Iron Frame

**CAUTION:** Explosion-proof motors have a tight fit between mating parts to ensure the integrity of the explosion-proof enclosure. This can lead to an accumulation of moisture inside the motors due to condensation. Care should be used when selecting an explosion-proof motor, especially when installed outdoors and on intermittent duty.

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**Vector,  
Three Phase,  
TEBC and TENV,  
C-Face**

**1 thru 150 Hp**

**NEMA 56 thru 445T**

**Applications:** Test stands, material handling, packaging equipment, printing presses, etc.



**Features:** Applications requiring adjustable speed operation with full torque from zero to base speed and constant horsepower to maximum speed. Includes HS25 or HS35 encoder feedback with MS connector. Meets NEMA MG 1, Part 31.

| Hp    | RPM  | Max. RPM | NEMA Frame | Enclosure | Catalog Number | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a)        |
|-------|------|----------|------------|-----------|----------------|------------|------------|----------|----------------|----------------------|---------|----------------|------------------|
| 1     | 1800 | 6000     | 143TC      | TEBC      | ZDM3581T       | 3,291      | E2         | 19.15    | 58             | 87.5                 | 230/460 | 1.5            | 2, 8, 46, 60, 70 |
|       |      |          | 143TC      | TEBC      | ZDM3581T-5     | 3,291      | E2         | 19.02    | 56             | 85.5                 | 575     | 1.2            | 2, 8, 46, 70     |
|       | 1200 | 2800     | 143TC      | TEBC      | ZDM3582T       | 3,594      | E2         | 19.15    | 62             | 82.5                 | 230/460 | 1.8            | 2, 8, 46, 70     |
|       | 1800 | 6000     | 143TC      | TENV      | ZDNM3581T      | 2,872      | E2         | 14.65    | 58             | 85.5                 | 230/460 | 1.5            | 2, 8, 46         |
| 1 1/2 | 1800 | 6000     | 145TC      | TEBC      | ZDM3584T       | 3,392      | E2         | 19.02    | 63             | 88.5                 | 230/460 | 2.1            | 2, 8, 46, 60, 70 |
|       |      |          | 145TC      | TEBC      | ZDM3584T-5     | 3,392      | E2         | 19.15    | 62             | 87.5                 | 575     | 1.7            | 2, 8, 46         |
|       | 1200 | 182TC    | TEBC       | ZDM3667T  | 3,849          | E2         | 21.71      | 99       | 87.5           | 230/460              | 2.5     | 2, 8, 46, 70   |                  |
|       | 1800 | 145TC    | TENV       | ZDNM3584T | 3,006          | E2         | 14.65      | 58       | 84             | 230/460              | 2.3     | 2, 8, 46       |                  |
| 2     | 1800 | 6000     | 145TC      | TEBC      | ZDM3587T       | 3,517      | E2         | 19.02    | 64             | 88.5                 | 230/460 | 2.8            | 2, 8, 46, 70     |
|       |      |          | 145TC      | TEBC      | ZDM3587T-5     | 3,517      | E2         | 19.15    | 74             | 86.5                 | 575     | 2              | 2, 8, 46, 70     |
|       | 1200 | 184TC    | TEBC       | ZDM3664T  | 3,913          | E2         | 21.71      | 113      | 88.5           | 230/460              | 3.2     | 2, 8, 46, 70   |                  |
|       | 1800 | 182TC    | TENV       | ZDNM3669T | 3,315          | E2         | 17.21      | 95       | 84             | 230/460              | 2.9     | 2, 8, 46, 60   |                  |
| 3     | 1800 | 6000     | 182TC      | TEBC      | ZDM3661T       | 4,065      | E2         | 21.71    | 100            | 89.5                 | 230/460 | 4.1            | 2, 8, 46, 70     |
|       |      |          | 182TC      | TEBC      | ZDM3661T-5     | 4,065      | E2         | 21.71    | 100            | 89.5                 | 575     | 3.2            | 2, 8, 46, 70     |
|       | 1200 | 213TC    | TEBC       | ZDM3764T  | 4,636          | E2         | 29.14      | 187      | 90.2           | 230/460              | 4.5     | 2, 8, 46, 70   |                  |
|       | 1800 | 184TC    | TENV       | ZDNM3661T | 3,543          | E2         | 17.21      | 108      | 88.5           | 230/460              | 4       | 2, 8, 46, 60   |                  |
| 5     | 1800 | 6000     | 184TC      | TEBC      | ZDM3665T       | 4,209      | E2         | 21.71    | 118            | 90.2                 | 230/460 | 6.5            | 2, 8, 46, 70     |
|       |      |          | 184TC      | TEBC      | ZDM3665T-5     | 4,209      | E2         | 21.71    | 118            | 90.2                 | 575     | 5.2            | 2, 8, 46, 70     |
|       | 1200 | 215TC    | TEBC       | ZDM3768T  | 5,328          | E2         | 29.14      | 226      | 90.2           | 230/460              | 7.3     | 2, 8, 46, 70   |                  |
|       | 1800 | 213TC    | TENV       | ZDNM3767T | 4,024          | E2         | 20.40      | 173      | 91             | 230/460              | 6.7     | 2, 8, 46, 60   |                  |
| 7 1/2 | 1200 | 5000     | 254TC      | TEBC      | ZDM2276T       | 6,979      | E2         | 33.07    | 310            | 91.7                 | 230/460 | 10.7           | 2, 8, 46, 70     |
|       |      |          | 213TC      | TEBC      | ZDM3770T       | 4,754      | E2         | 29.14    | 170            | 91.7                 | 230/460 | 9.5            | 2, 8, 46, 70     |
|       | 1800 | 4000     | 213TC      | TEBC      | ZDM3770T-5     | 4,754      | E2         | 30.07    | 170            | 91.7                 | 575     | 7.5            | 2, 8, 46, 70     |
|       |      |          | 256TC      | TENV      | ZDNM2237T      | 4,627      | E2         | 24.05    | 270            | 90.2                 | 230/460 | 9.1            | 2, 8, 46, 60     |
| 10    | 1200 | 5000     | 256TC      | TEBC      | ZDM2332T       | 8,180      | E2         | 33.07    | 345            | 91.7                 | 230/460 | 14.2           | 2, 8, 46, 70     |
|       |      |          | 215TC      | TEBC      | ZDM3774T       | 4,982      | E2         | 29.14    | 231            | 92.4                 | 230/460 | 12.5           | 2, 8, 46, 70     |
|       | 1800 | 4000     | 215TC      | TEBC      | ZDM3774T-5     | 4,982      | E2         | 30.07    | 231            | 92.4                 | 575     | 10             | 2, 8, 46, 70     |
|       |      |          | 256TC      | TENV      | ZDNM2238T      | 4,770      | E2         | 24.05    | 286            | 91.7                 | 230/460 | 13             | 2, 8, 46, 60     |
| 15    | 1800 | 5000     | 256TC      | TEBC      | ZDM2333T       | 5,282      | E2         | 33.07    | 301            | 92.4                 | 230/460 | 18.5           | 2, 8, 46, 70     |
|       |      |          | 256TC      | TEBC      | ZDM2333T-5     | 5,282      | E2         | 34.15    | 255            | 92.4                 | 575     | 14.8           | 2, 8, 46, 70     |
|       | 1200 | 4000     | 284T       | TEBC      | ZDM4100T       | 9,409      | E2         | 36.48    | 425            | 93                   | 230/460 | 19.7           | 2, 8, 45, 46, 70 |
|       | 1800 | 5000     | 254TC      | TENV      | ZDNM2333T      | 4,866      | E2         | 24.05    | 286            | 94.1                 | 230/460 | 18.5           | 2, 8, 46, 60     |
| 20    | 1800 | 5000     | 256TC      | TEBC      | ZDM2334T       | 5,537      | E2         | 33.07    | 286            | 93                   | 230/460 | 24             | 2, 8, 46, 70     |
|       |      |          | 256TC      | TEBC      | ZDM2334T-5     | 5,537      | E2         | 34.15    | 286            | 93                   | 575     | 19             | 2, 8, 46, 70     |
|       | 1200 | 4000     | 286T       | TEBC      | ZDM4102T       | 10,401     | E2         | 36.48    | 455            | 93                   | 230/460 | 26             | 2, 8, 45, 46, 70 |
|       |      |          | 284T       | TENV      | ZDNM2334T      | 6,129      | E2         | 27.36    | 437            | 94.5                 | 230/460 | 25.5           | 2, 8, 45, 46, 60 |
| 25    | 1800 | 4000     | 284T       | TEBC      | ZDM4103T       | 6,461      | E2         | 36.48    | 415            | 93.6                 | 230/460 | 30             | 2, 8, 45, 46, 70 |
|       | 1200 | 3900     | 324T       | TEBC      | ZDM4111T       | 11,636     | E2         | 39.24    | 605            | 93                   | 230/460 | 32             | 2, 8, 45, 46, 70 |
| 30    | 1800 | 4000     | 286T       | TEBC      | ZDM4104T       | 7,186      | E2         | 36.48    | 437            | 94.1                 | 230/460 | 36             | 2, 8, 45, 46, 70 |
|       | 1200 | 3900     | 326T       | TEBC      | ZDM4117T       | 12,773     | E2         | 39.24    | 650            | 93                   | 230/460 | 39             | 2, 8, 45, 46, 70 |
| 40    | 1800 | 3900     | 324T       | TEBC      | ZDM4110T       | 9,166      | E2         | 39.24    | 610            | 94.5                 | 230/460 | 47             | 2, 8, 45, 46, 70 |
| 50    | 1800 | 3900     | 326T       | TEBC      | ZDM4115T       | 10,099     | E2         | 39.24    | 608            | 94.5                 | 230/460 | 57             | 2, 8, 45, 46, 70 |

(a) See notes on inside back flap.

Consult District Office for availability of 2 pole motors and C-Face motors for 284T through 5009L frames.

**FULL TORQUE AT ZERO SPEED, 1000:1 CONSTANT TORQUE SPEED RANGE.**

■ Cast Iron Frame

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**BALDOR • RELIANCE**

**Inverter Motor,  
Three Phase,  
TENV, C-Face,  
Foot Mounted**

**1 thru 10 Hp**

**NEMA 143TC thru 254TC**

**Applications:** Conveyors, pumps and other equipment in food processing and other wet environments.



**Features:** Designed for inverter or vector applications where up to a 1000:1 constant torque speed range is required. Provisions for mounting optional HS25 encoder feedback devices shown on page 196 for use in closed loop velocity or position control. Meets NEMA MG 1, Part 31. 1.00 Service Factor. Class “H” insulated.

| Hp    | RPM  | Max. RPM | NEMA Frame | Catalog Number | List Price | Mult. Sym. | “C” Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a) |
|-------|------|----------|------------|----------------|------------|------------|----------|----------------|----------------------|---------|----------------|-----------|
| 1     | 1800 | 6000     | 143TC      | IDWNM3546T     | 1,551      | E2         | 14.90    | 39             | 85.5                 | 230/460 | 1.5            | 48        |
| 1 1/2 | 1800 | 4500     | 145TC      | IDWNM3554T     | 1,708      | E2         | 15.78    | 50             | 86.5                 | 230/460 | 2.1            | 48        |
| 2     | 1800 | 6000     | 182TC      | IDWNM3609T     | 1,882      | E2         | 17.77    | 72             | 84                   | 230/460 | 2.9            | 48        |
| 3     | 1800 | 6000     | 184TC      | IDWNM3611T     | 2,050      | E2         | 17.77    | 81             | 88.5                 | 230/460 | 4              | 48        |
| 5     | 1800 | 4000     | 213TC      | IDWNM3707T     | 2,320      | E2         | 19.84    | 120            | 89.5                 | 230/460 | 6.7            | 48        |
| 7 1/2 | 1800 | 5000     | 254TC      | IDWNM22937T    | 3,593      | E2         | 23.92    | 242            | 91                   | 230/460 | 9.1            | 48        |
| 10    | 1800 | 5000     | 254TC      | IDWNM22938T    | 4,208      | E2         | 23.92    | 288            | 91.7                 | 230/460 | 12             | 48        |

(a) See notes on inside back flap.

**1000:1 CONSTANT TORQUE SPEED RANGE.**

**Vector Motor,  
Three Phase,  
TENV, C-Face,  
Foot Mounted**

**1 thru 10 Hp**

**NEMA 143TC thru 254TC**

**Applications:** Material handling, packaging equipment in food processing and other wet environments.



**Features:** Designed for inverter or vector applications where up to a 1000:1 constant torque speed range is required. Motors include 1024 PPR HS25 encoder feedback with MS connector. Meets NEMA MG 1, Part 31. 1.00 Service Factor. Class “H” insulated.

| Hp    | RPM  | Max. RPM | NEMA Frame | Catalog Number | List Price | Mult. Sym. | “C” Dim. | Aprx. Wt. (lb) | Full Load Efficiency | Voltage | Full Load Amps | Notes (a) |
|-------|------|----------|------------|----------------|------------|------------|----------|----------------|----------------------|---------|----------------|-----------|
| 1     | 1800 | 6000     | 143TC      | ZDWNM3546T     | 3,107      | E2         | 14.90    | 39             | 85.5                 | 230/460 | 1.5            | 48        |
| 1 1/2 | 1800 | 4500     | 145TC      | ZDWNM3554T     | 3,264      | E2         | 15.78    | 56             | 86.5                 | 230/460 | 2.1            | 48        |
| 2     | 1800 | 6000     | 182TC      | ZDWNM3609T     | 3,438      | E2         | 17.77    | 72             | 84                   | 230/460 | 2.9            | 48        |
| 3     | 1800 | 6000     | 184TC      | ZDWNM3611T     | 3,609      | E2         | 17.77    | 81             | 88.5                 | 230/460 | 4              | 48        |
| 5     | 1800 | 6000     | 213TC      | ZDWNM3707T     | 3,878      | E2         | 19.84    | 124            | 89.5                 | 230/460 | 6.7            | 48        |
| 7 1/2 | 1800 | 5000     | 254TC      | ZDWNM22937T    | 5,152      | E2         | 23.92    | 247            | 91                   | 230/460 | 9.1            | 48        |
| 10    | 1800 | 5000     | 254TC      | ZDWNM22938T    | 5,767      | E2         | 23.92    | 282            | 91.7                 | 230/460 | 12             | 48        |

(a) See notes on inside back flap.

**1000:1 CONSTANT TORQUE SPEED RANGE.**

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

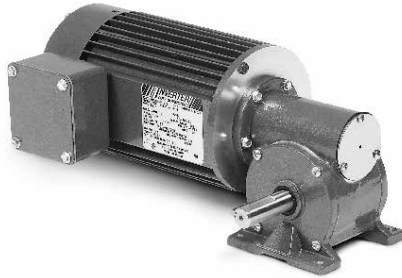
Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes



## Inverter Gear Motor - 3/8 Hp Right Angle and Parallel Shaft -TEFC



**Applications:** Ideally suited for conveyors, material handling, packaging equipment applications requiring adjustable speed and no maintenance. Available in a broad range of gear ratios to meet your demanding application needs.

**Features:** Superior insulation system designed to comply with NEMA MG-1 part 31 for inverter power. IP44 environmental protection. Designed for use on Baldor Series 15J, 15P and Series 5 Inverters operating on 230 volts output. Both Parallel shaft and Right Angle gearmotors are lubricated for life and require no routine maintenance. Right Angle gearmotors feature our internal oil expansion bladder which eliminates the need for a breather while allowing the gearmotor to be mounted in any position (see note below).

| Input Motor Hp        | Output RPM 60 Hz. | Gear Ratio | Speed Range | Maximum Safe Torque In-Lbs @ 60 Hz | Catalog Number   | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. | Motor Type & Gear Style | Volt Code |
|-----------------------|-------------------|------------|-------------|------------------------------------|------------------|------------|------------|------------------|-------------------------|-----------|
| <b>Right Angle</b>    |                   |            |             |                                    |                  |            |            |                  |                         |           |
| 3/8                   | 22                | 75         | 3.4-33      | 315                                | <b>IDGM2509</b>  | 766        | E2         | 17               | 2528M-K                 | C         |
|                       | 28                | 60         | 4.5-41      | 252                                | <b>IDGM2508</b>  | 766        | E2         | 17               | 2528M-K                 | C         |
|                       | 41                | 40         | 6.6-62      | 228                                | <b>IDGM2506</b>  | 766        | E2         | 18               | 2528M-K                 | C         |
|                       | 83                | 20         | 12-123      | 138                                | <b>IDGM2503</b>  | 766        | E2         | 17               | 2528M-K                 | C         |
|                       | 165               | 10         | 23-246      | 105                                | <b>IDGM2501</b>  | 766        | E2         | 17               | 2528M-K                 | C         |
|                       | 330               | 5          | 43-490      | 68                                 | <b>IDGM2500</b>  | 766        | E2         | 17               | 2528M-K                 | C         |
| <b>Parallel Shaft</b> |                   |            |             |                                    |                  |            |            |                  |                         |           |
| 3/8                   | 55                | 30         | 8.0-82      | 350                                | <b>IDGMP2505</b> | 742        | E2         | 20               | 2528M-PS                | C         |
|                       | 83                | 20         | 12-123      | 233                                | <b>IDGMP2503</b> | 699        | E2         | 20               | 2528M-PS                | C         |
|                       | 165               | 10         | 23-246      | 116                                | <b>IDGMP2501</b> | 699        | E2         | 18               | 2528M-PS                | C         |
|                       | 330               | 5          | 43-490      | 58                                 | <b>IDGMP2500</b> | 699        | E2         | 18               | 2528M-PS                | C         |

**NOTE:** Avoiding those positions where the high speed oil seal is immersed in oil, will provide greater security against seal wear. Vertical motor below gearbox mounting is possible with modification, contact Baldor for details. Voltage: @ 60 Hz: C = 230 volts

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes



**Feedback Cable Assembly with MS Connector**



For the convenience of our customers, we offer a connector plug/cable assembly for Vector and DC motors. This assembly provides the connection from the encoder to the control. The twisted pair shielded cable provides additional noise protection. The assembly decreases installation time and effort. Recommended for Vector Drive and DC applications. For ZDM, ZDNM, ZDWNM, ZDNRPM, ZDBRPM and ZDVS motors. Uses Baldor style MS twist lock connector.

| Catalog Number    | Cable Extension Length | List Price | Mult. Sym. | Ap'x Shpg. Wgt. |
|-------------------|------------------------|------------|------------|-----------------|
| <b>CBL015ZD-2</b> | 5 Ft = 1.5 Meters      | 198        | E8         | 1               |
| <b>CBL030ZD-2</b> | 10 Ft = 3 Meters       | 230        | E8         | 1               |
| <b>CBL046ZD-2</b> | 15 Ft = 4.6 Meters     | 263        | E8         | 2               |
| <b>CBL061ZD-2</b> | 20 Ft = 6.1 Meters     | 291        | E8         | 2               |
| <b>CBL091ZD-2</b> | 30 Ft = 9.1 Meters     | 355        | E8         | 3               |
| <b>CBL152ZD-2</b> | 50 Ft = 15.2 Meters    | 477        | E8         | 6               |
| <b>CBL229ZD-2</b> | 75 Ft = 22.9 Meters    | 632        | E8         | 8               |
| <b>CBL305ZD-2</b> | 100 Ft = 30.5 Meters   | 787        | E8         | 8               |
| <b>CBL379ZD-2</b> | 125 Ft = 37.9 Meters   | 943        | E8         | 14              |
| <b>CBL455ZD-2</b> | 150 Ft = 45.5 Meters   | 1,023      | E8         | 2               |
| <b>CBL606ZD-2</b> | 200 Ft = 60.6 Meters   | 1,407      | E8         | 16              |

**Encoder Feedback Kits for IDM, IDNM and IDWNM Motors**

**For use with Legacy Baldor Motor Designs**



Encoder kits below feature 1024 pulses per revolution unless otherwise noted in the encoder type column. Connector style MS twist lock (MS-TL). HS35, HS35M and HSD35 feature hollow shaft mounting. The HSD35 carry the Northstar brand. The H20 is a couple mount encoder. The RL67 and SL85 are bearingless encoders and both carry the Northstar brand. Encoder kits include the encoder and all mounting hardware.

| Catalog Number    | Type Enclosure | Description  | Magnetic or Optical | Connector Type | Input Voltage | Output Voltage Limited | NEMA Frame | List Price | Ap'x. Mult. Sym. | Shpg. Wgt. |
|-------------------|----------------|--------------|---------------------|----------------|---------------|------------------------|------------|------------|------------------|------------|
| <b>ENC00NV-A2</b> | TENV           | HS35M Avtron | Magnetic            | TL             | 5-24 VDC      | 24                     | 213T-215T  | 1,442      | E8               | 1          |
| <b>ENC00NV-B1</b> | TENV           | HS25 BEI     | Optical             | TL             | 5-15 VDC      | 15                     | 56-215T    | 1,442      | E8               | 2          |
| <b>ENC00NV-D1</b> | TENV           | HS35 Dynapar | Optical             | TL             | 5-24 VDC      | 5                      | 56-215T    | 1,622      | E8               | 4          |
| <b>ENC01BC-B1</b> | TEBC           | HS25 BEI     | Optical             | TL             | 5-15 VDC      | 15                     | 143T-215T  | 1,442      | E8               | 3          |
| <b>ENC01BC-D1</b> | TEBC           | HS35 Dynapar | Optical             | TL             | 5-24 VDC      | 5                      | 56-215T    | 1,622      | E8               | 4          |
| <b>ENC01NV-A2</b> | TENV           | HS35M Avtron | Magnetic            | TL             | 5-24 VDC      | 24                     | 254T-256T  | 1,442      | E8               | 1          |
| <b>ENC01NV-B2</b> | TENV           | HS35 BEI     | Optical             | TL             | 5-15 VDC      | 15                     | 254T-284T  | 1,442      | E8               | 2          |
| <b>ENC01NV-D1</b> | TENV           | HS35 Dynapar | Optical             | TL             | 5-24 VDC      | 5                      | 254T-256T  | 1,622      | E8               | 4          |
| <b>ENC02BC-A2</b> | TEBC           | HS35M Avtron | Magnetic            | TL             | 5-24 VDC      | 24                     | 254T-447T  | 1,442      | E8               | 1          |
| <b>ENC02BC-B2</b> | TEBC           | HS35 BEI     | Optical             | TL             | 5-15 VDC      | 15                     | 254T-447T  | 1,442      | E8               | 2          |
| <b>ENC02BC-D1</b> | TEBC           | HS35 Dynapar | Optical             | TL             | 5-24 VDC      | 5                      | 254T-447T  | 1,622      | E8               | 4          |

**NOTE:** For 56 and 140 IDVSM frame sizes use the kits from the table above.

**Constant Velocity Blower Cooling Conversion Kits**

**NEMA 143TC thru 447TC**

**For use with Legacy Baldor Motor Designs**



These kits convert TENV or TEFC AC motors to a Totally Enclosed Blower Cooled (TEBC) design. This is advantageous where continuous cooling is required regardless of motor shaft speed. These kits can be mounted on the back of the motor after removing the fan guard and fan. Removing the TEFC fan shaft is not required. Does not fit Athens-built 180-440 M, CP or ECP motors

| Voltage     | Phase | NEMA Frame  | Catalog Number  | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. |
|-------------|-------|-------------|-----------------|------------|------------|------------------|
| 115         | 1     | 143TC-145TC | <b>BLWL05-L</b> | 814        | E8         | 7                |
|             |       | 182TC-184TC | <b>BLWL06-L</b> | 917        | E8         | 8                |
|             |       | 213TC-215TC | <b>BLWL07-L</b> | 962        | E8         | 21               |
|             |       | 254TC-256TC | <b>BLWL09-L</b> | 988        | E8         | 5                |
|             |       | 284TC-286TC | <b>BLWL10-L</b> | 1,068      | E8         | 35               |
|             |       | 324TC-326TC | <b>BLWL12-L</b> | 1,134      | E8         | 46               |
|             |       | 364TC-365TC | <b>BLWL14-L</b> | 1,206      | E8         | 55               |
| 230/380/460 | 3     | 213TC-215TC | <b>BLWM07-F</b> | 962        | E8         | 20               |
|             |       | 254TC-256TC | <b>BLWM09-F</b> | 999        | E8         | 30               |
|             |       | 284TC-286TC | <b>BLWM10-F</b> | 1,068      | E8         | 35               |
|             |       | 324TC-326TC | <b>BLWM12-F</b> | 1,134      | E8         | 46               |
|             |       | 364TC-365TC | <b>BLWM14-F</b> | 1,219      | E8         | 55               |
|             |       | 404TC-405TC | <b>BLWM16-F</b> | 1,704      | E8         | 70               |
|             |       | 444TC-447TC | <b>BLWM18-F</b> | 2,387      | E8         | 87               |

**NOTE:** Blower cooling conversion kits should be further selected by Baldor motor type as noted within the catalog number. As an example: BLWM10-F fits a 310M type also built as a 324-326TC. Does not fit Athens-built 180-440 M, CP or ECP motors.

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**BSM-Series  
Brushless Motors  
with Hall Feedback  
C-Face with Base**

**1/4 thru 3 Hp**

**NEMA 42-56C**

**Applications:** Conveyors, Pumps, Mixers, Packaging Machinery



**Features:** NEMA 42/56 foot/base mount, Hall sensor feedback, Face/Foot mount, High energy Neodymium magnets, Premium 200°C moisture resistant wire, ABEC Quality Class 3 bearings, High 155°C winding temperature design, UL/CE/cUL. Speed range to 7,000 RPM

| Hp / kW                     | RPM  | NEMA Frame | Catalog Number        | List Price | Mult. Sym. | "C" Dim. | Aprx. Wt. (lb) | Voltage | Notes (a) |
|-----------------------------|------|------------|-----------------------|------------|------------|----------|----------------|---------|-----------|
| <b>C-Face, Footless</b>     |      |            |                       |            |            |          |                |         |           |
| .25 / .18                   | 1800 | 42C        | <b>BSM25C-1177MHC</b> | 733        | E4         | 7.95     | 13             | 320     |           |
| .51 / .37                   | 1800 | 42C        | <b>BSM25C-2177MHC</b> | 764        | E4         | 8.41     | 9              | 320     |           |
| <b>C-Face, Foot Mounted</b> |      |            |                       |            |            |          |                |         |           |
| .51 / .37                   | 1800 | 56C        | <b>BSM33C-2177MHQ</b> | 808        | E4         | 8.76     | 33             | 320     |           |
| 1 / .75                     | 1800 | 56C        | <b>BSM33C-3177MHQ</b> | 859        | E4         | 9.86     | 22             | 320     |           |
| 1.5 / 1.13                  | 1800 | 56C        | <b>BSM33C-4177MHQ</b> | 987        | E4         | 12.20    | 25             | 320     |           |
| 2 / 1.5                     | 1800 | 56C        | <b>BSM33C-5177MHQ</b> | 1,317      | E4         | 15.20    | 30             | 320     |           |
| 3 / 2.25                    | 1800 | 56C        | <b>BSM33C-6177MHQ</b> | 1,552      | E4         | 16.70    | 31             | 320     |           |

(a) See notes on inside back flap.

**BMC-Series  
Adjustable Speed  
Brushless Control**

**Applications:** Conveyors, Pumps, Mixers, Packaging Machinery



**Features:** Speed regulation better than 0.5%, Peak current two times continuous, Jumper selections: line voltage, motor poles, automatic/manual start, braking, Diagnostic LED's, Industry standard speed command of +/- 10 Vdc or pot input, Diagnostic LEDs, Trimpot adjustments, Accel/decel time 0.1 - 30 sec

| Rating<br>Hp/Kw | Input Vac<br>50/60Hz | Phase | Output |           |           | Catalog<br>Number | List<br>Price | Mult.<br>Sym. | Height<br>in/mm | Width<br>in/mm | Length<br>in/mm |
|-----------------|----------------------|-------|--------|-----------|-----------|-------------------|---------------|---------------|-----------------|----------------|-----------------|
|                 |                      |       | VDC    | Cont.Amps | Peak Amps |                   |               |               |                 |                |                 |
| .25/0.18        | 115/208/230          | 1     | 320    | 1.5       | 3         | <b>BMC6A01</b>    | 411           | E3            | 2.75/70         | 4.05/103       | 5.4/136         |
| .05/0.37        | 115/208/230          | 1     | 320    | 2.4       | 4.8       | <b>BMC6A02</b>    | 448           | E3            | 2.75/70         | 4.05/103       | 5.4/136         |
| 1/0.75          | 115/208/230          | 1     | 320    | 4.0       | 8         | <b>BMC6A04</b>    | 494           | E3            | 5/127           | 4.05/103       | 6.8/172         |
| 1.5/1.13        | 115/208/230          | 1     | 320    | 5.5       | 11        | <b>BMC6A05</b>    | 531           | E3            | 4.5/114         | 4.05/103       | 6.8/172         |
| 2/1.5           | 208/230              | 1,3   | 320    | 6.7       | 13.4      | <b>BMC2A06</b>    | 645           | E3            | 4.45/113        | 4.05/103       | 8.6/217         |
| 3/2.25          | 208/230              | 3     | 320    | 9.0       | 18        | <b>BMC2A09</b>    | 740           | E3            | 4.45/113        | 4.05/103       | 8.6/217         |

Farm Duty  
Motors

Definite Purpose  
Motors

Unit Handling  
Motors

Brake  
Motors

200 & 575 Volt  
Motors

IEC Frame  
Motors



50 Hertz  
Motors

Inverter/Vector  
Motors & Controls

DC Motors  
and Controls

Soft Start & Dynamic  
Brakes

**Baldor V\*S Drives Selection Chart**

| VS1ST   | VS1SM  | VS1MD  | VS1MX   | VS1PF  | VS1SP  | VS1GV  |
|---|--|--|---|--|--|--|
|              |                                       |                     |                                |                                        |   |   |
| <b>Main Attributes</b>  |  |  |   |  |  |  |
| Starter-style Microdrive; V/Hz Control; Built-In PI Loop; DIN or Panel Mounting.              | Sub-Micro Drive; Single-Phase Input / Three-Phase Output; V/Hz or Sensorless Vector Control; Built-In Filter Available | Microdrive; V/Hz or Sensorless Vector Control; Built-In PID; Ready to Operate Out of the Box         | Microdrive; NEMA 4X & NEMA 12 Enclosures; V/Hz Control; Built-In Disconnect                                     | Pump & Fan Drive; Energy Savings Features; V/Hz or Sensorless Vector; Text-Based Menus and Parameter Names               | Enhanced Sensorless Vector or V/Hz Control; NEMA 1 Enclosure; Built-In Braking; Full-Graphic Display   | Performance Vector; Sensorless Vector or V/Hz Control; NEMA 1 Enclosure; Built-In Braking; Full-Graphic Display; Encoder Feedback Standard   |
| <b>Hp Range</b>   |  |  |   |  |  |  |
| 0.5 to 15   | 0.5 to 3   | 0.5 to 30  | 0.5 to 10   | 5 to 700   | 1 to 1000  | 1 to 1000  |
| <b>Voltage Range</b>  |  |  |   |  |  |  |
| 115V/230V 1-Phase<br>230V/460V 3-Phase<br>600V 3-Phase (STS)                                  | 230V 1-Phase   | 230V 1-Phase<br>230V/460V 3-Phase  | 115V/230V 1-Phase<br>230V/460V 3-Phase<br>600V 3-Phase (MXS)  | 230V/460V/600V<br>3-Phase  | 115V/230V - 1 phase<br>230V/460V/600V<br>3-Phase   | 115V/230V - 1 Phase<br>230V/460V/600V<br>3-Phase   |
| <b>Enclosure Selection</b>  |  |  |   |  |  |  |
| IP20  | IP20   | IP20/NEMA 1 Kits Available   | NEMA 4X/12 (Indoor)<br>NEMA 12; with or w/o Disconnect  | NEMA 1 (7.5 to 15 Hp)<br>IP00/NEMA 1 Kit Option (20 to 125Hp)<br>IP00 (150 to 700Hp)                                     | NEMA 1 (1 to 500 Hp)<br>NEMA 4X/12 (1 to 25Hp)   | NEMA 1 (1 to 500 Hp)<br>NEMA 4X/12 (1 to 25Hp)   |
| <b>Control Mode</b>   |  |  |   |  |  |  |
| V/Hz<br>Sensorless Vector (STS)   | Sensorless Vector or V/Hz  | Sensorless Vector or V/Hz  | V/Hz<br>Sensorless Vector (MXS)   | Sensorless Vector or V/Hz  | Sensorless Vector or V/Hz  | Closed Loop Vector,<br>Sensorless Vector or V/Hz   |
| <b>Speed Range (Typ.)</b>   |  |  |   |  |  |  |
| 20:1  | 30:1   | 30:1   | 20:1  | 30:1   | 90:1   | 1000:1   |
| <b>Communications Options</b>   |  |  |   |  |  |  |
| Built-In Modbus-RTU (RS-485)  | Built-In Modbus-RTU (RS-485)   | Built-In Modbus-RTU (RS-485)<br>DeviceNet<br>Profibus-DP<br>Ethernet-IP<br>Modbus/TCP                | Built-in Modbus-RTU (RS-485)  | Built-In RS-485,<br>Modbus-RTU, DeviceNet,<br>PROFIBUS-DP,<br>Modbus/TCP, Lonworks,<br>BACnet, Siemens-P1,<br>Metasys-N2 | Built-In USB and Modbus-RTU,<br>Ethernet Server,<br>DeviceNet, EtherNet/IP,<br>PROFIBUS-DP, LonWorks,<br>Metasys-N2, BACnet  | Built-In USB and Modbus-RTU, Ethernet Server, DeviceNet, EtherNet/IP, PROFIBUS-DP, LonWorks, Metasys-N2, BACnet  |
| <b>Operator Interface</b>   |  |  |   |  |  |  |
| Local or Remote Mounted LED Display and Keypad  | Embedded LED Display and Keypad; Speed Pot   | Local or Remote Mounted LED Display and Keypad; Copycat Capability                                   | Local or Remote Mounted LED Display and Keypad; Copycat Capability; Speed Pot; Fwd/Rev Switch; Input Disconnect | Local or Remote Mounted Text Based LCD Display and Keypad; Copycat Capability  | Local or Remote (NEMA 4) Mounted Graphical LCD Display and Keypad; Copycat Capability  | Local or Remote (NEMA 4) Mounted Graphical LCD Display and Keypad; Copycat Capability  |
| <b>Differentiating Feature</b>  |  |  |   |  |  |  |
| Low Cost; Designed for Panel Use; DIN Rail Mounting; Simple parameter list; CE filter option. | Designed for High Volume Applications; Simple Interface with Built-In Speed Pot; CE filter option                      | Low Cost; Basic Startup Menu; Runs Right Out of the Box; Full-Featured Application Oriented Firmware | Washdown and Harsh Environment Compatible Enclosure; Built-In Speed Pot, Fwd/Rev Switch, and Input Disconnect   | Easy-to-Use Basic Startup Menu; Designed to Save Energy; Pump and Fan Application Specific Firmware                      | USB Interface; Display Help Text; NEMA 1 Enclosures (Washdown Available to 25Hp); PLC Functionality; Free Workbench software w/Oscilloscope Functionality; Wide Variety of Options | Encoder Interface Standard; USB Interface; Display Help Text; NEMA 1 Enclosures (Washdown Available to 25Hp); PLC Functionality; Free Workbench Software w/Oscilloscope Functionality; Wide Variety of Options |
| <b>Matched Performance® Motors</b>  |  |  |   |  |  |  |
| M & CP Standard-E, EM & ECP Super-E   | M & CP Standard-E, EM & ECP Super-E  | M & CP Standard-E®, EM & ECP Super-E®  | E-Z KLEEN® Plus, Ultra KLEEN®, WDM Standard-E, EWDM Super-E   | M & CP Standard-E, EM & ECP Super-E  | VS-Master, RPM-AC, M & CP Standard-E, EM&ECP Super-E, IDM & IDNM InverterDuty®, IDWNM InverterDuty   | VS-Master, RPM-AC, ZDM VectorDuty®, ZDNM VectorDuty, ZDWNM VectorDuty  |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

## BALDOR • RELIANCE

### VS1ST AC Micro Drive

**1/2 thru 1.5 Hp**  
**1/2 thru 3 Hp**  
**1/2 thru 5 Hp**  
**1 thru 15 Hp**

**115 VAC**  
**230 VAC**  
**230 VAC**  
**460 VAC**

**1 Phase - 50/60 Hz**  
**1 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**



**Applications:** Variable torque, constant torque or constant horsepower applications. New installations, replacements and original equipment manufactures (OEM).

**Features:** Volts per Hertz Control with peak overload capacity of 175% and PI capability. **Flexible mounting options with IP20 enclosure as standard and DIN Rail mounting.** Integral keypad, operator interface and local speed control. Basic set of programming parameters. Power ratings up to 5 Hp at 230V and 15 Hp at 460V versions.

|                              |   |   |
|------------------------------|---|---|
| <b>Performance Features</b>  | Control Modes   | V/Hz  |
|                              | Operator Interface Module   | Integral Drive Mounted  |
|                              | Display Lines   | 6-Character LED Display   |
|                              | Programmable Preset Speeds  | Four  |
|                              | Analog Outputs  | One (0-10 VDC)  |
|                              | Auto Restart  | Yes – Up to 5 attempts  |
|                              | Frequency Avoidance   | One Band  |
|                              | Fault History   | Last Four Faults  |
|                              | Digital Inputs: Four  | Two Programmable Digital Inputs, Two user selectable analog/digital inputs        |
|                              | Digital Inputs Type   | Pull-Up   |
| <b>Drive Specifications</b>  | Analog Inputs: Two  | 0-10VDC, 0 to 20mA or 4 to 20mA   |
|                              | Relay Outputs: One  | Built-in Form C Relay   |
|                              | Analog Output/Digital Output  | 0-10 VDC: One Analog Usable for Meter (Freq., Current, Voltage) or Digital Output |
|                              | Maximum Load  | 15 Hp @ 460 VAC   |
|                              | Overload Capacity   | Drive Output 150% for one minute and 175% for 2 seconds                           |
|                              | Input Voltage Ranges  | 115 VAC (99-126); 230 VAC (198-264); 460 VAC (342-528)                            |
|                              | Rated Input Frequency   | 50-60Hz (±5%)   |
|                              | Carrier Frequency   | 4-32 kHz (8 kHz default)  |
|                              | Operating Temperature   | 0° to 50°C  |
|                              | Snubber (Dynamic Braking)   | Built-in Transistor (Frames B & C)  |
|                              | Dynamic Braking External  | Up to 150% Dynamic Braking with appropriately sized resistor                      |
|                              | DC Injection Braking  | Included  |
|                              | Volts/Hz  | Linear V/Hz, Energy Optimizer Function  |
|                              | Frequency Control Range   | 0 - 500Hz   |
|                              | Accel/Decel:  | Independently adjustable accel. & decel. ramps                                    |
|                              | Time Range:   | 0 to 600 Seconds  |
|                              | Keypad Speed Control  | Yes   |
|                              | Sink/Source Inputs  | Selectable, 24 VDC Logic  |
| Electronic Overload Trip     | Electronic Motor Overload Inverse 150% for 1 minute or 175% for 2 seconds |   |
| Communications               | Built-in MODBUS-RTU (RS-485) Communications                               |   |
| PI Control                   | Built-in  |   |
| <b>Protective Features</b>   | Under Voltage   | Level Depends on Voltage Class (240, 480, or 575)                                 |
|                              | Output Short Circuit  | Phase-to-Phase on Drive Output  |
|                              | Over Temperature  | Heatsink Monitor  |
|                              | DC Bus Overvoltage  | DC Bus Level Trip   |
|                              | Drive Overload  | Exceed Drive rating of 150% for One Minute or 175% for 2 seconds                  |
|                              | Over Current  | Over-current/short-Circuit protection   |
|                              | Output Phase  | Trips on open Output Phase  |
|                              | Loss of Reference   | Trips on Loss of Speed Command Signal   |
| Comm. Error                  | Detects a communication error (fault)                                     |   |
| <b>Agency Certifications</b> | UL, cUL, CE, C-tick   |   |
| <b>Service Conditions</b>    | Altitude  | 1,000 m (3,300 ft.), derate by 1% per 100m up to 2,000 on maximum.                |
|                              | Ambient Temperature   | IP20: -10°C (14°F) to 50°C (122°F)  |
|                              | Storage Temperature   | -40°C (-40°F) to 60°C (140°F)   |
|                              | Relative Humidity   | 10% to 95%, non-condensing  |

**VS1ST – 115V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output)**

| Catalog Number | Transistor | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|------------|-------|-----|----------------|------------|------------|
| VS1ST10P5-0    | No         | A     | 0.5 | 2.3            | 453        | EA         |
| VS1ST11-0      | No         | A     | 1   | 4.3            | 529        | EA         |
| VS1ST11P5-0T   | Yes        | B     | 1.5 | 5.8            | 649        | EA         |

**VS1ST – 230V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output)**

| Catalog Number | Transistor | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|------------|-------|-----|----------------|------------|------------|
| VS1ST80P5-0    | No         | A     | 0.5 | 2.3            | 364        | EA         |
| VS1ST81-0      | No         | A     | 1   | 4.3            | 395        | EA         |
| VS1ST82-0      | No         | A     | 2   | 7              | 475        | EA         |
| VS1ST82-0T     | Yes        | B     | 2   | 7              | 592        | EA         |
| VS1ST83-0T     | Yes        | B     | 3   | 10.5           | 661        | EA         |

**VS1ST – 230V, 50/60 Hz, 3-Phase Input (230V, 3-Phase Output)**

| Catalog Number | Transistor | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|------------|-------|-----|----------------|------------|------------|
| VS1ST20P5-0    | No         | A     | 0.5 | 2.3            | 364        | EA         |
| VS1ST21-0      | No         | A     | 1   | 4.3            | 395        | EA         |
| VS1ST22-0      | No         | A     | 2   | 7              | 475        | EA         |
| VS1ST22-0T     | Yes        | B     | 2   | 7              | 556        | EA         |
| VS1ST23-0T     | Yes        | B     | 3   | 10.5           | 568        | EA         |
| VS1ST25-0T     | Yes        | C     | 5   | 18             | 752        | EA         |

**VS1ST – 460V, 50/60 Hz, 3-Phase Input (460V, 3-Phase Output)**

| Catalog Number | Transistor | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|------------|-------|-----|----------------|------------|------------|
| VS1ST41-0      | No         | A     | 1   | 2.2            | 475        | EA         |
| VS1ST42-0      | No         | A     | 2   | 4.1            | 557        | EA         |
| VS1ST42-0T     | Yes        | B     | 2   | 4.1            | 637        | EA         |
| VS1ST43-0T     | Yes        | B     | 3   | 5.8            | 684        | EA         |
| VS1ST45-0T     | Yes        | B     | 5   | 9.5            | 800        | EA         |
| VS1ST47-0T     | Yes        | C     | 7.5 | 14             | 1,135      | EA         |
| VS1ST410-0T    | Yes        | C     | 10  | 18             | 1,263      | EA         |
| VS1ST415-0T    | Yes        | C     | 15  | 24             | 1,704      | EA         |

**NOTE:** For EMC filtered units, refer to catalog CA769 (Baldor Drives and Capabilities).

Farm Duty  
MotorsDefinite Purpose  
MotorsUnit Handling  
Motors

Brake Motors

200 & 575 Volt  
MotorsIEC Frame  
Motors50 Hertz  
MotorsInverter/Vector  
Motors & ControlsDC Motors  
and ControlsSoft Starters &  
Dynamic Brakes



**Mounting Dimensions**

| Frame | Height<br>Inches (mm) | Width<br>Inches (mm) | Depth<br>Inches (mm) |
|-------|-----------------------|----------------------|----------------------|
| A     | 6.81 (173)            | 3.23 (82)            | 4.84 (123)           |
| B     | 8.70 (221)            | 4.29 (109)           | 5.91 (150)           |
| C     | 10.28 (261)           | 5.16 (131)           | 6.89 (175)           |

**VS1ST – Accessories**

**Remote Keypad for VS1ST**

The VS1ST Remote Keypad can be panel mounted for remote control or display of the drive. The remote keypad comes with a standard 9 foot (3.0 m) cable and is suitable for IP54 mounting.

| Catalog Number | Description                       | List Price | Mult. Sym. |
|----------------|-----------------------------------|------------|------------|
| VS1ST-RKEY3    | VS1ST Remote Keypad with 3m cable | 110        | EA         |

**Cable Kits for VS1ST**

Option cable assemblies for setting up and connecting a simple serial network.

| Catalog Number | Description               | List Price | Mult. Sym. |
|----------------|---------------------------|------------|------------|
| VS1ST-J45SP    | RJ45 Cable Splitter       | 23         | EA         |
| VS1ST-CBLOP5   | 1.5 ft. (0.5m) RJ45 Cable | 12         | EA         |
| VS1ST-CBL1     | 3 ft. (1m) RJ45 Cable     | 12         | EA         |
| VS1ST-CBL3     | 9 ft. (3m) RJ45 Cable     | 12         | EA         |

**Copycat Loader for VS1ST**

Connects to the RJ45 Port on the front of the VS1ST and allows the upload or download of software parameters.

| Catalog Number | Description               | List Price | Mult. Sym. |
|----------------|---------------------------|------------|------------|
| VS1ST-CCL      | VS1ST RJ45 Copycat Loader | 28         | EA         |

**Relay Output Cards for VS1ST**

Provides additional relay outputs for signal and control.

| Catalog Number | Description   | List Price | Mult. Sym. |
|----------------|---|------------|------------|
| VS1ST-2ROUT    | Provides one additional relay output for the drive        | 153        | EA         |
| VS1ST-HVAC     | Provides two relays for “drive running” & “drive tripped” | 153        | EA         |
| VS1ST-LOGHV-11 | 115 VAC control logic input card                          | 131        | EA         |
| VS1ST-LOGHV-23 | 230 VAC control logic input card                          | 131        | EA         |

**VS1ST Dynamic Braking Resistors**

VS1ST Frame B and C drives include built-in braking transistors to aid in applications requiring the ability to stop rapidly. The resistor kits are designed specifically for the VS1ST and mount internally to the drive.

| Catalog Number | Ohms | Wattage | Frame | List Price | Mult. Sym. |
|----------------|------|---------|-------|------------|------------|
| VS1ST-R100W200 | 100  | 200     | B & C | 198        | EA         |

**VS1ST Field Bus Gateways**

Connects the VS1ST Modbus RTU RS485 Communication interface to the fieldbus gateway head.

| Catalog Number | Description                            | List Price | Mult. Sym. |
|----------------|--|------------|------------|
| VS1ST-PBUS     | Profibus Gateway Head                  | 953        | EA         |
| VS1ST-DNET     | DeviceNet Gateway Head                 | 953        | EA         |
| VS1ST-ENET     | Ethernet-IP or Modbus/TCP Gateway Head | 902        | EA         |

**VS1STS  
600V Starter Style  
AC Micro Drive**

**1 thru 60 Hp**

**500-600 VAC**

**3 Phase - 50/60 Hz**

**Product Highlights:** The VS1STS is a feature rich V/Hz & Sensorless Vector product targeted at the 600V market and equipment manufacturing applications.

**Applications:** Variable torque, constant torque or constant horsepower applications. New installations, replacements and original equipment manufactures (OEM).

**Features:** V/Hz and Sensorless Vector Control with peak overload capacity of 175% and PID capability. Flexible mounting options with IP20 enclosure as standard and DIN rail capability. Integral keypad, operator interface and local speed control. Basic setup parameter list and advanced software settings. Built-in braking transistor allows connection to remote braking resistor for enhanced performance needs. Power ratings up to 60 Hp at 600V, pluggable I/O terminal strip.



|                              |   |   |
|------------------------------|---|---|
| <b>Performance Features</b>  | Control Modes   | V/Hz & Sensorless Vector Control  |
|                              | Operator Interface Module   | Integral Drive Mounted; basic start/stop, forward/reverse and speed control             |
|                              | Display Lines   | 6-Character LED Display   |
|                              | Programmable Preset Speeds  | Eight   |
|                              | Analog Output: One  | 0-10VDC or 20mA   |
|                              | Auto Restart  | Yes -- Up to 5 attempts   |
|                              | Frequency Avoidance   | One Band  |
|                              | Fault History   | Last 4 Faults   |
|                              | Digital Inputs: Four  | Two programmable digital inputs, two user selectable analog/digital inputs              |
| Digital Inputs Type          | Pull-Up   |   |
| <b>Drive Specifications</b>  | Analog Inputs: Two  | One bi-polar and one 0-10VDC, 0 to 20mA or 4 to 20mA                                    |
|                              | Relay Output: One   | Built-in Form C Relay, normally open contact  |
|                              | Analog Output/Digital: One  | 0-10 VDC: One Analog Usable for Meter (Freq., Current, Voltage) or Digital Output       |
|                              | Maximum Load:   | 60 HP @ 600 VAC   |
|                              | Overload Capacity   | Drive Output 150% for one minute and 175% for 2 seconds                                 |
|                              | Input Voltage Ranges:   | 500 - 600VAC  |
|                              | Input Voltage Tolerance   | 10% / -10%  |
|                              | Rated Input Frequency   | 50-60Hz (±5%)   |
|                              | Carrier Frequency:  | 4-32 kHz (8 kHz default)  |
|                              | Operating Temperature:  | -10° to 50°C  |
|                              | Snubber (Dynamic Braking):  | Built-in Transistor   |
|                              | Dynamic Braking External:   | Up to 150% Dynamic Braking with appropriately sized resistor                            |
|                              | DC Injection Braking:   | Included  |
|                              | Volts/Hz  | Linear V/Hz<br>Energy Optimization Function   |
|                              | Sensorless Vector   | Full Sensorless Vector Control with Autotune and motor model                            |
|                              | Frequency Control Range:  | 0 - 2000Hz  |
|                              | Accel/Decel:  | Independently adjustable accel. & decel. ramps  |
| Keypad Speed Control         | Yes   |   |
| Sink/Source Inputs           | Selectable, 24 VDC Logic  |   |
| Electronic Overload Trip     | Electronic Motor Overload Inverse 150% for 1 minute or 175% for 2 seconds |   |
| <b>Protective Features</b>   | Under Voltage   | Level Depends on Voltage Class (600V)   |
|                              | Output Short Circuit  | Phase-to-Phase on Drive Output  |
|                              | Over Temperature  | Heatsink Monitor  |
|                              | DC Bus Overvoltage  | DC Bus Level Trip   |
|                              | Drive Overload  | Exceed Drive rating of 150% for One Minute or 175% for 2 seconds                        |
|                              | Over Current  | Over-current/short-Circuit protection   |
|                              | Output Phase  | Trips on open Output Phase  |
|                              | Loss of Reference   | Trips on Loss of Speed Command Signal   |
| Communication Error          | Detects a communication error (fault)                                     |   |
| <b>Agency Certifications</b> | UL, cUL, CE, CCC, C-tick  |   |
| <b>Service Conditions</b>    | Altitude:   | 1,000 m (3,300 ft.) Maximum   |
|                              | Ambient Temperature:  | IP20: -10°C to 50°C   |
|                              | Storage Temperature:  | -20°C to 60°C   |
|                              | Relative Humidity:  | 10% to 90%, non-condensing  |
|                              | Intermittent Overload:  | 150% overload capacity for up to 1 minute<br>175% overload capacity for up to 2 seconds |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**VS1STS – 500-600V ±10% 3-Phase Input**

| Catalog Number | Frame | Hp  | kW   | Output Current | List Price | Mult. Sym. |
|----------------|-------|-----|------|----------------|------------|------------|
| VS1STS51-0T    | B     | 1   | 0.75 | 1.7            | 926        | EA         |
| VS1STS52-0T    | B     | 2   | 1.5  | 3.1            | 1,042      | EA         |
| VS1STS53-0T    | B     | 3   | 2.2  | 4.1            | 1,158      | EA         |
| VS1STS55-0T    | B     | 5   | 4    | 6.1            | 1,390      | EA         |
| VS1STS57-0T    | B     | 7.5 | 5.5  | 9              | 1,737      | EA         |
| VS1STS510-0T   | C     | 10  | 7.5  | 14             | 2,084      | EA         |
| VS1STS515-0T   | C     | 15  | 11   | 18             | 2,546      | EA         |
| VS1STS520-0T   | C     | 20  | 15   | 24             | 3,241      | EA         |
| VS1STS530-0T   | D     | 30  | 22   | 39             | 5,093      | EA         |
| VS1STS540-0T   | D     | 40  | 30   | 46             | 5,787      | EA         |
| VS1STS560-0T   | D     | 60  | 45   | 62             | 6,944      | EA         |

**Mounting Dimensions**

| Frame    | Height Inches (mm) | Width Inches (mm) | Depth Inches (mm) |
|----------|--------------------|-------------------|-------------------|
| <b>A</b> | 10.24 (260)        | 3.94 (100)        | 6.89 (175)        |
| <b>B</b> | 10.24 (260)        | 6.73 (171)        | 6.89 (175)        |
| <b>C</b> | 20.47 (520)        | 13.39 (340)       | 8.66 (220)        |

**Remote Keypad for the VS1STS**

| Catalog Number | Description                        | List Price | Mult. Sym. |
|----------------|------------------------------------|------------|------------|
| VS1STS-RKEY3   | VS1STS Remote Keypad with 3m cable | 93         | EA         |

The VS1STS-RKEY3 Remote Keypad can be panel mounted for remote control or display of drive parameters. The kit comes standard with a 9 foot (3 meter) cable and is suitable for IP54 mounting. This keypad can be used with either the VS1STS or the VS1MXS. Depending on the requirement of the application, VS1STS-RKEY3 can be used point to point or with multiple drives.

**Cable Kits for the VS1STS**

To support a basic serial network, option cable assemblies and splitters are available.

| Catalog Number | Description             | List Price | Mult. Sym. |
|----------------|-------------------------|------------|------------|
| VS1STS-J11SP   | RJ45 Cable Splitter     | 24         | EA         |
| VS1STS-CBL0P3  | 1 ft. (0.3m) RJ11 Cable | 6          | EA         |
| VS1STS-CBL1    | 3 ft. (1m) RJ11 Cable   | 8          | EA         |
| VS1STS-CBL3    | 9 ft. (3m) RJ11 Cable   | 12         | EA         |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**VS1SM  
AC Micro Drive**

**1/2 thru 3 Hp 230 VAC 1 Phase - 50/60 Hz Input / 3 Phase Output**



**Applications:** Variable torque, constant torque or constant horsepower applications. New installations, replacements and original equipment manufactures (OEM).

**Features:** Volts per Hertz or Sensorless Vector Control with peak overload capacity of 200%, PID capability and built in MODBUS RS-485 Communications. Integral keypad, operator interface and local speed control. Programming by Groups makes it easy to navigate and find parameters. Basic Program Group contains the most common application related parameters. Power ratings up to 3 Hp 230V Single Phase. Available with or without built in CE Filters. Built-in braking transistor allows connection to remote braking resistor for enhanced performance needs.

|                              |   |  |
|------------------------------|---|--|
| <b>Performance Features</b>  | Control Modes   | V/Hz or Sensorless Vector  |
|                              | Operator Interface Module   | Integral Drive Mounted   |
|                              | Display Lines   | 3-Character LED Display  |
|                              | Programmable Preset Speeds  | Eight  |
|                              | Analog Outputs  | One (0-10 VDC)   |
|                              | Local Speed Control   | Built-in Speed Potentiometer   |
|                              | Auto Restart  | Yes – Up to 10 attempts  |
|                              | Frequency Avoidance   | Three Bands  |
|                              | Fault History   | Last Five Faults   |
|                              | Digital Inputs  | Five Completely Configurable Inputs  |
| Digital Inputs Type          | Pull-up or Pull-down  |  |
| <b>Drive Specifications</b>  | Analog Inputs: Two Total  | One: 0-10VDC; One: 4-20mADC  |
|                              | Digital Outputs: Two Total  | One Opto-coupled (Configurable); Form C Relay  |
|                              | Meter Outputs   | 0-10 VDC: One Analog Usable for Meter (Freq., Current, Voltage, DC Voltage)                    |
|                              | Maximum Load  | 3 Hp @ 230VAC  |
|                              | Overload Capacity   | Drive Output 150% for One Minute   |
|                              | Frequency Accuracy  | Digital Command: 0.01% of Max. Output Frequency; Analog Command: 0.1% of Max. Output Frequency |
|                              | Input Voltage Ranges  | 190-253VAC - 1-Phase   |
|                              | Rated Input Frequency   | 50-60Hz (±5%)  |
|                              | Carrier Frequency   | 1-15 kHz (3 kHz default)   |
|                              | Operating Temperature   | -10° to 50°C (IP20)  |
|                              | Snubber (Dynamic Braking)   | Use External Braking Unit  |
|                              | Dynamic Braking External  | Dynamic Braking via External Braking Unit connected to DC bus.                                 |
|                              | DC Injection Braking  | Included   |
|                              | Volts/Hz  | Linear V/Hz; Quadratic V/Hz; Custom 4-point V/Hz Curve   |
|                              | Sensorless Vector   | Full Sensorless Vector; Control with Autotune Function and motor model                         |
|                              | Frequency Control Range   | 0-400 Hz   |
|                              | Accel/Decel   | Eight independently adjustable sets of ramps   |
|                              | Time Range  | 0.1 to 6000 Seconds  |
|                              | S Curve Accel. & Decel.   | Yes, with adjustable rounding percentage   |
|                              | Keypad Speed Control  | Yes  |
| Sink/Source Inputs           | Selectable, 24 VDC Logic  |  |
| Electronic Overload Trip     | Electronic motor Overload Inverse Time calculation with program warning level |  |
| Communications               | Built-in MODBUS-RTU (RS-485) Communications                                   |  |
| PID Control                  | Built-in  |  |
| <b>Protective Features</b>   | Under Voltage   | Level Depends on Voltage Class (240, 480)  |
|                              | Ground Fault Protection   | Ground Fault protection active during run  |
|                              | Output Short Circuit  | Phase-to-Phase on Drive Output   |
|                              | Over Temperature  | Heatsink Monitor   |
|                              | DC Bus Overvoltage  | DC Bus Level Trip  |
|                              | Drive Overload  | Exceed Drive rating of 150% for one minute   |
|                              | Over Current  | Over-current/short-Circuit protection  |
|                              | Output Phase  | Trips on open Output Phase   |
|                              | Loss of Reference   | Trips on Loss of Speed Command Signal  |
|                              | Cooling Fan   | Detects an inverter fan failure (replace fan)  |
| <b>Agency Certifications</b> | Listings  | UL, cUL, CE  |
| <b>Service Conditions</b>    | Altitude  | 1,000 m (3,300 ft.), derate by 1% per 100 m up to 2,000m maximum.                              |
|                              | Ambient Temperature   | IP20: -10°C (14°F) to 50°C (122°F)   |
|                              | Storage Temperature   | -20°C (-2°F) to 65°C (149°F)   |
|                              | Relative Humidity   | 10% to 95%, non-condensing   |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**VS1SM – 230V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output)**

| Catalog Number | EMC Filter | Frame | Hp (Normal Duty) | Output Current | List | Mult. Sym. |
|----------------|------------|-------|------------------|----------------|------|------------|
| VS1SM80P5      | No         | A     | 0.5              | 2.5A           | 338  | EA         |
| VS1SM80P5-F    | Yes        | A     | 0.5              | 2.5A           | 394  | EA         |
| VS1SM81        | No         | A     | 1                | 5.0A           | 418  | EA         |
| VS1SM81-F      | Yes        | A     | 1                | 5.0A           | 473  | EA         |
| VS1SM82        | No         | B     | 2                | 8.0A           | 529  | EA         |
| VS1SM82-F      | Yes        | B     | 2                | 8.0A           | 585  | EA         |
| VS1SM83        | No         | B     | 3                | 12.0A          | 675  | EA         |
| VS1SM83-F      | Yes        | B     | 3                | 12.0A          | 742  | EA         |

**Mounting Dimensions**

| Frame           | Height Inches (mm) | Width Inches (mm) | Depth Inches (mm) | Weight lbs (kg) |
|-----------------|--------------------|-------------------|-------------------|-----------------|
| A               | 5.63 (143)         | 3.11 (79)         | 5.64 (143)        | 1.96 (0.89)     |
| A (with Filter) | 5.63 (143)         | 3.11 (79)         | 5.64 (143)        | 2.14 (0.97)     |
| B               | 5.63 (143)         | 6.14 (156)        | 5.64 (143)        | 4.08 (1.85)     |
| B (with Filter) | 5.63 (143)         | 6.14 (156)        | 5.64 (143)        | 4.41 (2.0)      |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**VS1MD  
AC Micro Drive**

**1/4 thru 5 Hp  
1/2 thru 30 Hp  
1/2 thru 30 Hp**

**230 VAC  
230 VAC  
460 VAC**

**1 Phase - 50/60 Hz  
3 Phase - 50/60 Hz  
3 Phase - 50/60 Hz**



**Applications:** Variable torque, constant torque or constant horsepower applications. New installations, replacements and original equipment manufactures (OEM).

**Features:** Volts per Hertz or Sensorless Vector Control with peak overload capacity of 200% and PID capability. Flexible mounting options with IP20 enclosure as standard and NEMA 1 kit option. Integral keypad, operator interface and local speed control. Programming by Groups makes it easy to navigate and find parameters. Basic Program Group contains the most common application related parameters. Power ratings up to 30 Hp in both 230V and 460V versions. Built-in braking transistor allows connection to remote braking resistor for enhanced performance needs.

|                             |                              |  |
|-----------------------------|------------------------------|--|
| <b>Performance Features</b> | Control Modes                | V/Hz or Sensorless Vector  |
|                             | Operator Interface Module    | Integral Drive Mounted   |
|                             | Display Lines                | 4-Character LED Display  |
|                             | Programmable Preset Speeds   | Eight  |
|                             | Analog Outputs               | One (0-10 VDC)   |
|                             | Auto Restart                 | Yes -- Up to 10 attempts   |
|                             | Frequency Avoidance          | Three Bands  |
|                             | Fault History                | Last Five Faults   |
|                             | Digital Inputs               | Eight Completely Configurable Inputs   |
|                             | Digital Inputs Type          | Pull-up or Pull-down   |
| <b>Drive Specifications</b> | Analog Inputs: Two Total     | One: 0-10VDC or -10 to 10VDC, One: 4-20mADC  |
|                             | Digital Outputs: Two Total   | One Opto-coupled (Configurable), Form C Relay  |
|                             | Meter Outputs                | 0-10 VDC: One Analog Usable for Meter (Proportional to Frequency, Output Current, AC Output Voltage, or DC Output Voltage) |
|                             | Maximum Load                 | 30 Hp @ 460 VAC  |
|                             | Overload Capacity            | Drive Output 150% for One Minute, 200% for Twelve Seconds  |
|                             | Frequency Accuracy           | Digital Command: 0.01% of Max. Output Frequency, Analog Command: 0.1% of Max. Output Frequency                             |
|                             | Input Voltage Ranges         | 230 VAC (170-253); 460 VAC (323-528)   |
|                             | Rated Input Frequency        | 50-60Hz (±5%)  |
|                             | Carrier Frequency            | 2-15 kHz (3 kHz default)   |
|                             | Operating Temperature        | -10° to 50°C (IP20)  |
|                             | Snubber (Dynamic Braking)    | Built-in Transistor  |
|                             | Dynamic Braking External     | Up to 150% Dynamic Braking with appropriately sized resistor   |
|                             | DC Injection Braking         | Included   |
|                             | Volts/Hz                     | Linear V/Hz, Quadratic V/Hz, Custom 4-Point V/Hz Curve   |
|                             | Sensorless Vector            | Full Sensorless Vector Control with Autotune Function and motor model  |
|                             | Frequency Control Range      | 0-400 Hz   |
|                             | Accel/Decel                  | Eight independently adjustable sets of ramps   |
|                             | Time Range                   | 0.1 to 600 Seconds   |
|                             | S Curve Accel. & Decel.      | Yes, with adjustable rounding percentage   |
|                             | Keypad Speed Control         | Yes  |
|                             | Sink/Source Inputs           | Selectable, 24 VDC Logic   |
|                             | Electronic Overload Trip     | Electronic Motor Overload Inverse Time calculation with Programmable Warning Level   |
|                             | Communications               | Built-in MODBUS-RTU (RS-485) Communications - optional Devicenet, Profibus-DP, Ethernet-IP or Modbus/TCP                   |
| PID Control                 | Built-in                     |  |
| <b>Protective Features</b>  | Under Voltage                | Level Depends on Voltage Class (240, 480)  |
|                             | Ground Fault Protection      | Ground Fault protection active during run  |
|                             | Output Short Circuit         | Phase-to-Phase on Drive Output   |
|                             | Over Temperature             | Heatsink Monitor   |
|                             | DC Bus Overvoltage           | DC Bus Level Trip  |
|                             | Drive Overload               | Exceed Drive rating of 150% for One Minute   |
|                             | Over Current                 | Over-current/short-Circuit protection  |
|                             | Output Phase                 | Trips on open Output Phase   |
|                             | Loss of Reference            | Trips on Loss of Speed Command Signal  |
|                             | Cooling Fan                  | Detects an inverter fan failure (replace fan)  |
|                             | Comm. Error                  | Detects a communication error (fault)  |
|                             | <b>Agency Certifications</b> | UL, cUL, CE  |
| <b>Service Conditions</b>   | Altitude                     | 1,000 m (3,300 ft.), derate by 1% per 100 m up to 2,000 m maximum.   |
|                             | Ambient Temperature          | IP20: -10°C (14°F) to 50°C (122°F)   |
|                             | Storage Temperature          | -20°C (-2°F) to 65°C (149°F)   |
|                             | Relative Humidity            | 10% to 95%, non-condensing   |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes



**BALDOR • RELIANCE**

**VS1MD – 230V, 50/60 Hz, 3-Phase**

| Catalog Number | Frame | 3-Phase Hp | 1-Phase Hp | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------|------------|----------------|------------|------------|
| VS1MD20P5      | A     | 0.5        | 0.25       | 2.5A           | 473        | EA         |
| VS1MD21        | A     | 1          | 0.5        | 5.0A           | 491        | EA         |
| VS1MD22        | B     | 2          | 1          | 8.0A           | 614        | EA         |
| VS1MD23        | C     | 3          | 2          | 12.0A          | 709        | EA         |
| VS1MD25        | C     | 5          | 3          | 16.0A          | 909        | EA         |
| VS1MD27        | D     | 7.5        | -          | 24.0A          | 1,327      | EA         |
| VS1MD210       | D     | 10         | 5          | 32.0A          | 1,574      | EA         |
| VS1MD215       | E     | 15         |            | 46.0A          | 1,966      | EA         |
| VS1MD220       | E     | 20         |            | 60.0A          | 2,459      | EA         |
| VS1MD225       | F     | 25         |            | 74.0A          | 3,072      | EA         |
| VS1MD230       | F     | 30         |            | 88.0A          | 3,840      | EA         |

**VS1MD – 460V, 50/60 Hz, 3-Phase**

| Catalog Number | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|-------|-----|----------------|------------|------------|
| VS1MD40P5      | A     | 0.5 | 1.25A          | 565        | EA         |
| VS1MD41        | A     | 1   | 2.5A           | 592        | EA         |
| VS1MD42        | B     | 2   | 4.0A           | 715        | EA         |
| VS1MD43        | C     | 3   | 6.0A           | 826        | EA         |
| VS1MD45        | C     | 5   | 8A             | 1,027      | EA         |
| VS1MD47        | D     | 7.5 | 12.0A          | 1,329      | EA         |
| VS1MD410       | D     | 10  | 16.0A          | 1,587      | EA         |
| VS1MD415       | E     | 15  | 24.0A          | 1,984      | EA         |
| VS1MD420       | E     | 20  | 30.0A          | 2,479      | EA         |
| VS1MD425       | F     | 25  | 39.0A          | 3,099      | EA         |
| VS1MD430       | F     | 30  | 45.0A          | 3,874      | EA         |

**VS1MD – 230V, 50/60 Hz, 3-Phase Communication Ready Base Unit**

Does not include local keypad

| Catalog Number | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|-------|-----|----------------|------------|------------|
| VS1MD20P5-8    | A     | 0.5 | 2.5A           | 426        | EA         |
| VS1MD21-8      | A     | 1   | 5.0A           | 442        | EA         |
| VS1MD22-8      | B     | 2   | 8.0A           | 553        | EA         |
| VS1MD23-8      | C     | 3   | 12.0A          | 638        | EA         |
| VS1MD25-8      | C     | 5   | 16.0A          | 818        | EA         |
| VS1MD27-8      | D     | 7.5 | 24.0A          | 1,194      | EA         |
| VS1MD210-8     | D     | 10  | 32.0A          | 1,416      | EA         |
| VS1MD215-8     | E     | 15  | 46.0A          | 1,892      | EA         |
| VS1MD220-8     | E     | 20  | 60.0A          | 2,384      | EA         |
| VS1MD225-8     | F     | 25  | 74.0A          | 2,998      | EA         |
| VS1MD230-8     | F     | 30  | 88.0A          | 3,787      | EA         |

**VS1MD – 460V, 50/60 Hz, 3-Phase Communication Ready Base Unit**

Does not include local keypad

| Catalog Number | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|-------|-----|----------------|------------|------------|
| VS1MD40P5-8    | A     | 0.5 | 1.25A          | 508        | EA         |
| VS1MD41-8      | A     | 1   | 2.5A           | 532        | EA         |
| VS1MD42-8      | B     | 2   | 4.0A           | 643        | EA         |
| VS1MD43-8      | C     | 3   | 6.0A           | 744        | EA         |
| VS1MD45-8      | C     | 5   | 8A             | 925        | EA         |
| VS1MD47-8      | D     | 7.5 | 12.0A          | 1,195      | EA         |
| VS1MD410-8     | D     | 10  | 16.0A          | 1,429      | EA         |
| VS1MD415-8     | E     | 15  | 24.0A          | 1,911      | EA         |
| VS1MD420-8     | E     | 20  | 30.0A          | 2,406      | EA         |
| VS1MD425-8     | F     | 25  | 39.0A          | 3,015      | EA         |
| VS1MD430-8     | F     | 30  | 45.0A          | 3,799      | EA         |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

## Mounting Dimensions

| Frame | Height<br>Inches (mm) | Width<br>Inches (mm) | Depth<br>Inches (mm) |
|-------|-----------------------|----------------------|----------------------|
| A     | 5.04 (128)            | 2.75 (70)            | 5.12 (130)           |
| B     | 5.04 (128)            | 3.94 (100)           | 5.12 (130)           |
| C     | 5.04 (128)            | 5.20 (140)           | 6.10 (155)           |
| D     | 8.66 (220)            | 7.08 (180)           | 6.69 (170)           |
| E     | 15.40 (320)           | 11.30 (235)          | 9.12 (189.50)        |
| F     | 19.73 (410)           | 12.50 (260)          | 10 (208.50)          |

## VS1MD – Accessories

## DB Resistor Kits

VS1MD drives include built-in braking transistors to aid in applications requiring the ability to stop rapidly. External braking resistors are required to implement the dynamic braking function. The below resistor selection provides resistors that are designed for 15% to 20% duty cycle braking applications. These resistors must be separately mounted.

## VS1MD Dynamic Braking Resistors

| Input<br>Volts | Hp  | Braking Transistor<br>Specifications |   | 100% Torque Braking Resistors |         |                   |               |               | 150% Torque Braking Resistors |         |                   |               |               |
|----------------|-----|--------------------------------------|---|-------------------------------|---------|-------------------|---------------|---------------|-------------------------------|---------|-------------------|---------------|---------------|
|                |     | Minimum<br>Allowable<br>Ohms         | Maximum<br>Continuous<br>Braking<br>Wattage | Ohms                          | Wattage | Catalog<br>Number | List<br>Price | Mult.<br>Sym. | Ohms                          | Wattage | Catalog<br>Number | List<br>Price | Mult.<br>Sym. |
| 230            | 0.5 | 50                                   | 116   | 200                           | 200     | VS1-R200W200      | 62            | EA            | 200                           | 200     | VS1-R200W200      | 62            | EA            |
|                | 1   | 44                                   | 174   | 160                           | 200     | VS1-R160W200      | 62            | EA            | 100                           | 200     | VS1-R100W200      | 47            | EA            |
|                | 2   | 40                                   | 278   | 50                            | 400     | VS1-R50W400       | 136           | EA            | 50                            | 400     | VS1-R50W400       | 136           | EA            |
|                | 3   | 26                                   | 464   | 50                            | 400     | VS1-R50W400       | 136           | EA            | 33                            | 600     | VS1-R33W600       | 287           | EA            |
|                | 5   | 16                                   | 767   | 33                            | 600     | VS1-R33W600       | 287           | EA            | 20                            | 800     | VS1-R20W800       | 316           | EB            |
|                | 7.5 | 8                                    | 929   | 20                            | 800     | VS1-R20W800       | 316           | EB            | 15                            | 1200    | VS1-R15W1200      | 382           | EB            |
|                | 10  | 8                                    | 1394  | 15                            | 1200    | VS1-R15W1200      | 382           | EB            | 10                            | 2400    | VS1-R10W2400      | 504           | EB            |
| 460            | 0.5 | 133                                  | 116   | 200                           | 200     | VS1-R200W200      | 62            | EA            | 200                           | 200     | VS1-R200W200      | 62            | EA            |
|                | 1   | 66                                   | 174   | 200                           | 200     | VS1-R200W200      | 62            | EA            | 200                           | 200     | VS1-R200W200      | 62            | EA            |
|                | 2   | 66                                   | 348   | 200                           | 400     | VS1-R200W400      | 136           | EA            | 200                           | 400     | VS1-R200W400      | 136           | EA            |
|                | 3   | 80                                   | 464   | 200                           | 400     | VS1-R200W400      | 136           | EA            | 130                           | 600     | VS1-R130W600      | 287           | EA            |
|                | 5   | 64                                   | 755   | 100                           | 400     | VS1-R100W400      | 136           | EA            | 85                            | 1000    | VS1-R85W1000      | 357           | EB            |
|                | 7.5 | 32                                   | 1235  | 85                            | 1000    | VS1-R85W1000      | 357           | EB            | 40                            | 2000    | VS1-R40W2000      | 479           | EA            |
|                | 10  | 32                                   | 1394  | 60                            | 1200    | VS1-R60W1200      | 382           | EB            | 40                            | 2000    | VS1-R40W2000      | 479           | EA            |

## NEMA 1/IP30 Kit

The VS1MD AC drive has an enclosure rating of IP20, but includes provisions to mount a NEMA 1 kit. This kit provides a metal conduit plate for attaching user conduit, as well as a plastic top cover for the drive.

## VS1MD NEMA 1 Kits

| Description               | Catalog Number | List Price | Mult. Sym. |
|---------------------------|----------------|------------|------------|
| VS1MD NEMA 1 Kit, Frame A | VS1MD-NM1A     | 42         | EA         |
| VS1MD NEMA 1 Kit, Frame B | VS1MD-NM1B     | 42         | EA         |
| VS1MD NEMA 1 Kit, Frame C | VS1MD-NM1C     | 50         | EA         |
| VS1MD NEMA 1 Kit, Frame D | VS1MD-NM1D     | 60         | EA         |
| VS1MD NEMA 1 Kit, Frame E | VS1MD-NM1E     | 66         | EA         |
| VS1MD NEMA 1 Kit, Frame F | VS1MD-NM1F     | 90         | EA         |

**VS1MD – Accessories Continued...**

**DIN Rail Mounting Kit**

Adapter Kit to convert the VS1MD drive for DIN Rail Mounting. Low profile mounting to the back of the AC Drive adds minimal depth.

**VS1MD Din Rail Kit**

| Description                | Catalog Number    | List Price | Mult. Sym. |
|----------------------------|-------------------|------------|------------|
| VS1MD Din Rail Kit A-Frame | <b>VS1MD-DINA</b> | 20         | EA         |
| VS1MD Din Rail Kit B-Frame | <b>VS1MD-DINB</b> | 26         | EA         |
| VS1MD Din Rail Kit C-Frame | <b>VS1MD-DINC</b> | 34         | EA         |

**VS1MD NEMA 1 Remote Keypads**

The VS1MD Remote Keypad can be panel mounted for remote keypad configuration or control of the VS1MD. The remote keypad can be mounted up to 15ft. from the VS1MD drive.

| Description                                | Catalog Number     | List Price | Mult. Sym. |
|--|--------------------|------------|------------|
| VS1MD Remote Keypad with 6 ft. (2m) cable  | <b>VS1MD-RKEY2</b> | 101        | EA         |
| VS1MD Remote Keypad with 9 ft. (3m) cable  | <b>VS1MD-RKEY3</b> | 111        | EA         |
| VS1MD Remote Keypad with 15 ft. (5m) cable | <b>VS1MD-RKEY5</b> | 131        | EA         |

**VS1MD CopyCat Keypad**

The VS1MD CopyCat Keypad allows a CopyCat function so that the parameters of the drive can be stored to and retrieved from the Remote Keypad.

| Description          | Catalog Number   | List Price | Mult. Sym. |
|----------------------|------------------|------------|------------|
| VS1MD CopyCat Keypad | <b>VS1MD-CCL</b> | 105        | EA         |

**VS1MD Communication Option Kits**

Ideal for factory, building and process automation industries, Communication cards are available for DeviceNet, dual protocol Ethernet IP/ModBus TCP/IP and Profibus.

Network cards fit internal to the VS1MD drive replacing the standard operator interface and I/O board. In order to use a communication option, order a VS1MD Communication Ready Drive from the preceding pages. The Communication Ready Drives can be identified by the “-8” suffix on the part number. Then, select a VS1MD Communication Option from the list below. It is also possible to convert a standard VS1MD Drive to work with these communication options. In order to use a standard VS1MD Drive with a Communication Option, you must also order a communications-ready conversion kit MD11040001769 (includes a new front cover, baseplate, and communications board header adapter).

| Description                    | Catalog Number    | List Price | Mult. Sym. |
|--------------------------------|-------------------|------------|------------|
| DeviceNet Communication Card   | <b>VS1MD-DNET</b> | 223        | EA         |
| Profibus Communication Card    | <b>VS1MD-PBUS</b> | 335        | EA         |
| Ethernet IP Communication Card | <b>VS1MD-ENET</b> | 292        | EA         |

**VS1 USB to RS485 Converter Kit**

This kit allows communications between a USB port on a computer and the VS1MD Drive RS485 control terminals.

| Description                    | Catalog Number     | List Price | Mult. Sym. |
|--------------------------------|--------------------|------------|------------|
| VS1 USB to RS485 Converter Kit | <b>VS1-COMMUSB</b> | 529        | EA         |

**DriveView Software**

DriveView communications software for Baldor VS1MD Drives is available at no charge by downloading from the Baldor VS Drives web site at [www.baldor.com](http://www.baldor.com).

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**VS1MX  
AC Micro Drive**

**1/2 thru 1.5 Hp**  
**1/2 thru 3 Hp**  
**1/2 thru 5 Hp**  
**1 thru 10 Hp**

**115 VAC**  
**230 VAC**  
**230 VAC**  
**460 VAC**

**1 Phase - 50/60 Hz**  
**1 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**



**Applications:** Applications that require a washdown or harsh duty enclosure. Ideal for environments where dust, oil mist or water is prevalent. Variable torque, constant torque or constant horsepower applications. Target stand alone applications where a local disconnect is required. New installations, replacements and original equipment manufactures (OEM).

**Features:** Volts per Hertz Control with peak overload capacity of 175%. Flexible mounting options NEMA 12, NEMA 4X (Indoor) Input Disconnect models and EMC Filter models. Integral keypad, operator interface and local speed control. Speed potentiometer and F-O-R switch on input disconnect models only. Basic set of less than forty programming parameters. Power ratings up to 10 Hp in 460V versions.

|                              |                                 |   |
|------------------------------|---------------------------------|---|
| <b>Performance Features</b>  | Control Modes                   | V/Hz  |
|                              | Operator Interface Module       | Integral Drive Mounted  |
|                              | Display Lines                   | 6-Character LED Display   |
|                              | Programmable Preset Speeds      | Four  |
|                              | Analog Outputs                  | One (0-10 VDC)  |
|                              | Auto Restart                    | Yes – Up to 5 attempts  |
|                              | Frequency Avoidance             | One Band  |
|                              | Fault History                   | Last Four Faults  |
|                              | Digital Inputs                  | Three Configurable Inputs   |
| Digital Inputs Type          | Pull-Up                         |   |
| <b>Drive Specifications</b>  | Analog Inputs: Two              | 0-10VDC or 4 to 20mA  |
|                              | Relay Outputs: One              | One Built-in Form C Relay   |
|                              | Analog Outputs / Digital Output | 0-10 VDC: One Analog Usable for Meter (Freq., Current, Voltage) or Digital Output     |
|                              | Maximum Load                    | 10 Hp @ 460 VAC   |
|                              | Overload Capacity               | Drive Output 150% for one minute and 175% for 2 seconds                               |
|                              | Input Voltage Ranges            | 115 VAC (99-126); 230 VAC (198-264); 460 VAC (342-528)                                |
|                              | Rated Input Frequency           | 50-60Hz (±5%)   |
|                              | Carrier Frequency               | 4-32 kHz (8 kHz default)  |
|                              | Operating Temperature           | -10° to 40°C  |
|                              | Snubber (Dynamic Braking)       | Built-in Transistor on Frames 2 and 3 only  |
|                              | Dynamic Braking External        | Up to 150% Dynamic Braking with appropriately sized resistor                          |
|                              | DC Injection Braking            | Included  |
|                              | Volts/Hz                        | Linear V/Hz, Energy Optimizer Function  |
|                              | Frequency Control Range         | 0 - 500Hz   |
|                              | Accel/Decel                     | Independently adjustable accel. & decel. ramps  |
|                              | Time Range                      | 0.1 to 600.0 Seconds  |
|                              | Keypad Speed Control            | Yes   |
|                              | Sink/Source Inputs              | Selectable, 24 VDC Logic  |
|                              | Electronic Overload Trip        | Electronic Motor Overload Inverse 150% for 1 minute or 175% for 2                     |
|                              | Communications                  | Built-in MODBUS-RTU (RS-485) Communications   |
| PI Control                   | Built-in                        |   |
| <b>Protective Features</b>   | Under Voltage                   | Level Depends on Voltage Class (240, 480, or 575)                                     |
|                              | Output Short Circuit            | Phase-to-Phase on Drive Output  |
|                              | Over Temperature                | Heatsink Monitor  |
|                              | DC Bus Overvoltage              | DC Bus Level Trip   |
|                              | Drive Overload                  | Exceed Drive rating of 150% for One Minute or 175% for 2 seconds                      |
|                              | Over Current                    | Over-current/short-Circuit protection   |
|                              | Output Phase                    | Trips on open Output Phase  |
|                              | Loss of Reference               | Trips on Loss of Speed Command Signal   |
|                              | Comm. Error                     | Detects a communication error (fault)   |
| <b>Agency Certifications</b> | UL, cUL, CE, CCC, C-tick        |   |
| <b>Service Conditions</b>    | Altitude                        | 1,000 m (3,300 ft.), derate by 1% per 100m up to 2,000m maximum                       |
|                              | Ambient Temperature             | -10°C (14°F) to 40°C (102°F)  |
|                              | Storage Temperature             | -40°C (-40°F) to 60°C (140°F)   |
|                              | Relative Humidity               | 10% to 95%, non-condensing  |
|                              | Intermittent Overload           | 150% overload capacity for up to 1 minute, 175% overload capacity for up to 2 seconds |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**VS1MX – 115V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output) – NEMA 4X/12 (White Enclosure) \*\***

| Catalog Number | Disconnect * | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|--------------|-------|-----|----------------|------------|------------|
| VS1MX10P5-4    | No           | A     | 0.5 | 2.3            | 701        | EA         |
| VS1MX10P5-4D   | Yes          | A     | 0.5 | 2.3            | 770        | EA         |
| VS1MX11-4      | No           | A     | 1   | 4.3            | 726        | EA         |
| VS1MX11-4D     | Yes          | A     | 1   | 4.3            | 800        | EA         |
| VS1MX11P5-4T   | No           | B     | 1.5 | 5.8            | 910        | EA         |
| VS1MX11P5-4TD  | Yes          | B     | 1.5 | 5.8            | 1,000      | EA         |

**VS1MX – 115V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output) – NEMA 12 (Green Enclosure)**

| Catalog Number | Disconnect * | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|--------------|-------|-----|----------------|------------|------------|
| VS1MX10P5-2    | No           | A     | 0.5 | 2.3            | 644        | EA         |
| VS1MX10P5-2D   | Yes          | A     | 0.5 | 2.3            | 708        | EA         |
| VS1MX11-2      | No           | A     | 1   | 4.3            | 669        | EA         |
| VS1MX11-2D     | Yes          | A     | 1   | 4.3            | 736        | EA         |
| VS1MX11P5-2T   | No           | B     | 1.5 | 5.8            | 837        | EA         |
| VS1MX11P5-2TD  | Yes          | B     | 1.5 | 5.8            | 920        | EA         |

**VS1MX – 230V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output) – NEMA 4X/12 (White Enclosure) \*\***

| Catalog Number | Disconnect * | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|--------------|-------|-----|----------------|------------|------------|
| VS1MX80P5-4    | No           | A     | 0.5 | 2.3            | 609        | EA         |
| VS1MX80P5-4D   | Yes          | A     | 0.5 | 2.3            | 670        | EA         |
| VS1MX81-4      | No           | A     | 1   | 4.3            | 632        | EA         |
| VS1MX81-4D     | Yes          | A     | 1   | 4.3            | 695        | EA         |
| VS1MX82-4      | No           | A     | 2   | 7              | 790        | EA         |
| VS1MX82-4D     | Yes          | A     | 2   | 7              | 870        | EA         |
| VS1MX82-4T     | No           | B     | 2   | 7              | 879        | EA         |
| VS1MX82-4TD    | Yes          | B     | 2   | 7              | 966        | EA         |
| VS1MX83-4T     | No           | B     | 3   | 10.5           | 913        | EA         |
| VS1MX83-4TD    | Yes          | B     | 3   | 10.5           | 1,002      | EA         |

**VS1MX – 230V, 50/60 Hz, 1-Phase Input (230V, 3-Phase Output) – NEMA 12 (Green Enclosure)**

| Catalog Number | Disconnect * | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|--------------|-------|-----|----------------|------------|------------|
| VS1MX80P5-2    | No           | A     | 0.5 | 2.3            | 560        | EA         |
| VS1MX80P5-2D   | Yes          | A     | 0.5 | 2.3            | 616        | EA         |
| VS1MX81-2      | No           | A     | 1   | 4.3            | 582        | EA         |
| VS1MX81-2D     | Yes          | A     | 1   | 4.3            | 640        | EA         |
| VS1MX82-2      | No           | A     | 2   | 7              | 728        | EA         |
| VS1MX82-2D     | Yes          | A     | 2   | 7              | 801        | EA         |
| VS1MX82-2T     | No           | B     | 2   | 7              | 808        | EA         |
| VS1MX82-2TD    | Yes          | B     | 2   | 7              | 889        | EA         |
| VS1MX83-2T     | No           | B     | 3   | 10.5           | 840        | EA         |
| VS1MX83-2TD    | Yes          | B     | 3   | 10.5           | 923        | EA         |

**NOTE:** For EMC filtered units, refer to catalog CA769 (Baldor Drives and Capabilities).

\* Disconnect models include speed potentiometer and F-O-R switch.

\*\* Indoor

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

## VS1MX – 230V, 50/60 Hz, 3-Phase Input (230V, 3-Phase Output) – NEMA 4X/12 (White Enclosure) \*\*

| Catalog Number | Disconnect * | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|--------------|-------|-----|----------------|------------|------------|
| VS1MX20P5-4    | No           | A     | 0.5 | 2.3            | 626        | EA         |
| VS1MX20P5-4D   | Yes          | A     | 0.5 | 2.3            | 688        | EA         |
| VS1MX21-4      | No           | A     | 1   | 4.3            | 688        | EA         |
| VS1MX21-4D     | Yes          | A     | 1   | 4.3            | 711        | EA         |
| VS1MX22-4      | No           | A     | 2   | 7              | 712        | EA         |
| VS1MX22-4D     | Yes          | A     | 2   | 7              | 783        | EA         |
| VS1MX22-4T     | No           | B     | 2   | 7              | 791        | EA         |
| VS1MX22-4TD    | Yes          | B     | 2   | 7              | 870        | EA         |
| VS1MX23-4T     | No           | B     | 3   | 10.5           | 821        | EA         |
| VS1MX23-4TD    | Yes          | B     | 3   | 10.5           | 903        | EA         |
| VS1MX25-4T     | No           | C     | 5   | 18             | 1,170      | EA         |
| VS1MX25-4TD    | Yes          | C     | 5   | 18             | 1,288      | EA         |

## VS1MX – 230V, 50/60 Hz, 3-Phase Input (230V, 3-Phase Output) – NEMA 12 (Green Enclosure)

| Catalog Number | Disconnect * | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|--------------|-------|-----|----------------|------------|------------|
| VS1MX20P5-2    | No           | A     | 0.5 | 2.3            | 574        | EA         |
| VS1MX20P5-2D   | Yes          | A     | 0.5 | 2.3            | 632        | EA         |
| VS1MX21-2      | No           | A     | 1   | 4.3            | 596        | EA         |
| VS1MX21-2D     | Yes          | A     | 1   | 4.3            | 655        | EA         |
| VS1MX22-2      | No           | A     | 2   | 7              | 654        | EA         |
| VS1MX22-2D     | Yes          | A     | 2   | 7              | 720        | EA         |
| VS1MX22-2T     | No           | B     | 2   | 7              | 728        | EA         |
| VS1MX22-2TD    | Yes          | B     | 2   | 7              | 800        | EA         |
| VS1MX23-2T     | No           | B     | 3   | 10.5           | 755        | EA         |
| VS1MX23-2TD    | Yes          | B     | 3   | 10.5           | 831        | EA         |

## VS1MX – 460V, 50/60 Hz, 3-Phase Input (460V, 3-Phase Output) – NEMA 4X/12 (White Enclosure) \*\*

| Catalog Number | Disconnect * | Frame | Hp  | Output Current | List Price | Mult. Sym. |
|----------------|--------------|-------|-----|----------------|------------|------------|
| VS1MX41-4      | No           | A     | 1   | 2.2            | 762        | EA         |
| VS1MX41-4D     | Yes          | A     | 1   | 2.2            | 838        | EA         |
| VS1MX42-4      | No           | A     | 2   | 4.1            | 920        | EA         |
| VS1MX42-4D     | Yes          | A     | 2   | 4.1            | 1,013      | EA         |
| VS1MX42-4T     | No           | B     | 2   | 4.1            | 1,022      | EA         |
| VS1MX42-4TD    | Yes          | B     | 2   | 4.1            | 1,125      | EA         |
| VS1MX43-4T     | No           | B     | 3   | 5.8            | 1,065      | EA         |
| VS1MX43-4TD    | Yes          | B     | 3   | 5.8            | 1,170      | EA         |
| VS1MX45-4T     | No           | B     | 5   | 9.5            | 1,323      | EA         |
| VS1MX45-4TD    | Yes          | B     | 5   | 9.5            | 1,456      | EA         |
| VS1MX47-4T     | No           | C     | 7.5 | 14             | 1,708      | EA         |
| VS1MX47-4TD    | Yes          | C     | 7.5 | 14             | 1,879      | EA         |
| VS1MX410-4T    | No           | C     | 10  | 18             | 2,025      | EA         |
| VS1MX410-4TD   | Yes          | C     | 10  | 18             | 2,228      | EA         |

**NOTE:** For EMC filtered units, refer to catalog CA769 (Baldor Drives and Capabilities).

\* Disconnect models include speed potentiometer and F-O-R switch.

\*\* Indoor

Farm Duty  
MotorsDefinite Purpose  
MotorsUnit Handling  
Motors

Brake Motors

200 & 575 Volt  
MotorsIEC Frame  
Motors50 Hertz  
MotorsInverter/Vector  
Motors & ControlsDC Motors  
and ControlsSoft Starters &  
Dynamic Brakes



**VS1MX – 460V, 50/60 Hz, 3-Phase Input (460V, 3-Phase Output) – NEMA 12 (Green Enclosure)**

| Catalog Number | Disconnect * | Frame | Hp | Output Current | List  | Mult. Sym. |
|----------------|--------------|-------|----|----------------|-------|------------|
| VS1MX41-2      | No           | A     | 1  | 2.2            | 701   | EA         |
| VS1MX41-2D     | Yes          | A     | 1  | 2.2            | 770   | EA         |
| VS1MX42-2      | No           | A     | 2  | 4.1            | 846   | EA         |
| VS1MX42-2D     | Yes          | A     | 2  | 4.1            | 931   | EA         |
| VS1MX42-2T     | No           | B     | 2  | 4.1            | 940   | EA         |
| VS1MX42-2TD    | Yes          | B     | 2  | 4.1            | 1,034 | EA         |
| VS1MX43-2T     | No           | B     | 3  | 5.8            | 979   | EA         |
| VS1MX43-2TD    | Yes          | B     | 3  | 5.8            | 1,077 | EA         |
| VS1MX45-2T     | No           | B     | 5  | 9.5            | 1,217 | EA         |
| VS1MX45-2TD    | Yes          | B     | 5  | 9.5            | 1,339 | EA         |

**NOTE:** For EMC filtered units, refer to catalog CA769 (Baldor Drives and Capabilities).  
 \* Disconnect models include speed potentiometer and F-O-R switch.

**Mounting Dimensions - NEMA 12 (IP55)**

| Frame | Height Inches (mm) | Width Inches (mm) | Depth Inches (mm) |
|-------|--------------------|-------------------|-------------------|
| A     | 7.87 (200)         | 5.51 (140)        | 6.54 (166)        |
| B     | 12.2 (310)         | 6.5 (165)         | 7.09 (180)        |

**Mounting Dimensions - NEMA 4X (IP66)**

| Frame | Height Inches (mm) | Width Inches (mm) | Depth Inches (mm) |
|-------|--------------------|-------------------|-------------------|
| A     | 9.13 (232)         | 6.34 (161)        | 6.89 (175)        |
| B     | 10.12 (257)        | 7.40 (178)        | 7.30 (185.5)      |
| C     | 12.01 (305)        | 8.29 (210.5)      | 8.97 (227.8)      |

**VS1MX Accessories**

**VS1MX Dynamic Braking Resistors**

VS1MX Frame B and C drives include built-in braking transistors to aid in applications requiring the ability to stop rapidly. The resistor kit is designed for the VS1MX and mount external to the drive.

| Description                  | Catalog Number | List Price | Mult. Sym. |
|------------------------------|----------------|------------|------------|
| DB Resistor 50 Ohm, 200 Watt | VS1MX-R50W200  | 350        | EA         |

**VS1MX IP55 Padlock**

VS1MX IP55 Drives with a built in disconnect switch can be locked out using the padlock below.

| Description        | Catalog Number | List Price | Mult. Sym. |
|--------------------|----------------|------------|------------|
| VS1MX IP55 Padlock | VS1MX-ILOCK    | 36         | EA         |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

## VS1MX Accessories Continued...

### VS1MX RJ45 Copycat Loader

This device allows uploading of drive parameters. Simply insert the device into the RJ45 port on the front of the VS1MX, press the upload button and you are done. Parameters are stored in memory and can be downloaded later or used to duplicate drive setup across a number of drives. Can also be used with VS1ST.

| Catalog Number | Description         | List Price | Mult. Sym. |
|----------------|---------------------|------------|------------|
| VS1ST-CCL      | RJ45 Copycat Loader | 28         | EA         |

### VS1MX Remote Keypad

The VS1ST-RKEY3 Remote Keypad can be panel mounted for remote control or display of drive parameters. The kit comes standard with a 9 foot (3 meter) cable and is suitable for IP54 mounting. Depending on the requirement of the application, VS1ST-RKEY3 can be used point to point or with multiple drives. This keypad can be used with either the VS1ST or the VS1MX.

| Catalog Number | Description                 | List Price | Mult. Sym. |
|----------------|-----------------------------|------------|------------|
| VS1ST-RKEY3    | Remote Keypad with 3m cable | 110        | EA         |

### VS1MX Cable Kits

To support a basic serial network, option cable assemblies and splitters are available.

| Catalog Number | Description               | List Price | Mult. Sym. |
|----------------|---------------------------|------------|------------|
| VS1ST-J45SP    | RJ45 Cable Splitter       | 23         | EA         |
| VS1ST-CBLOP5   | 1.5 ft. (0.5m) RJ45 Cable | 12         | EA         |
| VS1ST-CBL1     | 3 ft. (1m) RJ45 Cable     | 12         | EA         |
| VS1ST-CBL3     | 9 ft. (3m) RJ45 Cable     | 12         | EA         |

### VS1MX Field Bus Gateways

The Field Bus Gateways incorporate the Anybus Communicator and can connect a VS1MX to industrial networks. The communicator performs an intelligent conversion between the drive's serial protocol and the chosen industrial network. Can also be used with VS1ST.

| Catalog Number | Description                            | List Price | Mult. Sym. |
|----------------|--|------------|------------|
| VS1ST-PBUS     | Profibus Gateway Head                  | 953        | EA         |
| VS1ST-DNET     | DeviceNet Gateway Head                 | 953        | EA         |
| VS1ST-ENET     | Ethernet-IP or Modbus/TCP Gateway Head | 902        | EA         |

### VS1MX Relay & Control Board Option Cards

To provide additional capabilities for the VS1MX, add on option cards are available. These include both I/O expansion and 115 or 230VAC control logic interface boards. Can also be used with VS1ST.

| Catalog Number | Description   | List Price | Mult. Sym. |
|----------------|---|------------|------------|
| VS1ST-2ROUT    | Provides one additional relay output for the drive        | 153        | EA         |
| VS1ST-HVAC     | Provides two relays for "drive running" & "drive tripped" | 153        | EA         |
| VS1ST-LOGHV-11 | 115 VAC control logic input card                          | 131        | EA         |
| VS1ST-LOGHV-23 | 230 VAC control logic input card                          | 131        | EA         |

### VS1MXS 600V Harsh Duty AC Micro Drive

**1 thru 7.5 Hp      500-600 VAC      3 Phase - 50/60 Hz**

**Product Highlights:** The VS1MXS is a feature rich V/Hz & Sensorless Vector product targeted at the 600V market and harsh duty applications.

**Applications:** Variable torque, constant torque or constant horsepower applications. New installations, replacements and original equipment manufactures (OEM).

**Features:** V/Hz and Sensorless Vector Control with peak overload capacity of 175% and PID capability. Flexible mounting options with IP55 (NEMA 12) enclosure as standard. Integral keypad, operator interface and local speed control. Basic setup parameter list and advanced software settings. Built-in braking transistor allows connection to remote braking resistor for enhanced performance needs. Power ratings up to 7.5 HP at 600V, pluggable I/O terminal strip.



|                             |  |   |
|-----------------------------|--|---|
| <b>Performance Features</b> | Control Modes  | V/Hz & Sensorless Vector Control  |
|                             | Operator Interface Module                                    | Integral Drive Mounted; basic start/stop, forward/reverse and speed control             |
|                             | Display Lines  | 6-Character LED Display   |
|                             | Programmable Preset Speeds                                   | Eight   |
|                             | Analog Output: One   | 0-10VDC or 20mA   |
|                             | Auto Restart   | Yes -- Up to 5 attempts   |
|                             | Frequency Avoidance  | One Band  |
|                             | Fault History  | Last 4 Faults   |
|                             | Digital Inputs: Four   | Two programmable digital inputs, two user selectable analog/digital inputs              |
|                             | Digital Inputs Type  | Pull-Up   |
| <b>Drive Specifications</b> | Analog Inputs: Two   | One bi-polar and one 0-10VDC, 0 to 20mA or 4 to 20mA                                    |
|                             | Relay Output: One  | Built-in Form C Relay, normally open contact  |
|                             | Analog Output/Digital: One                                   | 0-10 VDC: One Analog Usable for Meter (Freq., Current, Voltage) or Digital Output       |
|                             | Maximum Load:  | 7.5 HP @ 600 VAC  |
|                             | Overload Capacity  | Drive Output 150% for one minute and 175% for 2 seconds                                 |
|                             | Input Voltage Ranges   | 500 - 600VAC  |
|                             | Input Voltage Tolerance                                      | 10% / -10%  |
|                             | Rated Input Frequency  | 50-60Hz (±5%)   |
|                             | Carrier Frequency  | 4-32 kHz (8 kHz default)  |
|                             | Operating Temperature  | -10° to 50°C  |
|                             | Snubber (Dynamic Braking)                                    | Built-in Transistor   |
|                             | Dynamic Braking External                                     | Up to 150% Dynamic Braking with appropriately sized resistor                            |
|                             | DC Injection Braking   | Included  |
|                             | Volts/Hz   | Linear V/Hz, Energy Optimization Function   |
|                             | Sensorless Vector  | Full Sensorless Vector Control with Autotune and motor model                            |
|                             | Frequency Control Range                                      | 0 - 2000Hz  |
|                             | Accel/Decel:   | Independently adjustable accel. & decel. ramps  |
|                             | Keypad Speed Control   | Yes   |
|                             | Sink/Source Inputs   | Selectable, 24 VDC Logic  |
|                             | Electronic Overload Trip                                     | Electronic Motor Overload Inverse 150% for 1 minute or 175% for 2 seconds               |
| Communications              | Built-in MODBUS-RTU (RS-485) Communications, RJ11 connection |   |
| PID Control                 | Built-in with sleep/wake function                            |   |
| <b>Protective Features</b>  | Under Voltage  | Level Depends on Voltage Class (600V)   |
|                             | Output Short Circuit   | Phase-to-Phase on Drive Output  |
|                             | Over Temperature   | Heatsink Monitor  |
|                             | DC Bus Overvoltage   | DC Bus Level Trip   |
|                             | Drive Overload   | Exceed Drive rating of 150% for One Minute or 175% for 2 seconds                        |
|                             | Over Current   | Over-current/short-Circuit protection   |
|                             | Output Phase   | Trips on open Output Phase  |
|                             | Loss of Reference  | Trips on Loss of Speed Command Signal   |
|                             | Communication Error  | Detects a communication error (fault)   |
|                             | <b>Agency Certifications</b>                                 | UL, cUL, CE, CCC, C-tick  |
| <b>Service Conditions</b>   | Altitude   | 1,000 m (3,300 ft.) Maximum   |
|                             | Ambient Temperature  | -10°C to 50°C   |
|                             | Storage Temperature:   | -20°C to 60°C   |
|                             | Relative Humidity  | 10% to 90%, non-condensing  |
|                             | Intermittent Overload  | 150% overload capacity for up to 1 minute<br>175% overload capacity for up to 2 seconds |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 &amp; 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors &amp; Controls

DC Motors and Controls

Soft Start &amp; Dynamic Brakes

**VS1MXS – 500-600V ±10% 3-Phase Input**

| Catalog Number | Frame | Disconnect | Hp  | kW   | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------|-----|------|----------------|------------|------------|
| VS1MXS51-2T    | B     | No         | 1   | 0.75 | 1.7            | 1,047      | EA         |
| VS1MXS51-2TD   | B     | Yes        | 1   | 0.75 | 1.7            | 1,152      | EA         |
| VS1MXS52-2T    | B     | No         | 2   | 1.5  | 3.1            | 1,266      | EA         |
| VS1MXS52-2TD   | B     | Yes        | 2   | 1.5  | 3.1            | 1,393      | EA         |
| VS1MXS53-2T    | B     | No         | 3   | 2.2  | 4.1            | 1,463      | EA         |
| VS1MXS53-2TD   | B     | Yes        | 3   | 2.2  | 4.1            | 1,610      | EA         |
| VS1MXS55-2T    | B     | No         | 5   | 4    | 6.1            | 1,819      | EA         |
| VS1MXS55-2TD   | B     | Yes        | 5   | 4    | 6.1            | 2,000      | EA         |
| VS1MXS57-2T    | B     | No         | 7.5 | 5.5  | 9              | 2,348      | EA         |
| VS1MXS57-2TD   | B     | Yes        | 7.5 | 5.5  | 9              | 2,582      | EA         |

**Mounting Dimensions**

| Frame | Height<br>Inches (mm) | Width<br>Inches (mm) | Depth<br>Inches (mm) |
|-------|-----------------------|----------------------|----------------------|
| B     | 12.2 (310)            | 6.46 (164)           | 7.09 (180)           |

**Remote Keypad for the VS1MXS**

The VS1STS-RKEY3 Remote Keypad can be panel mounted for remote control or display of drive parameters. The kit comes standard with a 9 foot (3 meter) cable and is suitable for IP54 mounting. Depending on the requirement of the application, VS1STS-RKEY3 can be used point to point or with multiple drives. This keypad can be used with either the VS1STS or the VS1MXS.

| Catalog Number | Description                 | List Price | Mult. Sym. |
|----------------|-----------------------------|------------|------------|
| VS1STS-RKEY3   | Remote Keypad with 3m cable | 93         | EA         |

**Cable Kits for the VS1MXS**

To support a basic serial network, option cable assemblies and splitters are available.

| Catalog Number | Description             | List Price | Mult. Sym. |
|----------------|-------------------------|------------|------------|
| VS1STS-J11SP   | RJ45 Cable Splitter     | 24         | EA         |
| VS1STS-CBLOP3  | 1 ft. (0.3m) RJ11 Cable | 6          | EA         |
| VS1STS-CBL1    | 3 ft. (1m) RJ11 Cable   | 8          | EA         |
| VS1STS-CBL3    | 9 ft. (3m) RJ11 Cable   | 12         | EA         |

### VS1PF Pump and Fan AC Drive

**7.5 thru 40 Hp**  
**7.5 thru 700 Hp**  
**7.5 thru 150 Hp**

**230 VAC**  
**460 VAC**  
**600 VAC**

**3 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**



**Applications:** Pump and Fan AC Drive Applications (both Variable and Constant Torque) from 5 to 700 Hp.

**Features:** Nema 1 enclosure as standard up to 15Hp. IP00 with NEMA 1 enclosure Kits available from 20 Hp to 125 Hp. IP00 as standard over 125 Hp. Integral keypad and plain English 2-line display including UP/DOWN keys to adjust speed reference. Dual PID control loops. External DBU Dynamic Braking kits connect to remote braking resistor for enhanced performance needs. Sleep/Wake Function -- Ability to disable/re-enable drives automatically as demand dictates. Energy Savings Function. Power Dip Ride-thru. Flying Start Function.

|                                 |                            |  |         |         |
|---------------------------------|----------------------------|--|---------|---------|
| <b>Input Ratings</b>            | Voltage                    | 230  | 460     | 600     |
|                                 | Voltage Range              | 170-253  | 323-528 | 446-660 |
|                                 | Phase                      | 3 Phase (single phase with 50% derate)   |         |         |
|                                 | Frequency                  | 50/60 Hz +5%   |         |         |
| <b>Output Ratings</b>           | Horsepower                 | 7.5-40 Hp @ 230VAC, 3PH; 7.5-700 Hp @ 460VAC, 3 PH; 7.5-150 Hp @ 600 VAC, 3 PH   |         |         |
|                                 | Overload Capacity          | Heavy Duty (Constant Torque) = 150% for 60 seconds, 180% for 4 seconds<br>Normal Duty (Variable Torque) = 110% for 60 seconds and 130% for 4 seconds.    |         |         |
|                                 | Frequency                  | 0-120 Hz   |         |         |
|                                 | Voltage                    | 0 to maximum input voltage (RMS)   |         |         |
| <b>Protective Features</b>      | Trip                       | Missing control power, over current, over voltage, under voltage, over temperature (motor or control), output shorted or grounded, motor overload        |         |         |
|                                 | External Output            | LED trip condition indicators, 5 assignable logic outputs, 2 assignable analog outputs   |         |         |
|                                 | Short Circuit              | Phase to phase, phase to ground  |         |         |
| <b>Environmental Conditions</b> | Temperature                | -10 to 40°C. Derate 2% per °C to maximum ambient temperature of 50°C.  |         |         |
|                                 | Cooling                    | Forced air   |         |         |
|                                 | Enclosure                  | NEMA 1 and IP00  |         |         |
|                                 | Altitude                   | Sea level to 3300 Feet (1000 Meters) Derate 2% per 1000 Feet (303 Meters) above 3300 Feet  |         |         |
|                                 | Humidity                   | 10 to 95% RH Non-Condensing  |         |         |
|                                 | Storage Temperature        | -40 to +70°C   |         |         |
| <b>Keypad Display</b>           | Display                    | 16 character x 2-line, plain-English alpha-numeric display   |         |         |
|                                 | Keys                       | 9 key membrane with tactile response   |         |         |
|                                 | Functions                  | Output status monitoring, Digital speed control, Parameter setting and display, Diagnostic and Fault log display, Motor run and jog, Local/Remote toggle |         |         |
|                                 | LED Indicators             | Forward run command, Reverse run command, Stop command   |         |         |
|                                 | Remote Mount               | 4000 foot distance   |         |         |
|                                 | Trip                       | Separate message and trace log for each trip, last 5 trips retained in memory  |         |         |
| <b>Control Specifications</b>   | Control Method             | Microprocessor controlled PWM output, selectable encoderless vector or V/Hz inverter   |         |         |
|                                 | Sleep / Wake Function      | Ability to disable/re-enable drive automatically as demand dictates  |         |         |
|                                 | Programmable Preset Speeds | Sixteen  |         |         |
|                                 | Accel/Decel                | 0-6000 seconds, linear, S-Curve, U-Curve   |         |         |
|                                 | Energy Savings Function    | Automatic Mode   |         |         |
|                                 | Frequency Control Range    | 0-120 Hz   |         |         |
|                                 | Frequency Avoidance        | 3 Bands  |         |         |
|                                 | Selectable Operating Modes | Keypad, 2-Wire, 3-Wire, 16 Preset Speeds, Fan Pump, Process Control.   |         |         |
| <b>Analog Inputs</b>            | Two total                  | One: 0-10VDC or -10 to 10VDC<br>One: 4-20mADC  |         |         |
|                                 |                            | Two: 0-12 VDC  |         |         |
| <b>Analog Outputs</b>           | Two                        | Two: 0-12 VDC  |         |         |
| <b>Digital Inputs</b>           | Pull - up or Pull - down   | 8 Completely Configurable Inputs   |         |         |
| <b>Digital Outputs</b>          | Five Total                 | Four Form A Relays<br>One Form C Relay   |         |         |

## VS1PF – 230V, 50/60 Hz, 3-Phase

| Catalog Number | Frame | Hp (Normal Duty) | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------------|----------------|------------|------------|
| VS1PF27-1      | A     | 7.5              | 24             | 1,350      | EB         |
| VS1PF210-1     | B     | 10               | 32             | 1,574      | EB         |
| VS1PF215-1     | B     | 15               | 46             | 1,743      | EB         |
| VS1PF220-9     | C     | 20               | 60             | 2,023      | EB         |
| VS1PF225-9     | C     | 25               | 74             | 2,585      | EB         |
| VS1PF230-9     | E     | 30               | 88             | 3,371      | EB         |
| VS1PF240-9     | E     | 40               | 115            | 3,933      | EB         |

## VS1PF – 460V, 50/60 Hz, 3-Phase

| Catalog Number | Frame | Hp (Normal Duty) | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------------|----------------|------------|------------|
| VS1PF47-1      | A     | 7.5              | 12             | 1,293      | EB         |
| VS1PF410-1     | B     | 10               | 16             | 1,574      | EB         |
| VS1PF415-1     | B     | 15               | 24             | 1,686      | EB         |
| VS1PF420-9     | C     | 20               | 30             | 2,091      | EB         |
| VS1PF420-9L *  | D     | 20               | 30             | 2,472      | EB         |
| VS1PF425-9     | C     | 25               | 39             | 2,472      | EB         |
| VS1PF425-9L *  | D     | 25               | 39             | 2,922      | EB         |
| VS1PF430-9     | E     | 30               | 45             | 3,259      | EB         |
| VS1PF430-9L *  | F     | 30               | 45             | 3,652      | EB         |
| VS1PF440-9     | E     | 40               | 61             | 3,933      | EB         |
| VS1PF440-9L *  | F     | 40               | 61             | 4,327      | EB         |
| VS1PF450-9     | G     | 50               | 75             | 4,720      | EB         |
| VS1PF450-9L *  | J     | 50               | 75             | 5,281      | EB         |
| VS1PF460-9     | G     | 60               | 91             | 6,068      | EB         |
| VS1PF460-9L *  | J     | 60               | 91             | 6,741      | EB         |
| VS1PF475-9     | H     | 75               | 110            | 7,304      | EB         |
| VS1PF475-9L *  | K     | 75               | 110            | 7,977      | EB         |
| VS1PF4100-9    | L     | 100              | 152            | 8,203      | EB         |
| VS1PF4100-9L * | M     | 100              | 152            | 9,102      | EB         |
| VS1PF4125-9    | L     | 125              | 183            | 10,112     | EB         |
| VS1PF4125-9L * | M     | 125              | 183            | 11,068     | EB         |
| VS1PF4150-9L * | N     | 150              | 223            | 11,685     | EB         |
| VS1PF4200-9L * | N     | 200              | 264            | 13,482     | EB         |
| VS1PF4250-9L * | P     | 250              | 325            | 15,730     | EB         |
| VS1PF4300-9L * | R     | 300              | 413            | 19,100     | EB         |
| VS1PF4350-9L * | R     | 350              | 432            | 22,471     | EB         |
| VS1PF4400-9L * | R     | 400              | 547            | 31,458     | EB         |
| VS1PF4500-9    | S     | 500              | 613            | 35,953     | EB         |
| VS1PF4600-9    | T     | 600              | 731            | 44,940     | EB         |
| VS1PF4700-9    | T     | 700              | 877            | 53,928     | EB         |

\* Built-In DC Link Inductor

## VS1PF – 600V, 50/60 Hz, 3-Phase

| Catalog Number | Frame | Hp (Normal Duty) | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------------|----------------|------------|------------|
| VS1PF57-1      | A     | 7.5              | 9              | 1,422      | EB         |
| VS1PF510-1     | A     | 10               | 12             | 1,731      | EB         |
| VS1PF515-1     | A     | 15               | 17             | 1,855      | EB         |
| VS1PF520-1     | C     | 20               | 23             | 2,300      | EB         |
| VS1PF525-9     | C     | 25               | 27             | 2,719      | EB         |
| VS1PF530-9     | E     | 30               | 34             | 3,585      | EB         |
| VS1PF540-9     | E     | 40               | 43             | 4,326      | EB         |
| VS1PF550-9     | H     | 50               | 55             | 5,192      | EB         |
| VS1PF560-9     | H     | 60               | 64             | 6,676      | EB         |
| VS1PF575-9     | H     | 75               | 80             | 8,032      | EB         |
| VS1PF5100-9    | L     | 100              | 104            | 9,023      | EB         |
| VS1PF5125-9    | L     | 125              | 128            | 11,122     | EB         |
| VS1PF5150-9L   | N     | 150              | 150            | 12,853     | EB         |

Farm Duty  
MotorsDefinite Purpose  
MotorsUnit Handling  
Motors

Brake Motors

200 & 575 Volt  
MotorsIEC Frame  
Motors50 Hertz  
MotorsInverter/Vector  
Motors & ControlsDC Motors  
and ControlsSoft Starters &  
Dynamic Brakes



**VS1PF Pump and Fan Bypass AC Drive**

**7.5 thru 40 Hp  
7.5 thru 125 Hp**

**230 VAC  
460 VAC**

**3 Phase - 50/60 Hz  
3 Phase - 50/60 Hz**

**Applications:** Pump and Fan AC Drive Applications from 7.5 to 125 Hp, where System Bypass capability is required.

**Features:** Nema 1 type enclosure, Circuit Breaker with lockable Disconnect, Line Reactor rated at 3%, Surge Suppression, VS1PF control, Thermostat Input, Class 10 Motor Overload, Hand-Off-Auto selector switch, ASD-Bypass-Test Selector Switch, Manual Potentiometer for Hand mode, Analog input voltage or current for Auto mode, Power on, Fault, ASD Bypass indicating light. PID control - Internal and External, Flying Start, Sleep/Wake, Sensorless Vector Control, Energy Savings.

**Options:** Fused Drive Input, Load Reactor, Communication Boards



**VS1PFB – 208V, 50/60 Hz, 3-Phase**

| Catalog Number | Frame | Hp (Normal Duty) | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------------|----------------|------------|------------|
| VS1PFB77-1     | A1    | 7.5              | 24             | 4,086      | E1         |
| VS1PFB710-1    | B1    | 10               | 32             | 4,562      | E1         |
| VS1PFB715-1    | B1    | 15               | 46             | 6,989      | E1         |
| VS1PFB720-1    | C1    | 20               | 60             | 6,693      | E1         |
| VS1PFB725-1    | C1    | 25               | 74             | 7,919      | E1         |
| VS1PFB730-1    | E1    | 30               | 88             | 9,067      | E1         |
| VS1PFB740-1    | E1    | 40               | 115            | 11,328     | E1         |

**VS1PFB – 230V, 50/60 Hz, 3-Phase**

| Catalog Number | Frame | Hp (Normal Duty) | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------------|----------------|------------|------------|
| VS1PFB27-1     | B2    | 7.5              | 24             | 4,016      | E1         |
| VS1PFB210-1    | B2    | 10               | 32             | 4,208      | E1         |
| VS1PFB215-1    | B2    | 15               | 46             | 5,363      | E1         |
| VS1PFB220-1    | C2    | 20               | 60             | 6,110      | E1         |
| VS1PFB225-1    | C2    | 25               | 74             | 7,135      | E1         |
| VS1PFB230-1    | E2    | 30               | 88             | 8,247      | E1         |
| VS1PFB240-1    | E2    | 40               | 115            | 10,565     | E1         |

**VS1PFB – 460V, 50/60 Hz, 3-Phase**

| Catalog Number | Frame | Hp (Normal Duty) | Output Current | List Price | Mult. Sym. |
|----------------|-------|------------------|----------------|------------|------------|
| VS1PFB47-1     | B4    | 7.5              | 12             | 4,046      | E1         |
| VS1PFB410-1    | B4    | 10               | 16             | 4,094      | E1         |
| VS1PFB415-1    | B4    | 15               | 24             | 4,895      | E1         |
| VS1PFB420-1    | C4    | 20               | 30             | 5,880      | E1         |
| VS1PFB425-1    | C4    | 25               | 39             | 6,717      | E1         |
| VS1PFB430-1    | E4    | 30               | 45             | 7,754      | E1         |
| VS1PFB440-1    | E4    | 40               | 61             | 9,827      | E1         |
| VS1PFB450-1    | G4    | 50               | 75             | 11,353     | E1         |
| VS1PFB460-1    | G4    | 60               | 91             | 12,420     | E1         |
| VS1PFB475-1    | H4    | 75               | 110            | 15,049     | E1         |
| VS1PFB4100-1   | L4    | 100              | 152            | 19,785     | E1         |
| VS1PFB4125-1   | L4    | 125              | 183            | 21,026     | E1         |

**NOTE:** Above Bypass Units available with optional fused Drive Input and Load Reactors. Contact your local Baldor•Reliance District Office.

## VS1PF – Accessories

### VS1PF NEMA 1 Kit

| Description  | Catalog Number | List Price | Mult. Sym. |
|--|----------------|------------|------------|
| NEMA 1 Kit for 20Hp & 25Hp Without Built-In DC Link Inductor   | VS1PF-NM1C     | 62         | EB         |
| NEMA 1 Kit for 20Hp & 25Hp With Built-In DC Link Inductor      | VS1PF-NM1D     | 71         | EB         |
| NEMA 1 Kit for 30Hp & 40Hp Without Built-In DC Link Inductor   | VS1PF-NM1E     | 82         | EB         |
| NEMA 1 Kit for 30Hp & 40Hp With Built-In DC Link Inductor      | VS1PF-NM1F     | 91         | EB         |
| NEMA 1 Kit for 50Hp to 75Hp Without Built-In DC Link Inductor  | VS1PF-NM1GH    | 123        | EB         |
| NEMA 1 Kit for 50Hp to 75Hp With Built-In DC Link Inductor     | VS1PF-NM1JK    | 123        | EB         |
| NEMA 1 Kit for 100Hp & 125Hp Without Built-In DC Link Inductor | VS1PF-NM1L     | 164        | EB         |
| NEMA 1 Kit for 100Hp & 125Hp With Built-In DC Link Inductor    | VS1PF-NM1M     | 164        | EB         |

### VS1PF Drive Keypad

| Description                  | Catalog Number | List Price | Mult. Sym. |
|------------------------------|----------------|------------|------------|
| VS1PF Drive Keypad 7.5-40 Hp | VS1PF-RKEY     | 101        | EB         |
| VS1PF Drive Keypad 50-700 Hp | VS1PF-RKEY-M   | 101        | EB         |

### VS1PF NEMA 4X Keypad

A NEMA 4X Keypad is available for remote mounting. Use the cables listed in the VS1PF remote keypad cables table below for mounting the NEMA 4X keypad.

| Description                 | Catalog Number | List Price | Mult. Sym. |
|-----------------------------|----------------|------------|------------|
| VS1PF NEMA 4X Remote Keypad | VS1PF-RKEYN4   | 213        | EB         |

### VS1PF Remote Keypad Extension Cable

The VS1PF Keypad can be removed and remote mounted to door of a host enclosure. To remote mount the VS1PF Keypad, an extension cable is needed.

| Description                  | Catalog Number | List Price | Mult. Sym. |
|------------------------------|----------------|------------|------------|
| VS1PF Remote Keypad 2m cable | VS1PF-CBL2     | 56         | EB         |
| VS1PF Remote Keypad 3m cable | VS1PF-CBL3     | 71         | EB         |
| VS1PF Remote Keypad 5m cable | VS1PF-CBL5     | 86         | EB         |

### VS1PF Remote Keypad Extender Kit

This kit allows a remote keypad to be located up to 4000 feet from the PF device.

| Description                      | Catalog Number | List Price | Mult. Sym. |
|----------------------------------|----------------|------------|------------|
| VS1PF Remote Keypad Extender Kit | VS1PF-KPEXT    | 1,052      | EB         |

### VS1PF Communication Options

Several Communication Option Boards are available & planned for the VS1PF.

| Description                          | Catalog Number | List Price | Mult. Sym. |
|--------------------------------------|----------------|------------|------------|
| DeviceNet Option Board for VS1PF     | VS1PF-DNET     | 330        | EB         |
| MODBUS-RTU Option Board for VS1PF    | VS1PF-MBUS     | 281        | EB         |
| Profibus Option Board for VS1PF      | VS1PF-PBUS     | 506        | EB         |
| MODBUS TCP/IP Option Board for VS1PF | VS1PF-MBTCP    | 600        | EB         |
| LONWORKS Option Board for VS1PF      | VS1PF-LON      | 476        | EB         |
| BACNET TCP/IP Option Board for VS1PF | VS1PF-BAC      | 476        | EB         |
| Metasys-N2 Option Board for VS1PF    | VS1PF-METV2    | 476        | EB         |
| Siemens P1 Communications Bridge     | VS1PF-P1B      | 883        | EB         |

**BALDOR • RELIANCE**

**VS1PF mA Output Board**

This kit allows the ability for the VS1PF to provide a 0-20mA output signal.

| Description           | Catalog Number | List Price | Mult. Sym. |
|-----------------------|----------------|------------|------------|
| VS1PF mA Output Board | VS1PF-MAOUT    | 213        | EB         |

**VS1 USB to RS485 Converter Kit**

This kit allows communications between a USB port on a computer and the VS1PF Drive RS485 control terminals.

| Description                    | Catalog Number | List Price | Mult. Sym. |
|--------------------------------|----------------|------------|------------|
| VS1 USB to RS485 Converter Kit | VS1-COMMUSB    | 529        | EA         |

**VS1PF Extended I/O Function Board**

This kit allows the ability to provide a second analog voltage reference input (V2) to the PF drive.

| Description                       | Catalog Number | List Price | Mult. Sym. |
|-----------------------------------|----------------|------------|------------|
| VS1PF Extended I/O Function Board | VS1PF-EXTIO    | 129        | EB         |

**Pressure-to-Electrical Transducer Kit**

This kit converts a 3-15 psig pressure sensor signal into an electrical signal which the PF drive can follow.

| Description        | Catalog Number | List Price | Mult. Sym. |
|--------------------|----------------|------------|------------|
| PTE Transducer Kit | VS1PF-PET      | 567        | EB         |

**DriveView Software**

DriveView communications software for Baldor VS1PF Drives is available at no charge by downloading from the Baldor VS Drives web site at [www.baldor.com](http://www.baldor.com).

**VS1PF Dynamic Braking Units and Resistors**

| Input Volts | Dynamic Braking Unit Selection ** |                                     |                   |            |                        | Recommended Dynamic Braking Resistors |                         |                   |            |       |         |
|-------------|-----------------------------------|-------------------------------------|-------------------|------------|------------------------|---------------------------------------|-------------------------|-------------------|------------|-------|---------|
|             | Hp                                | Dynamic Braking Unit Catalog Number | List Price (Each) | Mult. Sym. | Minimum Allowable Ohms | Maximum Continuous Braking Wattage    | Resistor Catalog Number | List Price (Each) | Mult. Sym. | Ohms  | Wattage |
| 230         | 7.5                               | VS1PF-T220                          | 631               | EB         | 8.5                    | 3,200                                 | VS1-R20W800             | 316               | EB         | 20    | 800     |
|             | 10                                | VS1PF-T220                          | 631               | EB         | 8.5                    | 3,200                                 | VS1-R15W1200            | 382               | EB         | 15    | 1,200   |
|             | 15                                | VS1PF-T220                          | 631               | EB         | 8.5                    | 3,200                                 | VS1-R10W2400            | 504               | EB         | 10    | 2,400   |
|             | 20                                | VS1PF-T220                          | 631               | EB         | 8.5                    | 3,200                                 | VS1-R10W2400            | 504               | EB         | 10    | 2,400   |
|             | 25                                | VS1PF-T230                          | 706               | EB         | 5.7                    | 4,800                                 | VS1-R8W2400             | 504               | EB         | 8     | 2,400   |
|             | 30                                | VS1PF-T230                          | 706               | EB         | 5.7                    | 4,800                                 | VS1-R8W2400             | 504               | EB         | 8     | 2,400   |
|             | 40                                | VS1PF-T250                          | 1,389             | EB         | 4.2                    | 6,400                                 | VS1-R5W3600             | 908               | EB         | 5     | 3,600   |
|             | 50                                | VS1PF-T250                          | 1,389             | EB         | 4.2                    | 6,400                                 | VS1-R5W3600             | 908               | EB         | 5     | 3,600   |
|             | 60                                | VS1PF-T275                          | 1,589             | EB         | 2.8                    | 9,600                                 | VS1-R8W2400 *           | 504               | EB         | 4     | 4,800   |
| 460         | 7.5                               | VS1PF-T420                          | 631               | EB         | 33.9                   | 3,200                                 | VS1-R85W1000            | 357               | EB         | 85    | 1,000   |
|             | 10                                | VS1PF-T420                          | 631               | EB         | 33.9                   | 3,200                                 | VS1-R60W1200            | 382               | EB         | 60    | 1,200   |
|             | 15                                | VS1PF-T420                          | 631               | EB         | 33.9                   | 3,200                                 | VS1-R40W2000            | 479               | EA         | 40    | 2,000   |
|             | 20                                | VS1PF-T420                          | 631               | EB         | 33.9                   | 3,200                                 | VS1-R40W2000            | 479               | EA         | 40    | 2,000   |
|             | 25                                | VS1PF-T430                          | 706               | EB         | 22.8                   | 4,800                                 | VS1-R30W2400            | 504               | EB         | 30    | 2,400   |
|             | 30                                | VS1PF-T430                          | 706               | EB         | 22.8                   | 4,800                                 | VS1-R30W2400            | 504               | EB         | 30    | 2,400   |
|             | 40                                | VS1PF-T450                          | 1,389             | EB         | 16.9                   | 6,400                                 | VS1-R20W3600            | 908               | EB         | 20    | 3,600   |
|             | 50                                | VS1PF-T450                          | 1,389             | EB         | 16.9                   | 6,400                                 | VS1-R20W3600            | 908               | EB         | 20    | 3,600   |
|             | 60                                | VS1PF-T475                          | 1,589             | EB         | 11.4                   | 9,600                                 | VS1-R30W2400 *          | 504               | EB         | 15    | 4,800   |
|             | 75                                | VS1PF-T475                          | 1,589             | EB         | 11.4                   | 9,600                                 | VS1-R30W2400 *          | 504               | EB         | 15    | 4,800   |
| 100         | VS1PF-T4100                       | 1,639                               | EB                | 8.4        | 12,800                 | VS1-R20W3600 *                        | 908                     | EB                | 10         | 7,200 |         |

\* Use two resistors in parallel to provide the recommended ohms and wattage.

\*\* Enclosure = IP20

The Dynamic Braking Unit and resistors must be mounted separate from the VS1PF drive. See the VS1PF Manual for additional details.

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**VS1SP Inverter/Encoderless Vector Drive**



**1 thru 3 Hp**  
**1 thru 60 Hp**  
**1 thru 500 Hp**  
**1 thru 300 Hp**

**115/230 VAC**  
**230 VAC**  
**460 VAC**  
**600 VAC**

**1 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**

**Applications:** Constant torque, variable torque or constant horsepower applications. New installations, replacements and original equipment manufacturers (OEM).

**Features:** NEMA 1 and NEMA 4 enclosure. Output frequency 0 to 500 Hz with peak overload capacity of 175%. Separate accel/decel rates and controlled reversing. Built-in two and three input PID process control loop.

|  |                               |   |  |         |  |          |                       |
|--|-------------------------------|---|--|---------|--|----------|-----------------------|
| <b>Input Ratings</b>                     | Voltage                       | 115   | 230  | 230     | 460                                      | 600      |                       |
|  | Voltage Range                 | 95-130  | 180-264  | 180-264 | 340-528                                  | 515-660  |                       |
|  | Phase                         | Single Phase  |  |         | Three Phase (single phase with derating) |          |                       |
|  | Frequency                     | 50/60Hz +5%   |  |         |  |          |                       |
|  | Impedance                     | 1% minimum from mains connection  |  |         |  |          |                       |
| <b>Output Ratings</b>                    | Horsepower                    | 1-3 Hp @ 115/230VAC, 1PH; 1-60 Hp @ 230VAC, 3PH; 1-1000 Hp @ 460VAC, 3PH; 1-300 Hp @ 575VAC, 3PH  |  |         |  |          |                       |
|  | Overload Capacity             | Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds<br>Normal Duty (Variable Torque) = 115% for 60 seconds   |  |         |  |          |                       |
|  | Frequency                     | 0-500Hz   |  |         |  |          |                       |
|  | Voltage                       | 0 to maximum input voltage (RMS) (Note: 0 to 230 V for 115 V Single Phase Units)  |  |         |  |          |                       |
| <b>Protective Features</b>               | Trip                          | Missing control power, over current, over voltage, under voltage, over temperature (motor or control), output shorted or grounded, motor overload   |  |         |  |          |                       |
|  | Stall Prevention              | Over voltage suppression, overcurrent suppression   |  |         |  |          |                       |
|  | External Output               | LED trip condition indicators, 4 assignable logic outputs, 2 assignable analog outputs  |  |         |  |          |                       |
|  | Short Circuit                 | Phase to phase, phase to ground   |  |         |  |          |                       |
|  | Electronic Motor Overload     | Meets UL508C (I <sup>2</sup> T)   |  |         |  |          |                       |
| <b>Environmental Conditions</b>          | Temperature                   | -10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°C. (NEMA 4X B-Frame -10-40°C)  |  |         |  |          |                       |
|  | Cooling                       | Forced air  |  |         |  |          |                       |
|  | Enclosure                     | NEMA 1  | NEMA 4X  |         |  |          |                       |
|  | Altitude                      | Sea level to 3300 Feet (1000 Meters) Derate 2% per 1000 Feet (303 Meters) above 3300 Feet   |  |         |  |          |                       |
|  | Humidity                      | NEMA 1:   | 10 to 90% RH Non-Condensing  |         |  | NEMA 4X: | To 100% RH Condensing |
|  | Shock / Vibration             | 1G / 0.5G at 10Hz to 60Hz   |  |         |  |          |                       |
| <b>Keypad Display</b>                    | Storage Temperature           | -10 to +65°C  |  |         |  |          |                       |
|  | Display                       | LCD Graphical 128x64 Pixel  |  |         |  |          |                       |
|  | Keys                          | 14 key membrane with tactile feedback   |  |         |  |          |                       |
|  | Functions                     | Output status monitoring, Digital speed control, Parameter setting and display, Diagnostic and Fault log display, Motor run and jog, Local/Remote toggle  |  |         |  |          |                       |
|  | LED Indicators                | Forward run command, Reverse run command, Stop command, Jog active  |  |         |  |          |                       |
|  | Remote Mount                  | 200 feet (60.6m) maximum from control, NEMA 4 Rated   |  |         |  |          |                       |
|  | Trip                          | Separate message and trace log for each trip, last 10 trips retained in memory  |  |         |  |          |                       |
|  | <b>Control Specifications</b> | Control Method  | Microprocessor controlled PWM output, selectable encoderless vector or V/Hz inverter |         |  |          |                       |
| PWM Frequency                            |                               | Adjustable 1.5-5kHz STD, 5-16 kHz quiet   |  |         |  |          |                       |
| Frequency Setting                        |                               | ±5 VDC, 0-5 VDC ±10 VDC, 0-10 VDC, 4-20 mA or 0-20 mA; digital (keypad), Serial Comms/USB 2.0, and Modbus RTU standard  |  |         |  |          |                       |
| Accel/Decel                              |                               | 0-3600 seconds  |  |         |  |          |                       |
| V/Hz Ratio                               |                               | Linear to squared reduced, base frequency, output voltage, minimum frequency limit, maximum frequency limit   |  |         |  |          |                       |
| Torque Boost                             |                               | 0-30% of input voltage; automatic with manual override  |  |         |  |          |                       |
| Brake Torque                             |                               | 20% standard on Sizes AA and B, 1% standard on Size C, D; External on E, F, G-Frames  |  |         |  |          |                       |
| Skip Frequency                           |                               | Three zones 0-Max frequency   |  |         |  |          |                       |
| PC Setup Software                        |                               | MINT® WorkBench Software available using the USB 2.0 port for commissioning wizard, firmware download, parameter viewer, scope capture and cloning  |  |         |  |          |                       |
| Maximum Output Frequency                 |                               | 500 Hz  |  |         |  |          |                       |
| Selectable Operating Modes               |                               | Keypad, Standard Run 2-Wire, Standard Run 3-Wire, 15 Preset Speeds, Fan Pump 2-Wire, Fan Pump 3-Wire, Process Control, 3-SPD ANA 2-Wire, 3-SPD ANA 3-Wire, Electronic Pot 2-Wire, Electronic Pot 3-Wire, Network Profile Run, Bipolar |  |         |  |          |                       |
| <b>Analog Inputs</b>                     |                               | One Differential  | ±5VDC, ±10VDC, 4-20 mA and 0-20 mA, 11-bit + sign                                    |         |  |          |                       |
|  | One Single Ended              | 0 - 10 VDC, 11-bit  |  |         |  |          |                       |
|  | Input Impedance               | 80 kOhms (Volt mode); 500 Ohms (Current mode)   |  |         |  |          |                       |
| <b>Analog Outputs</b>                    | Analog Outputs                | 2 Assignable  |  |         |  |          |                       |
|  | Full Scale Range              | AOUT1 (0-5V, 0-10V, 0-20mA or 4-20mA), AOUT2 (+5V, +10V)  |  |         |  |          |                       |
|  | Source Current                | 1 mA maximum (volt mode), 20mA (current mode)   |  |         |  |          |                       |
|  | Resolution                    | 9 bits  |  |         |  |          |                       |
| <b>Digital Inputs</b>                    | Opto-isolated Inputs          | 8 Assignable, 1 dedicated input (Drive Enable)  |  |         |  |          |                       |
|  | Rated Voltage                 | 10 - 30 VDC (closed contacts std)   |  |         |  |          |                       |
|  | Input Impedance               | 4.71 k Ohms   |  |         |  |          |                       |
|  | Leakage Current               | 10 mA maximum   |  |         |  |          |                       |
|  | Update Rate                   | 16 msec   |  |         |  |          |                       |
| <b>Digital Outputs (2 Opto Outputs)</b>  | Rated Voltage                 | 5 to 30VDC  |  |         |  |          |                       |
|  | Maximum Current               | 60 mA Maximum   |  |         |  |          |                       |
|  | ON Voltage Drop               | 2 VDC Maximum   |  |         |  |          |                       |
|  | OFF Leakage Current           | 0.1 mA Maximum  |  |         |  |          |                       |
|  | Output Conditions             | 31 Conditions   |  |         |  |          |                       |
| <b>Digital Outputs (2 Relay Outputs)</b> | Rated Voltage                 | 5 to 30VDC or 240VAC  |  |         |  |          |                       |
|  | Maximum Current               | 5A Maximum non-inductive  |  |         |  |          |                       |
|  | Output Conditions             | 31 Conditions   |  |         |  |          |                       |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**VS1SP Inverter/Encoderless Vector – NEMA 1 Enclosure**

| Catalog Number                            | Size | Heavy Duty |      |            |           | Normal Duty |      |            |           | List Price | Mult. Sym. |
|---|------|------------|------|------------|-----------|-------------|------|------------|-----------|------------|------------|
|   |      | Hp         | kW   | Cont. Amps | Peak Amps | Hp          | kW   | Cont. Amps | Peak Amps |            |            |
| <b>115/230 Volts - Single Phase Input</b> |      |            |      |            |           |             |      |            |           |            |            |
| VS1SP61-1B                                | AA   | 1          | 0.75 | 4.2        | 7.4       | 2           | 1.5  | 6.8        | 8.5       | 1,133      | EC         |
| VS1SP62-1B                                | AA   | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,290      | EC         |
| VS1SP63-1B                                | AA   | 3          | 2.2  | 9.6        | 16.8      | 3           | 2.2  | 9.6        | 12        | 1,507      | EC         |
| <b>230 Volts - Three Phase Input</b>      |      |            |      |            |           |             |      |            |           |            |            |
| VS1SP21-1B                                | AA   | 1          | 0.75 | 4.2        | 7.35      | 2           | 1.5  | 6.8        | 8.5       | 1,030      | EC         |
| VS1SP22-1B                                | AA   | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,172      | EC         |
| VS1SP23-1B                                | AA   | 3          | 2.2  | 9.6        | 16.8      | 5           | 3.7  | 15.2       | 19        | 1,370      | EC         |
| VS1SP25-1B                                | AA   | 5          | 3.7  | 15.2       | 26.6      | 7.5         | 5.6  | 22         | 27.5      | 1,567      | EC         |
| VS1SP27-1B                                | AA   | 7.5        | 5.6  | 22         | 38.5      | 7.5         | 5.6  | 22         | 27.5      | 1,961      | EC         |
| VS1SP210-1B                               | B    | 10         | 7.5  | 28         | 49        | 15          | 11   | 42         | 52.5      | 2,761      | EC         |
| VS1SP215-1B                               | B    | 15         | 11   | 42         | 73.5      | 20          | 15   | 54         | 67.5      | 3,287      | EC         |
| VS1SP220-1B                               | B    | 20         | 15   | 54         | 94.5      | 25          | 18.7 | 68         | 85        | 4,382      | EC         |
| VS1SP225-1B                               | C    | 25         | 18.7 | 68         | 119       | 30          | 22.4 | 80         | 92        | 5,259      | EC         |
| VS1SP230-1B                               | C    | 30         | 22.4 | 80         | 140       | 40          | 29.8 | 104        | 120       | 6,793      | EC         |
| VS1SP240-1B                               | C    | 40         | 29.8 | 104        | 182       | 40          | 29.8 | 104        | 120       | 8,107      | EC         |
| VS1SP250-1B                               | D    | 50         | 37   | 130        | 228       | 60          | 45   | 154        | 177       | 10,298     | EC         |
| VS1SP260-1B                               | D    | 60         | 45   | 154        | 270       | 60          | 45   | 154        | 177       | 13,082     | EC         |
| <b>460 Volts - Three Phase Input</b>      |      |            |      |            |           |             |      |            |           |            |            |
| VS1SP41-1B                                | AA   | 1          | 0.75 | 2.1        | 3.68      | 2           | 1.5  | 3.4        | 4.25      | 1,238      | EC         |
| VS1SP42-1B                                | AA   | 2          | 1.5  | 3.4        | 5.95      | 3           | 2.2  | 4.8        | 6         | 1,501      | EC         |
| VS1SP43-1B                                | AA   | 3          | 2.2  | 4.8        | 8.4       | 5           | 3.7  | 7.6        | 9.5       | 1,819      | EC         |
| VS1SP45-1B                                | AA   | 5          | 3.7  | 7.6        | 13.3      | 7.5         | 5.6  | 11         | 13.75     | 1,973      | EC         |
| VS1SP47-1B                                | AA   | 7.5        | 5.6  | 11         | 19.3      | 10          | 7.5  | 14         | 17.5      | 2,499      | EC         |
| VS1SP410-1B                               | AA   | 10         | 7.4  | 14         | 24.5      | 10          | 7.5  | 14         | 17.5      | 2,740      | EC         |
| VS1SP415-1B                               | B    | 15         | 11   | 21         | 36.75     | 20          | 15   | 27         | 33.75     | 3,068      | EC         |
| VS1SP420-1B                               | B    | 20         | 15   | 27         | 47.25     | 25          | 18.7 | 34         | 42.5      | 3,725      | EC         |
| VS1SP425-1B                               | B    | 25         | 18.7 | 34         | 60        | 30          | 22   | 40         | 50        | 4,602      | EC         |
| VS1SP430-1B                               | C    | 30         | 22.4 | 40         | 70        | 40          | 29.8 | 52         | 60        | 5,478      | EC         |
| VS1SP440-1B                               | C    | 40         | 29.8 | 52         | 91        | 50          | 37.3 | 65         | 75        | 6,354      | EC         |
| VS1SP450-1B                               | C    | 50         | 37.3 | 65         | 114       | 60          | 44.8 | 77         | 89        | 7,889      | EC         |
| VS1SP460-1B                               | D    | 60         | 45   | 77         | 135       | 75          | 56   | 96         | 110       | 10,296     | EC         |
| VS1SP475-1B                               | D    | 75         | 56   | 96         | 168       | 100         | 75   | 124        | 143       | 11,942     | EC         |
| VS1SP4100-1B                              | D    | 100        | 75   | 124        | 217       | 125         | 93   | 156        | 179       | 13,804     | EC         |
| VS1SP4125-1B                              | D    | 125        | 93   | 156        | 273       | 125         | 93   | 156        | 179       | 14,790     | EC         |
| VS1SP4150-1 *                             | E    | 150        | 112  | 180        | 315       | 200         | 149  | 240        | 300       | 17,764     | EC         |
| VS1SP4200-1 *                             | E    | 200        | 149  | 240        | 420       | 250         | 187  | 302        | 378       | 23,686     | EC         |
| VS1SP4250-1 *                             | E    | 250        | 187  | 302        | 529       | 300         | 224  | 361        | 451       | 29,607     | EC         |
| VS1SP4300-1 *                             | F    | 300        | 224  | 361        | 632       | 350         | 261  | 414        | 476       | 32,866     | EC         |
| VS1SP4350-1 *                             | F    | 350        | 261  | 414        | 725       | 400         | 298  | 477        | 549       | 38,344     | EC         |
| VS1SP4400-1 *                             | F    | 400        | 298  | 477        | 835       | 450         | 336  | 534        | 614       | 43,821     | EC         |
| VS1SP4450-1 *                             | F    | 450        | 336  | 534        | 935       | 500         | 373  | 590        | 679       | 50,394     | EC         |
| VS1SP4500-1 *                             | F    | 500        | 373  | 590        | 1033      | 500         | 373  | 590        | 679       | 59,159     | EC         |

\* VS1SP E, F & G-Frame Drives do not include an internal braking transistor.  
CF = Contact Factory

Farm Duty Motors

Definite Purpose Motors

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Brake Motors

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IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**VS1SP Inverter/Encoderless Vector – NEMA 1 Enclosure**

| Catalog Number                       | Size | Heavy Duty |      |            |           | Normal Duty |      |            |           | List Price | Mult. Sym. |
|--------------------------------------|------|------------|------|------------|-----------|-------------|------|------------|-----------|------------|------------|
|                                      |      | Hp         | kW   | Cont. Amps | Peak Amps | Hp          | kW   | Cont. Amps | Peak Amps |            |            |
| <b>600 Volts - Three Phase Input</b> |      |            |      |            |           |             |      |            |           |            |            |
| VS1SP51-1B                           | AA   | 1          | 0.75 | 1.7        | 3         | 2           | 1.5  | 2.7        | 3.4       | 1,362      | EC         |
| VS1SP52-1B                           | AA   | 2          | 1.5  | 2.7        | 4.7       | 3           | 2.2  | 3.9        | 4.9       | 1,651      | EC         |
| VS1SP53-1B                           | AA   | 3          | 2.2  | 3.9        | 6.8       | 5           | 3.7  | 6.1        | 7.6       | 2,001      | EC         |
| VS1SP55-1B                           | AA   | 5          | 3.7  | 6.1        | 10.7      | 7.5         | 5.6  | 9          | 11.3      | 2,169      | EC         |
| VS1SP57-1B                           | AA   | 7.5        | 5.6  | 9          | 15.8      | 10          | 7.5  | 11         | 13.8      | 2,748      | EC         |
| VS1SP510-1B                          | AA   | 10         | 7.5  | 11         | 19.3      | 10          | 7.5  | 11         | 13.8      | 3,014      | EC         |
| VS1SP515-1B                          | B    | 15         | 11   | 17         | 29.8      | 20          | 15   | 22         | 27.5      | 3,857      | EC         |
| VS1SP520-1B                          | B    | 20         | 15   | 22         | 38.5      | 25          | 18.7 | 27         | 33.8      | 4,580      | EC         |
| VS1SP525-1B                          | B    | 25         | 18.7 | 27         | 47.2      | 30          | 22   | 32         | 40        | 5,664      | EC         |
| VS1SP530-1B                          | C    | 30         | 22.4 | 32         | 56        | 40          | 29.8 | 41         | 47        | 6,869      | EC         |
| VS1SP540-1B                          | C    | 40         | 29.8 | 41         | 72        | 50          | 37.3 | 52         | 60        | 8,435      | EC         |
| VS1SP550-1B                          | C    | 50         | 37.3 | 52         | 91        | 60          | 45   | 62         | 71        | 10,123     | EC         |
| VS1SP560-1B                          | D    | 60         | 45   | 62         | 109       | 75          | 56   | 77         | 89        | 11,328     | EC         |
| VS1SP575-1B                          | D    | 75         | 56   | 77         | 135       | 100         | 75   | 99         | 114       | 13,135     | EC         |
| VS1SP5100-1B                         | D    | 100        | 75   | 99         | 173       | 125         | 93   | 125        | 144       | 15,185     | EC         |
| VS1SP5125-1B                         | D    | 125        | 93   | 125        | 219       | 150         | 112  | 144        | 166       | 16,269     | EC         |
| VS1SP5150-1 *                        | E    | 150        | 112  | 144        | 252       | 200         | 149  | 192        | 240       | 19,463     | EC         |
| VS1SP5200-1 *                        | E    | 200        | 149  | 192        | 336       | 250         | 187  | 242        | 302       | 25,951     | EC         |
| VS1SP5250-1 *                        | E    | 250        | 187  | 242        | 423       | 300         | 224  | 289        | 361       | 32,439     | EC         |
| VS1SP5300-1 *                        | E    | 300        | 224  | 289        | 506       | 300         | 224  | 289        | 361       | 36,146     | EC         |

\* VS1SP E-Frame drives do not include an internal braking transistor.

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes



**VS1SP Inverter/Encoderless Vector – NEMA 4 Washdown Enclosure**

| Catalog Number                            | Size  | Heavy Duty |      |            |           | Normal Duty |      |            |           | List Price | Mult. Sym. |
|---|-------|------------|------|------------|-----------|-------------|------|------------|-----------|------------|------------|
|   |       | Hp         | kW   | Cont. Amps | Peak Amps | Hp          | kW   | Cont. Amps | Peak Amps |            |            |
| <b>115/230 Volts - Single Phase Input</b> |       |            |      |            |           |             |      |            |           |            |            |
| VS1SP61-4B                                | AA    | 1          | 0.75 | 4.2        | 7.4       | 2           | 1.5  | 6.8        | 8.5       | 1,218      | EC         |
| VS1SP62-4B                                | AA    | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,387      | EC         |
| VS1SP63-4B                                | AA    | 3          | 2.2  | 9.6        | 16.8      | 3           | 2.2  | 9.6        | 12        | 1,602      | EC         |
| <b>230 Volts - Three Phase Input</b>      |       |            |      |            |           |             |      |            |           |            |            |
| VS1SP21-4B                                | AA    | 1          | 0.75 | 4.2        | 7.35      | 2           | 1.5  | 6.8        | 8.5       | 1,106      | EC         |
| VS1SP22-4B                                | AA    | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,260      | EC         |
| VS1SP23-4B                                | AA    | 3          | 2.2  | 9.6        | 16.8      | 5           | 3.7  | 15.2       | 19        | 1,472      | EC         |
| VS1SP25-4B                                | AA    | 5          | 3.7  | 15.2       | 26.6      | 7.5         | 5.6  | 22         | 27.5      | 1,699      | EC         |
| VS1SP27-4B                                | AA    | 7.5        | 5.6  | 22         | 38.5      | 7.5         | 5.6  | 22         | 27.5      | 2,104      | EC         |
| VS1SP210-4B                               | B-N4X | 10         | 7.5  | 28         | 49        | 15          | 11   | 42         | 52.5      | 2,982      | EC         |
| VS1SP215-4B                               | B-N4X | 15         | 11   | 42         | 73.5      | 20          | 15   | 54         | 67.5      | 3,549      | EC         |
| VS1SP220-4B                               | B-N4X | 20         | 15   | 54         | 94.5      | 25          | 18.7 | 68         | 85        | 4,732      | EC         |
| <b>460 Volts - Three Phase Input</b>      |       |            |      |            |           |             |      |            |           |            |            |
| VS1SP41-4B                                | AA    | 1          | 0.75 | 2.1        | 3.68      | 2           | 1.5  | 3.4        | 4.25      | 1,370      | EC         |
| VS1SP42-4B                                | AA    | 2          | 1.5  | 3.4        | 5.95      | 3           | 2.2  | 4.8        | 6         | 1,557      | EC         |
| VS1SP43-4B                                | AA    | 3          | 2.2  | 4.8        | 8.4       | 5           | 3.7  | 7.6        | 9.5       | 1,895      | EC         |
| VS1SP45-4B                                | AA    | 5          | 3.7  | 7.6        | 13.3      | 7.5         | 5.6  | 11         | 13.75     | 2,169      | EC         |
| VS1SP47-4B                                | AA    | 7.5        | 5.6  | 11         | 19.3      | 10          | 7.5  | 14         | 17.5      | 2,849      | EC         |
| VS1SP410-4B                               | AA    | 10         | 7.4  | 14         | 24.5      | 10          | 7.4  | 14         | 17.5      | 3,014      | EC         |
| VS1SP415-4B                               | B-N4X | 15         | 11   | 21         | 36.75     | 20          | 15   | 27         | 33.75     | 3,856      | EC         |
| VS1SP420-4B                               | B-N4X | 20         | 15   | 27         | 47.25     | 25          | 18.7 | 34         | 42.5      | 4,580      | EC         |
| VS1SP425-4B                               | B-N4X | 25         | 18.7 | 34         | 60        | 30          | 22   | 40         | 55        | 5,664      | EC         |
| <b>575 Volts - Three Phase Input</b>      |       |            |      |            |           |             |      |            |           |            |            |
| VS1SP51-4B                                | AA    | 1          | 0.75 | 1.7        | 3         | 2           | 1.5  | 2.7        | 3.4       | 1,507      | EC         |
| VS1SP52-4B                                | AA    | 2          | 1.5  | 2.7        | 4.7       | 3           | 2.2  | 3.9        | 4.9       | 1,712      | EC         |
| VS1SP53-4B                                | AA    | 3          | 2.2  | 3.9        | 6.8       | 5           | 3.7  | 6.1        | 7.6       | 2,085      | EC         |
| VS1SP55-4B                                | AA    | 5          | 3.7  | 6.1        | 10.7      | 7.5         | 5.6  | 9          | 11.3      | 2,387      | EC         |
| VS1SP57-4B                                | AA    | 7.5        | 5.6  | 9          | 15.8      | 10          | 7.5  | 11         | 13.8      | 3,134      | EC         |
| VS1SP510-4B                               | AA    | 10         | 7.5  | 11         | 19.3      | 10          | 7.5  | 11         | 13.8      | 3,314      | EC         |
| VS1SP515-4B                               | B-N4X | 15         | 11   | 17         | 29.8      | 20          | 15   | 22         | 27.5      | 4,243      | EC         |
| VS1SP520-4B                               | B-N4X | 20         | 15   | 22         | 38.5      | 25          | 18.7 | 27         | 33.8      | 5,038      | EC         |
| VS1SP525-4B                               | B-N4X | 25         | 18.7 | 27         | 47.2      | 30          | 22   | 32         | 40        | 6,231      | EC         |

**Mounting Dimensions**

| Frame | Dimensions inches (mm) |                   |                   |                    |                          | Ap'x. Shpg. Wgt. |
|-------|------------------------|-------------------|-------------------|--------------------|--------------------------|------------------|
|       | Outside                |                   |                   | Mounting           |                          |                  |
|       | Height Inches (mm)     | Width Inches (mm) | Depth Inches (mm) | Height Inches (mm) | Width Inches (mm)        | lbs. (kg)        |
| AA    | 12.27 (312)            | 7.97 (202)        | 8.21 (209)        | 11.75 (298)        | 7.38 (187)               | 20 (9.1)         |
| B     | 18.00 (457)            | 9.10 (231)        | 9.77 (248)        | 17.25 (438)        | 7.00 (178)               | 30 (13.6)        |
| C     | 22.00 (559)            | 9.10 (231)        | 9.77 (248)        | 21.25 (540)        | 7.00 (178)               | 60 (27.2)        |
| D     | 28.00 (711)            | 11.50 (292)       | 13.00 (330)       | 27.25 (692)        | 9.50 (241)               | 120 (54.4)       |
| E     | 42.81 (1087)           | 18.75 (476)       | 16.00 (406)       | 39.75 (1010)       | 15.75 (400)              | 250 (113.4)      |
| F     | 86.56 (2199)           | 31.78 (807)       | 24.59 (625)       | Floor Mount        |                          | 915 (415)*       |
| B-N4X | 17.5 (444)             | 10.73 (273)       | 10.47 (266)       | 16.5 (419)         | 9.78 (248) or 7.88 (200) | 32 (14.5)        |

**Note:** E-Frame dimensions include a 3.0" H x 17.5" W x 5.2" D conduit box which is removable for panel mount (chassis) applications.

Frame size F Drives supplied as standard for bottom entry of conduits. Top entry styles available in wider cabinet.

\*VS1SP4300-1 weighs 825 lbs. (374 kg); all other F-Frame models are 915 lbs. (415 kg)

**VS1GV  
Vector  
Drive**



|                      |                    |                           |
|----------------------|--------------------|---------------------------|
| <b>1 thru 3 Hp</b>   | <b>115/230 VAC</b> | <b>1 Phase - 50/60 Hz</b> |
| <b>1 thru 60 Hp</b>  | <b>230 VAC</b>     | <b>3 Phase - 50/60 Hz</b> |
| <b>1 thru 500 Hp</b> | <b>460 VAC</b>     | <b>3 Phase - 50/60 Hz</b> |
| <b>1 thru 300 Hp</b> | <b>600 VAC</b>     | <b>3 Phase - 50/60 Hz</b> |

**Applications:** Constant torque or constant horsepower applications. New installations, replacements and original equipment manufacturers (OEM).

**Features:** NEMA 1 and NEMA 4 enclosure. Output frequency 0 to 500 Hz with peak overload capacity of 175%. Digital speed or torque control. Built-in two and three input PID process control loop. Automatic tuning to motor and full rated torque down to zero speed.

|  |                            |  |  |         |  |         |
|--|----------------------------|--|--|---------|--|---------|
| <b>Input Ratings</b>                     | Voltage                    | 115  | 230  | 230     | 460                                      | 600     |
|  | Voltage Range              | 95-130   | 180-264  | 180-264 | 340-528                                  | 515-660 |
|  | Phase                      | Single Phase   |  |         | Three Phase (single phase with derating) |         |
|  | Frequency                  | 50/60Hz +5%  |  |         |  |         |
|  | Impedance                  | 1% minimum from mains connection   |  |         |  |         |
| <b>Output Ratings</b>                    | Horsepower                 | 1-3 Hp @ 115/230VAC, 1PH; 1-60 Hp @ 230VAC, 3PH; 1-1000 Hp @ 460VAC, 3PH; 1-300 Hp @ 575VAC, 3PH   |  |         |  |         |
|  | Overload Capacity          | Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds<br>Normal Duty (Variable Torque) = 115% for 60 seconds  |  |         |  |         |
|  | Frequency                  | 0-500Hz  |  |         |  |         |
|  | Voltage                    | 0 to maximum input voltage (RMS) (Note: 0 to 230 V for 115 V Single Phase Units)   |  |         |  |         |
| <b>Protective Features</b>               | Trip                       | Missing control power, over current, over voltage, under voltage, over temperature (motor or control), output shorted or grounded, motor overload, encoder loss.   |  |         |  |         |
|  | Stall Prevention           | Over voltage suppression, overcurrent suppression  |  |         |  |         |
|  | External Output            | LED trip condition indicators, 4 assignable logic outputs, 2 assignable analog outputs   |  |         |  |         |
|  | Short Circuit              | Phase to phase, phase to ground  |  |         |  |         |
|  | Electronic Motor Overload  | Meets UL508C (I <sup>2</sup> T)  |  |         |  |         |
| <b>Environmental Conditions</b>          | Temperature                | -10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°C. (NEMA 4X B-Frame -10-40°C)   |  |         |  |         |
|  | Cooling                    | Forced air   |  |         |  |         |
|  | Enclosure                  | NEMA 1   |  | NEMA 4X |  |         |
|  | Altitude                   | Sea level to 3300 Feet (1000 Meters) Derate 2% per 1000 Feet (303 Meters) above 3300 Feet  |  |         |  |         |
|  | Humidity                   | NEMA 1: 10 to 90% RH Non-Condensing  |  |         | NEMA 4X: To 100% RH Condensing           |         |
|  | Shock / Vibration          | 1G / 0.5G at 10Hz to 60Hz  |  |         |  |         |
|  | Storage Temperature        | -10 to +65°C   |  |         |  |         |
| <b>Keypad Display</b>                    | Display                    | LCD Graphical 128x64 Pixel   |  |         |  |         |
|  | Keys                       | 14 key membrane with tactile feedback  |  |         |  |         |
|  | Functions                  | Output status monitoring, Digital speed control, Parameter setting and display, Diagnostic and Fault log display, Motor run and jog, Local/Remote toggle, One-step tuning  |  |         |  |         |
|  | LED Indicators             | Forward run command, Reverse run command, Stop command, Jog active   |  |         |  |         |
|  | Remote Mount               | 200 feet (60.6m) maximum from control, NEMA 4 Rated  |  |         |  |         |
|  | Trip                       | Separate message and trace log for each trip, last 10 trips retained in memory   |  |         |  |         |
| <b>Control Specifications</b>            | Control Method             | Microprocessor controlled PWM output, selectable closed loop vector, encoderless vector or V/Hz inverter   |  |         |  |         |
|  | PWM Frequency              | Adjustable 1.5-5kHz STD, 5-16 kHz quiet  |  |         |  |         |
|  | Frequency Setting          | ±5 VDC, 0-5 VDC ±10 VDC, 0-10 VDC, 4-20 mA or 0-20 mA; digital (keypad), Serial Comms/USB 2.0, and Modbus RTU standard   |  |         |  |         |
|  | Accel/Decel                | 0-3600 seconds   |  |         |  |         |
|  | Brake Torque               | 20% standard on Sizes AA and B, 1% standard on Size C, D, transistor only standard size E, F & G   |  |         |  |         |
|  | Motor Matching             | Automatic tuning to motor with manual override   |  |         |  |         |
|  | PC Setup Software          | MINT® WorkBench Software available using the USB 2.0 port for commissioning wizard, firmware download, parameter viewer, scope capture and cloning   |  |         |  |         |
|  | Maximum Output Frequency   | 500 Hz   |  |         |  |         |
|  | Selectable Operating Modes | Keypad, Standard Run, 2-Wire, Standard Run 3-Wire, 15 Preset Speeds, Fan Pump 2-Wire, Fan Pump 3-Wire, Process Control, 3-SPD ANA 2-Wire, 3-SPD ANA 3-Wire, Electronic Pot 2-Wire, Electronic Pot 3-Wire, Network Profile Run, Bipolar |  |         |  |         |
|  | <b>Motor Feedback</b>      | Feedback Type  | Incremental encoder coupled to motor shaft; optional resolver feedback |         |  |         |
| Pulses/Rev                               |                            | 60-20,000 selectable, 1024 standard  |  |         |  |         |
| Voltage Output                           |                            | 2 channel in quadrature, 5 VDC, differential   |  |         |  |         |
| Marker Pulse                             |                            | Required for position orientation  |  |         |  |         |
| Power Input                              |                            | 5 VDC, 12 VDC, 300 mA maximum  |  |         |  |         |
| Max. Frequency                           |                            | 4 MHz  |  |         |  |         |
| <b>Analog Inputs</b>                     | Positioning                | Buffered encoder pulse train output for position loop controller   |  |         |  |         |
|  | One Differential           | ±5VDC, ±10VDC, 4-20 mA and 0-20 mA, 11-bit + sign  |  |         |  |         |
|  | One Single Ended           | 0 - 10 VDC, 11-bit   |  |         |  |         |
| <b>Analog Outputs</b>                    | Input Impedance            | 80 kOhms (Volt mode); 500 Ohms (Current mode)  |  |         |  |         |
|  | Analog Outputs             | 2 Assignable   |  |         |  |         |
|  | Full Scale Range           | AOUT1 (0-5V, 0-10V, 0-20mA or 4-20mA), AOUT2 (+5V, +10V)   |  |         |  |         |
|  | Source Current             | 1 mA maximum (volt mode), 20mA (current mode)  |  |         |  |         |
| <b>Digital Inputs</b>                    | Resolution                 | 9 bits   |  |         |  |         |
|  | Opto-isolated Inputs       | 8 Assignable, 1 dedicated input (Drive Enable)   |  |         |  |         |
|  | Rated Voltage              | 10 - 30 VDC (closed contacts std)  |  |         |  |         |
|  | Input Impedance            | 4.71 k Ohms  |  |         |  |         |
|  | Leakage Current            | 10 mA maximum  |  |         |  |         |
|  | Update Rate                | 16 msec  |  |         |  |         |
| <b>Digital Outputs (2 Opto Outputs)</b>  | Rated Voltage              | 5 to 30VDC   |  |         |  |         |
|  | Maximum Current            | 60 mA Maximum  |  |         |  |         |
|  | ON Voltage Drop            | 2 VDC Maximum  |  |         |  |         |
|  | OFF Leakage Current        | 0.1 mA Maximum   |  |         |  |         |
|  | Output Conditions          | 31 Conditions  |  |         |  |         |
| <b>Digital Outputs (2 Relay Outputs)</b> | Rated Voltage              | 5 to 30VDC or 240VAC   |  |         |  |         |
|  | Maximum Current            | 5A Maximum non-inductive   |  |         |  |         |
|  | Output Conditions          | 31 Conditions  |  |         |  |         |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**VS1GV Closed Loop Vector  
NEMA 1 Enclosure**

| Catalog Number                            | Size | Heavy Duty |      |            |           | Normal Duty |      |            |           | List Price | Mult. Sym. |
|---|------|------------|------|------------|-----------|-------------|------|------------|-----------|------------|------------|
|   |      | Hp         | kW   | Cont. Amps | Peak Amps | Hp          | kW   | Cont. Amps | Peak Amps |            |            |
| <b>115/230 Volts - Single Phase Input</b> |      |            |      |            |           |             |      |            |           |            |            |
| VS1GV61-1B                                | AA   | 1          | 0.75 | 4.2        | 7.4       | 2           | 1.5  | 6.8        | 8.5       | 1,592      | EC         |
| VS1GV62-1B                                | AA   | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,796      | EC         |
| VS1GV63-1B                                | AA   | 3          | 2.2  | 9.6        | 16.8      | 3           | 2.2  | 9.6        | 12        | 2,001      | EC         |
| <b>230 Volts - Three Phase Input</b>      |      |            |      |            |           |             |      |            |           |            |            |
| VS1GV21-1B                                | AA   | 1          | 0.75 | 4.2        | 7.35      | 2           | 1.5  | 6.8        | 8.5       | 1,434      | EC         |
| VS1GV22-1B                                | AA   | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,633      | EC         |
| VS1GV23-1B                                | AA   | 3          | 2.2  | 9.6        | 16.8      | 5           | 3.7  | 15.2       | 19        | 1,819      | EC         |
| VS1GV25-1B                                | AA   | 5          | 3.7  | 15.2       | 26.6      | 7.5         | 5.6  | 22         | 27.5      | 2,104      | EC         |
| VS1GV27-1B                                | AA   | 7.5        | 5.6  | 22         | 38.5      | 7.5         | 5.6  | 22         | 27.5      | 2,378      | EC         |
| VS1GV210-1B                               | B    | 10         | 7.5  | 28         | 49        | 15          | 11   | 42         | 52.5      | 3,232      | EC         |
| VS1GV215-1B                               | B    | 15         | 11   | 42         | 73.5      | 20          | 15   | 54         | 67.5      | 3,951      | EC         |
| VS1GV220-1B                               | B    | 20         | 15   | 54         | 94.5      | 25          | 18.7 | 68         | 85        | 5,041      | EC         |
| VS1GV225-1B                               | C    | 25         | 18.7 | 68         | 119       | 30          | 22.4 | 80         | 92        | 5,917      | EC         |
| VS1GV230-1B                               | C    | 30         | 22.4 | 80         | 140       | 40          | 29.8 | 104        | 120       | 7,790      | EC         |
| VS1GV240-1B                               | C    | 40         | 29.8 | 104        | 182       | 40          | 29.8 | 104        | 120       | 8,983      | EC         |
| VS1GV250-1B                               | D    | 50         | 37   | 130        | 228       | 60          | 45   | 154        | 177       | 11,503     | EC         |
| VS1GV260-1B                               | D    | 60         | 45   | 154        | 270       | 60          | 45   | 154        | 177       | 14,730     | EC         |
| <b>460 Volts - Three Phase Input</b>      |      |            |      |            |           |             |      |            |           |            |            |
| VS1GV41-1B                                | AA   | 1          | 0.75 | 2.1        | 3.68      | 2           | 1.5  | 3.4        | 4.25      | 1,973      | EC         |
| VS1GV42-1B                                | AA   | 2          | 1.5  | 3.4        | 5.95      | 3           | 2.2  | 4.8        | 6         | 2,049      | EC         |
| VS1GV43-1B                                | AA   | 3          | 2.2  | 4.8        | 8.4       | 5           | 3.7  | 7.6        | 9.5       | 2,137      | EC         |
| VS1GV45-1B                                | AA   | 5          | 3.7  | 7.6        | 13.3      | 7.5         | 5.6  | 11         | 13.75     | 2,410      | EC         |
| VS1GV47-1B                                | AA   | 7.5        | 5.6  | 11         | 19.3      | 10          | 7.5  | 14         | 17.5      | 2,771      | EC         |
| VS1GV410-1B                               | AA   | 10         | 7.4  | 14         | 24.5      | 10          | 7.5  | 14         | 17.5      | 3,146      | EC         |
| VS1GV415-1B                               | B    | 15         | 11   | 21         | 36.75     | 20          | 15   | 27         | 33.75     | 3,375      | EC         |
| VS1GV420-1B                               | B    | 20         | 15   | 27         | 47.25     | 25          | 18.7 | 34         | 42.5      | 4,098      | EC         |
| VS1GV425-1B                               | B    | 25         | 18.7 | 34         | 60        | 30          | 22   | 40         | 50        | 5,062      | EC         |
| VS1GV430-1B                               | C    | 30         | 22.4 | 40         | 70        | 40          | 29.8 | 52         | 60        | 6,026      | EC         |
| VS1GV440-1B                               | C    | 40         | 29.8 | 52         | 91        | 50          | 37.3 | 65         | 75        | 6,990      | EC         |
| VS1GV450-1B                               | C    | 50         | 37.3 | 65         | 114       | 60          | 44.8 | 77         | 89        | 8,677      | EC         |
| VS1GV460-1B                               | D    | 60         | 45   | 77         | 135       | 75          | 56   | 96         | 110       | 10,846     | EC         |
| VS1GV475-1B                               | D    | 75         | 56   | 96         | 168       | 100         | 75   | 124        | 143       | 12,708     | EC         |
| VS1GV4100-1B                              | D    | 100        | 75   | 124        | 217       | 125         | 93   | 156        | 179       | 14,680     | EC         |
| VS1GV4125-1B                              | D    | 125        | 93   | 156        | 273       | 125         | 93   | 156        | 179       | 15,556     | EC         |
| VS1GV4150-1T *                            | E    | 150        | 112  | 180        | 315       | 200         | 149  | 240        | 300       | 18,691     | EC         |
| VS1GV4200-1T *                            | E    | 200        | 149  | 240        | 420       | 250         | 187  | 302        | 378       | 24,921     | EC         |
| VS1GV4250-1T *                            | E    | 250        | 187  | 302        | 529       | 300         | 224  | 361        | 451       | 31,152     | EC         |
| VS1GV4300-1T *                            | F    | 300        | 224  | 361        | 632       | 350         | 261  | 414        | 476       | 34,510     | EC         |
| VS1GV4350-1T *                            | F    | 350        | 261  | 414        | 725       | 400         | 298  | 477        | 549       | 40,261     | EC         |
| VS1GV4400-1T *                            | F    | 400        | 298  | 477        | 835       | 450         | 336  | 534        | 614       | 46,012     | EC         |
| VS1GV4450-1T *                            | F    | 450        | 336  | 534        | 935       | 500         | 373  | 590        | 679       | 52,913     | EC         |
| VS1GV4500-1 *                             | F    | 500        | 373  | 590        | 1033      | 500         | 373  | 590        | 679       | 62,116     | EC         |

\* VS1GV "-1T"; "-1" drives do not include an internal braking transistor. An integral braking resistor is not included.  
CF = Contact Factory

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**VS1GV Closed Loop Vector  
NEMA 1 Enclosure**

| Catalog Number                       | Size | Heavy Duty |      |            |           | Normal Duty |      |            |           | List Price | Mult. Sym. |
|--------------------------------------|------|------------|------|------------|-----------|-------------|------|------------|-----------|------------|------------|
|                                      |      | Hp         | kW   | Cont. Amps | Peak Amps | Hp          | kW   | Cont. Amps | Peak Amps |            |            |
| <b>575 Volts - Three Phase Input</b> |      |            |      |            |           |             |      |            |           |            |            |
| VS1GV51-1B                           | AA   | 1          | 0.75 | 1.7        | 3         | 2           | 1.5  | 2.7        | 3.4       | 2,169      | EC         |
| VS1GV52-1B                           | AA   | 2          | 1.5  | 2.7        | 4.7       | 3           | 2.2  | 3.9        | 4.9       | 2,254      | EC         |
| VS1GV53-1B                           | AA   | 3          | 2.2  | 3.9        | 6.8       | 5           | 3.7  | 6.1        | 7.6       | 2,350      | EC         |
| VS1GV55-1B                           | AA   | 5          | 3.7  | 6.1        | 10.7      | 7.5         | 5.6  | 9          | 11.3      | 2,651      | EC         |
| VS1GV57-1B                           | AA   | 7.5        | 5.6  | 9          | 15.8      | 10          | 7.5  | 11         | 13.8      | 3,048      | EC         |
| VS1GV510-1B                          | AA   | 10         | 7.5  | 11         | 19.3      | 10          | 7.5  | 11         | 13.8      | 3,462      | EC         |
| VS1GV515-1B                          | B    | 15         | 11   | 17         | 29.8      | 20          | 15   | 22         | 27.5      | 4,339      | EC         |
| VS1GV520-1B                          | B    | 20         | 15   | 22         | 38.5      | 25          | 18.7 | 27         | 33.8      | 5,062      | EC         |
| VS1GV525-1B                          | B    | 25         | 18.7 | 27         | 47.2      | 30          | 22   | 32         | 40        | 6,387      | EC         |
| VS1GV530-1B                          | C    | 30         | 22.4 | 32         | 56        | 40          | 29.8 | 41         | 47        | 7,472      | EC         |
| VS1GV540-1B                          | C    | 40         | 29.8 | 41         | 72        | 50          | 37.3 | 52         | 60        | 9,400      | EC         |
| VS1GV550-1B                          | C    | 50         | 37.3 | 52         | 91        | 60          | 45   | 62         | 71        | 11,087     | EC         |
| VS1GV560-1B                          | D    | 60         | 45   | 62         | 109       | 75          | 56   | 77         | 89        | 11,931     | EC         |
| VS1GV575-1B                          | D    | 75         | 56   | 77         | 135       | 100         | 75   | 99         | 114       | 13,979     | EC         |
| VS1GV5100-1B                         | D    | 100        | 75   | 99         | 173       | 125         | 93   | 125        | 144       | 16,149     | EC         |
| VS1GV5125-1B                         | D    | 125        | 93   | 125        | 219       | 150         | 112  | 144        | 166       | 17,112     | EC         |
| VS1GV5150-1T *                       | E    | 150        | 112  | 144        | 252       | 200         | 149  | 192        | 240       | 20,545     | EC         |
| VS1GV5200-1T *                       | E    | 200        | 149  | 192        | 336       | 250         | 187  | 242        | 302       | 27,393     | EC         |
| VS1GV5250-1T *                       | E    | 250        | 187  | 242        | 423       | 300         | 224  | 289        | 361       | 34,241     | EC         |
| VS1GV5300-1T *                       | E    | 300        | 224  | 289        | 506       | 300         | 224  | 289        | 361       | 37,958     | EC         |

\* VS1GV E-frame drives include an internal braking transistor. An internal braking resistor is not included.

Farm Duty  
Motors

Definite Purpose  
Motors

Unit Handling  
Motors

Brake Motors

200 & 575 Volt  
Motors

IEC Frame  
Motors

50 Hertz  
Motors

Inverter/Vector  
Motors & Controls

DC Motors  
and Controls

Soft Starters &  
Dynamic Brakes

**VS1GV Closed Loop Vector  
NEMA 4 Washdown Enclosure**

| Catalog Number                            | Size  | Heavy Duty |      |            |           | Normal Duty |      |            |           | List Price | Mult. Sym. |
|---|-------|------------|------|------------|-----------|-------------|------|------------|-----------|------------|------------|
|   |       | Hp         | kW   | Cont. Amps | Peak Amps | Hp          | KW   | Cont. Amps | Peak Amps |            |            |
| <b>115/230 Volts - Single Phase Input</b> |       |            |      |            |           |             |      |            |           |            |            |
| VS1GV61-4B                                | AA    | 1          | 0.75 | 4.2        | 7.4       | 2           | 1.5  | 6.8        | 8.5       | 1,705      | EC         |
| VS1GV62-4B                                | AA    | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,941      | EC         |
| VS1GV63-4B                                | AA    | 3          | 2.2  | 9.6        | 16.8      | 3           | 2.2  | 9.6        | 12        | 2,261      | EC         |
| <b>230 Volts - Three Phase Input</b>      |       |            |      |            |           |             |      |            |           |            |            |
| VS1GV21-4B                                | AA    | 1          | 0.75 | 4.2        | 7.35      | 2           | 1.5  | 6.8        | 8.5       | 1,549      | EC         |
| VS1GV22-4B                                | AA    | 2          | 1.5  | 6.8        | 11.9      | 3           | 2.2  | 9.6        | 12        | 1,765      | EC         |
| VS1GV23-4B                                | AA    | 3          | 2.2  | 9.6        | 16.8      | 5           | 3.7  | 15.2       | 19        | 2,056      | EC         |
| VS1GV25-4B                                | AA    | 5          | 3.7  | 15.2       | 26.6      | 7.5         | 5.6  | 22         | 27.5      | 2,378      | EC         |
| VS1GV27-4B                                | AA    | 7.5        | 5.6  | 22         | 38.5      | 7.5         | 5.6  | 22         | 27.5      | 2,955      | EC         |
| VS1GV210-4B                               | B-N4X | 10         | 7.5  | 28         | 49        | 15          | 11   | 42         | 52.5      | 3,555      | EC         |
| VS1GV215-4B                               | B-N4X | 15         | 11   | 42         | 73.5      | 20          | 15   | 54         | 67.5      | 4,346      | EC         |
| VS1GV220-4B                               | B-N4X | 20         | 15   | 54         | 94.5      | 25          | 18.7 | 68         | 85        | 5,546      | EC         |
| <b>460 Volts - Three Phase Input</b>      |       |            |      |            |           |             |      |            |           |            |            |
| VS1GV41-4B                                | AA    | 1          | 0.75 | 2.1        | 3.68      | 2           | 1.5  | 3.4        | 4.25      | 2,055      | EC         |
| VS1GV42-4B                                | AA    | 2          | 1.5  | 3.4        | 5.95      | 3           | 2.2  | 4.8        | 6         | 2,178      | EC         |
| VS1GV43-4B                                | AA    | 3          | 2.2  | 4.8        | 8.4       | 5           | 3.7  | 7.6        | 9.5       | 2,465      | EC         |
| VS1GV45-4B                                | AA    | 5          | 3.7  | 7.6        | 13.3      | 7.5         | 5.6  | 11         | 13.75     | 2,820      | EC         |
| VS1GV47-4B                                | AA    | 7.5        | 5.6  | 11         | 19.3      | 10          | 7.5  | 14         | 17.5      | 3,418      | EC         |
| VS1GV410-4B                               | AA    | 10         | 7.4  | 14         | 24.5      | 10          | 7.4  | 14         | 17.5      | 3,616      | EC         |
| VS1GV415-4B                               | B-N4X | 15         | 11   | 21         | 36.75     | 20          | 15   | 27         | 33.75     | 4,339      | EC         |
| VS1GV420-4B                               | B-N4X | 20         | 15   | 27         | 47.25     | 25          | 18.7 | 34         | 42.5      | 5,063      | EC         |
| VS1GV425-4B                               | B-N4X | 25         | 18.7 | 34         | 60        | 30          | 22   | 40         | 55        | 6,387      | EC         |
| <b>575 Volts - Three Phase Input</b>      |       |            |      |            |           |             |      |            |           |            |            |
| VS1GV51-4B                                | AA    | 1          | 0.75 | 1.7        | 3         | 2           | 1.5  | 2.7        | 3.4       | 2,260      | EC         |
| VS1GV52-4B                                | AA    | 2          | 1.5  | 2.7        | 4.7       | 3           | 2.2  | 3.9        | 4.9       | 2,396      | EC         |
| VS1GV53-4B                                | AA    | 3          | 2.2  | 3.9        | 6.8       | 5           | 3.7  | 6.1        | 7.6       | 2,711      | EC         |
| VS1GV55-4B                                | AA    | 5          | 3.7  | 6.1        | 10.7      | 7.5         | 5.6  | 9          | 11.3      | 3,102      | EC         |
| VS1GV57-4B                                | AA    | 7.5        | 5.6  | 9          | 15.8      | 10          | 7.5  | 11         | 13.8      | 3,760      | EC         |
| VS1GV510-4B                               | AA    | 10         | 7.5  | 11         | 19.3      | 10          | 7.5  | 11         | 13.8      | 3,978      | EC         |
| VS1GV515-4B                               | B-N4X | 15         | 11   | 17         | 29.8      | 20          | 15   | 22         | 27.5      | 4,773      | EC         |
| VS1GV520-4B                               | B-N4X | 20         | 15   | 22         | 38.5      | 25          | 18.7 | 27         | 33.8      | 5,569      | EC         |
| VS1GV525-4B                               | B-N4X | 25         | 18.7 | 27         | 47.2      | 30          | 22   | 32         | 40        | 7,026      | EC         |

**Mounting Dimensions**

| Frame | Dimensions inches (mm) |                   |                   |                    |                          |  | Ap'x. Shpg. Wgt. |
|-------|------------------------|-------------------|-------------------|--------------------|--------------------------|--|------------------|
|       | Outside                |                   |                   | Mounting           |                          |  |                  |
|       | Height Inches (mm)     | Width Inches (mm) | Depth Inches (mm) | Height Inches (mm) | Width Inches (mm)        |  | lbs. (kg)        |
| AA    | 12.27 (312)            | 7.97 (202)        | 8.21 (209)        | 11.75 (298)        | 7.38 (187)               |  | 20 (9.1)         |
| B     | 18.00 (457)            | 9.10 (231)        | 9.77 (248)        | 17.25 (438)        | 7.00 (178)               |  | 30 (13.6)        |
| C     | 22.00 (559)            | 9.10 (231)        | 9.77 (248)        | 21.25 (540)        | 7.00 (178)               |  | 60 (27.2)        |
| D     | 28.00 (711)            | 11.50 (292)       | 13.00 (330)       | 27.25 (692)        | 9.50 (241)               |  | 120 (54.4)       |
| E     | 42.81 (1087)           | 18.75 (476)       | 16.00 (406)       | 39.75 (1010)       | 15.75 (400)              |  | 250 (113.4)      |
| F     | 86.56 (2199)           | 31.78 (807)       | 24.59 (625)       | Floor Mount        |                          |  | 915 (415)*       |
| B-N4X | 17.5 (444)             | 10.73 (273)       | 10.47 (266)       | 16.5 (419)         | 9.76 (248) or 7.88 (210) |  | 3.2 (14.5)       |

**Note:** E-Frame dimensions include a 3.0" H x 17.5" W x 5.2" D conduit box which is removable for panel mount (chassis) applications.

Frame size F Drives supplied as standard for bottom entry of conduits. Top entry styles available in wider cabinet.

\*VS1GV4300-1 weighs 825 lbs. (374 kg); all other F-Frame models are 915 lbs. (415 kg)

### VS1SP / VS1GV Keypad Extension Cable

For the convenience of our customers, we offer a connector plug/cable assembly. This assembly provides the connection from the keypad to the control for remote keypad operation.

| Catalog Number    | Cable Extension Length | List Price | Mult. Sym. | Apx. Shpg. Wgt. |
|-------------------|------------------------|------------|------------|-----------------|
| <b>CBLHH015KP</b> | 5 feet (1.5 meter)     | 46         | EC         | 1               |
| <b>CBLHH030KP</b> | 10 feet (3.0 meter)    | 66         | EC         | 1               |
| <b>CBLHH046KP</b> | 15 feet (4.6 meter)    | 86         | EC         | 1               |
| <b>CBLHH061KP</b> | 20 feet (6.1 meter)    | 106        | EC         | 1               |
| <b>CBLHH091KP</b> | 30 feet (9.1 meter)    | 124        | EC         | 3               |
| <b>CBLHH152KP</b> | 50 feet (15.2 meter)   | 177        | EC         | 3               |
| <b>CBLHH229KP</b> | 75 feet (22.9 meter)   | 255        | EC         | 4               |
| <b>CBLHH305KP</b> | 100 feet (30.5 meter)  | 333        | EC         | 5               |
| <b>CBLHH457KP</b> | 150 feet (45.7 meter)  | 466        | EC         | 6               |
| <b>CBLHH610KP</b> | 200 feet (61.0 meter)  | 596        | EC         | 7               |

### VS1SP / VS1GV Dynamic Braking Resistor Assemblies

Dynamic Braking Resistor Assemblies include braking resistors completely assembled and mounted into a NEMA 1 enclosure. Select the braking resistor that has correct ohm value for the control and adequate continuous watts capacity to meet load requirements.

| Input Volts | Hp       | Total Ohms        | Continuous Rated Watts |                 |                 |                |                |                |                 |
|-------------|----------|-------------------|------------------------|-----------------|-----------------|----------------|----------------|----------------|-----------------|
|             |          |                   | 600                    | 1200            | 2400            | 4800           | 6400           | 9600           | 14200           |
| 230         | 1 - 7.5  | 20                | <b>RGA620</b>          | <b>RGA1220</b>  | <b>RGA2420</b>  |                |                |                |                 |
|             | 10 - 20  | 6                 |                        | <b>RGA1206</b>  | <b>RGA2406</b>  | <b>RGA4806</b> |                |                |                 |
|             | 25 - 40  | 4                 |                        | <b>RGA1204</b>  | <b>RGA2404</b>  | <b>RGA4804</b> |                |                |                 |
| 460         | 1 - 3    | 120               | <b>RGA6120</b>         | <b>RGA12120</b> | <b>RGA24120</b> |                |                |                |                 |
|             | 5 - 10   | 60                | <b>RGA660</b>          | <b>RGA1260</b>  | <b>RGA2460</b>  | <b>RGA4860</b> |                |                |                 |
|             | 15 - 25  | 20                | <b>RGA620</b>          | <b>RGA1220</b>  | <b>RGA2420</b>  | <b>RGA4820</b> |                |                |                 |
|             | 30 - 50  | 10                |                        | <b>RGA1210</b>  | <b>RGA2410</b>  | <b>RGA4810</b> |                |                |                 |
|             | 60 - 125 | 4                 |                        | <b>RGA1204</b>  | <b>RGA2404</b>  | <b>RGA4804</b> | <b>RGA6404</b> | <b>RGA9604</b> | <b>RGA14204</b> |
| 575         | 1 - 3    | 120               | <b>RGA6120</b>         | <b>RGA12120</b> | <b>RGA24120</b> |                |                |                |                 |
|             | 5 - 10   | 60                | <b>RGA660</b>          | <b>RGA1260</b>  | <b>RGA2460</b>  | <b>RGA4820</b> |                |                |                 |
|             | 15 - 25  | 30                | <b>RGA630</b>          | <b>RGA1230</b>  | <b>RGA2430</b>  | <b>RGA4830</b> |                |                |                 |
|             | 30       | 24                |                        | <b>RGA1224</b>  | <b>RGA2424</b>  | <b>RGA4824</b> |                |                |                 |
|             | 40 - 125 | 14                |                        |                 | <b>RGA4814</b>  | <b>RGA6414</b> |                |                |                 |
|             |          | <b>List Price</b> | 590                    | 875             | 1,338           | 2,170          | 5,471          | 8,779          | 12,081          |
|             |          | <b>Mult. Sym.</b> | EC                     | EC              | EC              | EC             | EC             | EC             | EC              |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes



**VS1SP / VS1GV Expansion Boards**

Baldor offers a wide variety of plug-in expansion boards for the VS1SP/VS1GV/VS1SD and H2 Series of drives. Expansion boards allow the drive to be interfaced with various inputs and outputs. Each control has the capability to utilize up to two expansion boards.

| Catalog Number     | Description  | List Price   | Mult. Sym.        |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
|--------------------|--|--------------|-------------------|--------|--------|----------|--------|-------|--------|---------|--------|-----------|--------|-----------|--------|-----|----|
| <b>EXBHH001A01</b> | Ethernet Server Expansion Board<br>Provides easy connection to all drive parameters for setup and review using any PC based Web Browser via an Ethernet connection. Download parameter values, operating conditions, and fault log data for review and archive. Uses standard RJ-45 female terminal for Ethernet connection.   | 168          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH003A01</b> | Isolated Input Expansion Board<br>Contains 9 isolated inputs jumper configurable for 90-130 VAC.<br>All inputs must be the same voltage – one side of all inputs is common.<br>This board replaces all the opto inputs on the main control board.<br>Uses screw terminals for connection.  | 218          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH005A01</b> | High Resolution Analog Input/Output Board<br>Provides two additional analog inputs and two additional analog outputs with up to 16 bits resolution.<br>Acceptable DC inputs: ± 10V, 0-10V, or ± 5V with 300 microvolt resolution. Current inputs: 0-20 mA or 4-20 mA with 0.6 microamp resolution.<br><br><table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><b>Input</b></td> <td style="text-align: center;"><b>Resolution</b></td> </tr> <tr> <td style="text-align: center;">± 10 V</td> <td style="text-align: center;">16 bit</td> </tr> <tr> <td style="text-align: center;">0 - 10 V</td> <td style="text-align: center;">15 bit</td> </tr> <tr> <td style="text-align: center;">± 5 V</td> <td style="text-align: center;">15 bit</td> </tr> <tr> <td style="text-align: center;">0 - 5 V</td> <td style="text-align: center;">14 bit</td> </tr> <tr> <td style="text-align: center;">0 - 20 mA</td> <td style="text-align: center;">15 bit</td> </tr> <tr> <td style="text-align: center;">4 - 20 mA</td> <td style="text-align: center;">15 bit</td> </tr> </table><br>All inputs can be inverted through software. | <b>Input</b> | <b>Resolution</b> | ± 10 V | 16 bit | 0 - 10 V | 15 bit | ± 5 V | 15 bit | 0 - 5 V | 14 bit | 0 - 20 mA | 15 bit | 4 - 20 mA | 15 bit | 340 | EC |
| <b>Input</b>       | <b>Resolution</b>  |              |                   |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| ± 10 V             | 16 bit   |              |                   |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| 0 - 10 V           | 15 bit   |              |                   |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| ± 5 V              | 15 bit   |              |                   |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| 0 - 5 V            | 14 bit   |              |                   |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| 0 - 20 mA          | 15 bit   |              |                   |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| 4 - 20 mA          | 15 bit   |              |                   |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH007A01</b> | Master Pulse Reference/Isolated Pulse Follower Board<br>1. Accepts a 5V or 12V quadrature pulse train input or pulse and direction input to use as a master reference.<br>2. Re-transmits the input pulse train at 5Vdc for different ratios from 1:20 up to 65535:1 (Scaled output).<br>3. Can be used as a auxiliary encoder input to the control.<br>4. A CANOpen port utilizing a RJ-45 female connector for adding an additional I/O breakout box or CAN HMI terminal.  | 556          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH013A02</b> | DeviceNet / EtherNet / IP / Modbus - TCP Expansion Board<br>Allows VS1GV, VS1SP, VS1SD and H2 Drives to be connected to a DeviceNet Communications Network or an EtherNet/IP Communications Network or a Modbus - TCP Communications Network.<br>Uses plug-in terminals for connection to a DeviceNet Communications Network or an RJ-45 to connect to an EtherNet/IP or a Modbus - TCP Communications Network.  | 575          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH014A01</b> | PROFIBUS-DP Expansion Board<br>Allows VS1GV, VS1SP and H2 Drives to be connected to a PROFIBUS Communications Network.<br>Uses plug-in terminals for connection.   | 690          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH015A01</b> | BACnet Expansion Board<br>Allows VS1GV, VS1SP and H2 Drives to be connected to a BACnet Communications Network.<br>Uses 9-pin D-shell for connection.  | 593          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH016A01</b> | LonWorks Communications Expansion Board<br>Allows VS1GV, VS1SP and H2 Drives to be connected to a LonWorks Communications Bus.<br>Uses plug-in terminals for connection.   | 565          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |
| <b>EXBHH017A01</b> | Metasys N2 Communications Expansion Board allows VS1GV, VS1SP and H2 drives to be connected to a NA communications network. Uses plug-in terminals for connection.   | 593          | EC                |        |        |          |        |       |        |         |        |           |        |           |        |     |    |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**Series 5  
Micro Inverters**



**1/2 thru 2 Hp**  
**1/2 thru 2 Hp**  
**2 thru 3 Hp**  
**1 thru 5 Hp**

**97-132 VAC**  
**195-265 VAC**  
**195-265 VAC**  
**323-529 VAC**

**1 Phase - 50/60 Hz**  
**1 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**  
**3 Phase - 50/60 Hz**

**Applications:** Variable torque, constant torque or constant horsepower applications. New installations, replacements and original equipment manufacturers (OEM).

**Features:** NEMA 4X or open chassis mount standard. Output frequency 0.25 to 120 Hz with peak overload capacity of 150%. Separate accel/decel rates and controlled reversing.

**Design Specifications**

- PWM output
- Accel/decel rate adjustment
- Controlled reversing
- Adjustable current limit
- I<sup>2</sup>t motor overload protection
- Adjustable slip compensation
- Min/max output frequency adjustment
- Selectable auto/manual restart

**Operator Interface-Enclosed Units**

- Start/Stop command
- NEMA 4X enclosure
- Power on/off
- Rotary speed control
- Fwd/Rev optional
- Auto/Manual optional

**Environmental and Operating Conditions**

- Input voltage:
  - 1 phase 115 VAC ±15%,
  - 1 phase 230 VAC ±15%
  - 3 phase 230V ±15%
  - 3 phase 460 ± 15%
- Input frequency: 50 or 60Hz ±10%
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet max without derate
- Chassis mount or NEMA 4X enclosure as standard

**Protective Features**

- Selectable automatic restart after momentary power loss
- Power indicator
- Status indicator
- Adjustable time base overload
- Electronic in rush current limiting

|                             |                                       |   |                      |  |
|-----------------------------|---------------------------------------|---|----------------------|--|
| <b>Output Ratings</b>       | Overload Capacity                     | 150% for 120 seconds  |                      |  |
|                             | Voltage - 3 Phase                     | 0-230 VAC (RMS), 0-460 V AC (RMS)   |                      |  |
| <b>Control Spec</b>         | Control Method                        | Sinewave carrier input, PWM output  |                      |  |
|                             | PWM Frequency                         | Rated 8.0 kHz   |                      |  |
|                             | V/Hz Ratio                            | Factory set for optimum output  |                      |  |
|                             | Torque Boost                          | Factory set for 60 Hz motors. Adjustable 6-30% for 50 Hz motors                 | Adjustable 0-30% max |  |
|                             | Current Limit                         | Adjustable 63 to 188% of rated output   | 0-200%               |  |
|                             | Frequency Setting                     | 0-5 VDC, 0-10 VDC with external resistor network, non-isolated input            |                      |  |
|                             | Accel/Decel                           | Separate accel/decel rates, 0.3-20 sec for 60 Hz motors                         | 0.3-20 Sec           |  |
|                             | Combined accel/decel for 50 Hz motors |   |                      |  |
| <b>Protective Functions</b> | Inverter Trip                         | Over voltage, over current, under voltage, motor overload, output short circuit |                      |  |
|                             | Status Indicators                     | Tricolor LED indicator for status and green LED indicator for power on          |                      |  |
|                             | Short Circuit                         | Output phase to phase   |                      |  |
| <b>Ambient Conditions</b>   | Temperature                           | 0-45°C  | 0-50°C               |  |
|                             | Cooling                               | Convection 1/2 - 2 Hp; Forced Air 3-5 Hp  | Convection           |  |
|                             | Enclosure                             | Open chassis  | NEMA 4X (IP65)       |  |

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

Series 5 Micro Inverters continued...

| Hp/kw  | Input Voltage | Output Current |          | Catalog Number | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. | Dimensions in/(mm) |      |      |          |     |
|--|---------------|----------------|----------|----------------|------------|------------|------------------|--------------------|------|------|----------|-----|
|  |               | Cont.          | 120 Sec. |                |            |            |                  | Outside            |      |      | Mounting |     |
|  |               |                |          |                |            |            |                  | H                  | W    | D    | H        | W   |
| <b>Open Chassis Mount – Single Phase Input</b> |               |                |          |                |            |            |                  |                    |      |      |          |     |
| 0.5/0.37                                       | 115/230       | 2.4            | 3.6      | ID56F50-CO     | 395        | E9         | 4                | 4.3                | 3.9  | 2.75 | 3.8      | 2.5 |
| 1/0.75   | 115/230       | 4              | 6        | ID5601-CO      | 478        | E9         | 5                | 4.3                | 3.9  | 5    | 3.87     | 3.7 |
| 1.5/1.13 - 2/1.5 (2)                           | 115/230       | 5.5            | 8.25     | ID5602-CO      | 621        | E9         | 6                | 4.67               | 5.58 | 5.7  | 3.87     | 2.5 |
| <b>Open Chassis Mount – Three Phase Input</b>  |               |                |          |                |            |            |                  |                    |      |      |          |     |
| 2/1.5  | 230           | 6.7            | 10.1     | ID5202-CO      | 753        | E9         | 5                | 8.55               | 4.68 | 4.5  | 6.5      | 3.9 |
| 3/2.25   | 230           | 8.8            | 13.2     | ID5203-CO      | 793        | E9         | 5                | 8.55               | 4.68 | 4.5  | 6.5      | 3.9 |
| 1/0.75   | 460           | 2.5            | 3.75     | ID5401-CO      | 820        | E9         | 5                | 8.55               | 4.68 | 4.5  | 6.5      | 3.9 |
| 2/1.5  | 460           | 4              | 6        | ID5402-CO      | 842        | E9         | 5                | 8.55               | 4.68 | 4.5  | 6.5      | 3.9 |
| 3/2.25   | 460           | 4.5            | 6.75     | ID5403-CO      | 866        | E9         | 5                | 8.55               | 4.68 | 4.5  | 6.5      | 3.9 |
| 5/3.7  | 460           | 7.6            | 11.4     | ID5405-CO      | 1,104      | E9         | 5                | 8.55               | 4.68 | 4.5  | 6.5      | 3.9 |
| <b>NEMA 1 Enclosed - Single Phase Input</b>    |               |                |          |                |            |            |                  |                    |      |      |          |     |
| 1/0.75   | 115/230       | 4              | 6        | ID5601-EO      | 576        | E9         | 6                | 7.13               | 6.25 | 2.75 |          |     |
| <b>NEMA 4X Enclosed – Single Phase Input</b>   |               |                |          |                |            |            |                  |                    |      |      |          |     |
| 1/0.75   | 115/230       | 3.6            | 5.4      | ID5601-WO      | 763        | E9         | 6                | 9.53               | 5.51 | 5.86 | 8.85     | -   |
| 1/0.75   | 115/230       | 3.6            | 5.4      | ID5601-BO      | 715        | E9         | 6                | 9.53               | 5.51 | 5.86 | 8.85     | -   |
| 1.5/1.13 - 2/1.5 (2)                           | 115/230       | 5.5/6.7        | 8.3/10.0 | ID5602-WO      | 1,076      | E9         | 6                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |
| 1.5/1.13 - 2/1.5 (2)                           | 115/230       | 5.5/6.7        | 8.3/10.0 | ID5602-BO      | 1,015      | E9         | 8                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |
| <b>NEMA 4X Enclosed – Three Phase Input</b>    |               |                |          |                |            |            |                  |                    |      |      |          |     |
| 3/2.25   | 230           | 9              | 13.5     | ID5203-WO      | 1,219      | E9         | 6                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |
| 3/2.25   | 230           | 9              | 13.5     | ID5203-BO      | 1,159      | E9         | 6                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |
| 3/2.25 (1)                                     | 460           | 4.6            | 6.9      | ID5403-WO      | 1,291      | E9         | 6                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |
| 3/2.25 (1)                                     | 460           | 4.6            | 6.9      | ID5403-BO      | 1,230      | E9         | 6                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |
| 5/3.7  | 460           | 8.3            | 12.45    | ID5405-WO      | 1,373      | E9         | 6                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |
| 5/3.7  | 460           | 8.3            | 12.45    | ID5405-BO      | 1,315      | E9         | 6                | 9.8                | 7.55 | 7.25 | 9.25     | 1   |

(1) Jumper configurable for 1 HP and 2 HP

(2) ID5602 is rated 1.5 Hp max with 115 VAC input and 2 Hp max with 230 VAC input.

**NOTE:** -WO is white in color -BO is black in color; -EO is NEMA 1.

Series 5 Options

| Catalog Number | Description  | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. |
|----------------|--|------------|------------|------------------|
| ID5RGA-1       | Dynamic braking kit for open chassis 115/230V 1/2 Hp and 1 Hp rated controls   | 214        | E9         | 3                |
| ID5SI-1        | Signal isolator for open chassis units<br>Provides isolation for up to 24 VDC and 4-20mA command signals and run relay output. Select relay as N.O. or N.C. contacts rated at 125 VAC @ 0.5A | 213        | E9         | 4                |
| ID5SI-2        | Signal isolator for NEMA 4X enclosed units<br>Provides isolation for up to 24 VDC and 4-20mA command signals.  | 240        | E9         | 1                |
| ID5AMS-1       | Auto/Manual selection switch for NEMA 4X enclosed units<br>Allows selection of remote or on-board speed commands   | 59         | E9         | 1                |
| ID5FRS-1       | Forward/Stop/Reverse selection switch for NEMA 4X enclosed units<br>Allows selection of forward or reverse motor direction commands  | 33         | E9         | 1                |
| ID5FRS-2       | Forward/Stop/Reverse selection switch for NEMA 1 enclosed units.<br>Allows selection of forward or reverse motor direction commands.   | 33         | E9         | 1                |

**Three Phase - Line and Load Reactors**

**1 thru 500 Hp**



**Applications:** Line side power conditioning for AC motor controls to prevent unwanted harmonics and nuisance drive trips. Load side power conditioning to smooth power wave form to connected motor to reduce motor electrical stresses and increase motor life.

**Features:** Open construction with connection terminals. 3% impedance rating at rated current.

| Hp   | kW          | Input Voltage | Rated Amps | Induct. (mH) | Full Load Watts Loss | Catalog Number | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. | Optional NEMA 1 Cabinet Enclosure <sup>(a)</sup> |
|--|-------------|---------------|------------|--------------|----------------------|----------------|------------|------------|------------------|--|
| <b>208/230 Volt input, 60 Hz, 3% Impedance</b> |             |               |            |              |                      |                |            |            |                  |  |
| 1  | 0.75        | 230           | 4          | 3            | 15                   | LRAC00401      | 316        | E8         | 9                | LRENC-8  |
| 1 1/2-2  | 1.15-1.5    | 208/230       | 8          | 1.5          | 20                   | LRAC00801      | 316        | E8         | 3                | LRENC-8  |
| 3  | 2.2         | 208/230       | 12         | 1.25         | 26                   | LRAC01201      | 510        | E8         | 10               | LRENC-8  |
| 5  | 3.7         | 208/230       | 18         | 0.8          | 36                   | LRAC01801      | 535        | E8         | 4                | LRENC-8  |
| 7 1/2  | 5.5         | 208/230       | 25         | 0.5          | 48                   | LRAC02501      | 642        | E8         | 11               | LRENC-13   |
| 10   | 7.4         | 208/230       | 35         | 0.4          | 49                   | LRAC03501      | 681        | E8         | 19               | LRENC-13   |
| 15   | 11.1        | 230           | 45         | 0.3          | 54                   | LRAC04501      | 718        | E8         | 23               | LRENC-13   |
| 20   | 14.9        | 230           | 55         | 0.25         | 64                   | LRAC05501      | 763        | E8         | 25               | LRENC-13   |
| 25   | 18.6        | 208/230       | 80         | 0.2          | 82                   | LRAC08001      | 803        | E8         | 25               | LRENC-13   |
| 30-40  | 22.3-29.8   | 208/230       | 130        | 0.1          | 108                  | LRAC13001      | 977        | E8         | 29               | LRENC-13   |
| 50   | 37.2        | 208/230       | 160        | 0.075        | 116                  | LRAC16001      | 1,135      | E8         | 41               | LRENC-13   |
| <b>460 Volt input, 60 Hz, 3% Impedance</b>     |             |               |            |              |                      |                |            |            |                  |  |
| 1-1 1/2  | 0.75-1.1    | 460           | 2          | 12           | 8                    | LRAC00201      | 266        | E8         | 4                | LRENC-8  |
| 2  | 1.5         | 460           | 4          | 6.5          | 20                   | LRAC00402      | 335        | E8         | 4                | LRENC-8  |
| 3-5  | 2.2-3.7     | 460           | 8          | 3            | 29                   | LRAC00802      | 391        | E8         | 7                | LRENC-8  |
| 7 1/2  | 5.5         | 460           | 12         | 2.5          | 31                   | LRAC01202      | 539        | E8         | 9                | LRENC-8  |
| 10   | 7.4         | 460           | 18         | 1.5          | 43                   | LRAC01802      | 564        | E8         | 10               | LRENC-8  |
| 15   | 11.1        | 460           | 25         | 1.2          | 52                   | LRAC02502      | 807        | ED         | 13               | LRENC-13   |
| 20-25  | 14.9-18.6   | 460           | 35         | 0.8          | 54                   | LRAC03502      | 858        | ED         | 15               | LRENC-13   |
| 30   | 22.3        | 460           | 45         | 0.7          | 62                   | LRAC04502      | 1,024      | E8         | 27               | LRENC-13   |
| 40   | 29.8        | 460           | 55         | 0.5          | 67                   | LRAC05502      | 1,057      | ED         | 29               | LRENC-13   |
| 50-60  | 37.2-44.7   | 460           | 80         | 0.4          | 86                   | LRAC08002      | 1,069      | E8         | 33               | LRENC-13   |
| 75-100   | 56-75       | 460           | 130        | 0.2          | 180                  | LRAC13002      | 1,087      | E8         | 43               | LRENC-13   |
| 125  | 93.2        | 460           | 160        | 0.15         | 149                  | LRAC16002      | 1,198      | E8         | 50               | LRENC-13   |
| 150  | 112         | 460           | 200        | 0.11         | 168                  | LRAC20002      | 1,664      | E8         | 54               | LRENC-13   |
| 200  | 149         | 460           | 250        | 0.09         | 231                  | LRAC25002      | 2,170      | E8         | 80               | LRENC-17   |
| 250-300  | 186.5-223.8 | 460           | 400        | 0.06         | 333                  | LRAC40002      | 2,785      | E8         | 118              | LRENC-17   |
| 350-400  | 261-298     | 460           | 500        | 0.05         | 340                  | LRAC50002      | 3,910      | E8         | 118              | LRENC-26C  |
| 500  | 373         | 460           | 600        | 0.04         | 414                  | LRAC60002      | 6,091      | E8         | 175              | LRENC-26C  |
| <b>575 Volt input, 60 Hz, 3% Impedance</b>     |             |               |            |              |                      |                |            |            |                  |  |
| 1-2  | 0.75-1.5    | 575           | 2          | 20           | 12                   | LRAC00202      | 295        | E8         | 4                | LRENC-8  |
| 3  | 2.2         | 575           | 4          | 9            | 20                   | LRAC00403      | 349        | E8         | 4                | LRENC-8  |
| 5  | 3.7         | 575           | 8          | 3            | 29                   | LRAC00802      | 391        | E8         | 7                | LRENC-8  |
| 7 1/2  | 5.5         | 575           | 8          | 5            | 26                   | LRAC00803      | 516        | E8         | 10               | LRENC-8  |
| 10   | 7.5         | 575           | 12         | 2.5          | 31                   | LRAC01202      | 539        | E8         | 9                | LRENC-8  |
| 15   | 11          | 575           | 18         | 1.5          | 43                   | LRAC01802      | 564        | E8         | 10               | LRENC-8  |
| 20   | 15          | 575           | 25         | 1.2          | 52                   | LRAC02502      | 807        | ED         | 13               | LRENC-13   |
| 30   | 22          | 575           | 35         | 0.8          | 54                   | LRAC03502      | 858        | ED         | 15               | LRENC-13   |
| 40   | 30          | 575           | 45         | 0.7          | 62                   | LRAC04502      | 1,024      | E8         | 27               | LRENC-13   |
| 50   | 37.2        | 575           | 55         | 0.5          | 67                   | LRAC05502      | 1,057      | ED         | 29               | LRENC-13   |
| 60-75  | 44.7-56     | 575           | 80         | 0.4          | 86                   | LRAC08002      | 1,069      | E8         | 33               | LRENC-13   |
| 100-125  | 75-93       | 575           | 130        | 0.2          | 180                  | LRAC13002      | 1,087      | E8         | 43               | LRENC-13   |
| 150  | 112         | 575           | 160        | 0.15         | 149                  | LRAC16002      | 1,198      | E8         | 50               | LRENC-13   |
| 200  | 149         | 575           | 200        | 0.11         | 168                  | LRAC20002      | 1,664      | E8         | 54               | LRENC-13   |
| 250  | 186.5       | 575           | 250        | 0.09         | 231                  | LRAC25002      | 2,170      | E8         | 80               | LRENC-17   |
| 300  | 223/8       | 575           | 320        | 0.075        | 264                  | LRAC32002      | 2,614      | E8         | 102              | LRENC-17   |

<sup>(a)</sup> See page 236 for Line Reactor enclosures, prices and dimensions

**NOTE:** 2.5% impedance rating. % impedance decreases if load current is less than reactor rated current.

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes

**Three Phase - Line and Load Reactors continued...**

| Hp (Rated)   | kW (Rated)  | Input Voltage | Rated Amps | Induct. (mH) | Full Load Watts Loss | Catalog Number | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. | Optional NEMA 1 Cabinet Enclosure <sup>(a)</sup> |
|--|-------------|---------------|------------|--------------|----------------------|----------------|------------|------------|------------------|--|
| <b>200-240 Volt input, 50 Hz, 3% Impedance</b>     |             |               |            |              |                      |                |            |            |                  |  |
| 1  | 0.75        | 240           | 4          | 3            | 15                   | LRAC00401      | 316        | E8         | 9                | RENC-8   |
| 1 1/2-2  | 1.1-1.5     | 200/240       | 8          | 1.5          | 20                   | LRAC00801      | 316        | E8         | 3                | RENC-8   |
| 3  | 2.2         | 200/240       | 12         | 1.25         | 26                   | LRAC01201      | 510        | E8         | 10               | RENC-8   |
| 5  | 3.7         | 200/240       | 18         | 0.8          | 36                   | LRAC01801      | 535        | E8         | 4                | RENC-8   |
| 7 1/2  | 5.5         | 240           | 25         | 0.5          | 48                   | LRAC02501      | 642        | E8         | 11               | RENC-13  |
| 10   | 7.5         | 200/240       | 35         | 0.4          | 49                   | LRAC03501      | 681        | E8         | 19               | RENC-13  |
| 15   | 11.1        | 240           | 45         | 0.3          | 54                   | LRAC04501      | 718        | E8         | 23               | RENC-13  |
| 20   | 14.9        | 240           | 55         | 0.25         | 64                   | LRAC05501      | 763        | E8         | 25               | RENC-13  |
| 25   | 18.6        | 200/240       | 80         | 0.2          | 82                   | LRAC08001      | 803        | E8         | 25               | RENC-13  |
| 30-40  | 22.3-29.8   | 200/240       | 130        | 0.1          | 108                  | LRAC13001      | 977        | E8         | 29               | RENC-13  |
| 50   | 37.2        | 200/240       | 160        | 0.075        | 116                  | LRAC16001      | 1,135      | E8         | 41               | RENC-13  |
| <b>380/400/415 Volt input, 50 Hz, 3% Impedance</b> |             |               |            |              |                      |                |            |            |                  |  |
| 1  | 0.75        | 380           | 2          | 12           | 8                    | LRAC00201      | 266        | E8         | 4                | RENC-8   |
| 1  | 0.75        | 400/415       | 2          | 20           | 12                   | LRAC00202      | 295        | E8         | 4                | RENC-8   |
| 2  | 1.5         | 380           | 4          | 6.5          | 20                   | LRAC00402      | 335        | E8         | 4                | RENC-8   |
| 2  | 1.5         | 400/415       | 4          | 9            | 20                   | LRAC00403      | 349        | E8         | 4                | RENC-8   |
| 3  | 2.2         | 380/400/415   | 8          | 3            | 29                   | LRAC00802      | 391        | E8         | 7                | RENC-8   |
| 5  | 3.7         | 380/400/415   | 8          | 5            | 26                   | LRAC00803      | 516        | E8         | 10               | RENC-8   |
| 7 1/2  | 5.5         | 380/400/415   | 12         | 2.5          | 31                   | LRAC01202      | 539        | E8         | 9                | RENC-8   |
| 10   | 7.5         | 380/400/415   | 18         | 1.5          | 43                   | LRAC01802      | 564        | E8         | 10               | RENC-8   |
| 15   | 11.1        | 380/400/415   | 25         | 1.2          | 52                   | LRAC02502      | 807        | ED         | 13               | RENC-13  |
| 20   | 14.9        | 380/400/415   | 35         | 0.8          | 54                   | LRAC03502      | 858        | ED         | 15               | RENC-13  |
| 25-30  | 18.6-22.3   | 380/400/415   | 45         | 0.7          | 62                   | LRAC04502      | 1,024      | E8         | 27               | RENC-13  |
| 40-50  | 29.8-37.2   | 380/400/415   | 80         | 0.4          | 86                   | LRAC08002      | 1,069      | E8         | 33               | RENC-13  |
| 60-75  | 44.7-56     | 380/400/415   | 130        | 0.2          | 180                  | LRAC13002      | 1,087      | E8         | 43               | RENC-13  |
| 100  | 75          | 400/415       | 160        | 0.15         | 149                  | LRAC16002      | 1,198      | E8         | 50               | RENC-13  |
| 125  | 93          | 380/400/415   | 200        | 0.11         | 168                  | LRAC20002      | 1,664      | E8         | 54               | RENC-13  |
| 150-200  | 112-149     | 380/400/415   | 250        | 0.09         | 231                  | LRAC25002      | 2,170      | E8         | 80               | RENC-17  |
| 250-300  | 186.2-223.8 | 380/400/415   | 400        | 0.06         | 333                  | LRAC40002      | 2,785      | E8         | 118              | RENC-17  |
| 350-400  | 261-298     | 380/400/415   | 500        | 0.05         | 340                  | LRAC50002      | 3,910      | E8         | 118              | RENC-26C   |

<sup>(a)</sup> See below for Line Reactor enclosures, prices and dimensions

**Line Reactor Enclosures NEMA 1**

| Enclosure Catalog No. | Mount Type | List Price | Mult. Sym. | Ap'x Shpg. Wgt. (Lbs) | Width (IN/mm) | Height (IN/mm) | Depth (IN/mm) |
|-----------------------|------------|------------|------------|-----------------------|---------------|----------------|---------------|
| RENC-8                | WALL       | 199        | E8         | 12                    | 8 (293)       | 10 (254)       | 6 (152)       |
| RENC-13               | FLOOR      | 391        | E8         | 16                    | 13 (330)      | 15 (381)       | 13 (330)      |
| RENC-17               | FLOOR      | 880        | E8         | 27                    | 17.5 (445)    | 31 (787)       | 21 (533)      |
| RENC-26C              | FLOOR      | 2,030      | E8         | 144                   | 26.5 (673)    | 47 (1194)      | 25 (635)      |

**NOTE:** See notes on inside back flap.

## Remote Operator Control Stations

Baldor offers a variety of remote operator's control stations to meet the needs of most AC or DC drive applications. A unique feature of the controls is the choice of non-maintained or maintained stop push button functions. Other standard features include:

- Convenient easy-to-connect terminal blocks. Numbered/indicated contacts;
- UL listing. Optional features include: 5K ohm speed potentiometer; run/jog selector switch or push button; forward/reverse selector; auto/manual selector switch; and hand-off-auto selector switches.



| Start Push Button  | Stop Push Button (a) | 5K Speed Pot | Run-Jog Switch | Jog Push Button | Fwd-Rev Switch | Hand-Auto Switch | Hand-Off-Auto Switch | Catalog Number | List Price | Mult. Sym. | Ap'x. Shpg. Wgt. | Dimensions     |               |               |
|--|----------------------|--------------|----------------|-----------------|----------------|------------------|----------------------|----------------|------------|------------|------------------|----------------|---------------|---------------|
|  |                      |              |                |                 |                |                  |                      |                |            |            |                  | Height (in/mm) | Width (in/mm) | Depth (in/mm) |
| <b>NEMA 1, 3R, 4, 4X and 12 Remote Operator Stations</b> |                      |              |                |                 |                |                  |                      |                |            |            |                  |                |               |               |
| X  | NM                   |              |                |                 |                |                  |                      | <b>9C80</b>    | 262        | E8         | 1                | 5/128          | 2.9/74        | 2.5/64        |
| X  | M                    |              |                |                 |                |                  |                      | <b>9C81</b>    | 262        | E8         | 1                | 5/128          | 2.9/74        | 2.5/64        |
| X  | NM                   | X            |                |                 |                |                  |                      | <b>9C90</b>    | 351        | E8         | 1                | 6.6/167        | 2.9/74        | 2.5/64        |
| X  | M                    | X            |                |                 |                |                  |                      | <b>9C91</b>    | 351        | E8         | 1                | 6.6/167        | 2.9/74        | 2.5/64        |
| X  | NM                   | X            | X              |                 |                |                  |                      | <b>9C200</b>   | 409        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | M                    | X            | X              |                 |                |                  |                      | <b>9C201</b>   | 409        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | NM                   | X            |                |                 |                | X                |                      | <b>9C210</b>   | 502        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | M                    | X            |                |                 |                | X                |                      | <b>9C211</b>   | 502        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | NM                   | X            |                |                 |                |                  | X                    | <b>9C220</b>   | 502        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | M                    | X            |                |                 |                |                  | X                    | <b>9C221</b>   | 502        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | NM                   | X            | X              |                 |                | X                |                      | <b>9C230</b>   | 737        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | M                    | X            | X              |                 |                | X                |                      | <b>9C231</b>   | 737        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | NM                   | X            |                | X               |                |                  |                      | <b>9C240</b>   | 436        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | M                    | X            |                | X               |                |                  |                      | <b>9C241</b>   | 436        | E8         | 2                | 8.1/207        | 2.9/74        | 2.5/64        |
| X  | NM                   | X            | X              |                 | X              |                  |                      | <b>9C300</b>   | 490        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | M                    | X            | X              |                 | X              |                  |                      | <b>9C301</b>   | 490        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | NM                   | X            |                |                 | X              | X                |                      | <b>9C310</b>   | 719        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | M                    | X            |                |                 | X              | X                |                      | <b>9C311</b>   | 719        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | NM                   | X            |                |                 | X              |                  | X                    | <b>9C320</b>   | 653        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | M                    | X            |                |                 | X              |                  | X                    | <b>9C321</b>   | 653        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | NM                   | X            | X              |                 | X              | X                |                      | <b>9C330</b>   | 730        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | M                    | X            | X              |                 | X              | X                |                      | <b>9C331</b>   | 730        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | NM                   | X            |                | X               | X              |                  |                      | <b>9C340</b>   | 484        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| X  | M                    | X            |                | X               | X              |                  |                      | <b>9C341</b>   | 484        | E8         | 2                | 11.3/287       | 2.9/74        | 2.5/64        |
| <b>NEMA 7/9 Explosion Proof Remote Operator Stations</b> |                      |              |                |                 |                |                  |                      |                |            |            |                  |                |               |               |
| X  | NM                   | X            | X              |                 | X              |                  |                      | <b>9C16</b>    | 2,637      | E8         | 15               | 5.3/134        | 14.1/258      | 3.3/84        |
| X  | NM                   | X            | X              |                 |                |                  |                      | <b>9C17</b>    | 2,437      | E8         | 12               | 5.3/134        | 10.6/269      | 3.3/84        |

**NOTE:** (a) M = Maintained (Stop button contact remains open after stop button is depressed. To restart the drive, the stop button must be depressed before the start button.)  
 NM = Non-Maintained (Stop button contact momentarily opens and stops the drive. The contact then closes allowing the drive to be started when the start button is depressed.)

Farm Duty Motors

Definite Purpose Motors

Unit Handling Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Starters & Dynamic Brakes