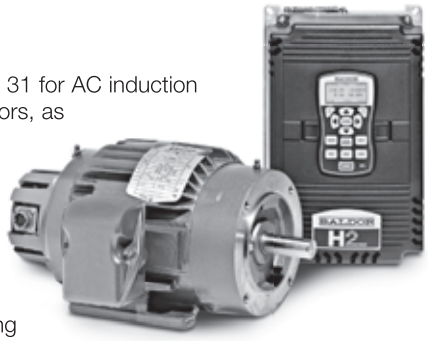
AC Motor Adjustable Speed Range Capabilities



Inverter Drive® and Vector Drive® Motors

Inverter Drive® and Vector Drive® Motors exceed all requirements of NEMA MG-1 Parts 30 and 31 for AC induction motors powered from adjustable speed controls. Definite-Purpose Inverter-Fed Polyphase Motors, as defined for Inverter Drive Motors are suitable for variable torque applications and rated 1000:1 for constant torque (except for those Inverter Duty motors rated for use in hazardous locations). Vector Drive motors are capable of full, rated torque at 0 RPM, continuous duty. Satisfactory motor performance depends on proper drive setup.

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 set up has been successfully completed. Applications that are not properly set up 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®.

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 in applications with variable torque and with a constant torque up to a 20:1 speed range except as noted below. Motor inverter setup is unique to each specific application. Setup and correct wiring procedures must be closely followed.

Standard-E® Motors

Standard-E EPAct efficient motors are suitable for use in adjustable speed applications per NEMA MG 1 Part 31.4.4.2. With proper motor-inverter setup, Standard-E motors are suitable for use at 20:1 variable torque and 4:1 constant torque applications.

Note: Use of explosion proof motors with inverters should be limited to Inverter-Duty Explosion proof motors only. Contact your local Baldor•Reliance District Office for application questions regarding your specific application.

Family	Frame Size	Constant Torque	Variable Torque	Comments
Super-E Motors 230, 460 and 575 Volts				
EM (TEFC)	56 - 365 (1) 404 - 449 (1)	20:1 10:1	20:1 20:1	General Purpose Premium Efficiency
EM (ODP)	143 - 445	20:1	20:1	General Purpose Premium Efficiency
ECP/XEX	145 180-210 250-445 447-449	20:1 10:1 4:1 (2) 2:1 (2)	20:1 10:1 10:1 10:1	Severe Duty Premium Efficiency
ECP8/841XL	145 180-210 250-445 447-449	20:1 10:1 4:1 (2) 2:1 (2)	10:1 10:1 10:1 10:1	Severe Duty Premium Efficiency May not meet temp rise as specified in IEEE-841 when used with ASD.
EWDM	56 - 215 (1)	20:1	20:1	Washdown Duty Premium Efficiency
Standard-E Motors 230, 460 and 575 Volts				
M (TEFC)	56 - 5009 (1)	4:1	20:1	General Purpose
M (ODP)	56 - 5009 (1)	4:1	20:1	General Purpose
CP/XT	145 180-445 447-449	20:1 — (3) 4:1	20:1 10:1 10:1	Severe Duty
WDM	56 - 215 (1)	4:1	20:1	Washdown Duty
Inverter Duty and Vector Duty Motors 230, 460 and 575 Volts				
V*S Master				
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	143 - 326	1000:1	1000:1	Vector Duty TEFC - XT V*S Master
RPMAC				
IDRPMN (TENV)	FL1838 - FL2162	1000:1	1000:1	Inverter Duty TENV RPMAC
IDRPM (TEFC, TEBC, DPGFV)	FL1844 - L4461	1000:1	1000:1	Inverter Duty TEFC, TEBC, DPG-FV RPMAC
ZDNRPM (TENV)	FL1838 - FL2162	1000:1	1000:1	Vector Duty TENV RPMAC
ZDRPM (TEFC, TEBC)	FL1844 - L4022	1000:1	1000:1	Vector Duty TEFC, TEBC RPMAC
ZDPM (TEBC)	FL1831 - FL2890	1000:1	1000:1	Vector Duty TEBC Permanent Magnet PM RPMAC
IDM (TEBC)	143 - 5009	1000:1	1000:1	Inverter Duty/Blower cooled
IDNM (TENV)	143 - 256	1000:1	1000:1	Inverter Duty/Non-Vented
ZDM (TEBC)	143 - 5009	1000:1	1000:1	Vector Duty/Blower Cooled
ZDNM (TENV)	143 - 256	1000:1	1000:1	Vector Duty/Non Vented
IDXM (2 families)	182 - 405 56 - 405	2:1 10:1	10:1 10:1	Explosion Proof Inverter Duty
IDWNM	143 - 254	20:1	1000:1	Washdown Duty Inverter Duty/Non Vented
ZDWNM	143 - 254	1000:1	1000:1	Washdown Duty Vector Duty/Non Vented

(1) Baldor type 35M and larger. (2) CT: 6 to 60Hz available with fan change thru Mod Express. (3) CT: 30 to 60Hz available with fan change thru Mod Express. Specific motor ratings may in fact be capable of greater frequency range for Constant Torque applications. If required please contact your local Baldor•Reliance Sales Office.

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 drive from page 191-192 specifically designed for permanent magnet rotor performance, feedback control normally required. 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	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Full Load Efficiency [a]	Voltage	Full Load Amps [a]	Rotor Inertia lb-ft^2	Notes [b]
10	1800	FL1831C	ZDPM18010C-BV [c]	6,413	E2	27.50	135	93.6	230/460	11.17	0.46	8, 77
15	1800	FL1838C	ZDPM18015C-BV [d]	6,558	E2	29.00	143	94.3	460	16.15	0.63	8, 77
20	1800	FL1844C	ZDPM18020C-BV [d]	7,027	E2	30.50	180	95.3	460	22.53	0.77	8, 77
25	1800	FL1852C	ZDPM18025C-BV [d]	7,933	E2	32.50	209	95	460	26.74	0.96	8, 77
30	1800	FL1852C	ZDPM18030C-BV [d]	8,194	E2	32.50	209	95	460	32.59	0.96	8, 77
40	1800	FL2162	ZDPM21040-BV [e]	8,467	E2	33.50	290	95.9	460	44.68	2.14	8, 77
50	1800	FL2168	ZDPM21050-BV [e]	10,293	E2	35.00	330	95.7	460	54.83	2.60	8, 77
60	1800	FL2173	ZDPM21060-BV [e]	12,653	E2	36.00	355	95.6	460	66.77	2.99	8, 77
75	1800	FL2578	ZDPM25075-BV [e]	14,724	E2	38.50	540	96.4	460	82.29	4.90	8, 77
100	1800	FL2586	ZDPM25100-BV [e]	19,012	E2	40.50	605	96.5	460	110.42	5.83	8, 77
125	1800	FL2882	ZDPM28125-BV [e]	23,214	E2	43.61	730	95.9	460	136.9	9.43	8, 77
150	1800	FL2890	ZDPM28150-BV [e]	30,433	E2	45.61	805	96.2	460	163.4	11.16	8, 77

[a] The data - including efficiency - is for fundamental sinewave components of amps and volts and does not include losses due to inverter pwm waveshapes.
[b] See notes on inside back flap and pages 5-6.
[c] Foot mounted and 210TC face.
[d] Foot mounted and 250TC face.
[e] Foot mounted only.
All TEBC have integral blower rated 230/460 volts 3 phase.

See VS1PM Drives on next page for matched performance drive.

VS1PM Permanent Magnet Drive

10 Hp **230 VAC** **3 Phase - 50/60 Hz**
10 thru 200 Hp **460 VAC** **3 Phase - 50/60 Hz**

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

Features: Exclusively for use with our RPMAC 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 RPMAC Interior PM Motors. Uses same Graphic Keypad and Expansion Boards as the VS1SP/GV Families.

Output Ratings	Horsepower	10 HP @ 230VAC, 3PH; 10-150 HP @ 460VAC, 3PH
	Overload Capacity	Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds
		Normal Duty (Variable Torque) = 115% for 60 seconds
	Frequency	0-66 Hz
	Voltage	0-Maximum input voltage (RMS)
Input Ratings	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
Control Spec	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
	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
	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
Motor Feedback	Feedback Type	Resolver Feedback (Std.); Optional Incremental Encoder Feedback for VT Loads.
Protective Functions	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^2T)
Environmental Conditions	Temperature	10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°C.
	Cooling	Forced air
	Enclosure	NEMA 1 (-1B)
	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
Keypad Display	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
Analog Inputs	One Differential	±5VDC, ±10VDC, 4-20 mA and 0-20 mA, 11-bit + sign
	One Single Ended	0 - 10 VDC, 11-bit
	Input Impedence	80 kOhms (Volt mode); 500 Ohms (Current mode)
Analog Outputs	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
Digital Inputs	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
Digital Outputs (2 Opto Outputs)	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	25 Conditions
Digital Outputs (2 Relay Outputs)	Rated Voltage	5 to 30VDC or 240VAC
	Maximum Current	5A Maximum non-inductive
	Output Conditions	25 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		
230 Volts - Three Phase									
VS1PM210-1B	B	10/7.5	28	49	15/11	42	52.5	3,138	EC
460 Volts - Three Phase									
VS1PM410-1B	AA	10/7.4	14	24.5	10/7.5	14	17.5	3,055	EC
VS1PM415-1B	B	15/11	21	36.75	20/15	27	33.75	3,830	EC
VS1PM420-1B	B	20/15	27	47.25	25/18.7	34	42.5	4,469	EC
VS1PM425-1B	B	25/18.7	34	60	30/22	40	50	5,638	EC
VS1PM430-1B	C	30/22.4	40	70	40/29.8	52	60	6,596	EC
VS1PM440-1B	C	40/29.8	52	91	5037.3	65	75	8,298	EC
VS1PM450-1B	C	50/37.3	65	114	60/44.8	77	89	9,787	EC
VS1PM460-1B	D	60/45	77	135	75/56	96	110	10,532	EC
VS1PM475-1B	D	75/56	96	168	100/75	124	143	12,340	EC
VS1PM4100-1B	D	100/75	124	217	125/93	156	179	14,255	EC
VS1PM4125-1B	D	125/93	156	273	150/112	180	207	15,106	EC
VS1PM4150-1T	E	150/112	180	315	200/149	240	276	18,150	EC

Dimensions in/(mm)

Size	Outside			Mounting		Ap'x Shpg. Wgt. 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 L446I

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 [a]	Catalog Number	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Voltage	Full Load Amps
5	1800	3500	FL1838C	TENV	**IDNRPM18054C** [b]	3,087	E2	17.87	170	230/460	7.4
7 1/2	1800	3500	FL1852C	TENV	**IDNRPM18074C** [c]	3,549	E2	21.87	210	230/460	11
10	1800	3500	FL1844C	TEFC	**IDFRPM18104C** [c]	3,685	E2	23.26	195	230/460	13.9
			FL2162C	TENV	**IDNRPM21104C** [c]	4,203	E2	23.11	300	230/460	13.6
15	1800	3500	FL1844C	TEBC	**IDBRPM18154C** [d]	3,808	E2	23.89	190	460	21
			FL2162C	TEFC	**IDFRPM21154C** [d]	4,327	E2	26.74	310	460	20
20	1800	3500	FL1852C	TEBC	**IDDRPM18204C** [d]	4,197	E2	25.89	235	460	27
			FL2162C	TEFC	**IDFRPM21204C** [d]	4,509	E2	26.74	318	460	27
25	1800	2600	FL1844C	DPG-FV	**IDDRPM18254C** [d]	4,417	E2	22.32	215	460	33
		3500	FL2162C	TEBC	**IDBRPM21254C** [d]	4,885	E2	26.74	320	460	34
			FL2173C	TEFC	**IDFRPM21254C** [d]	4,957	E2	29.50	375	460	34
30	1800	3475	FL1852C	DPG-FV	**IDDRPM18304C** [d]	4,595	E2	23.32	248	460	39
		3500	FL2162C	TEBC	**IDBRPM21304C** [d]	5,172	E2	26.74	322	460	40
			FL2570C	TEFC	**IDFRPM25304C** [d]	5,217	E2	29.54	542	460	38
40	1800	2000	RL2162	DPG-FV	**IDDRPM21404** [e]	5,353	E2	23.12	355	460	50
		3500	FL2173	TEBC	**IDBRPM21404** [e]	5,398	E2	29.25	382	460	51
		3550	FL2586	TEFC	**IDFRPM25404** [e]	5,676	E2	33.79	650	460	51
50	1800	2000	RL2168	DPG-FV	**IDDRPM21504** [e]	5,970	E2	24.62	432	460	62
		3500	FL2570	TEBC	**IDBRPM25504** [e]	6,920	E2	29.79	530	460	65
		3550	FL2882	TEFC	**IDFRPM28504** [e]	9,695	E2	34.59	720	460	64
	1200	1300	RL2570	DPG-FV	**IDDRPM25506** [e]	8,638	E2	26.38	560	460	64
60	1800	2200	RL2168	DPG-FV	**IDDRPM21604** [e]	7,206	E2	24.62	385	460	74
		3500	FL2578	TEBC	**IDBRPM25604** [e]	8,886	E2	31.79	578	460	75
		3550	FL2890	TEFC	**IDFRPM28604** [e]	10,311	E2	36.59	795	460	76
	1200	1300	RL2578	DPG-FV	**IDDRPM25606** [e]	9,611	E2	28.38	624	460	73
75	1800	2500	RL2570	DPG-FV	**IDDRPM25754** [e]	8,654	E2	26.38	565	460	96
		3500	FL2586	TEBC	**IDBRPM25754** [e]	10,612	E2	33.79	670	460	92
		3550	FL2898	TEFC	**IDFRPM28754** [e]	11,582	E2	38.59	800	460	94
	1200	1300	RL2586	DPG-FV	**IDDRPM25756** [e]	11,894	E2	30.38	608	460	91
100	1800	2000	RL2578	DPG-FV	**IDDRPM251004** [e]	10,493	E2	28.38	630	460	119
		3500	L2898	TEBC	**IDBRPM281004** [e]	12,710	E2	38.00	910	460	123
		3550	FL2890	TEBC	**IDBRPM281004R1** [e]	12,899	E2	41.11	805	460	124
	1200	1450	RL2882	DPG-FV	**IDDRPM281006** [e]	15,904	E2	31.14	785	460	124
125	1800	2000	RL2586	DPG-FV	**IDDRPM251254** [e]	13,906	E2	30.38	724	460	148
		3500	L3203	TEBC	**IDBRPM321254** [e]	17,802	E2	44.25	1,170	460	150
		3550	FL2898	TEBC	**IDBRPM281254** [e]	15,144	E2	43.11	890	460	156
	1200	2000	RL2898	DPG-FV	**IDDRPM281256** [e]	19,235	E2	35.14	1,000	460	159
150	1800	2000	RL2882	DPG-FV	**IDDRPM281504** [e]	15,526	E2	31.14	770	460	156
		3500	L3213	TEBC	**IDBRPM321504** [e]	23,818	E2	46.75	1,360	460	177
	1200	2400	L3203	DPG-FV	**IDDRPM321506** [e]	22,291	E2	39.88	1,135	460	180

[a] 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.
[b] Foot mounted and 180TC face.
[c] Foot mounted and 210TC face.
[d] Foot mounted and 250TC face.
[e] Foot mounted only.
[f] Foot mounted only. These stock models include VPI insulation on L440 only, insulated ODE bearing, shaft ground brush, and stator RTD's.
[g] Foot mounted only. Includes filter, VPI, insulated ODE bearing and two sets of thermostats.

ENCODER MOUNTING PROVISIONS - INCLUDE MACHINED ODE BRACKET AND SHAFT TAPPED FOR STUB SHAFT. CONTINUOUS CONSTANT TORQUE TO ZERO SPEED SEE ENCODER FEEDBACK KITS ON PAGES 196 AND 197 FOR USE WITH ID-RPM AC MOTORS ON PAGES 193 AND 194. FOR RPM AC MOD EXPRESS, CONTACT YOUR BALDOR•RELIANCE DISTRICT OFFICE.

RPM AC, Inverter Duty, Three Phase

Hp	RPM	Max. RPM	NEMA Frame	Enclosure [a]	Catalog Number	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Voltage	Full Load Amps
200	1800	2700	RL2898	DPG-FV	**IDDRPM282004** [e]	20,241	E2	35.14	940	460	241
		3500	L3614	TEBC	**IDBRPM362004** [e]	26,349	E2	42.75	1,746	460	227
			L4022	TEBC	**IDBRPM402004** [e]	28,430	E2	42.12	1,996	460	227
	1200	2000	L3213	DPG-FV	**IDDRPM322006** [e]	27,736	E2	42.38	1,295	460	236
250	1800	2945	L3203	DPG-FV	**IDDRPM322504** [e]	23,818	E2	39.88	1,220	460	290
		3500	L4034	TEBC	**IDBRPM402504** [e]	32,989	E2	45.12	2,244	460	283
	1200	2000	L3614	DPG-FV	**IDDRPM362504** [e]	28,491	E2	45.00	1,690	460	289
300	1800	2500	L3213	DPG-FV	**IDDRPM323004** [e]	27,736	E2	42.38	1,360	460	350
		3500	L4046	TEBC	**IDBRPM403004** [e]	40,480	E2	48.12	2,511	460	336
	1200	2000	L4034	DPG-FV	**IDDRPM403006** [e]	36,344	E2	52.00	2,289	460	360
350	1800	2200	L3614	DPG-FV	**IDDRPM363504** [e]	31,467	E2	45.00	1,812	460	401
400	1800	2500	L3614	DPG-FV	**IDDRPM364004** [e]	35,122	E2	45.00	1,742	460	477
	1200	2000	L4046	DPG-FV	**IDDRPM404006** [e]	53,060	E2	55.00	2,485	460	451
500	1800	2400	L4034	DPG-FV	**IDDRPM405004** [f]	46,367	E2	52.00	2,315	460	557
	1200	2380	L4461	DPG-FV	**IDDRPM445006** [g]	80,855	E2	63.63	3,875	460	669
600	1800	2200	L4046	DPG-FV	**IDDRPM406004** [f]	56,526	E2	55.00	2,535	460	666
700	1800	2300	L4429	DPG-FV	**IDDRPM447004** [f]	70,545	E2	55.63	3,000	460	875
1,000	1800	2000	L4461	DPG-FV	**IDDRPM4410004** [f]	88,407	E2	63.63	3,890	460	1,202

[a] 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.
[b] Foot mounted and 180TC face.
[c] Foot mounted and 210TC face.
[d] Foot mounted and 250TC face.
[e] Foot mounted only.
[f] Foot mounted only. These stock models include VPI insulation on L440 only, insulated ODE bearing, shaft ground brush, and stator RTD's.
[g] Foot mounted only. Includes filter, VPI, insulated ODE bearing and two sets of thermostats.

ENCODER MOUNTING PROVISIONS - INCLUDE MACHINED ODE BRACKET AND SHAFT TAPPED FOR STUB SHAFT. CONTINUOUS CONSTANT TORQUE TO ZERO SPEED SEE ENCODER FEEDBACK KITS ON PAGES 196 AND 197 FOR USE WITH ID-RPM AC MOTORS ON PAGES 193 AND 194. FOR RPM AC MOD EXPRESS, CONTACT YOUR BALDOR•RELIANCE DISTRICT OFFICE.

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 1024 ppr hollow shaft encoder with MS twist lock connector.

Hp	RPM	Max. RPM	NEMA Frame	Enclosure [a]	Catalog Number	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Voltage	Full Load Amps	Notes [b]
5	1800	3500	FL1838C	TENV	**ZDNRPM18054C** [c]	4,745	E2	17.87	165	230/460	7.4	
7 1/2	1800	3500	FL1852C	TENV	**ZDNRPM18074C** [d]	5,208	E2	21.87	220	230/460	11	
10	1800	3500	FL1844C	TEFC	**ZDFRPM18104C** [d]	5,344	E2	23.26	200	230/460	13.9	
			FL2162C	TENV	**ZDNRPM21104C** [d]	5,861	E2	23.11	305	230/460	13.6	
15	1800	3500	FL1844C	TEBC	**ZDBRPM18154C** [e]	5,465	E2	28.93	210	460	21	
20	1800	2500	FL2162C	TEFC	**ZDFRPM21204C** [e]	6,165	E2	26.74	318	460	27	
		3500	FL1852C	TEBC	**ZDBRPM18204C** [e]	5,856	E2	30.39	250	460	27	
25	1800	3500	FL2173C	TEFC	**ZDFRPM21254C** [e]	6,611	E2	29.50	382	460	34	
30	1800	3500	FL2162C	TEBC	**ZDBRPM21304C** [e]	6,828	E2	31.24	375	460	40	
			FL2570C	TEFC	**ZDFRPM25304C** [e]	6,874	E2	29.54	505	460	40	
40	1800	3500	FL2173	TEBC	**ZDBRPM21404** [f]	7,056	E2	33.75	390	460	52	
			FL2586	TEFC	**ZDFRPM25404** [f]	7,334	E2	33.79	605	460	52	
50	1800	3500	FL2570	TEBC	**ZDBRPM25504** [f]	8,578	E2	34.29	560	460	61	
60	1800	3500	FL2578	TEBC	**ZDBRPM25604** [f]	10,545	E2	36.29	615	460	74	
75	1800	3500	FL2586	TEBC	**ZDBRPM25754** [f]	12,270	E2	38.29	655	460	94	
100	1800	3500	FL2898	TEBC	**ZDBRPM281004** [f]	14,253	E2	47.61	905	460	123	
		3550	FL2890	TEBC	**ZDBRPM281004R1** [f]	15,844	E2	45.61	805	460	124	
125	1800	3500	L3203	TEBC	**ZDBRPM321254** [f]	19,763	E2	44.25	1,170	460	150	
		3550	FL2898	TEBC	**ZDBRPM281254** [f]	16,687	E2	47.61	890	460	156	
150	1800	3500	L3213	TEBC	**ZDBRPM321504** [f]	25,776	E2	46.75	1,310	460	177	
200	1800	3500	L3614	TEBC	**ZDBRPM362004** [f]	28,310	E2	46.75	1,830	460	240	
			L4022	TEBC	**ZDBRPM402004** [f]	30,389	E2	49.12	2,030	460	240	

[a] All TEBC have integral blower rated 230/460 volts 3 phase.
[b] See notes on inside back flap and pages 5-6.
[c] Foot mounted and 180TC face.
[d] Foot mounted and 210TC face.
[e] Foot mounted and 250TC face.
[f] Foot mounted only.

CONTINUOUS CONSTANT TORQUE TO ZERO SPEED

Encoder Feedback Kits

1024 PPR, Includes all Mounting Hardware and Mating Connector

The following kits for use with RPM AC catalog numbers "ID RPM" on pages 193-194.

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	O	MS-ST	5-15	1,337	E8	4
417077-208TL	TENV	HS35	FL180-FL280 (1)	BEI	O	MS-TL	5-28	1,337	E8	6
417708-361	TENV	HSD35	FL180-FL/RL280 (1)	Dynapar	O	Latch	5-26	1,504	E8	5
417077-153	TENV	H20	FL180-FL/RL280 (1)	Dynapar	O	MS-ST	5-15	1,481	E8	9
417077-156	TENV	RL67	FL180-FL/RL280 (1)	Dynapar	M	Latch	5-15	1,910	E8	9
417708-226	TENV	SL85	FL180-FL/RL280 (1)	Dynapar	M	Latch	5-15	2,030	E8	5
417077-170	TENV	RAHS35M	FL180-FL/RL280 (1)	Avtron	M	MS-ST	5-24	1,337	E8	10
417077-133	TEFC	HS35	FL180-FL/RL280 (1)	BEI	O	MS-ST	5-15	1,337	E8	5
417077-209TL	TEFC	HS35	FL180-FL280 (1)	BEI	O	MS-TL	5-28	1,337	E8	6
417708-371	TEFC	HSD35	FL180-FL/RL280 (1)	Dynapar	O	Latch	5-26	1,504	E8	5
417077-180	TEFC	RAHS35M	FL180-FL/RL280 (1)	Avtron	M	MS-ST	5-24	1,337	E8	8
417077-165	TEBC	HS35	FL180	BEI	O	MS-ST	5-15	1,337	E8	15
417077-210TL	TEBC	HS35	FL180	BEI	O	MS-TL	5-28	1,337	E8	6
417077-188	TEBC	HS35	FL210 Only	BEI	O	MS-ST	5-15	1,337	E8	10
417077-211TL	TEBC	HS35	FL210	BEI	O	MS-TL	5-28	1,337	E8	6
417077-189	TEBC	HS35	FL250 Only	BEI	O	MS-ST	5-15	1,337	E8	10
417077-212TL	TEBC	HS35	FL250	BEI	O	MS-TL	5-28	1,337	E8	6
417077-204	TEBC	HS35	FL280	BEI	O	MS-ST	5-15	1,337	E8	6
417077-213TL	TEBC	HS35	FL280	BEI	O	MS-TL	5-28	1,337	E8	6
417708-131	TEBC	HS35	L280	BEI	O	MS-ST	5-15	1,337	E8	10
417708-140	TEBC	HS35	L320	BEI	O	MS-ST	5-15	1,337	E8	1010
417077-214TL	TEBC	HS35	L320	BEI	O	MS-TL	5-28	1,337	E8	6
417077-215TL	TEBC	HS35	L360	BEI	O	MS-TL	5-28	1,337	E8	6
417708-142	TEBC	HS35	L400	BEI	O	MS-ST	5-15	1,337	E8	15
417077-216TL	TEBC	HS35	L400	BEI	O	MS-TL	5-28	1,337	E8	6
417077-173	TEBC	RAHS35M	FL180	Avtron	M	MS-ST	5-24	1,337	E8	10
417077-182	TEBC	RAHS35M	FL210 Only	Avtron	M	MS-ST	5-24	1,337	E8	10
417077-183	TEBC	RAHS35M	FL250 Only	Avtron	M	MS-ST	5-24	1,337	E8	15
417077-205	TEBC	RAHS35M	FL280	Avtron	M	MS-ST	5-24	1,337	E8	9
417077-176	TEBC	RAHS35M	L280	Avtron	M	MS-ST	5-24	1,337	E8	15
417077-177	TEBC	RAHS35M	L320	Avtron	M	MS-ST	5-24	1,337	E8	35
417077-178	TEBC	RAHS35M	L360	Avtron	M	MS-ST	5-24	1,337	E8	15
417077-179	TEBC	RAHS35M	L400	Avtron	M	MS-ST	5-24	1,337	E8	35
417077-167	TEBC	H20	FL180	Dynapar	O	MS-ST	5-15	1,481	E8	20
417077-190	TEBC	H20	FL210 Only	Dynapar	O	MS-ST	5-15	1,481	E8	10
417077-191	TEBC	H20	FL250 Only	Dynapar	O	MS-ST	5-15	1,481	E8	10
417077-203	TEBC	H20	FL280	Dynapar	O	MS-ST	5-15	1,481	E8	6
417708-90	TEBC	H20	L280	Dynapar	O	MS-ST	5-15	1,481	E8	13
417708-91	TEBC	H20	L320	Dynapar	O	MS-ST	5-15	1,481	E8	15
417077-168	TEBC	RL67	FL180	Dynapar	M	Latch	5-15	1,910	E8	10
417077-192	TEBC	RL67	FL210 Only	Dynapar	M	Latch	5-15	1,910	E8	10
417077-193	TEBC	RL67	FL250 Only	Dynapar	M	Latch	5-15	1,910	E8	10
417077-206	TEBC	RL67	FL280	Dynapar	M	Latch	5-15	1,910	E8	6
417077-136	DPFV	HS35	FL180-RL280(2)	BEI	O	MS-ST	5-15	1,337	E8	4
417077-208TL	DPFV	HS35	FL180-RL280 (2)	BEI	O	MS-TL	5-28	1,337	E8	6
417708-130	DPFV	HS35	L280-L400	BEI	O	MS-ST	5-15	1,337	E8	5
417077-218TL	DPFV	HS35	L320-L400	BEI	O	MS-TL	5-28	1,337	E8	6
417077-170	DPFV	RAHS35M	FL180-RL280(2)	Avtron	M	MS-ST	5-24	1,337	E8	10
417077-171	DPFV	RAHS35M	L280-L400	Avtron	M	MS-ST	5-24	1,337	E8	5
417077-172	DPFV	RAHS35M	L440	Avtron	M	MS-ST	5-24	1,337	E8	5
417708-361	DPFV	HSD35	FL180-RL280(2)	Dynapar	O	MS-ST	5-26	1,504	E8	5
417708-362	DPFV	HSD35	L280-L400	Dynapar	O	MS-ST	5-26	1,504	E8	8

Encoder Feedback Kits RPM AC Designs

1024 PPR, Includes all Mounting Hardware and Mating Connector

The following kits for use with RPM AC catalog numbers "ID RPM" on pages 193-194.

Catalog Number	Motor Encl	Type	Frame Size	Mfg.	Mag or Optical	Conn Type	Input Voltage VDC	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
417077-153	DPFV	H20	FL180-RL280(2)	Dynapar	O	MS-ST	5-15	1,481	E8	9
417708-85	DPFV	H20	L280-L400	Dynapar	O	MS-ST	5-15	1,481	E8	5
417077-156	DPFV	RL67	FL180-RL280(2)	Dynapar	M	Latch	5-15	1,910	E8	9
417708-87	DPFV	RL67	L280-L400	Dynapar	M	Latch	5-15	1,910	E8	6
417708-120	DPFV	RL67	L440	Dynapar	M	Latch	5-15	1,910	E8	23
417708-226	DPFV	SL85	FL180-RL280(2)	Dynapar	M	Latch	5-15	2,030	E8	5

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

Encoder only (no stub shaft) - unmounted - for RPM AC motor frames FL180-L440

Kit includes encoder only; BEI HS35, **2048 PPR**, 5-24 V DC with 10 pin MS screw tight connector.

Enclosure	Catalog Number	List Price	Mult. Sym.
TENV & DPFV-All frames	**417708-230**	1,514	E8
TEBC-All frames (1)	**417708-231**	1,666	E8
TEFC- All frames	**417708-232**	1,514	E8

(1) Requires an extended blower, except on L320. (purchased separately)

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 (1 inch dia.)	FL180-FL/RL250 (3)	DPFV,TENV,TEFC,TEBC(2)	**417708-201**	152	E8
	FL/RL280 thru L400	DPFV & TEBC(2)	**417708-202**	152	E8
	L440	DPFV & TEAO-P/B	**417708-203**	152	E8
Dynapar H20 (.393 inch dia.)	FL180-FL/RL250 (3)	DPFV,TENV & TEBC(2)	**417708-204**	152	E8
	FL/RL250	TEFC	**417708-205**	152	E8
	RL280-L400	DPFV	**417708-207**	152	E8
	FL280-L400	TEBC(1)	**417708-206**	152	E8
	L440	DPFV & TEAO-P/B	**417708-206**	152	E8
SL85 (5/8 inch dia.)	FL180-FL/RL250 (3)	DPFV,TENV & TEBC(2)	**417708-210**	152	E8
	FL/RL280-L400	DPFV & TEBC(2)	**417708-212**	152	E8
	L440	DPFV & TEAO-P/B	**417708-212**	152	E8
RL67 (5/8 inch dia.)	FL180-FL/RL250 (3)	DPFV,TENV & TEBC(2)	**417708-208**	152	E8
	FL280-L400	TEBC(2)	**417708-209**	152	E8
	RL280-L400	DPFV	**417708-42**	205	E8
	L440	DPFV & TEAO-P/B	**417708-157**	256	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

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**	434	E8	609957-9	13
FL1838	**419914-9B**	434	E8	609957-9	14
FL1844	**419914-9C**	434	E8	609957-9	15
FL1852	**419914-9D**	434	E8	609957-9	17
FL/RL2153	**419914-10A**	434	E8	609957-10	39
FL/RL2158	**419914-10B**	434	E8	609957-10	27
FL/RL2162	**419914-10D**	507	E8	609957-10	48
FL/RL2168	**419914-10L**	507	E8	609957-10	52
FL/RL2173	**419914-10M**	507	E8	609957-10	28
FL/RL2570	**419914-10G**	507	E8	609957-10	55
FL/RL2578	**419914-10N**	651	E8	609957-10	58
FL/RL2586	**419914-10P**	651	E8	609957-10	56
L2875	**419914-10J**	651	E8	609957-10	37
FL/RL/L2882	**419914-10K**	932	E8	609957-10	80
FL/RL/L2890	**419914-10R**	932	E8	609957-10	80
FL/RL/L2898	**419914-10S**	932	E8	609957-10	90
L3203	**419914-11P**	1,028	E8	609977-10	90
L3213	**419914-11R**	1,028	E8	609977-10	90
UL3698	**419914-11M**	1,205	E8	609977-10	105
UL3699	**419914-11C**	1,205	E8	609977-10	105
UL3607	**419914-11D**	1,205	E8	609977-10	74
UL3614	**419914-11N**	1,205	E8	609977-10	124
UL4022	**419914-11E**	2,296	E8	609977-10	105
UL4034	**419914-11F**	2,296	E8	609977-10	132
UL4046	**419914-11G**	2,296	E8	609977-10	141
UL4429	**419914-11H**	4,333	E8	609977-10	140
UL4440	**419914-11J**	4,333	E8	609977-10	150
UL4451	**419914-11K**	4,333	E8	609977-10	160
UL4461	**419914-11L**	4,333	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**	554	A8	Washable Wire Mesh Canister Type	2
RL210	**417077-59**	554	A8	Washable Wire Mesh Canister Type	4
RL250	**417077-59**	554	A8	Washable Wire Mesh Canister Type	4
RL/L280	**417077-59**	554	A8	Washable Wire Mesh Canister Type	4
L320	**417077-59**	554	A8	Washable Wire Mesh Canister Type	4
L360	**417077-65**	727	A8	Washable Wire Mesh Canister Type	7
L400	**417077-102**	1,070	A8	Washable Wire Mesh Canister Type	6
L440	**417077-124**	1,588	A8	Square Replaceable Polyester Type	18

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:
			For FL180-FL280 Frames		
FL180	**417077-184**	466	E8	TENV, TEBC, TEFC	From Top to F-1 or F-2
FL180	**417077-185**	466	E8	DPFV	From F-1 to F-2
FL210	**417077-186**	547	E8	TENV, TEBC, TEFC	From Top to F-1 or F-2
FL250	**417077-187**	547	E8	TENV, TEBC, TEFC	From Top to F-1 or F-2
FL280	**417077-201**	585	E8	TENV, TEBC, TEFC	From Top to F-1 or F-2
			For RL210-RL280 Frames		
RL2153 thru RL2173	**417077-129**	466	E8	DPFV	From F-1 to F-2
RL250 thru RL2586	**417077-131**	466	E8	DPFV	From F-1 to F-2
RL2153 thru RL2173	**417077-130**	547	E8	TENV, TEBC, TEFC	From Top to F-1 or F-2
RL2570 thru RL2586	**417077-132**	547	E8	TENV, TEBC, TEFC	From Top to F-1 or F-2
RL2882 thru RL2898	**417077-202**	585	E8	DPFV	From F-1 to F-2

Replacement Blower Kits for DPG-FV RPM AC Motors on pages 194-195

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	**417077-144**	832	E8
RL250	**417077-145**	1,625	E8
RL and L280	**419947-31**	1,620	A8
L320	**419947-33**	1,802	A8
L360	**417077-127**	2,616	A8
L400	**417077-75**	2,726	A8
L440	**417077-126**	8,345	A8

Kit includes terminal box and blower motor only.

TEBC Frame	Catalog Number	List Price	Mult. Sym.
FL180 (3)	**417077-143**	832	E8
FL/RL210-320(3)	**417077-141**	1,058	E8

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

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. Insulation system exceeds NEMA MG 1-2006, Part 31.4.4.2. Continuous constant torque to zero speed.

Hp	RPM	Max. RPM	NEMA Frame	Enclosure	Catalog Number	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Voltage	Full Load Amps	Notes [a]
1/3	1800	6000	56C	TENV	**IDVSNM3534**	416	E2	13.84	35	230/460	0.6	2,48
1/2	1800	6000	56C	TENV	**IDVSNM3538**	487	E2	13.84	35	230/460	0.8	2,48
3/4	1800	6000	56C	TENV	**IDVSNM3542**	542	E2	13.84	34	230/460	1.1	2,48
1	1800	6000	143TC	TENV	**IDVSNM3581T**	1,107	E2	14.65	39	230/460	1.6	2,48
1 1/2	1800	6000	143TC	TENV	**IDVSNM3584T**	1,221	E2	14.65	66	230/460	2.1	2,48
2	1800	6000	145TC	TENV	**IDVSNM3587T**	1,276	E2	14.65	43	230/460	2.7	2,48
3	1800	2700	182TC	TENV	**IDVSNM3661T**	1,367	E2	14.69	126	230/460	3.8	2,48
			182TC	TEFC	**IDVSM3661T**	1,327	E2	15.62	126	230/460	3.8	2,48
5	1800	2700	L184TC	TENV	**IDVSNM3665T**	1,597	E2	16.19	149	230/460	6.4	2,48
			L184TC	TEFC	**IDVSM3665T**	1,551	E2	17.12	144	230/460	6.4	2,48
7 1/2	1800	2700	213TC	TEFC	**IDVSM3770T**	1,938	E2	19.25	181	230/460	9.6	2,48
			L215TC	TENV	**IDVSNM2237T**	1,997	E2	19.25	175	230/460	9.2	2,48
10	1800	2700	L215TC	TEFC	**IDVSM3774T**	2,250	E2	20.12	200	230/460	12.4	2,48
			254TC	TENV	**IDVSNM2238T**	2,474	E2	23.78	296	230/460	12.7	2,48
15	1800	2700	254TC	TEFC	**IDVSM2333T**	2,698	E2	24.50	323	230/460	18.4	2,48
			256TC	TENV	**IDVSNM2333T**	3,076	E2	23.78	331	230/460	18.7	2,48
20	1800	2700	256TC	TEFC	**IDVSM2334T**	2,957	E2	24.50	342	230/460	25.5	2,48
25	1800	2700	284TC	TEFC	**IDVSM4103T**	3,740	E2	27.44	437	230/460	31	2,48
30	1800	2700	286TC	TEFC	**IDVSM4104T**	4,146	E2	27.44	450	230/460	38.1	2,48
40	1800	2700	324T	TEFC	**IDVSM4110T**	5,534	E2	30.44	672	230/460	49.8	2,48
50	1800	2700	326T	TEFC	**IDVSM4115T**	6,764	E2	30.44	627	230/460	62.5	2,48
60	1800	2700	364T	TEFC	**IDVSM4314T**	8,379	E2	33.44	845	230/460	71.2	2,48
75	1800	2700	365T	TEFC	**IDVSM4316T**	10,494	E2	33.44	888	230/460	89.2	2,48
100	1800	2700	405T	TEFC	**IDVSM4400T-4**	13,563	E2	38.31	1,252	460	116	2,48
125	1800	2700	444T	TEFC	**IDVSM4410T-4**	16,835	E2	44.62	1,657	460	150	2,48
150	1800	2700	445T	TEFC	**IDVSM4406T-4**	20,092	E2	44.62	1,822	460	177	2,48
200	1800	2700	447T	TEFC	**IDVSM4407T-4**	23,807	E2	48.13	2,275	460	226	2,48
250	1800	2700	449T	TEFC	**IDVSM4408T-4**	29,430	E2	53.13	2,650	460	277	2,48
300	1800	2700	449T	TEFC	**IDVSM44304T-4**	33,648	E2	53.13	2,808	460	338	2,48

[a] See notes on inside back flap and pages 5-6.

CONTINUOUS CONSTANT TORQUE TO ZERO SPEED

Cast Iron Frame

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. Insulation system exceeds NEMA MG 1-2006, Part 31.4.4.2. Continuous constant torque to zero speed.

Hp	RPM	Max. RPM	NEMA Frame	Enclosure	Catalog Number	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Voltage	Full Load Amps	Notes [a]
1/2	1800	6000	56C	TENV	**ZDVSNM3538**	1,798	E2	13.84	14	230/460	0.8	2,46,48
3/4	1800	6000	56C	TENV	**ZDVSNM3542**	1,853	E2	13.84	35	230/460	1.1	2,46,48
1	1800	6000	143TC	TENV	**ZDVSNM3581T**	2,418	E2	14.65	41	230/460	1.6	2,46,48
1 1/2	1800	6000	143TC	TENV	**ZDVSNM3584T**	2,531	E2	14.65	47	230/460	2.1	2,46,48
2	1800	6000	145TC	TENV	**ZDVSNM3587T**	2,792	E2	14.65	45	230/460	2.7	2,46,48
3	1800	2700	182TC	TENV	**ZDVSNM3661T**	2,909	E2	14.69	133	230/460	3.8	2,46,48
			182TC	TEFC	**ZDVSM3661T**	2,869	E2	15.62	125	230/460	3.8	2,46,48
5	1800	2700	L184TC	TENV	**ZDVSNM3665T**	3,138	E2	16.19	151	230/460	6.4	2,46,48
			L184TC	TEFC	**ZDVSM3665T**	3,091	E2	17.12	146	230/460	6.4	2,46,48
7 1/2	1800	2700	213TC	TEFC	**ZDVSM3770T**	3,480	E2	19.25	184	230/460	9.6	2,46,48
			L215TC	TENV	**ZDVSNM2237T**	3,537	E2	19.25	211	230/460	9.2	2,46,48
10	1800	2700	L215TC	TEFC	**ZDVSM3774T**	3,790	E2	20.12	204	230/460	12.4	2,46,48
			254TC	TENV	**ZDVSNM2238T**	4,015	E2	23.78	359	230/460	12.7	2,46,48
15	1800	2700	254TC	TEFC	**ZDVSM2333T**	4,239	E2	24.50	328	230/460	18.4	2,46,48
			256TC	TENV	**ZDVSNM2333T**	4,618	E2	23.78	378	230/460	18.7	2,46,48
20	1800	2700	256TC	TEFC	**ZDVSM2334T**	4,499	E2	24.50	346	230/460	25.5	2,46,48
25	1800	2700	284TC	TEFC	**ZDVSM4103T**	5,280	E2	27.44	445	230/460	31	2,46,48
30	1800	2700	286TC	TEFC	**ZDVSM4104T**	5,687	E2	27.44	450	230/460	38.1	2,46,48
40	1800	2700	324T	TEFC	**ZDVSM4110T**	7,075	E2	30.44	696	230/460	49.8	2,46,48
50	1800	2700	326T	TEFC	**ZDVSM4115T**	8,304	E2	30.44	693	230/460	62.5	2,46,48
60	1800	2700	364T	TEFC	**ZDVSM4314T**	9,919	E2	33.44	860	230/460	71.2	2,46,48
75	1800	2700	365T	TEFC	**ZDVSM4316T**	12,036	E2	33.44	887	230/460	89.2	2,46,48
100	1800	2700	405T	TEFC	**ZDVSM4400T-4**	15,105	E2	38.31	1,247	460	116	2,46,48
125	1800	2700	444T	TEFC	**ZDVSM4410T-4**	18,377	E2	44.62	1,744	460	150	2,46,48
150	1800	2700	445T	TEFC	**ZDVSM4406T-4**	21,632	E2	44.62	1,892	460	177	2,46,48
200	1800	2700	447T	TEFC	**ZDVSM4407T-4**	25,348	E2	48.13	2,275	460	226	2,46,48
250	1800	2700	449T	TEFC	**ZDVSM4408T-4**	30,969	E2	53.13	2,650	460	277	2,46,48
300	1800	2700	449T	TEFC	**ZDVSM44304T-4**	35,189	E2	53.13	2,820	460	338	2,46,48

[a] See notes on inside back flap and pages 5-6.

CONTINUOUS CONSTANT TORQUE TO ZERO SPEED

Cast Iron Frame

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. Insulation system exceeds NEMA MG 1-2006, Part 31.4.4.2. Continuous constant torque to zero speed.

Hp	RPM	Max. RPM	NEMA Frame	Enclosure	Catalog Number	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Voltage	Full Load Amps	Notes [a]
1	1800	6000	143TC	TENV	**ZDVSNCP3581T**	2,540	E2	14.65	62	230/460	1.6	2,46,48
1 1/2	1800	6000	143TC	TENV	**ZDVSNCP3584T**	2,652	E2	14.65	64	230/460	2.1	2,46,48
2	1800	6000	145TC	TENV	**ZDVSNCP3587T**	2,913	E2	14.65	67	230/460	2.7	2,46,48
3	1800	2700	182TC	TEFC	**ZDVSCP3661T**	3,005	E2	15.62	131	230/460	3.8	2,46,48
5	1800	2700	L184TC	TEFC	**ZDVSCP3665T**	3,230	E2	17.12	154	230/460	6.4	2,46,48
7 1/2	1800	2700	213TC	TEFC	**ZDVSCP3770T**	3,682	E2	19.25	198	230/460	9.6	2,46,48
10	1800	2700	L215TC	TEFC	**ZDVSCP3774T**	3,993	E2	20.12	216	230/460	12.4	2,46,48
15	1800	2700	254TC	TEFC	**ZDVSCP2333T**	4,512	E2	24.50	356	230/460	18.4	2,46,48
20	1800	2700	256TC	TEFC	**ZDVSCP2334T**	4,773	E2	24.50	364	230/460	25.5	2,46,48
25	1800	2700	284TC	TEFC	**ZDVSCP4103T**	5,597	E2	27.44	445	230/460	31	2,46,48
30	1800	2700	286TC	TEFC	**ZDVSCP4104T**	6,004	E2	27.44	479	230/460	38.1	2,46,48
40	1800	2700	324T	TEFC	**ZDVSCP4110T**	7,449	E2	30.44	737	230/460	49.8	2,46,48
50	1800	2700	326T	TEFC	**ZDVSCP4115T**	8,678	E2	30.44	580	230/460	62.5	2,46,48

[a] See notes on inside back flap and pages 5-6.

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	O	MS-ST	5-15	1,337	E8	6
K99G74	TENV	HS35-2048	2048	180T-250T	BEI	O	MS-ST	5-15	1,337	E8	6
K99G76	TENV	HS35	1024	180T-250T	BEI	O	MS-ST	5-24	1,337	E8	6
K99G70	TENV	RAHS35M	1024	180T-250T	Avtron	M	MS-ST	5-24	1,337	E8	9
K99G78	TENV	HSD35	1024	180T-250T	Dynapar	O	Latch	5-26	1,504	E8	8
K99G73	TEFC	HS35	1024	180T-440T	BEI	O	MS-ST	5-15	1,337	E8	6
K99G75	TEFC	HS35-2048	2048	180T-440T	BEI	O	MS-ST	5-24	1,337	E8	6
K99G77	TEFC	HS35	1024	180T-440T	BEI	O	MS-ST	5-24	1,337	E8	6
K99G71	TEFC	RAHS35M	1024	180T-440T	Avtron	M	MS-ST	5-24	1,337	E8	9
K99G79	TEFC	HSD35	1024	180T-440T	Dynapar	O	Latch	5-26	1,504	E8	8
K99G80	TENV	HS35	1024	180T-250T	BEI	O	MS-TL	5-28	1,337	E8	6
K99G81	TEFC	HS35	1024	180T-440T	BEI	O	MS-TL	5-28	1,337	E8	6

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

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**	416	E2	13.84	29	76	230/460	0.6	2,8,60
1/2	1800	6000	56C	TENV	**IDNM3538**	487	E2	13.84	32	75.5	230/460	0.8	2,8,60
3/4	1800	6000	56C	TENV	**IDNM3542**	542	E2	13.84	35	80	230/460	1.1	2,8,60
1	1800	6000	143TC	TEBC	**IDM3581T**	1,462	E2	19.15	60	87.5	230/460	1.5	2,8,55,70
			143TC	TEBC	**IDM3581T-5**	1,462	E2	19.15	61	86.5	575	1.1	2,8,55,70
			143TC	TENV	**IDNM3581T**	1,107	E2	14.65	59	81.5	230/460	1.6	2,8,60
	1200	6000	145TC	TEBC	**IDM3582T**	1,717	E2	19.15	64	82.5	230/460	1.8	2,8,55,70
1 1/2	1800	6000	145TC	TEBC	**IDM3584T**	1,546	E2	19.15	63	88.5	230/460	2.1	2,8,55,70
			145TC	TEBC	**IDM3584T-5**	1,546	E2	19.15	62	87.5	575	1.7	2,8,55,70
			145TC	TENV	**IDNM3584T**	1,221	E2	14.65	66	82.5	230/460	2.1	2,8,60
	1200	6000	182TC	TEBC	**IDM3667T**	1,931	E2	21.71	111	86.5	230/460	2.6	2,8,55,70
2	1800	6000	145TC	TEBC	**IDM3587T**	1,653	E2	19.15	68	88.5	230/460	2.7	2,8,55,70
			145TC	TEBC	**IDM3587T-5**	1,653	E2	19.15	71	86.5	575	2	2,8,55,70
			145TC	TENV	**IDNM3587T**	1,276	E2	14.65	64	84	230/460	2.7	2,8,60
			182TC	TENV	**IDNM3669T**	1,481	E2	17.21	92	84	230/460	2.9	2,8,60
	1200	6000	184TC	TEBC	**IDM3664T**	1,984	E2	21.71	116	87.5	230/460	3.6	2,8,55,70
3	1800	6000	184TC	TEBC	**IDM3661T**	2,113	E2	21.71	104	89.5	230/460	4	2,8,55,70
			184TC	TEBC	**IDM3661T-5**	2,113	E2	21.71	103	89.5	575	3.2	2,8,55,70
			184TC	TENV	**IDNM3661T**	1,672	E2	17.21	105	88.5	230/460	4	2,8,60
	1200	6000	213TC	TEBC	**IDM3764T**	2,595	E2	29.14	172	89.5	230/460	5	2,8,70
5	1800	6000	184TC	TEBC	**IDM3665T**	2,235	E2	21.71	120	90.2	230/460	6.5	2,8,55,70
			184TC	TEBC	**IDM3665T-5**	2,235	E2	21.71	120	90.2	575	5.2	2,8,55,70
			184TC	TENV	**IDNM3665T**	1,865	E2	17.21	112	89.5	230/460	6.6	2,8,60
			213TC	TENV	**IDNM3767T**	2,079	E2	20.40	166	89.5	230/460	6.7	2,8,60
	1200	6000	215TC	TEBC	**IDM3768T**	3,177	E2	29.14	200	88.5	230/460	8	2,8,70
7 1/2	1800	5000	254TC	TENV	**IDNM2237T**	2,586	E2	24.05	238	90.2	230/460	9.1	2,8,60
		6000	213TC	TEBC	**IDM3770T**	2,694	E2	29.14	176	91.7	230/460	9.5	2,8,70
			213TC	TEBC	**IDM3770T-5**	2,694	E2	30.07	185	90.2	575	7.8	2,8,70
			213TC	TENV	**IDNM3770T**	2,158	E2	20.40	196	91.7	230/460	10.1	2,8,60
	1200	5000	254TC	TEBC	**IDM2276T**	4,568	E2	33.07	286	91.7	230/460	10.7	2,8,70
10	1800	5000	256TC	TENV	**IDNM2238T**	2,706	E2	24.05	281	91.7	230/460	13	2,8,60
		6000	215TC	TEBC	**IDM3774T**	2,886	E2	29.14	219	92.4	230/460	12.5	2,8,70
			215TC	TEBC	**IDM3774T-5**	2,886	E2	30.07	196	91.7	575	10	2,8,70
	1200	5000	256TC	TEBC	**IDM2332T**	5,580	E2	33.07	328	91.7	230/460	14.2	2,8,70
15	1800	5000	254TC	TENV	**IDNM2333T**	2,787	E2	24.05	286	94.1	230/460	18.5	2,8,60
			256TC	TEBC	**IDM2333T**	3,138	E2	33.07	255	92.4	230/460	18.5	2,8,70
			256TC	TEBC	**IDM2333T-5**	3,138	E2	34.15	255	92.4	575	14.8	2,8,70
	1200	4000	284T	TEBC	**IDM4100T**	6,616	E2	36.48	422	93	230/460	19.7	2,8,45,70
20	1800	5000	256TC	TEBC	**IDM2334T**	3,352	E2	33.07	286	93	230/460	24	2,8,70
			256TC	TEBC	**IDM2334T-5**	3,352	E2	34.15	286	93	575	19	2,8,70
			284T	TENV	**IDNM2334T**	3,851	E2	27.36	410	94.5	230/460	25.5	2,8,45,60
	1200	4000	286T	TEBC	**IDM4102T**	7,449	E2	36.48	451	93	230/460	26	2,8,45,70

[a] See notes on inside back flap and pages 5-6.

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**	4,133	E2	36.48	424	93.6	230/460	30	2,8,45,70
	1200	3500	324T	TEBC	**IDM4111T**	8,489	E2	39.24	565	93	230/460	32	2,8,45,70
30	1800	4000	286T	TEBC	**IDM4104T**	4,741	E2	36.48	455	94.1	230/460	36	2,8,45,70
	1200	3800	326T	TEBC	**IDM4117T**	9,448	E2	39.24	596	93	230/460	38	2,8,45,70
40	1800	3900	324T	TEBC	**IDM4110T**	6,411	E2	39.24	608	94.5	230/460	47	2,8,45,70
50	1800	3900	326T	TEBC	**IDM4115T**	7,196	E2	39.24	632	94.5	230/460	57	2,8,45,70
60	1200	2800	404T	TEBC	**IDM4403T**	14,685	E2	46.68	1,196	94.5	230/460	72	2,8,45,70
75	1800	3600	365T	TEBC	**IDM4316T**	9,667	E2	41.58	908	95.4	230/460	84	2,8,45,70
	1200	2800	405T	TEBC	**IDM4404T**	17,101	E2	46.68	1,165	95	230/460	88	2,8,45,70
150	1800	2400	445T	TEBC	**IDM4406T-4**	22,243	E2	51.98	1,630	95.8	460	173	2,8,45,70
200	1800	2400	447T	TEBC	**IDM4407T-4**	25,488	E2	55.49	2,242	96.2	460	224	2,8,45,70

[a] See notes on inside back flap and pages 5-6.

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]
C-Face, Foot Mounted													
1/2	1800	6000	56C	TENV	**IDCSWDM3538**	1,305	E2	11.07	29	82.5	230/460	0.8	2,8,48,60,77
3/4	1800	6000	56C	TENV	**IDCSWDM3542**	1,478	E2	12.07	36	78.5	230/460	1	2,8,48,60,77
1	1800	3600	56C	TENV	**IDCSWDM3546**	1,535	E2	12.07	39	85.5	208-230/460	1.4	2,8,48,60,77
			143TC	TENV	**IDCSWDM3546T**	1,535	E2	12.12	39	85.5	208-230/460	1.4	2,8,48,60,77
1 1/2	1800	4000	56C	TEFC	**IDCSWDM3554**	1,642	E2	13.30	45	87.5	230/460	2.1	2,8,48,60,77
			145TC	TEFC	**IDCSWDM3554T**	1,642	E2	13.30	44	87.5	230/460	2.1	2,8,48,60,77
2	1800	3600	56C	TEFC	**IDCSWDM3558**	1,753	E2	14.12	47	86.5	230/460	2.5	2,8,48,60,77
			145TC	TEFC	**IDCSWDM3558T**	1,753	E2	14.18	52	86.5	230/460	2.5	2,8,48,60,77
3	1800	6000	182TC	TEFC	**IDCSWDM3611T**	1,923	E2	16.56	74	89.5	230/460	4	2,8,48,60,77
5	1800	6000	184TC	TEFC	**IDCSWDM3615T**	2,238	E2	18.06	93	90.2	230/460	6.4	2,8,48,60,77
7 1/2	1800	6000	213TC	TEFC	**IDCSWDM3710T**	3,389	E2	19.81	140	91.7	230/460	9.5	2,8,48,60,77
10	1800	6000	215TC	TEFC	**IDCSWDM3714T**	3,875	E2	21.31	187	92.4	230/460	12.5	2,8,48,60,77
C-Face, Footless													
1/2	1800	6000	56C	TENV	**IDVSWDM3538**	1,295	E2	11.07	29	82.5	230/460	0.8	2,8,48,60,77
3/4	1800	6000	56C	TENV	**IDVSWDM3542**	1,472	E2	12.07	36	78.5	230/460	1	2,8,48,60,77
1	1800	3600	56C	TENV	**IDVSWDM3546**	1,527	E2	12.07	39	85.5	208-230/460	1.4	2,8,48,60,77
			143TC	TENV	**IDVSWDM3546T**	1,527	E2	12.12	39	85.5	208-230/460	1.4	2,8,48,60,77
1 1/2	1800	4000	56C	TEFC	**IDVSWDM3554**	1,633	E2	13.24	42	87.5	230/460	2.1	2,8,48,60,77
			145TC	TEFC	**IDVSWDM3554T**	1,633	E2	13.30	43	87.5	230/460	2.1	2,8,48,60,77
2	1800	3600	56C	TEFC	**IDVSWDM3558**	1,739	E2	14.12	49	86.5	230/460	2.5	2,8,48,60,77
			145TC	TEFC	**IDVSWDM3558T**	1,739	E2	14.18	49	86.5	230/460	2.5	2,8,48,60,77
3	1800	6000	182TC	TEFC	**IDVSWDM3611T**	1,829	E2	16.56	73	89.5	230/460	4	2,8,48,60,77
5	1800	6000	184TC	TEFC	**IDVSWDM3615T**	2,132	E2	18.06	101	90.2	230/460	6.4	2,8,48,60,77

[a] See notes on inside back flap and pages 5-6.

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 Class I, Group D, Class II, Groups F & G, Temperature Code T3C (160°C). 3 Hp and larger, 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 [a] Cls/Grp	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Full Load Efficiency	Voltage	Full Load Amps	Notes [b]
2:1 Constant Torque, 10:1 Variable Torque Ratings													
3	1800	2700	182TC	**IDXM7142T**	⑨	1,444	E2	18.24	142	89.5	230/460	4	2,20
5	1800	2700	184TC	**IDXM7144T**	⑨	1,717	E2	18.24	158	89.5	230/460	6.5	2,20
7 1/2	1800	2700	213TC	**IDXM7147T**	⑨	2,159	E2	20.69	228	91.7	230/460	9.5	2,20
10	1800	2700	215TC	**IDXM7170T**	⑨	2,961	E2	20.69	196	92.4	208-230/460	12.5	2,20
15	1800	2700	254TC	**IDXM7054T**	⑨	3,391	E2	26.00	356	92.4	230/460	18	2,20
20	1800	2700	256TC	**IDXM7056T**	⑨	4,400	E2	26.00	393	93	230/460	24	2,20
25	1800	2700	284T	**IDXM7058T**	⑨	5,213	E2	28.61	541	93.6	230/460	30.5	2,20
30	1800	2700	286T	**IDXM7060T**	⑨	6,359	E2	28.61	561	94.1	230/460	36	2,20
40	1800	2700	324T	**IDXM7062T**	⑨	8,518	E2	32.12	782	94.5	230/460	46	2,20
50	1800	2700	326T	**IDXM7064T**	⑨	9,910	E2	32.12	785	94.5	230/460	57	2,20
60	1800	2700	364T	**IDXM7066T**	⑨	11,315	E2	33.25	967	95	230/460	69	2,20
75	1800	2700	405T	**IDXM7068T**	⑨	12,543	E2	38.75	1,259	94.1	230/460	85	2,20,45
10:1 Constant Torque and Variable Torque Ratings													
1/3	1800	2700	56C	**IDXM7002**	⑧	1,002	E2	12.55	17	—	230/460	0.6	2,20
1/2	1800	2700	56C	**IDXM7006**	⑧	1,029	E2	14.30	39	82.5	230/460	0.8	2,20
3/4	1800	2700	56C	**IDXM7010**	⑧	1,052	E2	14.30	43	82.5	230/460	1.1	2,20
1	1800	2700	143TC	**IDXM7014T**	⑧	1,172	E2	15.23	47	87.5	230/460	1.5	2,20
1 1/2	1800	2700	145TC	**IDXM7034T**	⑧	1,214	E2	16.10	53	88.5	230/460	2.1	2,20
2	1800	2700	145TC	**IDXM7037T**	⑧	1,327	E2	17.48	67	88.5	230/460	2.6	2,20
3	1800	2700	182TC	**IDXM7542T**	⑨	1,515	E2	18.24	141	89.5	230/460	4	2,20
5	1800	2700	213TC	**IDXM7544T**	⑨	2,207	E2	20.65	212	90.2	230/460	6.3	2,20
7 1/2	1800	2700	215TC	**IDXM7547T**	⑨	3,103	E2	20.65	225	91.7	230/460	9.5	2,20
10	1800	2700	254TC	**IDXM7570T**	⑨	3,473	E2	26.00	378	91.7	230/460	13	2,20
15	1800	2700	256TC	**IDXM7554T**	⑨	4,504	E2	26.00	381	92.4	230/460	17	2,20
20	1800	2700	284T	**IDXM7556T**	⑨	5,462	E2	28.61	523	90.2	230/460	24.5	2,20
25	1800	2700	324T	**IDXM7558T**	⑨	6,577	E2	32.12	742	91.7	230/460	30	2,20
30	1800	2700	326T	**IDXM7560T**	⑨	7,654	E2	32.12	747	94.5	230/460	35	2,20
40	1800	2700	364T	**IDXM7562T**	⑨	8,562	E2	33.25	913	93.6	230/460	46	2,20
50	1800	2700	365T	**IDXM7564T**	⑨	10,681	E2	33.25	971	93.6	230/460	61	2,20
60	1800	2700	405T	**IDXM7566T**	⑨	12,652	E2	38.75	1,265	93.6	230/460	69	2,20

[a] See explosion proof symbols on inside back flap.

[b] See notes on inside back flap and pages 5-6.

Cast Iron Frame

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**	2,772	E2	19.15	62	87.5	230/460	1.5	2,8,46,55,60,70
			143TC	TEBC	**ZDM3581T-5**	2,772	E2	19.15	64	86.5	575	1.1	2,8,46,55,70
			143TC	TENV	**ZDNM3581T**	2,418	E2	14.65	56	81.5	230/460	1.6	2,8,46,55
	1200	6000	143TC	TEBC	**ZDM3582T**	3,027	E2	19.15	66	82.5	230/460	1.8	2,8,46,55,70
1 1/2	1800	6000	145TC	TEBC	**ZDM3584T**	2,857	E2	19.15	63	88.5	230/460	2.1	2,8,46,55,60,70
			145TC	TEBC	**ZDM3584T-5**	2,857	E2	19.15	68	87.5	575	1.7	2,8,46,55
			145TC	TENV	**ZDNM3584T**	2,531	E2	14.65	65	82.5	230/460	2.1	2,8,46,55
	1200	6000	182TC	TEBC	**ZDM3667T**	3,242	E2	21.71	110	86.5	230/460	2.6	2,8,46,55,70
2	1800	6000	145TC	TEBC	**ZDM3587T**	2,962	E2	19.15	69	88.5	230/460	2.7	2,8,46,55,70
			145TC	TEBC	**ZDM3587T-5**	2,962	E2	19.15	69	86.5	575	2	2,8,46,55,70
			182TC	TENV	**ZDNM3669T**	2,792	E2	17.21	94	84	230/460	2.9	2,8,46,55,60
	1200	6000	184TC	TEBC	**ZDM3664T**	3,295	E2	21.71	118	87.5	230/460	3.6	2,8,46,55,70
3	1800	6000	182TC	TEBC	**ZDM3661T**	3,423	E2	21.71	106	89.5	230/460	4	2,8,46,55,70
			182TC	TEBC	**ZDM3661T-5**	3,423	E2	21.71	105	89.5	575	3.2	2,8,46,55,70
			184TC	TENV	**ZDNM3661T**	2,984	E2	17.21	108	88.5	230/460	4	2,8,46,55,60
	1200	6000	213TC	TEBC	**ZDM3764T**	3,905	E2	29.14	174	89.5	230/460	5	2,8,46,70
5	1800	6000	184TC	TEBC	**ZDM3665T**	3,545	E2	21.71	121	90.2	230/460	6.5	2,8,46,55,70
			184TC	TEBC	**ZDM3665T-5**	3,545	E2	21.71	123	90.2	575	5.2	2,8,46,55,70
			213TC	TENV	**ZDNM3767T**	3,389	E2	20.40	167	91	230/460	6.7	2,8,46,60
	1200	6000	215TC	TEBC	**ZDM3768T**	4,487	E2	29.14	200	88.5	230/460	8	2,8,46,70
7 1/2	1800	5000	256TC	TENV	**ZDNM2237T**	3,897	E2	24.05	250	90.2	230/460	9.1	2,8,46,60
		6000	213TC	TEBC	**ZDM3770T**	4,004	E2	29.14	177	91.7	230/460	9.5	2,8,46,70
			213TC	TEBC	**ZDM3770T-5**	4,004	E2	30.07	169	90.2	575	7.8	2,8,46,70
	1200	5000	254TC	TEBC	**ZDM2276T**	5,878	E2	33.07	282	91.7	230/460	10.7	2,8,46,70
10	1800	5000	256TC	TENV	**ZDNM2238T**	4,017	E2	24.05	289	91.7	230/460	13	2,8,46,60
		6000	215TC	TEBC	**ZDM3774T**	4,196	E2	29.14	196	92.4	230/460	12.5	2,8,46,70
			215TC	TEBC	**ZDM3774T-5**	4,196	E2	30.07	196	91.7	575	10	2,8,46,70
	1200	5000	256TC	TEBC	**ZDM2332T**	6,890	E2	33.07	324	91.7	230/460	14.2	2,8,46,70
15	1800	5000	254TC	TENV	**ZDNM2333T**	4,098	E2	24.05	286	94.1	230/460	18.5	2,8,46,60
			256TC	TEBC	**ZDM2333T**	4,448	E2	33.07	301	92.4	230/460	18.5	2,8,46,70
			256TC	TEBC	**ZDM2333T-5**	4,448	E2	34.15	310	92.4	575	14.8	2,8,46,70
	1200	4000	284T	TEBC	**ZDM4100T**	7,925	E2	36.48	426	93	230/460	19.7	2,8,45,46,70
20	1800	5000	256TC	TEBC	**ZDM2334T**	4,663	E2	33.07	286	93	230/460	24	2,8,46,70
			256TC	TEBC	**ZDM2334T-5**	4,663	E2	34.15	286	93	575	19	2,8,46,70
			284T	TENV	**ZDNM2334T**	5,162	E2	27.36	420	94.5	230/460	25.5	2,8,45,46,60
	1200	4000	286T	TEBC	**ZDM4102T**	8,760	E2	36.48	476	93	230/460	26	2,8,45,46,70
25	1800	4000	284T	TEBC	**ZDM4103T**	5,442	E2	36.48	424	93.6	230/460	30	2,8,45,46,70
	1200	3900	324T	TEBC	**ZDM4111T**	9,801	E2	39.24	566	93	230/460	32	2,8,45,46,70
30	1800	4000	286T	TEBC	**ZDM4104T**	6,052	E2	36.48	452	94.1	230/460	36	2,8,45,46,70
	1200	3900	326T	TEBC	**ZDM4117T**	10,759	E2	39.24	594	93	230/460	38	2,8,45,46,70
40	1800	3900	324T	TEBC	**ZDM4110T**	7,720	E2	39.24	606	94.5	230/460	47	2,8,45,46,70
	1200	3600	364T	TEBC	**ZDM4308T**	12,177	E2	41.58	808	94.1	230/460	49	2,8,45,46,70
50	1800	3900	326T	TEBC	**ZDM4115T**	8,506	E2	39.24	679	94.5	230/460	57	2,8,45,46,70
75	1200	2800	405T	TEBC	**ZDM4404T**	18,411	E2	46.68	1,167	95	230/460	88	2,8,45,46,70
150	1800	2400	445T	TEBC	**ZDM4406T-4**	23,555	E2	51.98	1,798	95.8	460	173	2,8,45,46,70

[a] See notes on inside back flap and pages 5-6.

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

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 210 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**	1,305	E2	14.90	39	86.5	230/460	1.4	2,8,48,60,77
1 1/2	1800	6000	145TC	**IDWNM3554T**	1,438	E2	15.78	50	87.5	230/460	2.1	2,8,48,60,77
2	1800	6000	182TC	**IDWNM3609T**	1,584	E2	17.77	69	84	230/460	2.9	2,8,48,60,77
3	1800	6000	184TC	**IDWNM3611T**	1,726	E2	17.77	80	88.5	230/460	4	2,8,48,60,77
5	1800	6000	213TC	**IDWNM3707T**	1,953	E2	19.84	119	89.5	230/460	6.7	2,8,48,60,77
7 1/2	1800	5000	254TC	**IDWNM22937T**	3,026	E2	23.92	242	91	230/460	9.1	2,8,48,60,77
10	1800	5000	254TC	**IDWNM22938T**	3,544	E2	23.92	291	91.7	230/460	12	2,8,48,60,77

[a] See notes on inside back flap and pages 5-6.

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**	2,616	E2	14.90	42	86.5	230/460	1.4	2,8,46,60,77
1 1/2	1800	6000	145TC	**ZDWNM3554T**	2,749	E2	15.78	51	87.5	230/460	2.1	2,8,46,60,77
2	1800	6000	182TC	**ZDWNM3609T**	2,895	E2	17.77	71	84	230/460	2.9	2,8,46,60,77
3	1800	6000	184TC	**ZDWNM3611T**	3,039	E2	17.77	79	88.5	230/460	4	2,8,46,60,77
5	1800	6000	213TC	**ZDWNM3707T**	3,266	E2	19.84	125	89.5	230/460	6.7	2,8,46,60,77
7 1/2	1800	5000	254TC	**ZDWNM22937T**	4,339	E2	23.92	240	91	230/460	9.1	2,8,46,60,77
10	1800	5000	254TC	**ZDWNM22938T**	4,857	E2	23.92	292	91.7	230/460	12	2,8,46,60,77

[a] See notes on inside back flap and pages 5-6.

1000:1 CONSTANT TORQUE SPEED RANGE

Vector, Elevator Duty, Three Phase, ODP

10 thru 75 Hp — NEMA 256T thru 405T

Applications: Elevator modernizations where a premium efficient, quiet, high torque motor is required.

Features: Cast iron frame and endplates, electrically isolated 1024 PPR HS35 optical encoder with connector, Class H insulation, 50°C rise, 320% minimum breakdown torque, winding thermostat, 1/8" shaft endplay. Superior insulation system designed to comply with NEMA MG-1 part 31 for inverter power.

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]
10	1200	1800	256T	**ZDME2511T-CI**	4,684	E2	24.70	280	89.5	230/460	17	2,8,46
15	1200	1800	286T	**ZDME2524T-CI**	5,503	E2	27.35	391	90.2	230/460	21	2,8,46
20	1200	1800	286T	**ZDME2528T-CI**	6,214	E2	27.35	420	90.2	230/460	28	2,8,46
25	1200	1800	324T	**ZDME2532T-CI**	7,461	E2	28.54	522	91.7	230/460	32	2,8,46
30	1200	1800	326T	**ZDME2536T-CI**	7,598	E2	30.04	557	91.7	230/460	39	2,8,46
40	1200	1800	364T	**ZDME2540T-CI**	8,390	E2	32.49	725	91.7	230/460	59	2,8,46
50	1200	1800	365T	**ZDME2544T-CI**	9,249	E2	32.49	815	91	230/460	70	2,8,46
60	1200	1800	404T	**ZDME2548T-CI**	11,686	E2	36.80	1,077	91.7	460	74	2,8,46
75	1200	1800	405T	**ZDME2552T-CI**	12,728	E2	36.80	1,162	91.7	460	90	2,8,46

[a] See notes on inside back flap and pages 5-6.
Cast Iron Frame

Inverter Gear Motor - Right Angle and Parallel Shaft -TEFC

3/8 Hp

Applications: Ideally suited for conveyors, material handing, 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
Right Angle										
3/8	22	75	3.4-33	315	**IDGM2509**	644	E2	22	2528M-K	C
	28	60	4.5-41	252	**IDGM2508**	644	E2	22	2528M-K	C
	41	40	6.6-62	228	**IDGM2506**	644	E2	22	2528M-K	C
	83	20	12-123	138	**IDGM2503**	644	E2	22	2528M-K	C
	165	10	23.246	105	**IDGM2501**	644	E2	22	2528M-K	C
	330	5	43-490	68	**IDGM2500**	644	E2	22	2528M-K	C
Parallel Shaft										
3/8	55	30	8.0-82	350	**IDGMP2505**	624	E2	20	2528M-PS	C
	83	20	12-123	233	**IDGMP2503**	588	E2	20	2528M-PS	C
	165	10	23-246	116	**IDGMP2501**	588	E2	20	2528M-PS	C
	330	5	43-490	58	**IDGMP2500**	588	E2	20	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

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 and ZDWNM motors. Uses Baldor style MS twist lock connector.

Catalog Number	Cable Extension Length	List Price	Mult. Sym.	Ap'x Shpg. Wgt.
CBL015ZD-2	5 Ft = 1.5 Meters	183	E8	1
CBL030ZD-2	10 Ft = 3 Meters	213	E8	1
CBL046ZD-2	15 Ft = 4.6 Meters	243	E8	2
CBL061ZD-2	20 Ft = 6.1 Meters	269	E8	2
CBL091ZD-2	30 Ft = 9.1 Meters	328	E8	3
CBL152ZD-2	50 Ft = 15.2 Meters	442	E8	6
CBL229ZD-2	75 Ft = 22.9 Meters	585	E8	8
CBL305ZD-2	100 Ft = 30.5 Meters	729	E8	12
CBL379ZD-2	125 Ft = 37.9 Meters	874	E8	14
CBL455ZD-2	150 Ft = 45.5 Meters	948	E8	2
CBL606ZD-2	200 Ft = 60.6 Meters	1,304	E8	16

Encoder Feedback Kits for IDM, IDNM and IDWNM Motors

For use with Legacy Baldor Motor Designs

ENC00NV-B1

ENC02BC-B2

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, 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	Input Voltage	NEMA Frame	List Price	Ap'x. Mult. Sym.	Shpg. Wgt.
ENC00NV-A2	TENV	HS35M Avtron	Magnetic	5-24 VDC	213T-215T	1,337	E8	1
ENC00NV-B1	TENV	HS25 BEI	Optical	5-15 VDC	56-215T	1,337	E8	2
ENC00NV-D1	TENV	HS35 Dynapar	Optical	5-24 VDC	56-215T	1,504	E8	4
ENC01BC-B1	TEBC	HS25 BEI	Optical	5-15 VDC	143T-215T	1,337	E8	3
ENC01BC-D1	TEBC	HS35 Dynapar	Optical	5-24 VDC	56-215T	1,504	E8	4
ENC01NV-A2	TENV	HS35M Avtron	Magnetic	5-24 VDC	254T-256T	1,337	E8	1
ENC01NV-B2	TENV	HS35 BEI	Optical	5-15 VDC	254T-284T	1,337	E8	4
ENC01NV-D1	TENV	HS35 Dynapar	Optical	5-24 VDC	254T-256T	1,504	E8	4
ENC02BC-A2	TEBC	HS35M Avtron	Magnetic	5-24 VDC	254T-447T	1,337	E8	1
ENC02BC-B2	TEBC	HS35 BEI	Optical	5-15 VDC	254T-447T	1,337	E8	2
ENC02BC-D1	TEBC	HS35 Dynapar	Optical	5-24 VDC	254T-447T	1,504	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	**BLWL05-L**	754	E8	7
		182TC-184TC	**BLWL06-L**	850	E8	8
		213TC-215TC	**BLWL07-L**	892	E8	13
		254TC-256TC	**BLWL09-L**	916	E8	5
		284TC-286TC	**BLWL10-L**	990	E8	35
		324TC-326TC	**BLWL12-L**	1,051	E8	46
		364TC-365TC	**BLWL14-L**	1,118	E8	55
230/380/460	3	213TC-215TC	**BLWM07-F**	892	E8	20
		254TC-256TC	**BLWM09-F**	926	E8	27
		284TC-286TC	**BLWM10-F**	990	E8	35
		324TC-326TC	**BLWM12-F**	1,051	E8	46
		364TC-365TC	**BLWM14-F**	1,130	E8	55
		404TC-405TC	**BLWM16-F**	1,580	E8	70
		444TC-447TC	**BLWM18-F**	2,213	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.

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
C-Face, Footless								
0.25/0.18	1800	42C	**BSM25C-1177MHC**	311	E4	7.95	13	320
0.5/0.37	1800	42C	**BSM25C-2177MHC**	324	E4	8.41	9	320
C-Face, Foot Mounted								
0.5/0.37	1800	56C	**BSM33C-2177MHQ**	524	E4	8.76	33	320
1/0.75	1800	56C	**BSM33C-3177MHQ**	577	E4	9.86	22	320
1.5/1.13	1800	56C	**BSM33C-4177MHQ**	661	E4	12.2	25	320
2/1. 5	1800	56C	**BSM33C-5177MHQ**	722	E4	15.2	30	320
3/2.25	1800	56C	**BSM33C-6177MHQ**	885	E4	16.7	31	320

NOTE: For operation, the appropriate HP rated BMC control must be ordered.

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	Input Vac	Phase	Output			Catalog Number	List Price	Mult. Sym.	Height	Width	Length
Hp/Kw	50/60Hz		VDC	Cont.Amps	Peak Amps				in/mm	in/mm	in/mm
.25/0.18	115/208/230	1	320	1.5	3	**BMC6A01**	399	E3	2.75/70	4.05/103	5.4/136
.05/0.37	115/208/230	1	320	2.4	4.8	**BMC6A02**	435	E3	2.75/70	4.05/103	5.4/136
1/0.75	115/208/230	1	320	4.0	8	**BMC6A04**	479	E3	5/127	4.05/103	6.8/172
1.5/1.13	115/208/230	1	320	5.5	11	**BMC6A05**	515	E3	4.5/114	4.05/103	6.8/172
2/1.5	208/230	1,3	320	6.7	13.4	**BMC2A06**	626	E3	4.45/113	4.05/103	8.6/217
3/2.25	208/230	3	320	9.0	18	**BMC2A09**	718	E3	4.45/113	4.05/103	8.6/217

Baldor V*S Drives Selection Chart

VS1ST	VS1SM	VS1MD	VS1MX	VS1PF	VS1SP	VS1GV
						
Main Attributes						
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	Mircrodrive; 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
Hp Range						
0.5 to 15	0.5 to 3	0.5 to 30	0.5 to 10	5 to 700	1 to 250	1 to 250
Voltage Range						
115V/230V 1-Phase 230V/460V 3-Phase	230V 1-Phase	230V 1-Phase 230V/460V 3-Phase	115V/230V 1-Phase 230V/460V 3-Phase	230V/460V 3-Phase	115V/230V - 1 phase 230V/460V/575V 3-Phase	115V/230V - 1 Phase 230/460V/575V 3-Phase
Enclosure Selection						
IP20	IP20	IP20/NEMA 1 Kits Available	NEMA 4X/12; NEMA 12; with or w/o Disconnect	NEMA 1 (7.5 to 15Hp) IP00/NEMA 1 Kit Option (20 to 125Hp) IP00 (150 to 700Hp)	NEMA 1 (1 to 250Hp) NEMA 4X/12 (1 to 10Hp)	NEMA 1 (1 to 250Hp) NEMA 4X/12 (1 to 10Hp)
Control Mode						
V/Hz	Sensorless Vector or V/Hz	Sensorless Vector or V/Hz	V/Hz	Sensorless Vector or V/Hz	Sensorless Vector or V/Hz	Closed Loop Vector, Sensorless Vector or V/Hz
Speed Range (Typ.)						
20:1	30:1	30:1	20:1	30:1	90:1	1000:1
Communications Options						
Built-In Modbus-RTU (RS-485)	Built-In Modbus-RTU (RS-485)	Built-In Modbus-RTU (RS-485) DeviceNet	Built-in Modbus-RTU (RS-485)	Built-In RS-485, Modbus-RTU, DeviceNet, PROFIBUS-DP, Modbus/TCP, Lonworks, BACNET	Built-In USB and Modbus-RTU, Ethernet Server, DeviceNet, EtherNet/IP, PROFIBUS-DP, LonWorks	Built-In USB and Modbus-RTU, Ethernet Server, DeviceNet, EtherNet/IP, PROFIBUS-DP, LonWorks
Operator Interface						
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
Differentiating Feature						
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 10Hp); 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 10Hp); PLC Functionality; Free Workbench Software w/Oscilloscope Functionality; Wide Variety of Options
Matched Performance® Motors						
XE, M & CP Standard-E, EM & ECP Super-E	XE, M & CP Standard-E, EM & ECP Super-E	XE, M & CP Standard-E®, EM & ECP Super-E®	E-Z KLEEN® Plus, Ultra KLEEN®, XE, WDM Standard-E, EWDM Super-E	XE, M & CP Standard-E, EM & ECP Super-E	XE, 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

VS1ST
AC Micro Drive

1/2 thru 1.5 Hp	**115 VAC**	**1 Phase - 50/60 Hz**
1/2 thru 3 Hp	**230 VAC**	**1 Phase - 50/60 Hz**
1/2 thru 5 Hp	**230 VAC**	**3 Phase - 50/60 Hz**
1 thru 15 Hp	**460 VAC**	**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 PID 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 10 Hp at 230V and 15 Hp at 460V versions.

Performance Features	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
Drive Specifications	Analog Inputs: Two	0-10VDC, 0 to 20mA or 4 to 20mA
	Relay Outputs: One	Built-in Form C Relay
	Analog Output/Digital	0-10 VDC: One Analog Usable for Meter (Freq., Current, Voltage, or Digital Output/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
	Communications	Built-in MODBUS-RTU (RS-485) Communications
	PID Control	Built-in
Protective Features	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)
Agency Certifications		UL, cUL, CE, C-tick
Service Conditions	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	EMC Filter	Transistor	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1ST10P5-0	No	No	A	0.5	2.3	415	EA
VS1ST11-0	No	No	A	1	4.3	485	EA
VS1ST11P5-0T	No	Yes	B	1.5	5.8	596	EA

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

Catalog Number	EMC Filter	Transistor	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1ST80P5-0	No	No	A	0.5	2.3	334	EA
VS1ST80P5-0F	Yes	No	A	0.5	2.3	351	EA
VS1ST81-0	No	No	A	1	4.3	362	EA
VS1ST81-0F	Yes	No	A	1	4.3	447	EA
VS1ST82-0	No	No	A	2	7	436	EA
VS1ST82-0F	Yes	No	A	2	7	574	EA
VS1ST82-0T	No	Yes	B	2	7	543	EA
VS1ST82-0TF	Yes	Yes	B	2	7	649	EA
VS1ST83-0T	No	Yes	B	3	10.5	606	EA
VS1ST83-0TF	Yes	Yes	B	3	10.5	762	EA

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

Catalog Number	EMC Filter	Transistor	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1ST20P5-0	No	No	A	0.5	2.3	334	EA
VS1ST21-0	No	No	A	1	4.3	362	EA
VS1ST22-0	No	No	A	2	7	436	EA
VS1ST22-0T	No	Yes	B	2	7	510	EA
VS1ST22-0TF	Yes	Yes	B	2	7	543	EA
VS1ST23-0T	No	Yes	B	3	10.5	521	EA
VS1ST23-0TF	Yes	Yes	B	3	10.5	606	EA
VS1ST25-0T	No	Yes	C	5	14	691	EA
VS1ST25-0TF	Yes	Yes	C	5	14	862	EA

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

Catalog Number	EMC Filter	Transistor	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1ST41-0	No	No	A	1	2.2	436	EA
VS1ST41-0F	Yes	No	A	1	2.2	489	EA
VS1ST42-0	No	No	A	2	4.1	511	EA
VS1ST42-0F	Yes	No	A	2	4.1	564	EA
VS1ST42-0T	No	Yes	B	2	4.1	585	EA
VS1ST42-0TF	Yes	Yes	B	2	4.1	628	EA
VS1ST43-0T	No	Yes	B	3	5.8	628	EA
VS1ST43-0TF	Yes	Yes	B	3	5.8	681	EA
VS1ST45-0T	No	Yes	B	5	9.5	734	EA
VS1ST45-0TF	Yes	Yes	B	5	9.5	787	EA
VS1ST47-0T	No	Yes	C	7.5	14	1,043	EA
VS1ST47-0TF	Yes	Yes	C	7.5	14	1,096	EA
VS1ST410-0T	No	Yes	C	10	18	1,160	EA
VS1ST410-0TF	Yes	Yes	C	10	18	1,245	EA
VS1ST415-0T	No	Yes	C	15	24	1,565	EA
VS1ST415-0TF	Yes	Yes	C	15	24	1,680	EA

Mounting Dimensions

Frame	Height Inches (mm)	Width Inches (mm)	Depth 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	100	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	20	EA
VS1ST-CBL0P5	1.5 ft. (0.5m) RJ45 Cable	10	EA
VS1ST-CBL1	3 ft. (1m) RJ45 Cable	10	EA
VS1ST-CBL3	9 ft. (3m) RJ45 Cable	10	EA

Copycat Loader

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	25	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	140	EA
VS1ST-HVAC	Provides two relays for “drive running” & “drive tripped”	140	EA
VS1ST-LOGHV-11	115 VAC control logic input card	120	EA
VS1ST-LOGHV-23	230 VAC control logic input card	120	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	181	EA

NOTE: VS1ST accessories are compatible with the VS1MX

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	875	EA
VS1ST-DNET	DeviceNet Gateway Head	875	EA

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.

Performance Features	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
Drive Specifications	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
Protective Features	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)
Agency Certifications	Listings	UL, cUL, CE
Service Conditions	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

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	319	EA
VS1SM80P5-F	Yes	A	0.5	2.5A	372	EA
VS1SM81	No	A	1	5.0A	394	EA
VS1SM81-F	Yes	A	1	5.0A	447	EA
VS1SM82	No	B	2	8.0A	500	EA
VS1SM82-F	Yes	B	2	8.0A	553	EA
VS1SM83	No	B	3	12.0A	638	EA
VS1SM83-F	Yes	B	3	12.0A	702	EA

Mounting Dimensions

Frame	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
A	5.63 (143)	3.11 (79)	5.63 (143)	1.7 (0.76)
A (with Filter)	5.63 (143)	3.11 (79)	5.63 (143)	2.5 (1.12)
B	5.04 (128)	5.51 (140)	6.1 (155)	4.2 (1.9)
B (with Filter)	8.66 (220)	7.09 (180)	6.69 (170)	8.1 (3.66)

VS1MD
AC Micro Drive

1/4 thru 5 Hp **230 VAC** **1 Phase - 50/60 Hz**
1/2 thru 30 Hp **230 VAC** **3 Phase - 50/60 Hz**
1/2 thru 30 Hp **460 VAC** **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.

Performance Features	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
Drive Specifications	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	1-15 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
	PID Control	Built-in
Protective Features	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)
Agency Certifications		UL, cUL, CE
Service Conditions	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

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	447	EA
VS1MD21	A	1	0.5	5.0A	464	EA
VS1MD22	B	2	1	8.0A	581	EA
VS1MD23	C	3	2	12.0A	670	EA
VS1MD25	C	5	3	16.0A	860	EA
VS1MD27	D	7.5	-	24.0A	1,255	EA
VS1MD210	D	10	5	32.0A	1,489	EA
VS1MD215	E	15		46.0A	1,861	EA
VS1MD220	E	20		60.0A	2,327	EA
VS1MD225	F	25		74.0A	2,908	EA
VS1MD230	F	30		88.0A	3,635	EA

VS1MD – 460V, 50/60 Hz, 3-Phase

Catalog Number	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MD40P5	A	0.5	1.25A	534	EA
VS1MD41	A	1	2.5A	559	EA
VS1MD42	B	2	4.0A	676	EA
VS1MD43	C	3	6.0A	782	EA
VS1MD45	C	5	8A	972	EA
VS1MD47	D	7.5	12.0A	1,257	EA
VS1MD410	D	10	16.0A	1,502	EA
VS1MD415	E	15	24.0A	1,878	EA
VS1MD420	E	20	30.0A	2,347	EA
VS1MD425	F	25	39.0A	2,934	EA
VS1MD430	F	30	45.0A	3,667	EA

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

Catalog Number	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MD20P5-8	A	0.5	2.5A	402	EA
VS1MD21-8	A	1	5.0A	418	EA
VS1MD22-8	B	2	8.0A	523	EA
VS1MD23-8	C	3	12.0A	603	EA
VS1MD25-8	C	5	16.0A	774	EA
VS1MD27-8	D	7.5	24.0A	1,130	EA
VS1MD210-8	D	10	32.0A	1,340	EA
VS1MD215-8	E	15	46.0A	1,791	EA
VS1MD220-8	E	20	60.0A	2,257	EA
VS1MD225-8	F	25	74.0A	2,838	EA
VS1MD230-8	F	30	88.0A	3,585	EA

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

Catalog Number	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MD40P5-8	A	0.5	1.25A	480	EA
VS1MD41-8	A	1	2.5A	503	EA
VS1MD42-8	B	2	4.0A	608	EA
VS1MD43-8	C	3	6.0A	704	EA
VS1MD45-8	C	5	8A	875	EA
VS1MD47-8	D	7.5	12.0A	1,131	EA
VS1MD410-8	D	10	16.0A	1,352	EA
VS1MD415-8	E	15	24.0A	1,808	EA
VS1MD420-8	E	20	30.0A	2,277	EA
VS1MD425-8	F	25	39.0A	2,854	EA
VS1MD430-8	F	30	45.0A	3,597	EA

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 Volts	Hp	Braking Transistor Specifications		100% Torque Braking Resistors					150% Torque Braking Resistors				
		Minimum Allowable Ohms	Maximum Continuous Braking Wattage	Ohms	Wattage	Catalog Number	List Price	Mult. Sym.	Ohms	Wattage	Catalog Number	List Price	Mult. Sym.
230	0.5	50	116	200	200	**VS1-R200W200**	58	EA	200	200	**VS1-R200W200**	58	EA
	1	44	174	160	200	**VS1-R160W200**	58	EA	100	200	**VS1-R100W200**	43	EA
	2	40	278	50	400	**VS1-R50W400**	128	EA	50	400	**VS1-R50W400**	128	EA
	3	26	464	50	400	**VS1-R50W400**	128	EA	33	600	**VS1-R33W600**	271	EA
	5	16	767	33	600	**VS1-R33W600**	271	EA	20	800	**VS1-R20W800**	298	EB
	7.5	8	929	20	800	**VS1-R20W800**	298	EB	15	1200	**VS1-R15W1200**	360	EB
	10	8	1394	15	1200	**VS1-R15W1200**	360	EB	10	2400	**VS1-R10W2400**	476	EB
460	0.5	133	116	200	200	**VS1-R200W200**	58	EA	200	200	**VS1-R200W200**	58	EA
	1	66	174	200	200	**VS1-R200W200**	58	EA	200	200	**VS1-R200W200**	58	EA
	2	66	348	200	400	**VS1-R200W400**	128	EA	200	400	**VS1-R200W400**	128	EA
	3	80	464	200	400	**VS1-R200W400**	128	EA	130	600	**VS1-R130W600**	271	EA
	5	64	755	100	400	**VS1-R100W400**	128	EA	85	1000	**VS1-R85W1000**	337	EB
	7.5	32	1235	85	1000	**VS1-R85W1000**	337	EB	40	2000	**VS1-R40W2000**	453	EA
	10	32	1394	60	1200	**VS1-R60W1200**	360	EB	40	2000	**VS1-R40W2000**	453	EA

Mounting Dimensions

Frame	Height Inches (mm)	Width Inches (mm)	Depth 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

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**	39	EA
VS1MD NEMA 1 Kit, Frame B	**VS1MD-NM1B**	39	EA
VS1MD NEMA 1 Kit, Frame C	**VS1MD-NM1C**	46	EA
VS1MD NEMA 1 Kit, Frame D	**VS1MD-NM1D**	56	EA
VS1MD NEMA 1 Kit, Frame E	**VS1MD-NM1E**	62	EA
VS1MD NEMA 1 Kit, Frame F	**VS1MD-NM1F**	84	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	**VS1MD-DINA**	18	EA
VS1MD Din Rail Kit B-Frame	**VS1MD-DINB**	24	EA
VS1MD Din Rail Kit C-Frame	**VS1MD-DINC**	32	EA

VS1MD Keypads

Available as a hand held CopyCat Keypad or a Remote Mounted NEMA 1 Keypad.
The VS1MD Remote Keypad can be panel mounted for remote keypad configuration or control of the VS1MD.
The VS1MD Remote Keypad allows a CopyCat function so that the parameters of the drive can be stored to and retrieved from the Remote Keypad.
The remote keypad can be mounted up to 15ft. from the VS1MD drive.

VS1MD CopyCat Keypad

Description	Catalog Number	List Price	Mult. Sym.
VS1MD CopyCat Keypad	**VS1MD-CCL**	98	EA

VS1MD NEMA 1 Remote Keypads

Description	Catalog Number	List Price	Mult. Sym.
VS1MD Remote Keypad with 6 ft. (2m) cable	**VS1MD-RKEY2**	95	EA
VS1MD Remote Keypad with 9 ft. (3m) cable	**VS1MD-RKEY3**	104	EA
VS1MD Remote Keypad with 15 ft. (5m) cable	**VS1MD-RKEY5**	123	EA

VS1MD Communication Option Kits

The following kits mount inside the communication-ready base units on page 220 and include both the communication card and I/O terminal strip. No operator interface is available with the communication card models.
Programming of the drive is done over the Network from a computer, or using a handheld programming keypad.

Description	Catalog Number	List Price	Mult. Sym.
DeviceNet Communication Card	**VS1MD-DNET**	210	EA
Profibus Communication Card	**VS1MD-PBUS**	Contact Baldor	EA
Ethernet IP Communication Card	**VS1MD-ENET**	Contact Baldor	EA

VS1MX
AC Micro Drive

1/2 thru 1.5 Hp	**115 VAC**	**1 Phase - 50/60 Hz**
1/2 thru 3 Hp	**230 VAC**	**1 Phase - 50/60 Hz**
2 thru 5 Hp	**230 VAC**	**3 Phase - 50/60 Hz**
1 thru 10 Hp	**460 VAC**	**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, Input Disconnect models and EMC Filter models. Integral keypad, operator interface and local speed control. Basic set of less than forty programming parameters. Power ratings up to 10 Hp in 460V versions.

Performance Features	Control Modes	V/Hz or Sensorless Vector
	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
Drive Specifications	Analog Inputs: One	0-10VDC or 4 to 20mA
	Digital Outputs: Two Total	One Built-in Form C Relay, One Optional Form C Relay
	Meter Outputs	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
	Sensorless Vector	Full Sensorless Vector Control with Autotune Function and motor model
	Frequency Control Range	0 - 500Hz
	Accel/Decel	Independently adjustable accel. & decel. ramps
	Time Range	0.1 to 3000 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
	PID Control	Future Release
Protective Features	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)
Agency Certifications		UL, cUL, CE, CCC, C-tick
Service Conditions	Altitude	1,000 m (3,300 ft.), derate by 1% per 100m up to 2,000m maximum
	Ambient Temperature	IP20: -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

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MX10P5-4	No	No	A	0.5	2.3	643	EA
VS1MX10P5-4D	No	Yes	A	0.5	2.3	707	EA
VS1MX11-4	No	No	A	1	4.3	667	EA
VS1MX11-4D	No	Yes	A	1	4.3	734	EA
VS1MX11P5-4T	No	No	B	1.5	5.8	835	EA
VS1MX11P5-4TD	No	Yes	B	1.5	5.8	919	EA

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MX10P5-2	No	No	A	0.5	2.3	591	EA
VS1MX10P5-2D	No	Yes	A	0.5	2.3	650	EA
VS1MX11-2	No	No	A	1	4.3	614	EA
VS1MX11-2D	No	Yes	A	1	4.3	675	EA
VS1MX11P5-2T	No	No	B	1.5	5.8	768	EA
VS1MX11P5-2TD	No	Yes	B	1.5	5.8	845	EA

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MX80P5-4	No	No	A	0.5	2.3	559	EA
VS1MX80P5-4F	Yes	No	A	0.5	2.3	615	EA
VS1MX80P5-4D	No	Yes	A	0.5	2.3	615	EA
VS1MX80P5-4DF	Yes	Yes	A	0.5	2.3	676	EA
VS1MX81-4	No	No	A	1	4.3	580	EA
VS1MX81-4F	Yes	No	A	1	4.3	638	EA
VS1MX81-4D	No	Yes	A	1	4.3	638	EA
VS1MX81-4DF	Yes	Yes	A	1	4.3	702	EA
VS1MX82-4	No	No	A	2	7	726	EA
VS1MX82-4F	Yes	No	A	2	7	799	EA
VS1MX82-4D	No	Yes	A	2	7	799	EA
VS1MX82-4DF	Yes	Yes	A	2	7	879	EA
VS1MX82-4T	No	No	B	2	7	807	EA
VS1MX82-4TF	Yes	Yes	B	2	7	888	EA
VS1MX82-4TD	No	Yes	B	2	7	888	EA
VS1MX82-4TDF	Yes	Yes	B	2	7	977	EA
VS1MX83-4T	No	No	B	3	10.5	838	EA
VS1MX83-4TF	Yes	No	B	3	10.5	921	EA
VS1MX83-4TD	No	Yes	B	3	10.5	921	EA
VS1MX83-4TDF	Yes	Yes	B	3	10.5	1,013	EA

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MX80P5-2	No	No	A	0.5	2.3	514	EA
VS1MX80P5-2F	Yes	No	A	0.5	2.3	566	EA
VS1MX80P5-2D	No	Yes	A	0.5	2.3	566	EA
VS1MX80P5-2DF	Yes	Yes	A	0.5	2.3	622	EA
VS1MX81-2	No	No	A	1	4.3	534	EA
VS1MX81-2F	Yes	No	A	1	4.3	587	EA
VS1MX81-2D	No	Yes	A	1	4.3	587	EA
VS1MX81-2DF	Yes	Yes	A	1	4.3	646	EA
VS1MX82-2	No	No	A	2	7	668	EA
VS1MX82-2F	Yes	No	A	2	7	735	EA
VS1MX82-2D	No	Yes	A	2	7	735	EA
VS1MX82-2DF	Yes	Yes	A	2	7	809	EA
VS1MX82-2T	No	No	B	2	7	742	EA
VS1MX82-2TF	No	No	B	2	7	817	EA
VS1MX82-2TD	Yes	No	B	2	7	817	EA
VS1MX82-2TDF	Yes	No	B	2	7	899	EA
VS1MX83-2T	No	No	B	3	10.5	771	EA
VS1MX83-2TF	Yes	No	B	3	10.5	848	EA
VS1MX83-2TD	No	Yes	B	3	10.5	848	EA
VS1MX83-2TDF	Yes	Yes	B	3	10.5	932	EA

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MX20P5-4	No	No	A	0.5	2.3	574	EA
VS1MX20P5-4D	No	Yes	A	0.5	2.3	632	EA
VS1MX21-4	No	No	A	1	4.3	632	EA
VS1MX21-4D	No	Yes	A	1	4.3	653	EA
VS1MX22-4	No	No	A	2	7	654	EA
VS1MX22-4D	No	Yes	A	2	7	719	EA
VS1MX22-4T	No	No	B	2	7	727	EA
VS1MX22-4TF	Yes	No	B	2	7	719	EA
VS1MX22-4TD	No	Yes	B	2	7	799	EA
VS1MX22-4TDF	Yes	Yes	B	2	7	791	EA
VS1MX23-4T	No	No	B	3	10.5	754	EA
VS1MX23-4TF	Yes	No	B	3	10.5	829	EA
VS1MX23-4TD	No	Yes	B	3	10.5	829	EA
VS1MX23-4TDF	Yes	Yes	B	3	10.5	912	EA
VS1MX25-4T	No	No	C	5	18	1,075	EA
VS1MX25-4TF	Yes	No	C	5	18	1,183	EA
VS1MX25-4TD	No	Yes	C	5	18	1,183	EA
VS1MX25-4TDF	Yes	Yes	C	5	18	1,301	EA

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MX20P5-2	No	No	A	0.5	2.3	527	EA
VS1MX20P5-2D	No	Yes	A	0.5	2.3	580	EA
VS1MX21-2	No	No	A	1	4.3	547	EA
VS1MX21-2D	No	Yes	A	1	4.3	602	EA
VS1MX22-2	No	No	A	2	7	601	EA
VS1MX22-2D	No	Yes	A	2	7	661	EA
VS1MX22-2T	No	No	A	2	7	668	EA
VS1MX22-2TF	Yes	No	B	2	7	661	EA
VS1MX22-2TD	No	Yes	A	2	7	734	EA
VS1MX22-2TDF	Yes	Yes	B	2	7	728	EA
VS1MX23-2T	No	No	B	3	10.5	693	EA
VS1MX23-2TF	Yes	No	B	3	10.5	763	EA
VS1MX23-2TD	No	Yes	B	3	10.5	763	EA
VS1MX23-2TDF	Yes	Yes	B	3	10.5	839	EA

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List Price	Mult. Sym.
VS1MX41-4	No	No	A	1	2.2	699	EA
VS1MX41-4F	Yes	No	A	1	2.2	769	EA
VS1MX41-4D	No	Yes	A	1	2.2	769	EA
VS1MX41-4DF	Yes	Yes	A	1	2.2	846	EA
VS1MX42-4	No	No	A	2	4.1	845	EA
VS1MX42-4F	Yes	No	A	2	4.1	930	EA
VS1MX42-4D	No	Yes	A	2	4.1	930	EA
VS1MX42-4DF	Yes	Yes	A	2	4.1	1,023	EA
VS1MX42-4T	No	No	B	2	4.1	939	EA
VS1MX42-4TF	Yes	No	B	2	4.1	1,033	EA
VS1MX42-4TD	No	Yes	B	2	4.1	1,033	EA
VS1MX42-4TDF	Yes	Yes	B	2	4.1	1,137	EA
VS1MX43-4T	No	No	B	3	5.8	978	EA
VS1MX43-4TF	Yes	No	B	3	5.8	1,075	EA
VS1MX43-4TD	No	Yes	B	3	5.8	1,075	EA
VS1MX43-4TDF	Yes	Yes	B	3	5.8	1,183	EA
VS1MX45-4T	No	No	B	5	9.5	1,215	EA
VS1MX45-4TF	Yes	No	B	5	9.5	1,337	EA
VS1MX45-4TD	No	Yes	B	5	9.5	1,337	EA
VS1MX45-4TDF	Yes	Yes	B	5	9.5	1,470	EA
VS1MX47-4T	No	No	C	7.5	14	1,569	EA
VS1MX47-4TF	Yes	No	C	7.5	14	1,726	EA
VS1MX47-4TD	No	Yes	C	7.5	14	1,726	EA
VS1MX47-4TDF	Yes	Yes	C	7.5	14	1,898	EA
VS1MX410-4T	No	No	C	10	18	1,861	EA
VS1MX410-4TF	Yes	No	C	10	18	2,047	EA
VS1MX410-4TD	No	Yes	C	10	18	2,047	EA
VS1MX410-4TDF	Yes	Yes	C	10	18	1,884	EA

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

Catalog Number	EMC Filter	Disconnect	Frame	Hp	Output Current	List	Mult. Sym.
VS1MX41-2	No	No	A	1	2.2	643	EA
VS1MX41-2F	Yes	No	A	1	2.2	707	EA
VS1MX41-2D	No	Yes	A	1	2.2	707	EA
VS1MX41-2DF	Yes	Yes	A	1	2.2	778	EA
VS1MX42-2	No	No	A	2	4.1	777	EA
VS1MX42-2F	Yes	No	A	2	4.1	855	EA
VS1MX42-2D	No	Yes	A	2	4.1	855	EA
VS1MX42-2DF	Yes	Yes	A	2	4.1	941	EA
VS1MX42-2T	No	No	B	2	4.1	863	EA
VS1MX42-2TF	Yes	No	B	2	4.1	950	EA
VS1MX42-2TD	No	Yes	B	2	4.1	950	EA
VS1MX42-2TDF	Yes	Yes	B	2	4.1	1,046	EA
VS1MX43-2T	No	No	B	3	5.8	899	EA
VS1MX43-2TF	Yes	No	B	3	5.8	989	EA
VS1MX43-2TD	No	Yes	B	3	5.8	989	EA
VS1MX43-2TDF	Yes	Yes	B	3	5.8	1,088	EA
VS1MX45-2T	No	No	B	5	9.5	1,118	EA
VS1MX45-2TF	Yes	No	B	5	9.5	1,230	EA
VS1MX45-2TD	No	Yes	B	5	9.5	1,230	EA
VS1MX45-2TDF	Yes	Yes	B	5	9.5	1,353	EA

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)	7.04 (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

VS1ST Accessories are compatible with the VS1MX. See appropriate catalog pages for a list of available options. Other options for the VS1MX are as follows:

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**	320	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**	32	EA

VS1PF Pump and Fan AC Drive

7.5 thru 40 Hp **230 VAC** **3 Phase - 50/60 Hz**
7.5 thru 700 Hp **460 VAC** **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.

Input Ratings	Voltage	230	460
	Voltage Range	170-253	323-528
	Phase	3 Phase (single phase with 50% derate)	
	Frequency	50/60 Hz +5%	
Output Ratings	Horsepower	7.5-40 Hp @ 230VAC, 3PH; 7.5-700 Hp @ 460VAC, 3 PH;	
	Overload Capacity	Heavy Duty (Constant Torque) = 150% for 60 seconds, 180% for 4 seconds	
		Normal Duty (Variable Torque) = 110% for 60 seconds and 130% for 4 seconds.	
	Frequency	0-400 Hz	
	Voltage	0 to maximum input voltage (RMS)	
Protective Features	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	
Environmental Conditions	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	
Keypad Display	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	5 meter distance	
	Trip	Separate message and trace log for each trip, last 5 trips retained in memory	
Control Specifications	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	0-400 Hz	
	Frequency Avoidance	3 Bands	
	Selectable Operating Modes	Keypad, 2-Wire, 3-Wire, 16 Preset Speeds, Fan Pump, Process Control.	
Analog Inputs	Two total	One: 0-10VDC or -10 to 10VDC	
		One: 4-20mADC	
Analog Outputs	Two	Two: 0-12 VDC	
Digital Inputs	Pull - up or Pull - down	8 Completely Configurable Inputs	
Digital Outputs	Five Total	Four Form A Relays	
		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	1,277	EB
VS1PF210-1	B	10	32	1,489	EB
VS1PF215-1	B	15	46	1,649	EB
VS1PF220-9	C	20	60	1,915	EB
VS1PF225-9	C	25	74	2,447	EB
VS1PF230-9	E	30	88	3,191	EB
VS1PF240-9	E	40	115	3,723	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	1,223	EB
VS1PF410-1	B	10	16	1,489	EB
VS1PF415-1	B	15	24	1,596	EB
VS1PF420-9	C	20	30	1,979	EB
VS1PF420-9L*	D	20	30	2,340	EB
VS1PF425-9	C	25	39	2,340	EB
VS1PF425-9L*	D	25	39	2,766	EB
VS1PF430-9	E	30	45	3,085	EB
VS1PF430-9L*	F	30	45	3,457	EB
VS1PF440-9	E	40	61	3,723	EB
VS1PF440-9L*	F	40	61	4,096	EB
VS1PF450-9	G	50	75	4,468	EB
VS1PF450-9L*	J	50	75	5,000	EB
VS1PF460-9	G	60	91	5,745	EB
VS1PF460-9L*	J	60	91	6,383	EB
VS1PF475-9	H	75	110	6,915	EB
VS1PF475-9L*	K	75	110	7,553	EB
VS1PF4100-9	L	100	152	7,766	EB
VS1PF4100-9L*	M	100	152	8,617	EB
VS1PF4125-9	L	125	183	9,574	EB
VS1PF4125-9L*	M	125	183	10,479	EB
VS1PF4150-9L*	N	150	223	11,064	EB
VS1PF4200-9L*	N	200	264	12,766	EB
VS1PF4250-9L*	P	250	325	14,894	EB
VS1PF4300-9L*	R	300	413	18,085	EB
VS1PF4350-9L*	R	350	432	21,277	EB
VS1PF4400-9L*	R	400	547	29,787	EB
VS1PF4500-9	S	500	613	34,043	EB
VS1PF4600-9	T	600	731	42,553	EB
VS1PF4700-9	T	700	877	51,064	EB

* Built-In DC Link Inductor

VS1PF Pump and Fan Bypass AC Drive

7.5 thru 40 Hp **230 VAC** **3 Phase - 50/60 Hz**
7.5 thru 125 Hp **460 VAC** **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-Off-Bypass 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 – 230V, 50/60 Hz, 3-Phase

Catalog Number	Frame	Hp (Normal Duty)	Output Current	List Price	Mult. Sym.
VS1PFB27-1	B2	7.5	24	3,899	EB
VS1PFB210-1	B2	10	32	4,086	EB
VS1PFB215-1	B2	15	46	5,207	EB
VS1PFB220-1	C2	20	60	5,933	EB
VS1PFB225-1	C2	25	74	6,928	EB
VS1PFB230-1	E2	30	88	8,008	EB
VS1PFB240-1	E2	40	115	10,259	EB

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	3,928	EB
VS1PFB410-1	B4	10	16	3,975	EB
VS1PFB415-1	B4	15	24	4,753	EB
VS1PFB420-1	C4	20	30	5,709	EB
VS1PFB425-1	C4	25	39	6,522	EB
VS1PFB430-1	E4	30	45	7,529	EB
VS1PFB440-1	E4	40	61	9,542	EB
VS1PFB450-1	G4	50	75	11,024	EB
VS1PFB460-1	G4	60	91	12,060	EB
VS1PFB475-1	H4	75	110	14,613	EB
VS1PFB4100-1	L4	100	152	19,212	EB
VS1PFB4125-1	L4	125	183	20,417	EB

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**	58	EB
NEMA 1 Kit for 20Hp & 25Hp With Built-In DC Link Inductor	**VS1PF-NM1D**	66	EB
NEMA 1 Kit for 30Hp & 40Hp Without Built-In DC Link Inductor	**VS1PF-NM1E**	77	EB
NEMA 1 Kit for 30Hp & 40Hp With Built-In DC Link Inductor	**VS1PF-NM1F**	85	EB
NEMA 1 Kit for 50Hp to 75Hp Without Built-In DC Link Inductor	**VS1PF-NM1GH**	116	EB
NEMA 1 Kit for 50Hp to 75Hp With Built-In DC Link Inductor	**VS1PF-NM1JK**	116	EB
NEMA 1 Kit for 100Hp & 125Hp Without Built-In DC Link Inductor	**VS1PF-NM1L**	155	EB
NEMA 1 Kit for 100Hp & 125Hp With Built-In DC Link Inductor	**VS1PF-NM1M**	155	EB

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

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**	200	E8

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**	52	EB
VS1PF Remote Keypad 3m cable	**VS1PF-CBL3**	66	EB
VS1PF Remote Keypad 5m cable	**VS1PF-CBL5**	80	EB

VS1PF Remote Keypad Extender Kit

This kit allows a remote keypad to be located long distances from the PF device.

Description	Catalog Number	List Price	Mult. Sym.
VS1PF Remote Keypad Extender Kit	**VS1PF-KPEXT**	995	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**	312	EB
MODBUS-RTU Option Board for VS1PF	**VS1PF-MBUS**	265	EB
Profibus Option Board for VS1PF	**VS1PF-PBUS**	478	EB
MODBUS TCP/IP Option Board for VS1PF	**VS1PF-MBTCP**	Contact Factory	EB
LONWORKS Option Board for VS1PF	**VS1PF-LON**		EB
BACNET TCP/IP Option Board for VS1PF	**VS1PF-BAC**		EB

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**	200	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**	500	EA

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.

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**	596	EB	8.5	3,200	**VS1-R20W800**	298	EB	20	800
	10	**VS1PF-T220**	596	EB	8.5	3,200	**VS1-R15W1200**	360	EB	15	1,200
	15	**VS1PF-T220**	596	EB	8.5	3,200	**VS1-R10W2400**	476	EB	10	2,400
	20	**VS1PF-T220**	596	EB	8.5	3,200	**VS1-R10W2400**	476	EB	10	2,400
	25	**VS1PF-T230**	667	EB	5.7	4,800	**VS1-R8W2400**	476	EB	8	2,400
	30	**VS1PF-T230**	667	EB	5.7	4,800	**VS1-R8W2400**	476	EB	8	2,400
	40	**VS1PF-T250**	1,314	EB	4.2	6,400	**VS1-R5W3600**	859	EB	5	3,600
	50	**VS1PF-T250**	1,314	EB	4.2	6,400	**VS1-R5W3600**	859	EB	5	3,600
	60	**VS1PF-T275**	1,504	EB	2.8	9,600	**VS1-R8W2400***	476	EB	4	4,800
	75	**VS1PF-T275**	1,504	EB	2.8	9,600	**VS1-R8W2400***	476	EB	4	4,800
460	7.5	**VS1PF-T420**	596	EB	33.9	3,200	**VS1-R85W1000**	337	EB	85	1,000
	10	**VS1PF-T420**	596	EB	33.9	3,200	**VS1-R60W1200**	360	EB	60	1,200
	15	**VS1PF-T420**	596	EB	33.9	3,200	**VS1-R40W2000**	453	EA	40	2,000
	20	**VS1PF-T420**	596	EB	33.9	3,200	**VS1-R40W2000**	453	EA	40	2,000
	25	**VS1PF-T430**	667	EB	22.8	4,800	**VS1-R30W2400**	476	EB	30	2,400
	30	**VS1PF-T430**	667	EB	22.8	4,800	**VS1-R30W2400**	476	EB	30	2,400
	40	**VS1PF-T450**	1,314	EB	16.9	6,400	**VS1-R20W3600**	859	EB	20	3,600
	50	**VS1PF-T450**	1,314	EB	16.9	6,400	**VS1-R20W3600**	859	EB	20	3,600
	60	**VS1PF-T475**	1,504	EB	11.4	9,600	**VS1-R30W2400***	476	EB	15	4,800
	75	**VS1PF-T475**	1,504	EB	11.4	9,600	**VS1-R30W2400***	476	EB	15	4,800
	100	**VS1PF-T4100**	1,551	EB	8.4	12,800	**VS1-R20W3600***	859	EB	10	7,200

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

** Enclosure = IP20

VS1SP Inverter/Encoderless Vector Drive

1 thru 3 Hp **115/230 VAC** **1 Phase - 50/60 Hz**
1 thru 60 Hp **230 VAC** **3 Phase - 50/60 Hz**
1 thru 300 Hp **460 VAC** **3 Phase - 50/60 Hz**
1 thru 300 Hp **575 VAC** **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.

Input Ratings	Voltage	115	230	230	460	575
	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				
Output Ratings	Horsepower	1-3 Hp @ 115/230VAC, 1PH; 1-60 Hp @ 230VAC, 3PH; 1-300 Hp @ 460VAC, 3PH; 1-300 Hp @ 575VAC, 3PH				
	Overload Capacity	Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds				
		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)				
Protective Features	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^2T)				
Environmental Conditions	Temperature	-10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°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				
Keypad Display	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				
Control Specifications	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				
	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				
Analog Inputs	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)				
Analog Outputs	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				
Digital Inputs	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				
Digital Outputs (2 Opto Outputs)	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	25 Conditions				
Digital Outputs (2 Relay Outputs)	Rated Voltage	5 to 30VDC or 240VAC				
	Maximum Current	5A Maximum non-inductive				
	Output Conditions	25 Conditions				

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		
115/230 Volts - Single Phase Input											
VS1SP61-1B	AA	1	0.75	4.2	7.4	2	1.5	6.8	8.5	1,100	EC
VS1SP62-1B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,252	EC
VS1SP63-1B	AA	3	2.2	9.6	16.8	3	2.2	9.6	12	1,463	EC
230 Volts - Three Phase Input											
VS1SP21-1B	AA	1	0.75	4.2	7.35	2	1.5	6.8	8.5	1,000	EC
VS1SP22-1B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,138	EC
VS1SP23-1B	AA	3	2.2	9.6	16.8	5	3.7	15.2	19	1,330	EC
VS1SP25-1B	AA	5	3.7	15.2	26.6	7.5	5.6	22	27.5	1,521	EC
VS1SP27-1B	AA	7.5	5.6	22	38.5	7.5	5.6	22	27.5	1,904	EC
VS1SP210-1B	B	10	7.5	28	49	15	11	42	52.5	2,681	EC
VS1SP215-1B	B	15	11	42	73.5	20	15	54	67.5	3,191	EC
VS1SP220-1B	B	20	15	54	94.5	25	18.7	68	85	4,255	EC
VS1SP225-1B	C	25	18.7	68	119	30	22.4	80	92	5,106	EC
VS1SP230-1B	C	30	22.4	80	140	40	29.8	104	120	6,596	EC
VS1SP240-1B	C	40	29.8	104	182	40	29.8	104	120	7,872	EC
VS1SP250-1B	D	50	37	130	228	60	45	154	177	10,000	EC
VS1SP260-1B	D	60	45	154	270	60	45	154	177	12,703	EC
460 Volts - Three Phase Input											
VS1SP41-1B	AA	1	0.75	2.1	3.68	2	1.5	3.4	4.25	1,202	EC
VS1SP42-1B	AA	2	1.5	3.4	5.95	3	2.2	4.8	6	1,457	EC
VS1SP43-1B	AA	3	2.2	4.8	8.4	5	3.7	7.6	9.5	1,766	EC
VS1SP45-1B	AA	5	3.7	7.6	13.3	7.5	5.6	11	13.75	1,915	EC
VS1SP47-1B	AA	7.5	5.6	11	19.3	10	7.5	14	17.5	2,426	EC
VS1SP410-1B	AA	10	7.4	14	24.5	10	7.5	14	17.5	2,660	EC
VS1SP415-1B	B	15	11	21	36.75	20	15	27	33.75	3,404	EC
VS1SP420-1B	B	20	15	27	47.25	25	18.7	34	42.5	4,043	EC
VS1SP425-1B	B	25	18.7	34	60	30	22	40	50	5,000	EC
VS1SP430-1B	C	30	22.4	40	70	40	29.8	52	60	6,064	EC
VS1SP440-1B	C	40	29.8	52	91	50	37.3	65	75	7,447	EC
VS1SP450-1B	C	50	37.3	65	114	60	44.8	77	89	8,936	EC
VS1SP460-1B	D	60	45	77	135	75	56	96	110	9,998	EC
VS1SP475-1B	D	75	56	96	168	100	75	124	143	11,596	EC
VS1SP4100-1B	D	100	75	124	217	125	93	156	179	13,404	EC
VS1SP4125-1B	D	125	93	156	273	125	93	156	179	14,362	EC
VS1SP4150-1B*	E	150	112	180	315	200	149	240	300	17,250	EC
VS1SP4200-1B*	E	200	149	240	420	250	187	302	378	23,000	EC
VS1SP4250-1B*	E	250	187	302	529	300	224	361	451	28,750	EC

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

NOTE: For higher HP Ratings, see pages “246-247” for information on the Baldor 15H Drives.

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		
575 Volts - Three Phase Input											
VS1SP51-1B	AA	1	0.75	1.7	3	2	1.5	2.7	3.4	1,322	EC
VS1SP52-1B	AA	2	1.5	2.7	4.7	3	2.2	3.9	4.9	1,603	EC
VS1SP53-1B	AA	3	2.2	3.9	6.8	5	3.7	6.1	7.6	1,943	EC
VS1SP55-1B	AA	5	3.7	6.1	10.7	7.5	5.6	9	11.3	2,106	EC
VS1SP57-1B	AA	7.5	5.6	9	15.8	10	7.5	11	13.8	2,668	EC
VS1SP510-1B	AA	10	7.5	11	19.3	10	7.5	11	13.8	2,926	EC
VS1SP515-1B	B	15	11	17	29.8	20	15	22	27.5	3,745	EC
VS1SP520-1B	B	20	15	22	38.5	25	18.7	27	33.8	4,447	EC
VS1SP525-1B	B	25	18.7	27	47.2	30	22	32	40	5,500	EC
VS1SP530-1B	C	30	22.4	32	56	40	29.8	41	47	6,670	EC
VS1SP540-1B	C	40	29.8	41	72	50	37.3	52	60	8,191	EC
VS1SP550-1B	C	50	37.3	52	91	60	45	62	71	9,830	EC
VS1SP560-1B	D	60	45	62	109	75	56	77	89	11,000	EC
VS1SP575-1B	D	75	56	77	135	100	75	99	114	12,755	EC
VS1SP5100-1B	D	100	75	99	173	125	93	125	144	14,745	EC
VS1SP5125-1B	D	125	93	125	219	150	112	144	166	15,798	EC
VS1SP5150-1*	E	150	112	144	252	200	149	192	240	18,900	EC
VS1SP5200-1*	E	200	149	192	336	250	187	242	302	25,200	EC
VS1SP5250-1*	E	250	187	242	423	300	224	289	361	31,500	EC

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

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		
115/230 Volts - Single Phase Input											
VS1SP61-4B	AA	1	0.75	4.2	7.4	2	1.5	6.8	8.5	1,182	EC
VS1SP62-4B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,346	EC
VS1SP63-4B	AA	3	2.2	9.6	16.8	3	2.2	9.6	12	1,568	EC
230 Volts - Three Phase Input											
VS1SP21-4B	AA	1	0.75	4.2	7.35	2	1.5	6.8	8.5	1,074	EC
VS1SP22-4B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,223	EC
VS1SP23-4B	AA	3	2.2	9.6	16.8	5	3.7	15.2	19	1,429	EC
VS1SP25-4B	AA	5	3.7	15.2	26.6	7.5	5.6	22	27.5	1,649	EC
VS1SP27-4B	AA	7.5	5.6	22	38.5	7.5	5.6	22	27.5	2,043	EC
460 Volts - Three Phase Input											
VS1SP41-4B	AA	1	0.75	2.1	3.68	2	1.5	3.4	4.25	1,330	EC
VS1SP42-4B	AA	2	1.5	3.4	5.95	3	2.2	4.8	6	1,511	EC
VS1SP43-4B	AA	3	2.2	4.8	8.4	5	3.7	7.6	9.5	1,840	EC
VS1SP45-4B	AA	5	3.7	7.6	13.3	7.5	5.6	11	13.75	2,106	EC
VS1SP47-4B	AA	7.5	5.6	11	19.3	10	7.5	14	17.5	2,766	EC
VS1SP410-4B	AA	10	7.4	14	24.5	10	7.4	14	17.5	2,926	EC
575 Volts - Three Phase Input											
VS1SP51-4B	AA	1	0.75	1.7	3	2	1.5	2.7	3.4	1,463	EC
VS1SP52-4B	AA	2	1.5	2.7	4.7	3	2.2	3.9	4.9	1,662	EC
VS1SP53-4B	AA	3	2.2	3.9	6.8	5	3.7	6.1	7.6	2,024	EC
VS1SP55-4B	AA	5	3.7	6.1	10.7	7.5	5.6	9	11.3	2,317	EC
VS1SP57-4B	AA	7.5	5.6	9	15.8	10	7.5	11	13.8	3,043	EC
VS1SP510-4B	AA	10	7.5	11	19.3	10	7.5	11	13.8	3,218	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)

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.

VS1GV Vector Drive

1 thru 3 Hp **115/230 VAC** **1 Phase - 50/60 Hz**
1 thru 60 Hp **230 VAC** **3 Phase - 50/60 Hz**
1 thru 300 Hp **460 VAC** **3 Phase - 50/60 Hz**
1 thru 300 Hp **575 VAC** **3 Phase - 50/60 Hz**

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.

Input Ratings	Voltage	115	230	230	460	575
	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				
Output Ratings	Horsepower	1-3 Hp @ 115/230VAC, 1PH; 1-60 Hp @ 230VAC, 3PH; 1-300 Hp @ 460VAC, 3PH; 1-300 Hp @ 575VAC, 3PH				
	Overload Capacity	Heavy Duty (Constant Torque) = 150% for 60 seconds, 175% for 3 seconds				
		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)				
Protective Features	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^2T)				
Environmental Conditions	Temperature	-10 to 45°C. Derate 3% per °C to maximum ambient temperature of 55°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				
Keypad Display	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				
Control Specifications	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				
	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				
Motor Feedback	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				
	Positioning	Buffered encoder pulse train output for position loop controller				
Analog Inputs	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)				
Analog Outputs	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				
Digital Inputs	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				
Digital Outputs (2 Opto Outputs)	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	25 Conditions				
Digital Outputs (2 Relay Outputs)	Rated Voltage	5 to 30VDC or 240VAC				
	Maximum Current	5A Maximum non-inductive				
	Output Conditions	25 Conditions				

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		
115/230 Volts - Single Phase Input											
VS1GV61-1B	AA	1	0.75	4.2	7.4	2	1.5	6.8	8.5	1,545	EC
VS1GV62-1B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,744	EC
VS1GV63-1B	AA	3	2.2	9.6	16.8	3	2.2	9.6	12	1,943	EC
230 Volts - Three Phase Input											
VS1GV21-1B	AA	1	0.75	4.2	7.35	2	1.5	6.8	8.5	1,404	EC
VS1GV22-1B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,585	EC
VS1GV23-1B	AA	3	2.2	9.6	16.8	5	3.7	15.2	19	1,766	EC
VS1GV25-1B	AA	5	3.7	15.2	26.6	7.5	5.6	22	27.5	2,043	EC
VS1GV27-1B	AA	7.5	5.6	22	38.5	7.5	5.6	22	27.5	2,309	EC
VS1GV210-1B	B	10	7.5	28	49	15	11	42	52.5	3,138	EC
VS1GV215-1B	B	15	11	42	73.5	20	15	54	67.5	3,836	EC
VS1GV220-1B	B	20	15	54	94.5	25	18.7	68	85	4,895	EC
VS1GV225-1B	C	25	18.7	68	119	30	22.4	80	92	5,745	EC
VS1GV230-1B	C	30	22.4	80	140	40	29.8	104	120	7,564	EC
VS1GV240-1B	C	40	29.8	104	182	40	29.8	104	120	8,723	EC
VS1GV250-1B	D	50	37	130	228	60	45	154	177	11,170	EC
VS1GV260-1B	D	60	45	154	270	60	45	154	177	14,303	EC
460 Volts - Three Phase Input											
VS1GV41-1B	AA	1	0.75	2.1	3.68	2	1.5	3.4	4.25	1,915	EC
VS1GV42-1B	AA	2	1.5	3.4	5.95	3	2.2	4.8	6	1,989	EC
VS1GV43-1B	AA	3	2.2	4.8	8.4	5	3.7	7.6	9.5	2,075	EC
VS1GV45-1B	AA	5	3.7	7.6	13.3	7.5	5.6	11	13.75	2,340	EC
VS1GV47-1B	AA	7.5	5.6	11	19.3	10	7.5	14	17.5	2,690	EC
VS1GV410-1B	AA	10	7.4	14	24.5	10	7.5	14	17.5	3,055	EC
VS1GV415-1B	B	15	11	21	36.75	20	15	27	33.75	3,830	EC
VS1GV420-1B	B	20	15	27	47.25	25	18.7	34	42.5	4,469	EC
VS1GV425-1B	B	25	18.7	34	60	30	22	40	50	5,638	EC
VS1GV430-1B	C	30	22.4	40	70	40	29.8	52	60	6,596	EC
VS1GV440-1B	C	40	29.8	52	91	50	37.3	65	75	8,298	EC
VS1GV450-1B	C	50	37.3	65	114	60	44.8	77	89	9,787	EC
VS1GV460-1B	D	60	45	77	135	75	56	96	110	10,532	EC
VS1GV475-1B	D	75	56	96	168	100	75	124	143	12,340	EC
VS1GV4100-1B	D	100	75	124	217	125	93	156	179	14,255	EC
VS1GV4125-1B	D	125	93	156	273	125	93	156	179	15,106	EC
VS1GV4150-1T*	E	150	112	180	315	200	149	240	300	18,150	EC
VS1GV4200-1T*	E	200	149	240	420	250	187	302	378	24,200	EC
VS1GV4250-1T*	E	250	187	302	529	300	224	361	451	30,250	EC

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

NOTE: For higher HP Ratings, see pages “248-249” for information on the Baldor 18H Drives.

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		
575 Volts - Three Phase Input											
VS1GV51-1B	AA	1	0.75	1.7	3	2	1.5	2.7	3.4	2,106	EC
VS1GV52-1B	AA	2	1.5	2.7	4.7	3	2.2	3.9	4.9	2,188	EC
VS1GV53-1B	AA	3	2.2	3.9	6.8	5	3.7	6.1	7.6	2,282	EC
VS1GV55-1B	AA	5	3.7	6.1	10.7	7.5	5.6	9	11.3	2,574	EC
VS1GV57-1B	AA	7.5	5.6	9	15.8	10	7.5	11	13.8	2,959	EC
VS1GV510-1B	AA	10	7.5	11	19.3	10	7.5	11	13.8	3,361	EC
VS1GV515-1B	B	15	11	17	29.8	20	15	22	27.5	4,213	EC
VS1GV520-1B	B	20	15	22	38.5	25	18.7	27	33.8	4,915	EC
VS1GV525-1B	B	25	18.7	27	47.2	30	22	32	40	6,202	EC
VS1GV530-1B	C	30	22.4	32	56	40	29.8	41	47	7,255	EC
VS1GV540-1B	C	40	29.8	41	72	50	37.3	52	60	9,128	EC
VS1GV550-1B	C	50	37.3	52	91	60	45	62	71	10,766	EC
VS1GV560-1B	D	60	45	62	109	75	56	77	89	11,585	EC
VS1GV575-1B	D	75	56	77	135	100	75	99	114	13,574	EC
VS1GV5100-1B	D	100	75	99	173	125	93	125	144	15,681	EC
VS1GV5125-1B	D	125	93	125	219	150	112	144	166	16,617	EC
VS1GV5150-1T*	E	150	112	144	252	200	149	192	240	19,950	EC
VS1GV5200-1T*	E	200	149	192	336	250	187	242	302	26,600	EC
VS1GV5250-1T*	E	250	187	242	423	300	224	289	361	33,250	EC

* E-Frame 575V drive available January 2009. VS1GV E-frame drives include an internal braking transistor. An internal braking resistor is not included.

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		
115/230 Volts - Single Phase Input											
VS1GV61-4B	AA	1	0.75	4.2	7.4	2	1.5	6.8	8.5	1,655	EC
VS1GV62-4B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,884	EC
VS1GV63-4B	AA	3	2.2	9.6	16.8	3	2.2	9.6	12	2,195	EC
230 Volts - Three Phase Input											
VS1GV21-4B	AA	1	0.75	4.2	7.35	2	1.5	6.8	8.5	1,504	EC
VS1GV22-4B	AA	2	1.5	6.8	11.9	3	2.2	9.6	12	1,713	EC
VS1GV23-4B	AA	3	2.2	9.6	16.8	5	3.7	15.2	19	1,996	EC
VS1GV25-4B	AA	5	3.7	15.2	26.6	7.5	5.6	22	27.5	2,309	EC
VS1GV27-4B	AA	7.5	5.6	22	38.5	7.5	5.6	22	27.5	2,869	EC
460 Volts - Three Phase Input											
VS1GV41-4B	AA	1	0.75	2.1	3.68	2	1.5	3.4	4.25	1,995	EC
VS1GV42-4B	AA	2	1.5	3.4	5.95	3	2.2	4.8	6	2,115	EC
VS1GV43-4B	AA	3	2.2	4.8	8.4	5	3.7	7.6	9.5	2,393	EC
VS1GV45-4B	AA	5	3.7	7.6	13.3	7.5	5.6	11	13.75	2,738	EC
VS1GV47-4B	AA	7.5	5.6	11	19.3	10	7.5	14	17.5	3,319	EC
VS1GV410-4B	AA	10	7.4	14	24.5	10	7.4	14	17.5	3,511	EC
575 Volts - Three Phase Input											
VS1GV51-4B	AA	1	0.75	1.7	3	2	1.5	2.7	3.4	2,194	EC
VS1GV52-4B	AA	2	1.5	2.7	4.7	3	2.2	3.9	4.9	2,326	EC
VS1GV53-4B	AA	3	2.2	3.9	6.8	5	3.7	6.1	7.6	2,632	EC
VS1GV55-4B	AA	5	3.7	6.1	10.7	7.5	5.6	9	11.3	3,012	EC
VS1GV57-4B	AA	7.5	5.6	9	15.8	10	7.5	11	13.8	3,651	EC
VS1GV510-4B	AA	10	7.5	11	19.3	10	7.5	11	13.8	3,862	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)

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.

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.
CBLHH015KP	5 feet (1.5 meter)	44	EC	1
CBLHH030KP	10 feet (3.0 meter)	64	EC	1
CBLHH046KP	15 feet (4.6 meter)	83	EC	1
CBLHH061KP	20 feet (6.1 meter)	102	EC	2
CBLHH091KP	30 feet (9.1 meter)	120	EC	3
CBLHH152KP	50 feet (15.2 meter)	171	EC	3
CBLHH229KP	75 feet (22.9 meter)	247	EC	4
CBLHH305KP	100 feet (30.5 meter)	323	EC	5
CBLHH457KP	150 feet (45.7 meter)	452	EC	6
CBLHH610KP	200 feet (61.0 meter)	578	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	**RGA620**	**RGA1220**	**RGA2420**				
	10 - 20	6		**RGA1206**	**RGA2406**	**RGA4806**			
	25 - 40	4		**RGA1204**	**RGA2404**	**RGA4804**			
	50 - 60	2				**RGA4802**	**RGA6402**	**RGA9602**	**RGA14202**
460	1 - 3	120	**RGA6120**	**RGA12120**	**RGA24120**				
	5 - 10	60	**RGA660**	**RGA1260**	**RGA2460**	**RGA4860**			
	15 - 25	20	**RGA620**	**RGA1220**	**RGA2420**	**RGA4820**			
	30 - 50	10		**RGA1210**	**RGA2410**	**RGA4810**			
	60 - 125	4		**RGA1204**	**RGA2404**	**RGA4804**	**RGA6404**	**RGA9604**	**RGA14204**
575	1 - 3	120	**RGA6120**	**RGA12120**	**RGA24120**				
	5 - 10	60	**RGA660**	**RGA1260**	**RGA2460**	**RGA4860**			
	15 - 25	30	**RGA630**	**RGA1230**	**RGA2430**	**RGA4830**			
	30	24		**RGA1224**	**RGA2424**	**RGA4824**			
	40 - 125	14				**RGA4814**	**RGA6414**		
	List Price		572	849	1,299	2,107	5,312	8,525	11,731
	Mult. Sym.		EC	EC	EC	EC	EC	EC	EC

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.
EXBHH001A01	Ethernet Server Expansion Board 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.	163	EC
EXBHH003A01	Isolated Input Expansion Board Contains 9 isolated inputs jumper configurable for 90-130 VAC. All inputs must be the same voltage – one side of all inputs is common. This board replaces all the opto inputs on the main control board. Uses screw terminals for connection.	211	EC
EXBHH005A01	High Resolution Analog Input/Output Board Provides two additional analog inputs and two additional analog outputs with up to 16 bits resolution. 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. Input / Resolution ± 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 All inputs can be inverted through software.	330	EC
EXBHH007A01	Master Pulse Reference/Isolated Pulse Follower Board 1. Accepts a 5V or 12V quadrature pulse train input or pulse and direction input to use as a master reference. 2. Re-transmits the input pulse train at 5Vdc for different ratios from 1:20 up to 65535:1 (Scaled output). 3. Can be used as a auxiliary encoder input to the control. 4. A CANOpen port utilizing a RJ-45 female connector for adding an additional I/O breakout box or CAN HMI terminal.	539	EC
EXBHH013A02	DeviceNet / EtherNet / IP / Modbus - TCP Expansion Board 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. 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.	558	EC
EXBHH014A01	PROFIBUS-DP Expansion Board Allows VS1GV, VS1SP and H2 Drives to be connected to a PROFIBUS Communications Network. Uses plug-in terminals for connection.	670	EC
EXBHH015A01	BACnet Expansion Board Allows VS1GV, VS1SP and H2 Drives to be connected to a BACnet Communications Network. Uses 9-pin D-shell for connection.	575	EC
EXBHH016A01	LonWorks Communications Expansion Board Allows VS1GV, VS1SP and H2 Drives to be connected to a LonWorks Communications Bus. Uses plug-in terminals for connection.	548	EC
EXBHH017A01	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.	575	EC

Baldor and Reliance AC Drives Selection Chart

Series 5	15H	18H	22H Regenerative	SP500	GV3000
					
Main Attributes					
Analog Mircrodrive; V/Hz ; Open Chassis or NEMA 4X enclosures, compact and low cost	Basic V/Hz Control, 150-800 Hp NEMA 1 enclosure	Closed loop vector, 150-800 Hp NEMA 1 enclosure, zero speed torque, auto motor tuning, digital speed and torque control	22H is a version of the 18H with a Regenerative front end	Basic V/Hz control ideal for harsh environments from 1/4 to 20 Hp, uses only 29 parameters	High performance, Flexible control Enclosure selections, V/Hz, sensorless vector and flux vector control, PID
Hp Range					
1/2 to 5	150 to 800	150 to 800	10 to 50	1 to 20	1 to 400
Voltage Range					
115V/230V 1-Phase 230V/460V 3-Phase	460V 3-Phase	460V 3-Phase	230V/460V 3-Phase	115V/230V 1-Phase 230V/460V/575V 3-Phase	230V/460V 3-Phase
Enclosure Selection					
Chassis or NEMA 4X/12	NEMA 1 (150-800 Hp)	NEMA 1 (150-800 Hp)	IP20	NEMA 1, NEMA 4X/12	Chassis, NEMA 1, NEMA 4X/12
Control Mode					
V/Hz	V/Hz	Closed Loop Vector Only	Closed Loop Vector	V/Hz	Closed Loop Vector, Sensorless Vector or V/Hz
Speed Range (Typ.)					
20:1	20:1	1000:1	1000:1 Closed Loop Vector	10:1	1000:1
Communications Options					
None	Option Cards for RS232/ RS485, DeviceNet, Profibus and Modbus	Option Cards for RS232/ RS485, DeviceNet, Profibus and Modbus	Option Cards for RS232/ RS485, DeviceNet, Profibus and Modbus	None	Optional DeviceNet, PROFIBUS-DP, ControlNet, Modbus-RTU and AutoMax
Operator Interface					
Analog Controls	Local or Remote (NEMA 4) Mounted 32 character alpha-numeric LCD display	Local or Remote (NEMA 4) Mounted 32 character alpha-numeric LCD display	Local or Remote (NEMA 4) Mounted 32 character alpha-numeric LCD display	Local LED Display and Keypad	Local LED Display or Remote Mounted Text Based LCD Display and Keypad
Differentiating Feature					
Easy-to-Use Basic Startup Menu; Runs Right Out of the Box; Optional I/O Expansion Cards	Integrated TEFC motor and drive package, NEMA 1 and NEMA 4X designs, reduced total install cost	Easy-to-Use Basic Startup Menu; Runs Right Out of the Box; Optional I/O Expansion and Speed Feedback Cards	Regenerative Applications	Low Cost; Basic Startup Menu; Runs Right Out of the Box, NEMA 4X/12 Enclosures	Performance Vector Control, Easy-to-Use Basic Startup Menu; Runs Right Out of the Box; Optional I/O Expansion Cards
Matched Performance® Motors					
XE, M & CP Standard-E®, EM & ECP Super-E®	NEMA 1 CSM and JMSM NEMA 4X CWDSM	VS-Master, RPM-AC, ZDM VectorDuty®, ZDNM VectorDuty, ZDWNM VectorDuty	VS-Master, RPM-AC, ZDM VectorDuty, ZDNM VectorDuty, ZDWNM VectorDuty	E-Z KLEEN® Plus, Ultra KLEEN®, XE, WDM Standard-E, EWDM Super-E	VS-Master, RPM-AC, ZDM VectorDuty®, ZDNM VectorDuty, ZDWNM VectorDuty

Series 5 Micro Inverters

1/2 thru 2 Hp	**97-132 VAC**	**1 Phase - 50/60 Hz**
1/2 thru 2 Hp	**195-265 VAC**	**1 Phase - 50/60 Hz**
2 thru 3 Hp	**195-265 VAC**	**3 Phase - 50/60 Hz**
1 thru 5 Hp	**323-529 VAC**	**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^2t 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 at momentary power loss
- Power indicator
- Status indicator
- Adjustable time base overload
- Electronic in rush current limiting

Output Ratings	Overload Capacity	150% for 120 seconds	
	Voltage - 3 Phase	0-230 VAC (RMS), 0-460 V AC (RMS)	
Control Spec	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	
Protective Functions	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	
Ambient Conditions	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)

Series 5 Micro Inverters continued...

Hp/kW	Input Voltage	Output Current		Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Dimensions in/(mm)				
								Outside			Mounting	
		Cont.	120 Sec.					H	W	D	H	W
Open Chassis Mount – Single Phase Input												
0.5/0.37	115/230	2.4	3.6	**ID56F50-CO**	352	E9	4	4.3	3.9	2.75	3.8	2.5
1/0.75	115/230	4	6	**ID5601-CO**	426	E9	5	4.3	3.9	5	3.87	3.7
2/1.5	115/230	5.5	8.25	**ID5602-CO**	554	E9	6	4.67	5.58	5.7	3.87	2.5
Open Chassis Mount – Three Phase Input												
2/1.5	230	6.7	10.1	**ID5202-CO**	672	E9	5	8.55	4.68	4.5	6.5	3.9
3/2.25	230	8.8	13.2	**ID5203-CO**	708	E9	5	8.55	4.68	4.5	6.5	3.9
1/0.75	460	2.5	3.75	**ID5401-CO**	732	E9	5	8.55	4.68	4.5	6.5	3.9
2/1.5	460	4	6	**ID5402-CO**	751	E9	5	8.55	4.68	4.5	6.5	3.9
3/2.25	460	4.5	6.75	**ID5403-CO**	772	E9	5	8.55	4.68	4.5	6.5	3.9
5/3.7	460	7.6	11.4	**ID5405-CO**	986	E9	5	8.55	4.68	4.5	6.5	3.9
NEMA 1 Enclosed - Single Phase Input												
1/0.75	115/230	4	6	**ID5601-EO**	514	E9	6	7.13	6.25	2.75		
NEMA 4X Enclosed – Single Phase Input												
1/0.75	115/230	3.6	5.4	**ID5601-WO**	680	E9	6	9.53	5.51	5.86	8.85	–
1/0.75	115/230	3.6	5.4	**ID5601-BO**	638	E9	6	9.53	5.51	5.86	8.85	–
2/1.5	115/230	5.5/6.7	8.3/10.0	**ID5602-WO**	960	E9	6	9.8	7.55	7.25	9.25	1
2/1.5	115/230	5.5/6.7	8.3/10.0	**ID5602-BO**	906	E9	8	9.8	7.55	7.25	9.25	1
NEMA 4X Enclosed – Three Phase Input												
3/2.25	230	9	13.5	**ID5203-WO**	1,088	E9	6	9.8	7.55	7.25	9.25	1
3/2.25	230	9	13.5	**ID5203-BO**	1,034	E9	6	9.8	7.55	7.25	9.25	1
3/2.25 (1)	460	4.6	6.9	**ID5403-WO**	1,152	E9	6	9.8	7.55	7.25	9.25	1
3/2.25 (1)	460	4.6	6.9	**ID5403-BO**	1,098	E9	6	9.8	7.55	7.25	9.25	1
5/3.7	460	8.3	12.45	**ID5405-WO**	1,226	E9	6	9.8	7.55	7.25	9.25	1
5/3.7	460	8.3	12.45	**ID5405-BO**	1,173	E9	6	9.8	7.55	7.25	9.25	1

(1) Jumper configurable for 1 HP and 2 HP
NOTE: -WO is white in color -BO is black in color; -EO is NEMA 1.

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	217	E9	3
ID5SI-1	Signal isolator for open chassis units 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	189	E9	4
ID5SI-2	Signal isolator for NEMA 4X enclosed units 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	214	E9	1
ID5AMS-1	Auto/Manual selection switch for NEMA 4X enclosed units Allows selection of remote or on-board speed commands	52	E9	1
ID5FRS-1	Forward/Stop/Reverse selection switch for NEMA 4X enclosed units Allows selection of forward or reverse motor direction commands	29	E9	1
ID5FRS-2	Forward/Stop/Reverse selection switch for NEMA 1 enclosed units. Allows selection of forward or reverse motor direction commands.	29	E9	1

Series 15H Inverter

150 thru 450 Hp **460 VAC** **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 enclosure as standard. Output frequency 0.25 to 400 Hz with peak overload capacity of 170-200%. Separate accel/decel rates and controlled reversing. Built in two and three input PID process control loop.

Design Specifications
- Process follower 0-5 VDC, 0-10 VDC, 4-20 mA
- Free run or ramp stop
- Selectable preset speeds
- Jog speed
- Dynamic braking (optional on size C2 and larger)
- DC injection braking
- 2 analog meter outputs
- 2 opto isolated outputs
- 2 relay outputs
- Through wall & panel mount size C2, E and F.

Operator Keypad
- Forward/Reverse command
- Motor RUN and JOG
- Local/Remote key
- Stop command
- Parameter setting and display
- 32 character display
- Remote mount to 100 feet (60m) from control
- NEMA 4X enclosure when mounted on panel

Environmental and Operating Conditions
- Input voltage
  3 phase 200-240 VAC ±10%
  3 phase 378-480 VAC ±10%
  3 phase 573-600 VAC ±10%
- Input frequency - 50 or 60Hz ±5%
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet (1000m) max without derate

Protective Features
- Selectable automatic restart at momentary power loss
- DC bus charge indicator
- Fault indicator
- Adjustable time based overload
- Cause of last 31 trips retained in memory
- Digital display for fault conditions
- Linear heat sink thermal sensor
- Isolated control circuitry

Output Ratings	Overload Capacity	150% for 60 seconds; 170-200% for 3 seconds for constant torque
		115% for 60 seconds for variable torque
	Frequency	0.25-400 Hz
	Voltage	0-Maximum input voltage (RMS)
Input Ratings	Frequency	50 or 60 Hz ± 5%
	Voltage	180 - 264 VAC; 340 - 528 VAC, 515 - 660 VAC
	Phase	Three phase (or single phase with derate)
	Impedance	1% minimum for size C2, F, G and G2 (3% minimum required for size A, B, D and E)
Control Spec	Control Method	Sinewave carrier input, PWM output
	PWM Frequency	Adjustable 1-5 kHz standard, 1-15 kHz quiet
	V/Hz Ratio	Linear to squared reduced, base frequency, output voltage, minimum frequency limit, maximum frequency limit
	Torque Boost	0-15% of input voltage; automatic with manual override
	Brake Torque	20% standard on -E and -W; and -EO requires external assembly
	Skip Frequency	Three zones 0-Max frequency
	Frequency Setting	0-5 VDC, 0-10 VDC, 4-20mA, digital via optional RS232/485
	Accel/Decel	Separate accel/decel rates, 0-3600 sec to maximum frequency
Protective Functions	Inverter Trip	Over voltage, over current, under voltage, external trip, heatsink thermal, motor overload
	Stall Prevention	Over voltage suppression, overcurrent suppression
	External Output	OPTO isolated outputs, relay outputs, and LED indicator for trip
	Short Circuit	Phase to phase, phase to ground
LCD Display	Running	Output frequency, set frequency, output current(%), voltage, RPM, custom units
	Setting	Parameter values for setup and review
	Trip	Separate message for each trip, cause of last 31 trips retained in memory
Ambient Conditions	Temperature	-10 to + 40˚C For UL Listing
	Cooling	Forced air included when required

OPTIONS: See pages 253-254 for optional Expansion Boards including RS-232, RS-485 isolated input etc.
See page 252 for optional Dynamic Braking Assemblies.

Series 15H Inverter Drive Output Ratings

Catalog Number	Size	Heavy Duty			Normal Duty			List Price	Mult. Sym.
		Hp	Continuous Amps	Peak Amps	Hp	Continuous Amps	Peak Amps		
460 Volts - Three Phase									
ID15H4150-E0	F	150	190	380	200	240	276	26,144	E1
ID15H4200-E0	F	200	250	500	250	310	360	32,767	E1
ID15H4250-E0	F	250	310	620	300	370	430	39,651	E1
ID15H4300-E0	G2	300	370	630	350	420	490	50,126	E1
ID15H4350-E0	G2	350	420	720	400	480	560	58,910	E1
ID15H4400-E0	G2	400	480	820	450	540	620	65,533	E1
ID15H4450-E0	G	450	540	855	500	590	680	76,502	E1

OPTIONS: See pages 253-254 for optional Expansion Boards. See page 252 for optional Dynamic Braking Assemblies.
See notes on inside back flap and pages 5-6.

Dimensions in/(mm)

Size	Outside			Mounting		Ap'x Shpg. Wgt.
	Height	Width	Depth	Height	Width	
F	45/(1143)	27/(686)	13/(330)	44/(1118)	22.75/(578)	370
G	93/(2362)	31.5/(800)	23.6/(600)	Floor Mount		700
G2	65.98/(1676)	31.6/(803)	23.49/(597)	Floor Mount		600

Series 18H Vector Drive

150 thru 450 Hp **460 VAC** **3 Phase - 50/60 Hz**

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

Features: NEMA 1 enclosure as standard. Output frequency 0-500Hz with peak overload capability of 170-200%. Automatic tuning to motor and full rated torque down to zero speed. Digital speed or torque control. Built in two and three input PID process control loop.

Design Specifications

- Motor shaft orient to marker
- Process follow ±5VDC 0-5 VDC, ±10VDC 0-10 VDC ,4-20mA, digital via keypad or optional RS232/485
- Linear or S-curve deceleration
- 15 preset speeds
- 2 assignable analog outputs
- 2 assignable opto outputs
- 2 assignable relay outputs
- 2 assignable analog inputs
- Through wall and panel mount size C2, E and F

Operator Keypad

- Forward/Reverse command
- Motor RUN and JOG
- Local/Remote key
- Stop command
- 32 character display
- Remote mount to 100 feet (60m) from control
- NEMA 4X enclosure when mounted on panel

Environmental and Operating Conditions

- Input voltage
  3 phase 200-240 VAC ±10%
  3 phase 378-480 VAC ±10%
  3 phase 573-600 VAC ±10%
- Input frequency
  50 or 60Hz ±5%
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet (1000m) max without derate

Protective Features

- Adjustable current limit
- Isolated control circuitry
- Digital display for fault conditions
- Selectable automatic restart at momentary power loss
- DC bus charge indicator
- Cause of last 31 trips retained in memory

Output Ratings	Overload Capacity	150% for 60 seconds, 170-200% for 3 seconds for constant torque
		115% for 60 seconds for variable torque
	Frequency	0-500 Hz
	Voltage	0-maximum input voltage (RMS)
Input Ratings	Frequency	50 or 60 Hz ±5%
	Voltage	180 - 264 VAC; 340 - 528 VAC; 515 - 660 VAC
	Phase	Three phase (or single phase with derate)
	Impedance	1% minimum for size C2, F, G, and G2 (3% minimum required for Size A, B, D and E)
Control Spec	Control Method	Microprocessor controlled PWM output
	PWM Frequency	Adjustable 1-5kHz STD, 1-16 kHz quiet
	Speed Setting	±5 VDC, 0-5 VDC ±10 VDC, 0-10 VDC, 4-20 mA; digital via keypad, RS232/485
	Accel/Decel	0-3600 sec.
	Motor Matching	Automatic tuning to motor with manual override
Motor Feedback	Feedback Type	Incremental encoder coupled to motor shaft
	Pulses/Rev	60 -15,000 selectable, 1024 standard
	Voltage Output	2 channel in quadrature, 5 VDC, differential
	Marker Pulse	Required for position orientation
	Power Input	5 VDC, 300 mA maximum
	Max. Frequency	1 MHz
	Positioning	Buffered encoder pulse train output for position loop controller
Protective Functions	Vector Trip	Missing control power, over current, over voltage, under voltage, motor over speed
		Over temperature (motor or control), output shorted or grounded, motor overload
	External Output	LED indicator for trip conditions, 4 assignable logic outputs, 2 assignable analog outputs 0-5 VDC
	Short Circuit	Phase to phase, phase to ground
LCD Display	Running	Output frequency, motor RPM; output current, voltage (selectable)
	Setting	Parameter values for setup and review
	Trip	Separate message for each trip, last 31 trips retained in memory
Ambient Conditions	Temperature	-10 to 40°C for UL listing
	Cooling	Forced air included when required

OPTIONS: See pages 253-254 for optional Expansion Boards including RS-232, RS-485. See page 249 for enclosure Dimensions
See page 252 for optional Dynamic Braking Assemblies.

Series 18H Vector Drive Output Ratings

Catalog Number	Size	Heavy Duty			Normal Duty			List Price	Mult. Sym.
		Hp	Continuous Amps	Peak Amps	Hp	Continuous Amps	Peak Amps		
460 Volts - Three Phase									
ZD18H4150-EO	F	150	190	380	200	240	276	30,134	E1
ZD18H4200-EO	F	200	250	500	250	310	360	36,253	E1
ZD18H4250-EO	F	250	310	620	300	370	430	44,503	E1
ZD18H4300-EO	G2	300	370	630	350	420	490	56,354	E1
ZD18H4350-EO	G2	350	420	720	400	480	560	65,533	E1
ZD18H4400-EO	G2	400	480	820	450	540	620	72,504	E1
ZD18H4450-EO	G	450	540	855	500	590	680	85,517	E1

NOTE: -MO suffix indicates a protected chassis enclosure (not NEMA 1). See notes on inside back flap and pages 5-6.
OPTIONS: See pages 253-254 for optional Expansion Boards. See page 252 for optional Dynamic Braking Assemblies.

Dimensions in/(mm)

Size	Outside			Mounting		Ap'x Shpg.Wgt.
	Height	Width	Depth	Height	Width	
F	45/(1143)	27/(686)	13/(330)	44/(1118)	22.75/(578)	370
G	93/(2362)	31.5/(800)	23.6/(600)	Floor Mount		700
G2	65.98/(1676)	31.6/(803)	23.49/(597)	Floor Mount		600

Series 22H Line Regenerative Vector Drive

10 thru 50 Hp **230 VAC** **3 Phase - 50/60 Hz**
10 thru 50 Hp **460 VAC** **3 Phase - 50/60 Hz**

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

Features: NEMA 1 enclosure as standard. Output frequency 0-500Hz with peak overload capability of 170-200%. Automatic tuning to motor and full rated torque down to zero speed. Digital speed or torque control. Built in two and three input PID process control loop.

Design Specifications
- Process follower ±5VDC 0-5 VDC, ±10VDC, 0-10 VDC , 4-20mA, digital via keypad or optional RS232/485
- Linear or S-curve deceleration
- Controlled reversing
- 15 preset speeds
- 2 assignable analog outputs
- 2 assignable logic outputs
- 2 assignable relay outputs
- 2 assignable analog inputs
- Motor shaft orient to marker

Operator Keypad
- Forward/Reverse command
- Motor RUN and JOG
- Local/Remote key
- Stop command
- 32 character display
- Remote mount to 100 feet (60m) from control
- NEMA 4X enclosure when mounted on panel

Environmental and Operating Conditions
- Input voltage Three phase 200-240 VAC ±10% Three phase 378-480 VAC ±10%
- Input frequency 50 or 60Hz ±5%
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet (1000m) max without derate

Protective Features
- Adjustable current limit
- Isolated control circuitry
- Digital display for fault conditions
- Selectable automatic restart at momentary power loss
- DC bus charge indicator
- Cause of last 31 trips retained in memory

Output Ratings	Overload Capacity	150% for 60 seconds, 170-200% for 3 seconds for constant torque
		115% for 60 seconds for variable torque
	Frequency	0-500 Hz
	Voltage	0-Maximum input voltage (RMS)
Input Ratings	Frequency	50 or 60 Hz ±5%
	Voltage	180 - 264 VAC; 340 - 528 VAC
	Phase	Three phase
	Impedance	3.0% minimum required
Control Spec	Control Method	Microprocessor controlled PWM output
	PWM Frequency	Adjustable 1-5kHz STD, 1-16 kHz quiet
	Speed Setting	±5 VDC, 0-5 VDC ±10 VDC, 0-10 VDC, 4-20 mA; digital via keypad, RS232/485
	Accel/Decel	0-3600 sec
	Motor Matching	Automatic tuning to motor with manual override
Motor Feedback	Feedback Type	Incremental encoder coupled to motor shaft
	Pulses/Rev	60-15,000 selectable, 1024 standard
	Voltage Output	2 channel in quadrature, 5 VDC, differential
	Marker Pulse	Required for position orientation
	Power Input	5 VDC, 300 mA maximum
	Max. Frequency	1 MHz
	Positioning	Optional buffered encoder pulse train output for position loop controller
Protective Functions	Vector Trip	Missing control power, over current, over voltage, under voltage, motor over speed
		Over temperature (motor or control), output shorted or grounded, motor overload
	External Output	LED indicator for trip conditions, 4 assignable logic outputs, 2 assignable analog outputs 0-5 VDC
	Short Circuit	Phase to phase, phase to ground
LCD Display	Running	Output frequency, motor RPM; output current, voltage (selectable)
	Setting	Parameter values for setup and review
	Trip	Separate message for each trip, last 31 trips retained in memory
Ambient Conditions	Temperature	-10 to +40˚C for UL listing
	Cooling	Forced air included when required

OPTIONS: See pages 253-254 for optional Expansion Boards including RS-232, RS-485.

Series 22H Line Regenerative Vector Drive Output Ratings

Catalog Number	Size	Heavy Duty			Normal Duty			List Price	Mult. Sym.
		Hp	Continuous	Peak	Hp	Continuous	Peak		
230 Volts - Three Phase									
ZD22H210-EL	C+	10	28	56	10	28	32	10,019	E1
ZD22H215-EL	C+	15	42	72	15	42	48	11,133	E1
ZD22H220-EL	C+	20	55	110	20	55	62	13,034	E1
ZD22H225-EL	C+	25	68	116	25	68	78	15,226	E1
ZD22H230-EL	D+	30	80	136	30	80	92	16,557	E1
ZD22H240-EL	D+	40	105	200	40	105	120	20,617	E1
ZD22H250-EL	D+	50	130	225	50	130	150	25,308	E1
460 Volts - Three Phase									
ZD22H410-EL	C+	10	15	30	10	15	17	10,431	E1
ZD22H415-EL	C+	15	21	36	15	21	24	11,345	E1
ZD22H420-EL	C+	20	27	50	20	27	31	13,212	E1
ZD22H425-EL	C+	25	34	58	25	34	39	14,888	E1
ZD22H430-EL	D+	30	40	70	30	40	46	16,806	E1
ZD22H440-EL	D+	40	55	100	40	55	63	20,730	E1
ZD22H450-EL	D+	50	65	115	50	65	75	25,015	E1

NOTE: See notes on inside back flap and pages 5-6.
OPTIONS: See pages 253-254 for optional Expansion Boards.

Dimensions in/(mm)

Size	Outside			Mounting		Ap'x Shpg. Wgt.
	Height	Width	Depth	Height	Width	
C+	30/(762)	11.5/(292)	12.2/(310)	29.25/(743)	10.5/(267)	160
D+	36/(914)	14.5/(368)	12.2/(310)	35.25/(895)	13.50/(343)	280

Series 15H and 18H Dynamic Braking Transistor Assemblies

Dynamic Braking Transistor Assemblies include braking transistor completely assembled and mounted into a NEMA 1 enclosure, to be used with External Dynamic Braking Resistor Assemblies (RGA). Select RGA assembly with matching minimum OHMS and continuous regenerative power (Watts) capacity to meet load requirements. For use with -EO and -MO Controls.

Hp	Maximum Braking Torque In % Of Motor Rating									
	208-230 Vac			380-480 Vac				550-600 Vac		
20	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%
25	125%	150%	150%	150%	150%	150%	150%	150%	150%	150%
30	100%	150%	150%	120%	150%	150%	150%	150%	150%	150%
40	75%	115%	150%	90%	150%	150%	150%	127%	150%	150%
50	62%	92%	150%	72%	150%	150%	150%	100%	150%	150%
60	-	-	-	60%	150%	150%	150%	85%	145%	150%
75	-	-	-	48%	96%	150%	150%	68%	116%	150%
100	-	-	-	36%	72%	150%	150%	50%	87%	150%
150V	-	-	-	28%	56%	150%	150%	40%	70%	150%
150	-	-	-	-	48%	126%	150%	34%	58%	150%
200	-	-	-	-	36%	95%	150%	25%	44%	150%
250	-	-	-	-	29%	76%	150%	-	35%	122%
300	-	-	-	-	-	62%	125%	-	29%	100%
350	-	-	-	-	-	54%	108%	-	-	87%
400	-	-	-	-	-	47%	94%	-	-	76%
450	-	-	-	-	-	41%	84%	-	-	68%
Cat. No.	**RTA2-6**	**RTA2-4**	**RTA2-2**	**RTA4-20**	**RTA4-10**	**RTA4-4**	**RTA4-2**	**RTA5-24**	**RTA5-14**	**RTA5-4**
List Price	1,615	1,900	2,690	1,441	2,043	2,690	3,795	1,600	2,248	2,959
Mult. Sym.	E8	E8	E8	E8	E8	E8	E8	E8	E8	E8

Series 15H and 18H Dynamic Braking Resistor Assemblies

Dynamic Braking Resistor Assemblies include braking resistors completely assembled and mounted into a NEMA 1 enclosure. For 20 Hp and above (-EO, -MO Controls), select the braking resistor from the table with the matching ohms for the RTA selected and adequate continuous watts capacity to meet load requirements. For 1 to 15 Hp (-E,-ER Controls) select the braking resistor that has correct ohm value for the control and adequate continuous watts capacity to meet load requirements.

Input Voltage	Hp	Total Ohms	Continuous Rated Watts						
			600	1200	2400	4800	6400	9600	14200
230	1-2	30	**RGA630**	**RGA1230**	**RGA2430**				
	3-5	20	**RGA620**	**RGA12200**	**RGA2420**	**RGA4820**			
	7.5-10	10		**RGA1210**	**RGA2410**	**RGA4810**			
	15-20	6		**RGA1206**	**RGA2406**	**RGA4806**			
	25-40	4		**RGA1204**	**RGA2404**	**RGA4804**			
	50	2				**RGA4802**	**RGA6402**	**RGA9602**	**RGA14202**
460	1-3	120	**RGA6120**	**RGA12120**	**RGA24120**				
	5-10	60	**RGA660**	**RGA1260**	**RGA2460**	**RGA4860**			
	15-25	20	**RGA620**	**RGA1220**	**RGA2420**	**RGA4820**			
	30-60	10		**RGA1210**	**RGA2410**	**RGA4810**			
	75-250	4		**RGA1204**	**RGA2404**	**RGA4804**	**RGA6404**	**RGA9604**	**RGA14204**
	300-450	2				**RGA4802**	**RGA6402**	**RGA9602**	**RGA14202**
575	3-5	120	**RGA6120**	**RGA12120**	**RGA24120**				
	7.5-10	60	**RGA660**	**RGA1260**	**RGA2460**	**RGA4860**			
	15	30	**RGA630**	**RGA1230**	**RGA2430**	**RGA4830**			
	20-30	24		**RGA1224**	**RGA2424**	**RGA4824**			
	40-150	14				**RGA4814**	**RGA6414**		
		List Price	572	849	1,299	2,107	5,312	8,525	11,731
		Mult. Sym.	EC	EC	EC	EC	EC	EC	EC

Series 15H, 18H, 19H, 20H and 22H Expansion and Accessory Boards

Baldor offers a wide variety of plug-in expansion boards for Series 15H Inverters, Series 18H or 22H Vector Drives and Series 19H or 20H DC Controls. 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. The following list shows boards available. The matrix shows which boards may be used together in the same control.

Board Number	Description	List Price	Mult. Sym.
ACB003A01	Isolated Input/2 Relay Output Accessory Board Contains 9 Isolated inputs for 90-130VAC. All inputs must be the same voltage. Also has 2 relay outputs, Form "C": N.O. and N. C. Accessory Board mounts in Expansion Board slot but uses wiring harness to connect to motor control card. Requires control board with onboard 24VDC power supply.	356	E8
EXB003A04	Isolated Input Board Contains 9 isolated inputs jumper configurable for 10-30 VAC or 10-30 VDC. All must be the same voltage - one side of all inputs is common. This board replaces the opto inputs on the main control board. Uses screw terminals for connection. (Use with Series 15H, 18H and 22H only)	281	E8
EXB003A05	Isolated Input Board Contains 9 isolated inputs jumper configurable for 90-130 VAC. All must be the same voltage - one side of all inputs is common. This board replaces the opto inputs on the main control board. Uses screw terminals for connection. (Use with Series 15H, 18H and 22H only).	281	E8
EXB004A01	Four Output Relays / 3-15 PSI Pneumatic Interface Converts 3-15 PSI air pressure to 0-10 VDC or 10-0 VDC (inverted). Also has four relays, 2 of which are jumper selectable as N.O. or N.C., rated for 230VAC, 5 amps max and two form "C". Uses screw terminals for connections. Air hose connects to 1/8" O.D. nipple on board.	517	E8
EXB005A01	Master Pulse Reference / Isolated Pulse Follower–Bi-directional jumper selectable for: 1. Master quadrature pulse reference. Provides 5 volt quadrature A and B channel outputs with complements at a pulse rate proportional to accel-decel limited speed commands. Phase of B channel is reversed for reverse direction. 2. Master speed step-direction pulse reference. Provides 5 volt pulse and direction outputs with complements at a pulse rate proportional to accel-decel limited speed command. 3. Quadrature pulse follower. Provides opto isolated inputs for 5-15 volt quadrature A and B channel input speed commands and retransmits this input as 5 volt channel A and B outputs with complements at a pulse rate proportional to accel-decel limited speed command. Motor direction reverses with input channel phase reversal. 4. Speed step and direction pulse follower. Provides opto isolated inputs for 5-15 volt input pulse and direction. Commands and retransmits these inputs as 5 volt pulse and direction outputs with complements at a pulse rate proportional to accel-decel limited speed command.	440	E8
EXB006A01	DC Tachometer Interface Allows for DC tach input voltage for motor or process feedback Jumper selectable for input voltage with software trim for 10% tolerance. 250 VDC total maximum input voltage or can be used for one analog input with 16 bits resolution for ±10V and 15 bits resolution for 0-10 VDC input. Uses screw terminals for connection.	541	E8

Series 15H, 18H, 19H, 20H and 22H
Expansion and Accessory Boards continued...

Board No.	Description	List Price	Mult. Sym.
EXB007A02	High Resolution Analog Board Allows one input with up to 16 bits resolution. DC inputs: ± 10V, 0-10V, ± 5V, 0-5V, with 300 microvolt resolution. Current inputs: 4-20 mA, with 0.6 microamps resolution. Input — Resolution ± 10 V — 16 bit 0 - 10 V — 15 bit ± 5 V — 15 bit 0 - 5 V — 14 bit 4 - 20 mA — 15 bit Both the 0-10 V and 4-20 mA inputs may be inverted to 10-0 V and 20-4 mA. Two outputs, each with ± 10 VDC, 0-10 VDC or 4-20 mA with inverting capability. This replaces the analog outputs on the main control board. Uses screw terminals for connection.	715	E8
EXB008A01	Isolated Encoder Feedback Board This board is recommended for use with motors that do not have an electrically isolated encoder (Baldor Vector drive motors have isolated encoders). Contains a 0-15 VDC (300mA) isolated power supply to allow use with 5, 12 and 15 VDC encoders by jumper selection. Isolates A, B and index channels with complements. The retransmitted encoder signals may be configured in two ways with a board level jumper as follows: 1. For 2 channel quadrature output (A and B with complements), set jumper to disable the marker channel (index pulse) as an input. 2. To use the marker channel (index pulse) as an input, jumper must be set to disable channel B (and compliment) output. Retransmitted signals will always be 5 VDC differential. Uses screw terminals for connection.	755	E8
EXB010A01	Two analog output/three relay output board. Provides two isolated analog outputs each with 0-5VDC, 0-10VDC, or 4-20mA capability. Also includes three relay outputs jumper selectable for N.O. or N.C. rated for 230VAC, 5 amps maximum. Uses screw terminals for connection.	440	E8
EXB012A01	RS232 and RS485 High Speed Serial Communications Allows Series 15H and 18H controls to be connected to RS232 half and full duplex and isolated RS485 half duplex,230.4K Baud maximum. Uses DB-9 connector for RS232 and screw terminals for RS485.	281	E8
EXB013A01	DeviceNet Expansion Board Allows Series 15H and 18H controls to be connected to DeviceNet Communications Bus. Uses plug in terminals for connection	739	E8
EXB014A01	Profibus DP Expansion Board Allows Series 15H and 18H controls to be connected to Profibus Communications Bus. Uses plug in terminals for connection	890	E8
EXB015A01	Modbus plus Expansion Board Allows Series 15H and 18H controls to be connected to Modbus Communications Bus. Uses plug in terminals for connection	1,064	E8

Notes on Mounting

Expansion Boards plug into a slot inside the control. When using one expansion board either a Group 1 or 2 board will connect by a connector on the side of the board. When two expansion boards are used one must be from Group 1 and one from Group 2.

Accessory Boards can mount into either a Group 1 or Group 2 slot. When using an Accessory Board only one other Expansion Board may be used.

Group 1 Boards

Isolated Input Board
EXB003A04
EXB003A05

Master Pulse Reference/
Isolated Pulse Follower
EXB005A01

DC Tachometer Interface
EXB006A01

Isolated Encoder Feedback
EXB008A01

Group 2 Boards

Four Output Relays /
3-15 PSI Pneumatic Interface
EXB004A01

High Resolution Analog Board
EXB007A02

Two analog output/three relay outputs
EXB010A01

RS232/RS485 High Speed Serial Communication
EXB012A01

DeviceNet Communication
EXB013A01

Profibus DP Communication
EXB014A01

Modbus Plus Communication
EXB015A01

SP500 General Purpose AC Drive

1 Hp **115 VAC** **1 Phase - 50/60 Hz**
1 thru 5 Hp **208-230 VAC** **3 Phase - 50/60 Hz**
1 thru 20 Hp **380-460 VAC** **3 Phase - 50/60 Hz**
1 thru 10 Hp **575 VAC** **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 150% for one minute. Flexible mounting options NEMA 1 or NEMA 4X/12. Integral keypad, operator interface and local speed control. Basic set of less than 30 programming parameters. Power ratings from 1 Hp to 5 Hp 230Vac, 20 Hp 460 Vac and 10 Hp 575 Vac.

Performance Features	Control Modes	V/Hz Control
	Operator Interface Module	Integral Drive Mounted
	Display Lines	4-Character LED display
	Programmable Preset Speeds	Three
	Analog Output	One (0-10 VDC)
	Auto Restart	Yes - Up to 10 attempts
	Frequency Avoidance	One Band
	Fault History	Last Three Faults
	Digital Inputs	Dedicated control terminals for start/stop, forward/reverse and fault/reset
Drive Specifications	Analog Input	One: 0-10VDC or 4-20 mA
	Digital Output	One Form C Relay
	Maximum Load	20 Hp @ 460 VAC
	Overload Capacity	Drive Output 150% for One Minute
	Input Voltage Ranges	115VAC, 208-230VAC, 380-460VAC and 575VAC
	Input Voltage Tolerance	10% / -10%
	Rated Input Frequency	50-60 Hz (±5%)
	Carrier Frequency	4, 6 or 8 kHZ
	Operating Temperature	-10° to 40°C
	Volts/Hz	Linear or Custom V/Hz
	Frequency Control Range	0 to 240 Hz
	Accel/Decel Range	0.5 to 90 Seconds
	Keypad Speed Control	Yes
Protective Features	Function Loss	Function loss input open
	High Bus Voltage	DC bus voltage above trip level
	Low Bus Voltage	DC bus voltage below trip level
	Over Current, short circuit or ground fault	Drive output exceeds 200% rating
	Thermostat/Drive Overload	Excess drive temperature
	Electronic Thermal Overload	Exceed Drive rating of 150% for One Minute
Agency Certifications		UL, cUL, CE
Service Conditions	Altitude	1,000 m (3,300 ft.) Maximum
	Ambient Temperature	0°C (32°F) to 40°C (104°F)
	Storage Temperature	-40°C +65°C (-40° to +149°F)
	Relative Humidity	5% to 95%, non-condensing
	Intermittent Overload	150% overload capacity for up to 1 minute; 200% instantaneous overload

SP500 General Purpose AC Drive

Catalog Number	Frame	Hp	Output Current	List Price	Mult. Sym.	V*S Alternate (a)
115V, 50/60 Hz, 1-Phase Input (115 V, 3-Phase Output) – NEMA 1 (Green Enclosure)						
1SU11001	A	1/4-1	6.8	714	VS1AC	VS1MX11-4
208-230V, 50/60 Hz, 3-Phase Input (230 V, 3-Phase Output) – NEMA 1 (Green Enclosure)						
1SU21001	A	1/4-1	5	659	VS1AC	VS1MD21+ VS1MD-NM1A
1SU21002	A	2	7.5	812	VS1AC	VS1MD22+ VS1MD-NM1B
1SU21003	C	3	10.6	1,184	VS1AC	VS1MD23+ VS1MD-NM1C
1SU21005	C	5	14.2	1,353	VS1AC	VS1MD25+ VS1MD-NM1C
208-230V, 50/60 Hz, 3-Phase Input (230 V, 3-Phase Output) – NEMA 4X/12 (White Enclosure)						
1SU24001	A	1/4-1	4.5	780	VS1AC	VS1MX81*2D
1SU24002	C	2	7.5	1,098	VS1AC	VS1MX82-2D
1SU24003	C	3	10.6	1,362	VS1AC	VS1MX83-2TD
1SU24005	C	5	14.2	1,488	VS1AC	VS1SP25-4B
380-480V, 50/60 Hz, 3-Phase Input (460 V, 3-Phase Output) – NEMA 1 (Green Enclosure)						
1SU41001	B	1/4-1	2.1	940	VS1AC	VS1MD41+ VS1MD-NM1A
1SU41002	B	2	3.4	1,093	VS1AC	VS1MD42+ VS1MD-NM1B
1SU41003	B	3	5.3	1,252	VS1AC	VS1MD43+ VS1MD-NM1C
1SU41005	B	5	8.2	1,582	VS1AC	VS1MD45+ VS1MD-NM1C
1SU41007	C	7-1/2	11.1	1,923	VS1AC	VS1MD47+ VS1MD-NM1D
1SU41010	C	10	14.2	2,389	VS1AC	VS1MD410+ VS1MD-NM1D
1SU41015	D	15	21	3,366	VS1AC	VS1PF415-1
1SU41020	D	20	27	4,012	VS1AC	VS1PF420-9+VS1PFNM1C
380-480V, 50/60 Hz, 3-Phase Input (460 V, 3-Phase Output) – NEMA 4X/12 (White Enclosure)						
1SU44001	B	1/4-1	2.1	1,114	VS1AC	VS1MX41-4
1SU44002	B	2	3.4	1,294	VS1AC	VS1MX42-4
1SU44003	B	3	5.3	1,483	VS1AC	VS1MX43-4T
1SU44005	B	5	8.2	1,874	VS1AC	VS1MX45-4T
1SU44007	C	7-1/2	11.1	2,277	VS1AC	VS1SP47-4B
1SU44010	C	10	14.2	2,439	VS1AC	VS1SP410-4B
1SU42015	D	15	21	3,911	VS1AC	—
1SU42020	D	20	27	4,659	VS1AC	—
575V, 50/60 Hz, 3-Phase Input (575 V, 3-Phase Output) – NEMA 1 (Green Enclosure)						
1SU51001	B	1/4-1	1.6	1,035	VS1AC	VS1SP51-1B
1SU51002	B	2	2.7	1,201	VS1AC	VS1SP52-1B
1SU51003	B	3	4.3	1,379	VS1AC	VS1SP53-1B
1SU51005	B	5	6.2	1,741	VS1AC	VS1SP55-1B
1SU51007	C	7-1/2	9	2,116	VS1AC	VS1SP57-1B
1SU51010	C	10	12	2,630	VS1AC	VS1SP510-1B
575V, 50/60 Hz, 3-Phase Input (575 V, 3-Phase Output) – NEMA 4X/12 (White Enclosure)						
1SU54001	B	1/4-1	1.6	1,226	VS1AC	VS1SP51-4B
1SU54002	B	2	2.7	1,424	VS1AC	VS1SP52-4B
1SU54003	B	3	4.3	1,631	VS1AC	VS1SP53-4B
1SU54005	B	5	6.2	2,061	VS1AC	VS1SP55-4B
1SU54007	C	7-1/2	9	2,506	VS1AC	VS1SP57-4B
1SU54010	C	10	12	3,114	VS1AC	VS1SP51-4B

(a) Review dimension and application/IO functionality for complete compatibility. Contact your local district office for assistance.
1SU21001 and 1SU24001 can be used on single-phase power but must be derated by one half.
1SU21002 can be used on single-phase power without being derated.
15 and 20 Hp (460V) SP500 are NEMA 12 only – not NEMA 4X/12

Dimensions

Frame	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Weight lb (kg)
A	12 (305)	5.7 (146)	4.8 (122)	7 (3.2)
B	11.1 (282)	8.8 (224)	6.25 (159)	12 (5.4)
C	13.3 (338)	11 (280)	6.25 (159)	18 (98.20)
D	18.3 (465)	11.4 (290)	9.4 (239)	25 (11.3)

Mains Filter

Mains Filter (AC line filter for CE requirements) is housed in a compact NEMA 1 (IP21) enclosure designed for mounting between the wall or back panel and the SP500. Pre-drilled and tapped holes are provided on the filter enclosure for mounting the SP500. Incoming AC power must be routed into the top of the filter. Outgoing AC power is then routed from the bottom of the filter to the bottom of the SP500. Mounting hardware and flying leads from the Mains Filter are provided.

Mains Filter 2DF2282 is rated for 1-phase or 3-phase, 50/60 Hz, 250 VAC max. Mains filters 2DF4283, 2DF4284 and 2DF4285 are rated for 3-phase, 50/60 Hz, 500 VAC max.

Hp	SP500 Model Number	Mains Filter Model Number	List Price	Mult. Sym.
1	**1SU21001**	**2DF2282**	1,043	VS1AC
2	**1SU21002**	**2DF2282**	1,043	VS1AC
3	**1SU21003**	**2DF4283**	735	VS1AC
5	**1SU21005**	**2DF4283**	735	VS1AC
7-1/2	**1SU41007**	**2DF4284**	827	VS1AC
10	**1SU41010**	**2DF4284**	827	VS1AC
15 (1)	**1SU41015**	**2DF4285**	2,160	VS1AC
20 (1)	**1SU41020**	**2DF4285**	2,160	VS1AC

(1) For 15 Hp and 20 Hp SP500, a cover kit and a filter kit are both required to conform to CE requirements.

Low Energy Snubber Braking Kit

Low Energy Snubber Braking Kit provides rapid deceleration of the drive motor by providing 150% intermittent braking of the motor. The kit dissipates the power regenerated by the motor during deceleration through resistors.

The braking resistors are sized to provide a maximum of three stops per minute, taking 4 seconds for a complete stop when the motor is connected to a load that has six times the NEMA motor inertia. The kits are provided in a separate enclosure for field wiring.

SP500 Voltage	SP500 Hp Rating	Kit Model Number	Resistor Wattage	Style	List Price	Mult Symb.
230	1/4-5	**2DB2005**	200	A	1,018	VS1AC
460	1/4-10	**2DB4010**	800	B	1,235	VS1AC
460	15-20	**2DB4020**	1600	C	1,808	VS1AC

GV3000 Vector Drive

1 thru 100 Hp **230 VAC** **3 Phase - 50/60 Hz**
1 thru 400 Hp **460 VAC** **3 Phase - 50/60 Hz**

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

Features: NEMA 1, NEMA 4, NEMA 12, IP20, and IP00 enclosures. Output frequency 0 to 200 Hz with peak overload capacity of 150%. Digital speed or torque control. Built-in PID process control loop. Automatic tuning to motor and full rated torque down to zero speed.

Input Ratings	Voltage	230	460
	Voltage Range	180-264	340-528
	Phase	3 Phase	
	Frequency	50/60 Hz +5%	
	Impedance	Line reactor needed for supplies with greater than 30,000 amp symmetrical fault capacity	
Output Ratings	Horsepower	1-100 Hp @ 230VAC, 3PH; 1-400 Hp @ 460VAC, 3 PH;	
	Overload Capacity	Heavy Duty (Constant Torque) = 150% for 60 seconds, 200% for 3 seconds	
		Normal Duty (Variable Torque) = 110% for 60 seconds and 150% overload for 3 seconds.	
	Frequency	0-200 Hz	
	Voltage	0 to maximum input voltage (RMS)	
Protective Features	Trip	Microprocessor checksum, over current, over voltage, under voltage, over temperature (motor or control), output shorted or grounded, motor overload, encoder loss.	
	External Output	LED trip condition indicators codes, fault relay output	
	Short Circuit	Phase to phase, phase to ground	
	Electronic Motor Overload	Meets UL508C (I^2T)	
Environmental Conditions	Temperature	0° to 40°C, NEMA 1;0° to 50°C, Power Module IP00	
	Cooling	Forced air	
	Enclosure	NEMA 1, NEMA 4X, NEMA 12, IP20 and IP00	
	Altitude	Sea level to 3300 Feet (1000 Meters)	
	Humidity	NEMA1: 5% to 95% RH Non-Condensing; NEMA 4X To 100% RH Condensing	
	Storage Temperature	-40 to +65°C	
Keypad Display	Display	4 digit bright 7-segment LED readout; 14 discrete LED indicators	
	Keys	9 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, Auto/Manual toggle	
	LED Indicators	Forward run command, Reverse run command, Jog active, Auto/Manual Indication, Monitor display indication	
	Remote Mount	Optional remote mountable LCD keypad, full text display, multi-language support, quick start menu, NEMA 12 rating, 5 meter distance capable with included cable	
	Trip	Last 10 trips retained in memory with elapsed time stamp	
Control Specifications	Control Method	Microprocessor controlled PWM output, selectable encoderless vector, sensorless vector or V/Hz inverter	
	PWM Frequency	Selectable 2KHz, 4KHz (Standard), or 8KHz	
	Frequency Setting	±10 VDC, 0-10 VDC, 4-20 mA or 0-20 mA; digital (keypad); Serial Communications (via option); RS-232 via CS3000 Software	
	Accel/Decel	0-999.9 seconds	
	Motor Matching	Automatic tuning to motor with manual override	
	PC Setup Software	CS3000 Software available using the RS-232 port for commissioning, parameter viewer, scope capture and cloning	
	Maximum Output Frequency	200 Hz	
Motor Feedback	Feedback Type	Incremental encoder coupled to motor shaft	
	Pulses/Rev	512 PPR, 1024 PPR (Standard), 2048 PPR, 4096 PPR, SE (No encoder - sensorless vector operation)	
	Input Type	2 channel in quadrature, 15 VDC, differential	
	Power Supply for Encoder	15 VDC, 250 mA maximum	
	Max. Frequency	125 KHz	
Analog Inputs	One Differential	±10VDC, 0-10VDC, 4-20 mA or 0-20 mA, 10-bit + sign	
	Input Impedance	50 kOhms (Volt mode); 250 Ohms (Current mode)	
Analog Outputs	Analog Outputs	1 Assignable	
	Full Scale Range	0-10V or 4-20mA	
	Source Current	1 mA maximum (volt mode), 20mA (using external supply or +15V encoder supply)	
	Resolution	9 bits	
Digital Inputs	Quantity	3 Assignable, 5 dedicated inputs (Function Loss, Run/Jog, Reset, Stop, Start)	
	Rated Voltage	24VDC Nominal Utilizing Internal 24VDC Isolated Power Supply	
	Update Rate	75mSec ~ 126mSec (depending on input and whether V/Hz or Vector mode)	
Relay Outputs	Rated Voltage	250VAC/30VDC maximum	
	Maximum Current	5A maximum resistive / 2 amps maximum inductive	
	Output Conditions	7 Programmable Conditions	

GV3000 Closed Loop Vector NEMA 1 Enclosure

Catalog Number	Heavy Duty				Normal Duty				List Price	Mult. Sym.	V*S Alternate (a)
	Hp	kW	Cont. Amps	Peak Amps	Hp	kW	Cont. Amps	Peak Amps			
230 Volts - Three Phase Input											
1V2160	1	0.75	5.1	7.7	1	0.75	5.1	5.6	1,546	VS1AC	VS1GV21-1B
2V2160	2	1.5	8.5	12.8	2	1.5	8.5	9.4	1,615	VS1AC	VS1GV22-1B
3V2160	3	2.2	12.3	18.5	3	2.2	12.3	13.5	1,678	VS1AC	VS1GV23-1B
5V2160	5	3.7	21	31.5	5	3.7	21	23.1	1,735	VS1AC	VS1GV25-1B
7V2160	7.5	5.6	26.9	40.4	7.5	5.6	26.9	29.6	2,113	VS1AC	VS1GV27-1B
10V2160	10	7.5	35	52.5	10	7.5	35	38.5	2,250	VS1AC	VS1GV210-1B
15V2160	15	11	53.3	80	15	11	53.3	58.6	3,721	VS1AC	VS1GV215-1B
20V2160	20	15	69.6	104.4	20	15	69.6	76.6	4,609	VS1AC	VS1GV220-1B
460 Volts - Three Phase Input											
1V4160	1	0.75	2.1	3.2	1	0.75	2.1	2.3	1,399	VS1AC	VS1GV41-1B
2V4160	2	1.5	3.4	5.1	2	1.5	3.4	3.7	1,512	VS1AC	VS1GV42-1B
3V4160	3	2.2	5.3	8	3	2.2	5.3	5.8	1,718	VS1AC	VS1GV43-1B
5V4160	5	3.7	8.2	12.3	5	3.7	8.2	9	2,176	VS1AC	VS1GV45-1B
7V4160	7.5	5.6	11.1	16.7	7.5	5.6	11.1	12.2	2,496	VS1AC	VS1GV47-1B
10V4160	10	7.5	14.2	21.3	10	7.5	14.2	15.6	3,097	VS1AC	VS1GV410-1B
15V4160	15	11.2	21	31.5	15	11.2	21	23.1	3,933	VS1AC	VS1GV415-1B
20V4160	20	15	27	40.5	20	15	27	29.7	4,677	VS1AC	VS1GV420-1B
25G4160	20	15	27	40.5	25	18.7	30.4	33.4	5,078	VS1AC	VS1GV425-1B
25V4160	25	18.7	34.5	51.8	25	18.7	34.5	38	6,738	VS1AC	VS1GV430-1B
30V4160	30	22.4	40	60	30	22.4	40	44	8,340	VS1AC	VS1GV440-1B
40V4160	40	30	54	81	40	30	54	59.4	9,388	VS1AC	VS1GV450-1B
50V4160	50	37.3	67	100.5	50	37.3	67	73.7	9,989	VS1AC	VS1GV50-1B
50R4160	40	30	56	84	60	45	72	79.2	15,513	VS1AC	VS1GV50-1B
60G4160	50	37.3	67	100.5	60	45	78	85.8	12,250	VS1AC	VS1GV60-1B
75R4160	60	45	71	106.5	75	56	93	102.3	15,513	VS1AC	VS1GV60-1B
75T4160 (b)	60	45	71	106.5	75	56	93	102.3	19,004	VS1AC	VS1GV100-1B
125R4160	100	75	122	183	125	93	168	184.8	29,021	VS1AC	VS1GV200-1B
200V4160	200	150	240	360	200	150	240	264	30,186	VS1AC	VS1GV425-1B
250V4160	250	187	302	453	250	187	302	332.2	33,372	VS1AC	—
300V4160	300	224	361	541.5	300	224	361	397.1	39,602	VS1AC	—
350V4160	350	261	414	621	350	261	414	455.4	41,646	VS1AC	—
400V4160	400	298	477	525	400	298	477	525	45,418	VS1AC	—
460 Volts - Three Phase Input with Disconnect Switch											
200V4160DS	200	150	240	360	200	150	240	264	32,940	VS1AC	—
250V4160DS	250	187	302	453	250	187	302	332.2	35,910	VS1AC	—
300V4160DS	300	224	361	541.5	300	224	361	397.1	42,653	VS1AC	—
350V4160DS	350	261	414	621	350	261	414	455.4	44,697	VS1AC	—
400V4160DS	400	298	477	525	400	298	477	525	48,469	VS1AC	—

(a) Review dimension and application/IO functionality for complete compatibility. Contact your local district office for assistance.
(b) Model 75T4160 includes a built-in RFI filter to meet CE component standards.

GV3000 Closed Loop Vector NEMA 4 Enclosure

Catalog Number	Heavy Duty				Normal Duty				List Price	Mult. Sym.	V*S Alternate (a)
	Hp	kW	Cont. Amps	Peak Amps	Hp	kW	Cont. Amps	Peak Amps			
230 Volts - Three Phase Input											
1V2460	1	0.75	5.1	7.7	1	0.75	5.1	5.6	1,581	VS1AC	VS1GV21-4B
2V2460	2	1.5	8.5	12.8	2	1.5	8.5	9.4	1,646	VS1AC	VS1GV22-4B
3V2460	3	2.2	12.3	18.5	3	2.2	12.3	13.5	1,713	VS1AC	VS1GV23-4B
5V2460	5	3.7	21	31.5	5	3.7	21	23.1	1,786	VS1AC	VS1GV25-4B
460 Volts - Three Phase Input											
1V4460	1	0.75	2.1	3.2	1	0.75	2.1	2.3	1,415	VS1AC	VS1GV41-4B
2V4460	2	1.5	3.4	5.1	2	1.5	3.4	3.7	1,528	VS1AC	VS1GV42-4B
3V4460	3	2.2	5.3	8	3	2.2	5.3	5.8	1,736	VS1AC	VS1GV43-4B
5V4460	5	3.7	8.2	12.3	5	3.7	8.2	9	2,193	VS1AC	VS1GV45-4B

GV3000 Closed Loop Vector NEMA 12 Enclosure

Catalog Number	Heavy Duty				Normal Duty				List Price	Mult. Sym.	V*S Alternate (a)
	Hp	kW	Cont. Amps	Peak Amps	Hp	kW	Cont. Amps	Peak Amps			
230 Volts - Three Phase Input											
7V2260	7.5	5.6	26.9	40.4	7.5	5.6	26.9	29.6	2,231	VS1AC	VS1GV27-4B
10V2260	10	7.5	35	52.5	10	7.5	35	38.5	2,365	VS1AC	—
15V2260	15	11	53.3	80	15	11	53.3	58.6	3,738	VS1AC	—
20V2260	20	15	69.6	104.4	20	15	69.6	76.6	4,611	VS1AC	—
460 Volts - Three Phase Input											
7V4260	7.5	5.6	11.1	16.7	7.5	5.6	11.1	12.2	2,518	VS1AC	VS1GV47-4B
10V4260	10	7.5	14.2	21.3	10	7.5	14.2	15.6	3,129	VS1AC	VS1SP410-4B
15V4260	15	11.2	21	31.5	15	11.2	21	23.1	3,977	VS1AC	—
20V4260	20	15	27	40.5	20	15	27	29.7	4,727	VS1AC	—
25G4260	20	15	27	40.5	25	18.7	30.4	33.4	5,128	VS1AC	—
25V4260	25	18.7	34.5	51.8	25	18.7	34.5	38	6,809	VS1AC	—
30V4260	30	22.4	40	60	30	22.4	40	44	8,428	VS1AC	—
40V4260	40	30	54	81	40	30	54	59.4	9,490	VS1AC	—
50V4260	50	37.3	67	100.5	50	37.3	67	73.7	10,096	VS1AC	—
60G4260	50	37.3	67	100.5	60	45	78	85.8	12,372	VS1AC	—

GV3000 Closed Loop Vector Power Module (Open) Enclosure

Catalog Number	Heavy Duty				Normal Duty				List Price	Mult. Sym.	V*S Alternate (a)
	Hp	kW	Cont. Amps	Peak Amps	Hp	kW	Cont. Amps	Peak Amps			
230 Volts - Three Phase Input											
30V2060	30	22.4	105	157.5	30	22.4	105	115.5	9,153	VS1AC	VS1GV230-1B
40V2060	40	30	135	202.5	40	30	135	148.5	9,669	VS1AC	VS1GV240-1B
50V2060	50	37.3	150	225	50	37.3	150	165	10,834	VS1AC	VS1GV250-1B
60V2060	60	45	195	292.5	60	45	195	214.5	12,904	VS1AC	VS1GV260-1B
75V2060	75	56	245	367.5	75	56	245	269.5	13,979	VS1AC	—
100V2060	100	75	275	412.5	100	75	275	302.5	16,184	VS1AC	—
460 Volts - Three Phase Input											
30V4060	30	22.4	40	60	30	22.4	40	44	7,074	VS1AC	VS1GV430-1B
40V4060	40	30	54	81	40	30	54	59	7,818	VS1AC	VS1GV440-1B
50V4060	50	37.3	67	100	50	37.3	67	74	8,813	VS1AC	VS1GV450-1B
60V4060	60	45	78	117	60	45	78	86	10,192	VS1AC	VS1GV460-1B
75V4060	75	56	100	150	75	56	100	110	13,068	VS1AC	VS1GV475-1B
100V4060	100	75	140	210	100	75	140	154	13,480	VS1AC	VS1GV4100-1B
125V4060	125	93	170	255	125	93	170	187	15,519	VS1AC	VS1GV4125-1B
150V4060	150	112	200	300	150	112	200	220	19,114	VS1AC	VS1GV4150-1B
200V4060	200	149	240	360	200	149	240	264	19,605	VS1AC	VS1GV4200-1B

(a) Review dimension and application/IO functionality for complete compatibility. Contact your local district office for assistance.

GV3000 Closed Loop Vector Amp Rated IP20 Bookshelf Enclosure

Catalog Number	Heavy Duty		Normal Duty		List Price	Mult. Sym.	V*S Alternate (a)
	Cont. Amps	Peak Amps	Cont. Amps	Peak Amps			
230 Volts - Three Phase Input w/0 EMI Filter							
31ER4060	2.1	3.2	3.1	3.4	1,804	VS1AC	VS1GV41-1B
38ER4060	3.1	4.7	3.8	4.2	1,827	VS1AC	VS1GV42-1B
55ER4060	3.8	5.7	5.5	6.1	1,867	VS1AC	VS1GV43-1B
85ER4060	6.7	10.1	8.5	9.4	1,935	VS1AC	VS1GV45-1B
126ER4060	9.3	14	12.6	13.9	2,098	VS1AC	VS1GV47-1B
150ER4060	11	16.5	15	16.5	2,528	VS1AC	VS1GV415-1B
240ER4060	16.5	24.8	24	26.4	3,114	VS1AC	VS1GV415-1B
300ER4060	22	33	30	33	3,904	VS1AC	VS1GV420-1B
430ER4060	32	48	43	47.3	4,242	VS1AC	VS1GV430-1B
460 Volts - Three Phase Input w/EMI Filter							
31ET4060	2.1	3.2	3.1	3.4	2,044	VS1AC	—
38ET4060	3.1	4.7	3.8	4.2	2,090	VS1AC	—
55ET4060	3.8	5.7	5.5	6.1	2,124	VS1AC	—
85ET4060	6.7	10.1	8.5	9.4	2,170	VS1AC	—
126ET4060	9.3	14	12.6	13.9	2,517	VS1AC	—
150ET4060	11	16.5	15	16.5	3,031	VS1AC	—
240ET4060	16.5	24.8	24	26.4	3,737	VS1AC	—
300ET4060	22	33	30	33	4,682	VS1AC	—
430ET4060	32	48	43	47.3	5,093	VS1AC	—

(a) Review dimension and application/IO functionality for complete compatibility. Contact your local district office for assistance.

GV3000 Accessories and Kits

Catalog Number	Description	List Price	Mult. Sym.
Communications Adapters			
2AX3000	GV3000 AUTOMAX NETWORK CARD	573	VS1AC
2CN3000	GV3000 CONTROLNET CARD	951	VS1AC
2DV3000	GV3000 DEVICENET CARD	1,026	VS1AC
2PB3000	GV3000 PROFIBUS CARD	1,134	VS1AC
NEMA 1 Kits			
2CK4160	25-60Hp NEMA 1 CE Compliance Cover	378	VS1AC
2CK4100	NEMA1 Conversion Kit for 75-100Hp 460V IP00 GV3000 Drives	702	VS1AC
2CK4125	NEMA1 Conversion Kit for 125Hp 460V IP00 GV3000 Drives	767	VS1AC
2CK4200	NEMA1 Conversion Kit for 150-200Hp 460V IP00 GV3000 Drives	821	VS1AC
Accessories and Options			
2RK3000	GV3000 OIM REMOTE KEYPAD	508	VS1AC
2SI3000	GV3000/SUPER RMI CARD	621	VS1AC
2SI3000E	GV3000/SUPER RMIE CARD (For Bookshelf Drives)	621	VS1AC
2LB3000	GV3000 115Vac Control Input Interface Card	897	VS1AC

Are your drive needs beyond the scope of a stock item? Whatever your drive need, Baldor can help! Contact your local Baldor•Reliance District Office for more information.

- **Higher horsepower AC Drives (up to 1600 Hp)**
- **Full line of Regen AC Drive (10-1500 Hp)**
- **Custom Panels and Modifications available from our UL 508 Certified Drives Center in s**

including:
- **~ NEMA 1**
- **~ NEMA 4/4X**
- **~ NEMA 3R**
- **~ NEMA 12**

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.
208/230 Volt input, 60 Hz, 3% Impedance									
1	0.75	230	4	3.0	9	**LRAC00401**	292	E8	9
1 1/2-2	1.15-1.5	208/230	8	1.15	14	**LRAC00801**	292	E8	3
3	2.2	208/230	12	1.25	26	**LRAC01201**	472	E8	10
5	3.7	208/230	18	0.8	36	**LRAC01801**	495	E8	4
7 1/2	5.5	208/230	25	0.5	48	**LRAC02501**	595	E8	11
10	7.4	208/230	35	0.4	49	**LRAC03501**	631	E8	19
15	11.1	230	45	0.3	54	**LRAC04501**	665	E8	23
20	14.9	230	55	0.25	64	**LRAC05501**	706	E8	25
25	18.6	208/230	80	0.138	105	**LRAC080BTB**	824	E8	31
30	22.3	208/230	110	0.1	95	**LRAC110BCB**	1,069	E8	39
40	29.8	208/230	130	0.085	117	**LRAC130BCB**	1,434	E8	30
50	37.2	208/230	160	0.069	127	**LRAC160BCB**	1,667	E8	47
460 Volt input, 60 Hz, 3% Impedance									
1-1 1/2	0.75-1.1	460	2	12.0	7.5	**LRAC00201**	246	E8	4
2	1.5	460	4	6.5	20	**LRAC00402**	310	E8	4
3-5	2.2-3.7	460	8	3.0	29	**LRAC00802**	362	E8	7
7 1/2	5.5	460	12	2.5	31	**LRAC01202**	499	E8	9
10	7.4	460	18	1.5	43	**LRAC01802**	522	E8	10
15	11.1	460	25	1.2	52	**LRAC02502**	823	E8	13
20-25	14.9-18.6	460	35	0.8	54	**LRAC03502**	875	E8	15
30	22.3	460	45	0.7	62	**LRAC04502**	704	E8	27
40	29.8	460	55	0.5	67	**LRAC05502**	980	E8	29
50-60	37.2-44.7	460	80	0.4	120	**LRAC08002**	869	E8	33
75	56	460	110	0.2	140	**LRAC110ACB2**	1,130	E8	55
100	75	460	130	0.17	150	**LRAC130ACB2**	1,510	E8	54
125	93.2	460	160	0.13	300	**LRAC160ACB2**	1,759	E8	54
150	112	460	200	0.11	222	**LRAC200ACB**	2,059	E8	68
200	149	460	250	0.088	370	**LRAC360ACB2**	2,881	E8	127
250	186.5	460	360	0.061	470	**LRAC420ACB2**	3,069	E8	128
300	223.8	460	400	0.053	460	**LRAC420ACB2**	3,069	E8	128
350-400	261-298	460	480	0.046	740	**LRAC480ACB2**	4,675	E8	127
500	373	460	600	0.037	493	**LRAC600ACB**	5,649	E8	245
575 Volt input, 60 Hz, 3% Impedance									
1-2	0.75-1.5	575	2	20	11.3	**LRAC00202**	273	E8	4
3	2.2	575	4	9	20	**LRAC00403**	424	E8	4
5	3.7	575	8	3	25.3	**LRAC00802**	362	E8	7
7 1/2	5.5	575	8	3	29	**LRAC00803**	478	E8	10
10	7.5	575	12	2.5	31	**LRAC01202**	499	E8	9
15	11	575	18	1.50	43	**LRAC01802**	522	E8	10
20	15	575	25	1.20	52	**LRAC02502**	823	E8	13
30	22	575	35	0.80	54	**LRAC03502**	875	E8	15
40	30	575	45	0.70	62	**LRAC04502**	704	E8	27
50	37.2	575	55	0.5	67	**LRAC05502**	980	E8	29
60-75	44.7-56	575	80	0.4	120	**LRAC08002**	869	E8	33
100	75	575	110	0.20	140	**LRAC110ACB2**	1,130	E8	55
125	93	575	130	0.17	150	**LRAC130ACB2**	1,510	E8	54
150	112	575	160	0.13	300	**LRAC160ACB2**	1,759	E8	54

(1) 2.5% impedance rating. % impedance decreases if load current is less than reactor rated current.

NOTE: See page 264 for Line Reactor enclosures. See notes on inside back flap and pages 5-6.

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.
200-240 Volt input, 50 Hz, 3% Impedance									
1	0.75	240	4	3.0	14.5	**LRAC00401**	292	E8	9
1 1/2-2	1.1-1.5	200/240	8	1.15	19.5	**LRAC00801**	292	E8	3
3	2.2	200/240	12	1.25	26	**LRAC01201**	472	E8	10
5	3.7	200/240	18	0.8	36	**LRAC01801**	495	E8	4
7 1/2	5.5	240	25	0.5	48	**LRAC02501**	595	E8	11
10	7.5	200/240	35	0.4	49	**LRAC03501**	631	E8	19
15	11.1	240	45	0.3	54	**LRAC04501**	665	E8	23
20	14.9	240	55	0.25	64	**LRAC05501**	706	E8	25
25	18.6	200/240	80	0.2	105	**LRAC080BTB**	824	E8	31
30	22.3	200/240	110	0.1	95	**LRAC110BCB**	1,069	E8	39
40	29.8	200/240	130	0.085	117	**LRAC130BCB**	1,434	E8	30
50	37.2	200/240	160	0.069	127	**LRAC160BCB**	1,667	E8	47
380/400/415 Volt input, 50 Hz, 3% Impedance									
1	0.75-1.1	380	2	12.0	7.5	**LRAC00201**	246	E8	4
1	0.75	400/415	2	20.0	11.3	**LRAC00202**	273	E8	4
2	1.5	380	4	6.5	20	**LRAC00402**	310	E8	4
2	1.5	400/415	4	9.0	20	**LRAC00403**	424	E8	4
3	2.2	380/400/415	8	5.0	25.3	**LRAC00802**	362	E8	7
5	3.7	380/400/415	8	3.0	29	**LRAC00803**	478	E8	10
7 1/2	5.5	380/400/415	12	2.5	31	**LRAC01202**	499	E8	9
10	7.5	380/400/415	18	1.5	43	**LRAC01802**	522	E8	10
15	11.1	380/400/415	25	1.2	52	**LRAC02502**	823	E8	13
20	14.9	380/400/415	35	0.8	54	**LRAC03502**	875	E8	15
25-30	18.6-22.3	380/400/415	45	0.7	62	**LRAC04502**	704	E8	27
40-50	29.8-37.2	380/400/415	80	0.4	120	**LRAC08002**	869	E8	33
60-75	44.7-56	380/400/415	130	0.17	150	**LRAC130ACB2**	1,510	E8	54
100	75	400/415	160	0.13	300	**LRAC160ACB2**	1,759	E8	54
125	93	380/400/415	200	0.11	222	**LRAC200ACB**	2,059	E8	68
150-200	112-149	380/400/415	250	0.88	370	**LRAC250ACB2**	2,686	E8	128
250	186.2	380/400/415	360	0.061	470	**LRAC360ACB2**	2,881	E8	127
300	223.8	380/400/415	420	0.053	460	**LRAC420ACB2**	3,069	E8	128
350-400	261-298	380/400/415	480	0.046	493	**LRAC480ACB2**	4,675	E8	127

Line Reactor Enclosures NEMA 1

Enclosure Catalog No.	to Fit LRAC Catalog No.		Mount Type	List Price	Mult. Sym.	Ap'x Shpg. Wgt. (Lbs)	Width (IN/mm)	Height (IN/mm)	Depth (IN/mm)
LRENC-8	**LRAC002-4XX**	**LRAC01801**							
	LRAC008-12XX	**LRAC01802**	WALL	184	E8	12	8 (293)	10 (254)	6 (152)
	LRAC01803	**LRAC08002**							
LRENC-13	**LRAC025-35XX**		FLOOR	362	E8	16	13 (330)	15 (381)	13 (330
	LRAC045-55XX								
LRENC-15	**LRAC080XTB**	**LRAC110-160XX**							
	LRAC0110-500XX		FLOOR	544	E8	35	15 (381)	16 (406)	13 (330)
LRENC-20S	**LRAC200-250XCB**	**LRAC250-900ACB**	FLOOR	729	E8	50	20 (508)	19 (483)	16 (406)

NOTE: See notes on inside back flap and pages 5-6.

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)
NEMA 1, 3R, 4, 4X and 12 Remote Operator Stations														
X	NM							**9C80**	243	E8	1	5/128	2.9/74	2.5/64
X	M							**9C81**	243	E8	1	5/128	2.9/74	2.5/64
X	NM	X						**9C90**	302	E8	1	6.6/167	2.9/74	2.5/64
X	M	X						**9C91**	302	E8	1	6.6/167	2.9/74	2.5/64
X	NM	X	X					**9C200**	363	E8	1	8.1/207	2.9/74	2.5/64
X	M	X	X					**9C201**	363	E8	2	8.1/207	2.9/74	2.5/64
X	NM	X				X		**9C210**	465	E8	1	8.1/207	2.9/74	2.5/64
X	M	X				X		**9C211**	465	E8	2	8.1/207	2.9/74	2.5/64
X	NM	X					X	**9C220**	465	E8	1	8.1/207	2.9/74	2.5/64
X	M	X					X	**9C221**	465	E8	2	8.1/207	2.9/74	2.5/64
X	NM	X	X			X		**9C230**	636	E8	2	11.3/287	2.9/74	2.5/64
X	M	X	X			X		**9C231**	636	E8	2	11.3/287	2.9/74	2.5/64
X	NM	X		X				**9C240**	404	E8	1	8.1/207	2.9/74	2.5/64
X	M	X		X				**9C241**	404	E8	2	8.1/207	2.9/74	2.5/64
X	NM	X	X		X			**9C300**	454	E8	2	11.3/287	2.9/74	2.5/64
X	M	X	X		X			**9C301**	454	E8	2	11.3/287	2.9/74	2.5/64
X	NM	X			X	X		**9C310**	646	E8	2	11.3/287	2.9/74	2.5/64
X	M	X			X	X		**9C311**	646	E8	5	11.3/287	2.9/74	2.5/64
X	NM	X			X		X	**9C320**	606	E8	2	11.3/287	2.9/74	2.5/64
X	M	X			X		X	**9C321**	606	E8	2	11.3/287	2.9/74	2.5/64
X	NM	X	X		X	X		**9C330**	676	E8	2	11.3/287	2.9/74	2.5/64
X	M	X	X		X	X		**9C331**	676	E8	2	11.3/287	2.9/74	2.5/64
X	NM	X		X	X			**9C340**	445	E8	2	11.3/287	2.9/74	2.5/64
X	M	X		X	X			**9C341**	445	E8	2	11.3/287	2.9/74	2.5/64
NEMA 7/9 Explosion Proof Remote Operator Stations														
X	NM	X	X					**9C16**	2,421	E8	15	5.3/134	0.6/269	3.3/84
X	M	X	X		X			**9C17**	2,260	E8	12	5.3/134	14.1/258	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.)

Digital Speed Potentiometer with Display

Baldor's microprocessor-based digital speed potentiometer with LED display of set speed may be used to replace the conventional 3-wire analog speed pot for most AC and DC drives. Desired set speed may be entered into the large 1/2" LED display by pressing the "up" and "down" pushbuttons: one digit at a time or in a fast sweep. Display shows 0.1% increments of full motor speed (0-100%).

Specifications

Temperature	-10°C to +45°C
AC input voltage	85-264 VAC
Input frequency	50/60 Hz
Supply voltage applied across output	5 VDC to 15 VDC
Speed regulation	Same as driven unit
Input impedance to DSP4 will drive	500 ohm to 100 K ohm
Output	Isolated 3-wire pseudo-pot (normal or inverted output)
Display settings	0-100% of set speed range in 0.1% increments (resolution of 1000)
Non-volatile memory	Retains last set point upon loss of AC power (user selectable via dip switch settings)

Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Input Voltage
DSP4-6	Digital Speed Potentiometer with Display	509	E9	2	120/240 VAC 50/60 hz

Field Programmable Digital Tachometer for Rate and Time with Display

Baldor offers an economical micro-processor-based digital tachometer capable of measuring motor speeds as low as 1 RPM. Unit is field programmable for desired user specified units: RPM, FPM and GPM. Process time or other engineering units requires an input signal unit with 1 to 30,000 PPR such as the HPU and RK60 devices on page 323.

Specifications

Temperature	-10°C to +45°C
AC input voltage	85-264 VAC
Input frequency	50/60 Hz
Input pulse rate	1 to 30,000 input pulses per minute
Resolution	from 0.01 RPM
Accuracy	±0.04% display update every pulse or 0.5 seconds, whichever is longer
Isolated high/low alarm output	5 amp 240 VAC max.
Transducer signal input	0-5 to 0-24 VDC square wave (hall-effect, photoelectric, magnetic or any TTL NPN open collector device.)

Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Input Voltage
DTM8000-6	Digital Tachometer for Rate & Time with Display	578	E9	1	120/240 VAC 50/60 hz