

Subfractional Permanent Magnet DC Motor - TENV, Rigid Base



1/50 thru 1/4 Hp

Applications: General purpose including conveyors, material handling equipment and packaging machinery.

Features: High quality ball bearing motors with precision machined die cast aluminum or steel housings. Dynamically balanced for smooth, vibration-free operation.

Input Motor Hp	Output Base Speed	Voltage Direct Current Armature	Full Load Amperage Armature	Catalog Number	List Price	Mult. Sym.	Gear Style	Ap'x. Shpg. Wgt.	Notes (a)
1/50	1800	90	0.3	AP231001	244	DS	2308P	4	20,60
1/25	1725	90	0.5	AP232001	268	DS	2314P	5	20,60
1/15	1800	90	0.8	AP233001	288	DS	2318P	6	20,60
		180	0.4	AP233021	288	DS	2318P	6	20,60
1/8	1725	90	1.3	AP7401	403	DS	2424P	10	20,60
		180	0.7	AP7402	403	DS	2424P	10	20,60
1/4	3450	90	2.5	AP7421	403	DS	2424P	10	20,60
		180	1.3	AP7422	403	DS	2424P	11	20,60

NOTE: Supplied with type SJO, three foot 18/3 AWG grounded cord. (a) See notes on inside back flap and pages 5-6.

SCR Drive Permanent Magnet Motor - TENV and TEFC, C-Face with Base



1/4 thru 5 Hp

NEMA 56C thru 1810ATC

Applications: Conveyors, mixers, packaging machinery.

Features: NEMA C-face with removable base. Tach adaptable. Class F insulation, double sealed ball bearings. 20:1 constant torque speed range. UL and CSA recognized. 1/4 - 1/2 Hp motors are TENV, all others are TEFC. No dual mounting base holes on 1/4 - 1/2 Hp.

Hp	Base Speed	NEMA Frame	Voltage D.C.	Full Load Amperage	Enclosure	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)	Reliance M/N
			Arm.	Arm.							
1/4	1750	56C	90	2.5	TENV	CDP3310	584	K	24	20,60	T56S1001
			180	1.25	TENV	CDP3306	584	K	24	20,60	
1/3	1750	56C	90	3.2	TENV	CDP3320	617	K	27	20,60	T56S1003
			180	1.6	TENV	CDP3316	617	K	27	20,60	
1/2	1750	56C	90	4.8	TENV	CDP3330	690	K	32	20,60	T56S1005
			180	2.5	TENV	CDP3326	690	K	31	20,60	T56S1027
3/4	1750	56C	90	5	TENV	CDP3335	617	K	26	20,60	T56S1006
			90	7.6	TEFC	CDP3440	838	K	38	20	T56S1009
			180	3.7	TEFC	CDP3436	838	K	38	20	T56S1029
1	1750	56C	90	7.5	TEFC	CDP3443	741	K	36	20	
			90	10	TEFC	CDP3445	1,019	K	44	20	T56S1011
			180	5	TEFC	CDP3455	1,019	K	44	20	T56S1013
1 1/2	2500	56C	90	9.7	TEFC	CDP3450	838	K	38	20	
			180	4.85	TEFC	CDP3460	838	K	38	20	T56S1012
			1750	145TC	180	7.7	TEFC	CDP3575	1,879	L1	65
2	2500	145TC	180	7	TEFC	CDP3580	1,634	L1	51	20	
			1750	145TC	180	9.6	TEFC	CDP3585	2,242	L1	74
3	1750	182TC	180	10	TEFC	CDP3590	1,879	L1	64	8	
			180	14	TEFC	CDP3603	2,760	L1	112	20	
5	1750	182TC	180	14	TEFC	CDP3604	2,745	L1	115	20	
			1810ATC	180	21.6	TEFC	CDP3605	4,686	L1	160	20

NOTE: See Tach Generators on page 283 and Mounting Kits on page 284. (a) See notes on inside back flap and pages 5-6.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Integral DC Tach Permanent Magnet SCR Drive Motor - TENV and TEFC, C-Face with Base

1/4 thru 5 Hp

NEMA 56C thru 1810ATC

Applications: Conveyors and metering pumps (precise speed regulation).

Features: Provides an integral 50 VDC per 1000 RPM precision tachometer for closed loop drive system. Class F insulation. 20:1 constant torque speed range with NEMA Type K control. 1/4 - 1/2 motors are TENV, all others are TEFC.



Hp	Base Speed	NEMA Frame	Voltage D.C.		Full Load Amperage	Enclosure	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)
			Arm.	Arm.							
1/4	1750	56C	90	2.5	TENV	CDPT3310	1,670	K	27	20,60	
			180	1.25	TENV	CDPT3306	1,670	K	27	20,60	
1/3	1750	56C	90	3.2	TENV	CDPT3320	1,704	K	32	20,60	
			180	1.6	TENV	CDPT3316	1,704	K	30	20,60	
1/2	1750	56C	90	4.8	TENV	CDPT3330	1,811	K	35	20,60	
			180	2.5	TENV	CDPT3326	1,811	K	36	20,60	
3/4	1750	56C	90	7.6	TEFC	CDPT3440	1,916	K	44	20	
			180	3.7	TEFC	CDPT3436	1,916	K	45	20	
1	1750	56C	90	10	TEFC	CDPT3445	2,137	K	50	20	
			180	5	TEFC	CDPT3455	2,137	K	50	20	
1 1/2	1750	143TC	180	7.7	TEFC	CDPT3575	2,967	L1	69	20	
2	1750	143TC	180	9.6	TEFC	CDPT3585	3,329	L1	79	20	
3	1750	182ATC	180	14	TEFC	CDPT3603	3,872	L1	122	20	
5	1750	1810ATC	180	24.5	TEFC	CDPT3605	5,793	L1	161	20	

(a) See notes on inside back flap and pages 5-6.

Explosion Proof Permanent Magnet SCR Drive Motor - TEFC, C-Face with Base

1/4 thru 1 1/2 Hp

NEMA 56C thru 145TC

Applications: Conveyors, feeders, and pumps (adjustable speed and constant torque for hazardous locations).

Features: NEMA C-Face with welded on base. 20:1 constant torque speed range. UL and CSA. Class I, Group D; Class II, Group F & G. T3C. Thermostat and explosion proof conduit box included. Not tach adaptable.



Hp	Base Speed	NEMA Frame	Voltage D.C.		Full Load Amperage	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)
			Arm.	Arm.						
1/4	1750	56C	90	2.7	CDPX3410	1,605	K	38	20, 59	
			180	1.3	CDPX3406	1,605	K	38	20, 59	
1/3	1750	56C	90	3.6	CDPX3420	2,017	K	42	20, 59	
			180	1.7	CDPX3416	2,017	K	44	20, 59	
1/2	1750	56C	90	5.2	CDPX3430	2,278	K	46	20, 59	
			180	2.5	CDPX3426	2,278	K	46	20, 59	
3/4	1750	56C	90	7	CDPX3440	2,816	K	51	20, 59	
			180	3.5	CDPX3436	2,816	K	51	20, 59	
1	1750	56C	90	9.6	CDPX3545	3,751	K	72	20, 59	
			180	4.9	CDPX3555	3,751	K	71	20, 59	
1 1/2	1750	145TC	180	7.1	CDPX3575	4,010	L1	81	20, 59	

(a) See notes on inside back flap and pages 5-6.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Washdown Duty Permanent Magnet SCR Drive Motor - TENV and TEFC, C-Face with Base



1/4 thru 5 Hp

NEMA 56C thru 1810ATC

Applications: Food processing conveyors and feeders exposed to high pressure wash down.

Features: Moisture sealant on bolt heads between frame and endplates, neoprene gasketed conduit box. Double sealed ball bearings. Forsheda® running contact v-ring slinger. Stainless steel shaft. Electrostatic epoxy paint coating. Class F insulation. 20:1 constant torque speed range. Tach adaptable. 3300P motors are TENV, all others are TEFC.

Hp	Base Speed	NEMA Frame	Voltage D.C.	Full Load Amperage	Enclosure	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)
			Arm.	Arm.						
1/4	1750	56C	90	2.5	TENV	GDPWD3310	757	K	23	20,60
			180	1.25	TENV	CDPWD3306	757	K	24	20,60
1/3	1750	56C	90	3.2	TENV	CDPWD3320	799	K	27	20,60
			180	1.6	TENV	CDPWD3316	799	K	27	20,60
1/2	1750	56C	90	4.8	TENV	CDPWD3330	898	K	32	20,60
			180	2.5	TENV	CDPWD3326	898	K	32	20,60
3/4	1750	56C	90	7.6	TEFC	CDPWD3440	1,085	K	38	20
			180	3.7	TEFC	CDPWD3436	1,085	K	38	20
1	1750	56C	90	10	TEFC	CDPWD3445	1,324	K	44	20
			180	5	TEFC	CDPWD3455	1,324	K	44	20
1 1/2	1750	145TC	180	7.7	TEFC	CDPWD3575	2,533	L1	66	20
2	1750	145TC	180	9.6	TEFC	CDPWD3585	3,023	L1	73	20
3	1750	182TC	180	14	TEFC	CDPWD3603	3,869	L1	114	20
5	1750	1810ATC	180	24.5	TEFC	CDPWD3605	6,556	L1	157	20

NOTE: See Tach Generators on page 283. Mounting kits on page 284.

(a) See notes on inside back flap and pages 5-6.

Paint Free Washdown Duty Permanent Magnet SCR Drive Motor, TEFC, C-Face with Base



1/4 thru 1 Hp

NEMA 56C

Applications: Food processing, packaging exposed to high pressure washdown with caustic solutions.

Features: Class F insulation; 20:1 constant torque speed range. Moisture resistant 200°C magnet wire. Sealed ball bearings with moisture resistant grease. Contact lip seals on shaft extensions. Neoprene gaskets. Special processed endplates. 300 series stainless steel motor frame, base, shaft and hardware. No exterior paint. Tropicalized. Not tach adaptable.

Hp	Base Speed	NEMA Frame	Voltage D.C.	Full Load Amperage	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)
			Arm.	Arm.					
1/4	1750	56C	90	2.7	CDPSWD3410	906	K	29	20
			180	1.3	CDPSWD3406	906	K	28	20
1/2	1750	56C	90	5.2	CDPSWD3430	1,074	K	37	20
			180	2.5	CDPSWD3426	1,074	K	38	20
1	1750	56C	90	9.6	CDPSWD3545	1,588	K	63	20
			180	4.9	CDPSWD3555	1,588	K	63	20

(a) See notes on inside back flap and pages 5-6.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Metric Flange Permanent Magnet SCR Drive Motor, TENV and TEFC, Flange and Face Mount

**0.15 thru 5 kW
0.2 thru 3.7 Hp**

IEC D63 thru D112D

Applications: Metric SCR Drive Motor replacement.

Features: Metric Flange or C-Face per IEC 60072-1 Standards. Bolt on non-metric base. Class F insulation. Tach adaptable except type 15kW. 20:1 constant torque speed range. Conforms to IEC 60034-1.



kW/Hp	Base Speed	NEMA Frame	Voltage D.C.		Enclosure	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)
			Arm.	Arm.						
B5 Flange										
.15/.20	1800	D63D	180	1.1	TENV	VP7424D	404	DS	11	60
.18/.25	1750	D71D	180	1.25	TENV	VP3311D	584	K	24	20,60
.25/.33	1750	D71D	180	1.6	TENV	VP3316D	617	K	28	20,60
.37/.5	1750	D71D	180	2.5	TENV	VP3326D	690	K	31	20,60
	3000	D71D	180	2.5	TEFC	VP3428D	715	K	32	20
.57/.75	1750	D80D	180	3.7	TEFC	VP3436D	838	K	41	20
	3000	D80D	180	3.6	TEFC	VP3439D	741	K	37	20
.75/1	1750	D80D	180	5	TEFC	VP3455D	1,019	K	46	20
	3000	D80D	180	5.1	TEFC	VP3458D	838	K	41	20
1.1/1.5	3000	D90D	180	7.7	TEFC	VP3468D	934	L1	47	20
	1750	D90D	180	7.7	TEFC	VP3575D	1,889	L1	68	20
1.5/2	1750	D90D	180	9.6	TEFC	VP3585D	2,254	L1	77	20
	3000	D90D	180	10	TEFC	VP3588D	1,889	L1	69	20
2.2/3	1750	D112D	180	14	TEFC	VP3603D	2,774	L1	124	20
3.7/5	1750	D112D	180	24.5	TEFC	VP3605D	4,710	L1	165	20
B14 Face										
.15/.20	1800	D63D	180	1.1	TENV	VP7424-14	404	DS	5	60
.18/.25	1750	D71C	180	1.4	TEFC	VP3411-14	657	K	30	20
.25/.33	1750	D71C	180	1.7	TEFC	VP3416-14	700	K	31	20
1.37/1.50	3000	D71C	180	2.5	TEFC	VP3428-14	715	K	31	20
	1750	D71C	180	2.5	TEFC	VP3426-14	741	K	37	20
.56/.75	3000	D80C	180	3.6	TEFC	VP3439-14	741	K	35	20
	1750	D80C	180	3.7	TEFC	VP3436-14	838	K	39	20
.75/1	3000	D80C	180	5.1	TEFC	VP3458-14	838	K	38	20
	1750	D80C	180	5	TEFC	VP3455-14	1,019	K	44	20
1.1/1.5	3000	D80C	180	7.7	TEFC	VP3468-14	934	L1	43	20
	1750	D90C	180	7.7	TEFC	VP3575-14	1,889	L1	71	20
1.5/2	3000	D90C	180	10.0	TEFC	VP3588-14	1,889	L1	70	20
	1750	D90C	180	9.6	TEFC	VP3585-14	2,254	L1	80	20

NOTE: Above motors D71 and larger with B5 flange, fitted with oil seal. Catalog numbers VP7424D and VP7424-14 are not tach adaptable. Tach Generators are shown on page 283. Tach Mounting Kits are shown on page 284.

(a) See notes on inside back flap and pages 5-6.

Low Voltage Permanent Magnet Motor - TENV and TEFC

1/4 thru 1 Hp

NEMA 56C



Applications: Battery operation for portable pumps, fans, augers, winches and lifts.

Features: NEMA C-face, Class F insulation, double sealed ball bearings. Top-mounted terminal studs for power connection on ratings 40-amps and up. Not tach adaptable. 1/4 - 1/2 Hp are TENV, 3/4 - 1 Hp are TEFC.

Hp	Base Speed	NEMA Frame	Voltage D.C.	Full Load Amperage	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)
1/4	1800	56C	12	22.5	CDP3410-V12	628	K	30	20,60
			24	10.6	CDP3410-V24	596	K	29	20,60
1/3	1800	56C	12	28.6	CDP3420-V12	690	K	30	20,60
			24	13.6	CDP3420-V24	658	K	30	20,60
1/2	1800	56C	12	40	CDP3430-V12	715	K	33	20,60
			24	19.6	CDP3430-V24	682	K	34	20,60
3/4	1800	56C	12	66	CDP3440-V12	1,026	K	42	20
		56CZ	24	29.4	CDP3440-V24	711	K	35	20
1	1800	56C	12	85.6	CDP3445-V12	1,486	K	45	20
			24	34.2	CDP3445-V24	1,479	K	44	20

(a) See notes on inside back flap and pages 5-6.

DC Power Motor - TEFC, Rigid Base

1/3 thru 1 1/2 Hp

NEMA 56 thru 184



Applications: Cranes, hoists, conveyors, augers and marine duty DC applications. Powered from generators or batteries.

Features: 20% Compound Wound. Weather proof, meets IEEE 45 specifications. Suitable for mounting in any position. Continuous duty. Easy access brushes. Not tach adaptable.

Hp	Speed	NEMA Frame	Rated Current	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (a)
115 VDC								
1/3	1750	56	3.2	D1151	1,143	K	23	20
1/2	1750	56	4.8	D1152	1,222	K	29	20
3/4	1750	56	6.6	D1153	1,435	K	34	20
1	1750	56	8	D1154	1,688	K	62	20
230 VDC								
1/3	1750	56	1.7	D2301	1,143	K	30	20
1/2	1750	56	2.1	D2302	1,225	K	29	20
3/4	1750	56	3.3	D2303	1,435	K	33	20
1	1750	56	4	D2304	1,688	K	61	20
1 1/2	1750	184	6.1	D2305	2,965	L1	82	20

NOTE: Not for SCR control applications. Base welded on 3513D type only. Not tach adaptable.

(a) See notes on inside back flap and pages 5-6.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Shunt Wound SCR Drive Motors, TEFC & Explosion Proof C-Face with Base

1/4 thru 3 Hp

NEMA 56C thru 184TC

Applications: Conveyors, printing, textile equipment, machine tools (adjustable speeds with constant torque).

Features: TEFC enclosure, shunt wound, Class F insulation. Designed for use with NEMA TYPE K SCR control, 20:1 constant torque speed range (except where noted). NEMA C-face and removable base (1) (except on explosion proof models). NEMA 182 and larger have a thermostat (normally closed contracts) on the field winding.



Hp	Base Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes (e)
			Arm.	Field	Arm.	Field (c)					
1/4	1750	56C	90	100/50	3	.3/6	CD3425	588	K	23	20
1/3	1750	56C	90	100/50	3.4	.4/8	CD3433	642	K	24	20
			180	200/100	1.9	.21/42	CD3434	642	K	24	20
			90	100/50	3.7	.5/1	CD5333 (a)(d)	926	K	32	20
1/2	1750	56C	90	100/50	5.7	.5/1	CD3450	730	K	29	20
			180	200/100	2.6	.25/5	CD3451	730	K	29	20
			90	100/50	5	.44/88	CD5350 (d)	1,024	K	38	20
3/4	1750	56C	90	100/50	7.8	.6/1.2	CD3475	909	K	34	20
			180	200/100	3.9	.3/6	CD3476	909	K	34	20
			90	100/50	8	.6/1.2	CD5375 (d)	1,205	K	47	20
1	1750	56C	180	200/100	5	.3/6	CD5318 (d)	1,283	K	53	20
			90	100/50	10	.6/1.2	CD5319 (d)	1,283	K	52	20
		182C	180	200/100	5	.25/5	CD6218	1,715	L1	65	20
			90	100/50	9.6	.55/1.1	CD6219	1,715	L1	64	20
1 1/2	1750	182C	180	200/100	7.5	.25/5	CD6215	1,921	L1	82	20
2	1750	182C	180	200/100	9.5	.4/8	CD6202	2,272	L1	96	20
3	1750	184TC	180	200/100	14.7	.6/1.2	CD6203	2,580	L1	135	8, 73
Explosion-Proof - Continuous Duty - Class I, Group D & Class II, Group F & G - 1.0 S.F.											
1/2	1750	182CZ	90	100/50	4.9	.55/1.1	CDX1850 (b)	2,330	L1	103	2
3/4	1750	182CZ	90	100/50	7	.55/1.1	CDX1875 (b)	3,087	L1	102	2
1	1750	182CZ	180	200/100	5	.25/5	CDX2001 (b)	3,841	L1	105	2
		182C	180	200/100	5	.25/5	CDX7100	3,187	L1	103	2
1 1/2	1750	182C	180	200/100	7.5	.25/5	CDX7150	4,221	L1	118	2
2	1750	182C	180	200/100	9.5	.4/8	CDX7200 (b)	4,741	L1	137	2

NOTE: See Tach Generators on page 283 and Mounting Kits on page 284. Tach Mounting Kits are not available for explosion-proof motors.

- (a) Base welded on type 3513D only.
- (b) Refers to shaft and/or face mounting dimensions only. Base mounting dimensions and shaft height differ from NEMA frames shown. Go to www.baldor.com for details.
- (c) Field amps for high voltage connection.
- (d) No dual mounting base holes on 35D, 75D or 91D type.
- (e) See notes on inside back flap and pages 5-6.

Explosion-proof ratings UL and CSA, Class I, Group D & Class II, Group F & G, will not exceed surface temperature of 165°C, equivalent to Code T3B.

* F2 Mount

HVAC Motors

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Soft Start & Dynamic Brakes

RPM III DC Shunt Wound SCR Drive Motors, 180V Armature Power Code K



1.5 thru 5 Hp

NEMA 189ATY thru 2112ATCZ

Applications: Metals, paper, web processes, extruders, cranes, conveyors, packaging, printing, machine tools.

Features: Unique laminated square frame for improved commutation on rectified power supplies. The square configuration allows for increased rating per frame size. Class F rated insulation system. Service Line brushes with convenient wear indicating reference lines. PLS™ (Positive Lubrication System) for longer bearing and motor life. F-3 mounting. Tach adaptable with thermostat.

Hp	Base Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Enclosure	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Reliance M/N	Field Type	XPY Tach Kit
			Arm.	Field	Arm.	Field (a)(b)								
1.5	1750	DC189ATY (c)	180	100/200	7.2	0.721	TENV	D1815R	4,275	N2	169	T18R1119	STR	413336-1R
2	1750	DC189ATY (c)	180	100/200	9.5	0.72	TENV	D1802R	5,135	N2	166	T18R1117	STR	413336-1R
3	1750	DC1811ATCZ (d)	180	100/200	14.1	1.21	TENV	CD1803R	6,594	N2	218	T18R1102	STR	413336-1R
		DC189ATY (c)(e)	180	100/200	14.8	0.946	DPG	D1803R	4,169	N2	130	T18R1118	STR	413336-1R
		DC189ATCZ (d)(e)	180	100/200	14.8	0.946	DPG	CDD1803R	4,169	N2	160	T18R1120	STR	413336-1R
5	1750	DC1810ATCZ (d)(e)	180	100/200	24	1.67	DPG	CD1805R	6,395	N2	175	T18R1105	STR	413336-1R
		DC2112ATCZ (d)	180	100/200	23	1.3	TENV	CD2105R	10,963	N2	400	T21S1101	STR	413336-1R

NOTE: Encoder and tachometer kits on page 277.

(a) Field amps at 25°C

(b) Field amps for high voltage connection

(c) 140TC C-face

(d) 180TC C-face

(e) Top mounted conduit box, if blower added, blower must be mounted F-1 or F-2.

RPM III DC Shunt Wound SCR Drive Motors, 240V Armature 240V Field, Power Code C



3 thru 10 Hp

NEMA 1811ATCZ thru 2113ATCZ

Applications: Textile range drives, roofing machines, tube mills, and similar applications.

Features: Range drive motors have matched IR drops within approximately 5 volts and good regulation characteristics out to the maximum field weakened speed of 2300 rpm. Capable of operation at 25% base speed with 67% armature current and motor field pre-weakened to 2100 rpm. Specially designed for use on multi-motor drives operating on a common voltage power supply such as textile range drives, roofing machines, tube mills, etc. F-1 mounting. Tach adaptable with thermostat.

Hp	Base Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Enclosure	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Reliance M/N	Field Type	XPY Tach Kit
			Arm.	Field	Arm.	Field (a)								
3	1750/2300	C1811ATCZ (b)	240	240	11	0.994	SPG	CD2003R-2	5,083	N2	180	T18R1009	STAB	413336-1R
5	1750/2300	C1811ATCZ (b)	240	240	18.1	1.11	SPG	CD2005R-2	6,892	N2	180	T18R1010	STAB	413336-1R
7.5	1750/2300	C1812ATCZ (b)	240	240	27	1.4	SPG	CD2007R-2	8,554	N2	215	T18R1011	STAB	413336-1R
10	1750/2300	SC2113ATCZ (c)	240	240	37	2.18	SPG	D2010R-2	9,596	N2	360	T21S1001	STAB	417708-21

NOTE: Encoder and tachometer kits on page 277.

(a) Field amps at 25°C

(b) 180TC C-face

(c) 210TC C-face

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

RPM III DC Shunt Wound SCR Drive TEFC Motors, 240V & 500V Armature, Power Code C

5 thru 50 Hp

NEMA 1812ATZ thru 3212ATZ

Applications: Metals, paper, web processes, extruders, cranes, conveyors, packaging, printing, machine tools.

Features: Unique laminated square frame for improved commutation on rectified power supplies. The square configuration allows for increased rating per frame size. Class F rated insulation system. Service Line brushes with convenient wear indicating reference lines. PLS™ (Positive Lubrication System) for longer bearing and motor life. F-1 mounting unless otherwise specified. Tach adaptable with thermostat.

Hp	Base/Max Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes	Reliance M/N	Field Type	XPY Tach Kit
			Arm.	Field	Arm.	Field (a)(b)								
5	1750/2300	C1812ATZ	240	150	18.5	1.79	D2505R	8,737	N2	235	87	T18R1005 (d)	STAB	417709-17
		SC2113ATZ	500	150/300	9	1.05	D5505R	8,737	N2	345	87	T21S201 (c)	STAB	417708.21
7.5	1750/2300	SC2113ATZ	240	150	27	3.26	D2507R	10,579	N2	380	87	T21S301	STAB	417709-65
		SC2113ATZ	500	150/300	13.5	1.41	D5507R	10,579	N2	375	87	T21S302 (d)	STAB	417709-65
10	1750/2300	MC2113ATZ	240	150	35.5	3.13	D2510R	12,085	N2	380	87	T21S303	STAB	417709-65
		MC2113ATZ	500	150/300	17.5	1.55	D5510R	12,085	N2	290	87	T21S304	STAB	417709-65
15	1750/2300	SC2512ATZ	240	150	53.5	2.17	D2515R	15,609	N2	555	6.87	T25S301	STAB	417709-66
		SC2512ATZ	500	150/300	25.6	1.71	D5515R	15,609	N2	555	87	T25S302	STAB	417709-66
20	1750/2300	LC2512ATZ	240	150	71	4.14	D2520R	17,936	N2	630	87	T25S303	STAB	417709-66
		LC2512ATZ	500	150/300	33	2.05	D5520R	17,936	N2	630	87	T25S304	STAB	417709-66
25	1750/2300	MC2812ATZ	240	150	87	4.05	D2525R	21,012	N2	825	87	T28S301	STAB	417709-67
		MC2812ATZ	500	150/300	41	2.23	D5525R	21,012	N2	825	86.87	T28S302	STAB	417709-67
30	1750/2300	LC2812ATZ	500	150/300	50	1.75	D5530R	23,264	N2	900	87	T28S303	STAB	417709-67
40	1750/2300	MC3212ATZ	500	150/300	65	1.82	D5540R	29,367	N2	1150	87	T32S301	STAB	417709-68
50	1750/2300	LC3212ATZ	500	150/300	84	1.97	D5550R	35,357	N2	1325	87	T32S302	STAB	417709-68

NOTE: Encoder and tachometer kits on page 277.

- (a) Field amps at 25°C
- (b) Field amps for high voltage connection
- (c) TENV enclosure
- (d) Power Code D

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

RPM III Wound Field SCR 10 thru 500 Hp

NEMA 2113ATZ thru 4414ATZ

**Drive DPG-FV Motors,
240V & 500V Armature,
Power Code C**

Applications: Metals, printing, extruders, cranes, conveyors, machine tools

Features: Laminated square frame for improved commutation. Tach adaptable with thermostat. F1 mount unless otherwise specified.

Hp	Base/Max Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes	Reliance M/N	Field Type	XPY Tach Kit
			Arm.	Field	Arm.	Field (a)								
10	1750/2300	SC2113ATZ	500	300	18	1.11	D5010RS-BV	14,382	N2	415 (c)	91,92	T21T1342	STAB	417708-21
15	1750/2300	SC2113ATZ	240	150	56	4.73	D2015R-BV	12,333	N2	385 (d)	93	T21T1359	STR	417708-21
		SC2113ATCZ	240	150	56	4.73	CD2015R-BV	12,928	N2	385 (b)	93	T21T1384	STR	417708-21
		SC2113ATZ	500	300	27	2.22	D5015R-BV	12,333	N2	345	93	T21T1364	STR	417708-21
		SC2113ATZ	500	300	27	3.03	D5015RS-BV	16,615	N2	345 (c)	91,92	T21T1346	STAB	417708-21
20	1750/2300	SC2113ATZ	240	150	76.5	7.12	D2020R-BV	13,834	N2	400 (d)	93	T21T1363	STR	417708-21
		SC2113ATZ	500	300	37	3.03	D5020R-BV	13,834	N2	395	93	T21T1350	STR	417708-21
		MC2113ATZ	500	300	37	2.23	D5020RS-BV	18,415	N2	440 (c)	91,92	T21T1344	STAB	417708-21
25	1750/2300	MC2113ATZ	240	150	96	8.43	D2025R-BV	15,305	N2	425 (d)	93	T21T1371	STR	417708-21
		MC2113ATZ	500	300	46	3.33	D5025R-BV	15,305	N2	370	6,94	T21T1351	STR	417708-21
30	1750/2300	LC2113ATZ	500	300	43	3.08	D5025RS-BV	20,181	N2	470 (c)	91,92	T21T1345	STAB	417708-21
		LC2113ATZ	240	150	109	10	D2030R-BV	16,632	N2	400	93	T21T1375	STR	417708-21
	1750/2300	LC2113ATZ	500	300	52	3.3	D5030R-BV	16,632	N2	450	93	T21T1352	STR	417708-21
		SC2512ATZ	500	300	51	2.84	D5030RS-BV	21,773	N2	565 (c)	91,92	T25T1342	STAB	417708-21
40	1150/1800	LC2115ATZ	500	300	54	3.94	D5130R-BV	21,017	N2	550	94	T21T1378	STR	417708-21
	1750/2300	LC2115ATZ	240	150	146	5.63	D2040R-BV	19,785	N2	480	6,93	T21T1380	STR	417708-21
		MC2115ATZ	500	300	69	4.48	D5040R-BV	19,785	N2	425	93	T21T2353	STR	417708-21
	1150/2000	MC2512ATZ	500	300	68.5	2.88	D5040RS-BV	25,983	N2	570 (c)	6,91,92	T25T1344	STAB	417708-21
LC2512ATZ		500	300	72	5.27	D5140R-BV	24,453	N2	650	94	T25T1355	STR	417708-21	
50	1750/2100	LC2115ATZ	500	300	87	3.94	D5050R-BV	22,211	N2	530	93	T21T2354	STR	417708-21
		LC2512ATZ	500	300	84	3.38	D5050RS-BV	28,466	N2	610 (c)	6,91,92	T25T1339	STAB	417708-21
60	1150/1900	C2514ATZ	500	300	87	4.06	D5150R-BV	27,744	N2	735	6,94	T25T1359	STR	417708-21
		LC2512ATZ	500	300	102	4.6	D5060R-BV	25,028	N2	650	93	T25T2348	STR	417708-21
	1750/2100	MC2812ATZ	500	300	100	3.43	D5060RS-BV	31,848	N2	810 (c)	6,91,92	T28T1330	STAB	417708-26
		C2515ATZ	500	300	102	5.17	D5160R-BV	31,311	N2	870	6,93	T25T1364	STR	417708-21
75	1750/2100	C2514ATZ	500	300	124	6.21	D5075R-BV	28,928	N2	695	93	T25T2349	STR	417708-21
		LC2812ATZ	500	300	124	3.62	D5075RS-BV	36,528	N2	930 (c)	6,91,92	T28T1327	STAB	417708-26
	1150/2000	C2815ATZ	500	300	125	4.14	D5175R-BV	36,330	N2	1190	6,93	T28T1342	STR	417708-26
100	1750/2000	C2515ATZ	500	300	167	6.7	D50100R-BV	35,595	N2	870	93	T25T2350	STR	417708-21
		MC3212ATZ	500	300	162	3.33	D50100RS-BV	44,526	N2	1210 (c)	6,91,92	T32T1314	STAB	417708-26
	1150/1850	C2815ATZ	500	300	168	4.14	D51100R-BV	43,793	N2	1240	6,94	T28T1344	STR	417708-26
125	1750/2000	C2813ATZ	500	300	204	6.93	D50125R-BV	41,651	N2	940	6,93	T28T1333	STR	417708-26
		UC2813ATZ	500	300	204	6.93	D50125UR-BV	42,888	N2	945	5,6,93	T28T1349	STR	417708-26
	1750/2100	LC3212ATZ	500	300	203	4.4	D50125RS-BV	51,797	N2	1290 (c)	6,91,92	T32T1318	STAB	417708-26
		UC3214ATZ	500	300	204	8.36	D51125RR-BV	52,096	N2	1475	5,6,93	T32T1327	STR	417708-26
150	1750/2000	C2815ATZ	500	300	245	9.45	D50150R-BV	47,534	N2	1125	6,93	T28T1334	STR	417708-26
		UC2815ATZ	500	300	245	9.45	D50150UR-BV	48,779	N2	1255	5,6,93	T28T1350	STR	417708-26
	1750/2100	MC3612ATZ	500	300	240	4.8	D50150RS-BV	58,856	N2	1685 (c)	6,95	T36S1313	STAB	417708-26
ULC3612ATZ		500	300	249	7.29	D51150RR-BV	60,130	N2	1860	5,6,94	T36S1323	STR	417708-26	
200	1750/2100	UC3214ATZ	500	300	322	8.36	D50200RR-BV	61,614	N2	1585	5,6,93	T32T1322	STR	417708-26
		LC3612ATZ	500	300	321	5.41	D50200RS-BV	74,515	N2	1850 (c)	6,95	T36S1314	STAB	417708-26
250	1150/2000	C3613ATZ	500	300	323	10.7	D51200R-BV	72,045	N2	2010	6,94	T36S1325	STR	417708-26
		ULC3612ATZ	500	300	405	8.87	D50250RR-BV	73,723	N2	1890	5,6,94	T36S1318	STR	417708-26
	1750/2100	C4011ATZ	500	300	400	6.63	D50250RS-BV	90,167	N2	2500 (c)	6,95	T40S1306	STAB	417708-26
MC4013ATZ		500	300	406	10.7	D51250R-BV	87,340	N2	2800	6,94	T40S1317	STR	417708-26	
300	1750/2000	LC3613ATZ	500	300	478	12.5	D50300R-BV	88,856	N2	2010	6,94	T36S1319	STR	417708-26
	1750/2100	MC4013ATZ	500	300	478	6.5	D50300RS-BV	108,190	N2	2800 (c)	6,95	T40S1309	STAB	417708-26
		LC4013ATZ	500	300	485	13.2	D51300R-BV	101,564	N2	3100	6,94	T40S1320	STR	417708-26
400	1750/2000	MC4013ATZ	500	300	643	11.9	D50400R-BV	121,463	N2	2800	6,94	T40S1314	STR	417708-26
		LC4013ATZ	500	300	635	7.97	D50400RS-BV	154,523	N2	3100 (c)	6,95	T40S1311	STAB	417708-26
500	1150/1600	C4413ATZ	500	300	644	13	D51400R-BV	136,315	N2	3830	6,91,94	T44T1304	STR	417708-156
		C4412ATZ	500	300	797	10.8	D50500R-BV	164,021	N2	3480	6,91,94	T44T1305	STR	417708-156
	1150/1450	C4414ATZ	500	300	805	12.3	D51500R-BV	172,203	N2	4560	6,91,94	T44T1306	STR	417708-156

NOTE: Encoder and tachometer kits on page 277.

(a) Field amps at 25°C
(b) 210TC C-Face

(c) Extruder duty enclosed commutator design
(d) Power Code D

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

RPM III Wound Field SCR Drive DPG Motors, 240V & 500V Armature Power Code C

3 thru 60 Hp

NEMA 189ATCZ thru 2812ATZ

Applications: Metals, paper, web processes, extruders, cranes, conveyors, packaging, printing, machine tools.

Features: Unique laminated square frame for improved commutation on rectified power supplies. The square configuration allows for increased rating per frame size. High limit thermostat. Provision for adding adapter mounted feedback device. Class F rated insulation system. Service Line brushes with convenient wear indicating reference lines. PLS™ (Positive Lubrication System) for longer bearing and motor life. F-1 mounting unless otherwise specified.



Hp	Base/Max Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Notes	Reliance M/N	Field Type	XPY Tach Kit
			Arm.	Field	Arm.	Field(a)(b)								
3	1750/2300	DC189ATCZ (c)(e)	240	150	11	1.52	D2003R	4,193	N2	130	80,83	T18R1127	STAB	413336-1R
		C1811ATZ	500	300	5.2	0.741	D5003R	4,943	N2	197	80	T18R1333 (d)	STR	413336-1R
5	1750/2300	C1811ATZ	240	150	19.2	1.77	D2005R	6,139	N2	194	80,83	T18R1318 (d)	STAB	413336-1R
		C1811ATZ	500	300	9	1	D5005R	6,139	N2	175	80	T18R1334 (d)	STR	413336-1R
7.5	1750/2300	C1811ATZ	240	150	28	1.95	D2007R	7,418	N2	197	80,83	T18R1301 (d)	STAB	413336-1R
		C1811ATZ	500	300	13.5	1.29	D5007R	7,418	N2	210	80	T18R1335 (d)	STR	413336-1R
10	1750/2300	C1812ATZ	240	150	37	2.12	D2010R	8,459	N2	225	80,84	T18R1302 (d)	STAB	413336-1R
		C1812ATZ	500	300	17.4	1.08	D5010R	8,459	N2	235	80,85	T18R1307 (d)	STAB	413336-1R
15	1750/2300	SC2113ATZ	240	150	56	4.12	D2015R	10,186	N2	315	87	T21S1330	STAB	417708-21
		SC2113ATZ	500	150/300	27	1.76	D5015R	10,186	N2	315	87	T21S1322	STAB	417708-21
20	1750/2300	LC2113ATZ	240	150	74	4.24	D2020R	11,688	N2	370	87	T21S1331	STAB	417708-21
		MC2113ATZ	500	150/300	35	1.98	D5020R	11,688	N2	375	87	T21S1323	STAB	417708-21
25	1750/2300	LC2113ATZ	240	150	91.5	5.82	D2025R	14,441	N2	410	87	T21S1332	STAB	417708-21
		LC2113ATZ	500	150/300	43	2.61	D5025R	14,441	N2	415	87	T21S1324	STAB	417708-21
30	1750/2300	SC2512ATZ	240	150	111	3.45	D2030R	15,900	N2	505	87	T25S1330	STAB	417708-21
		SC2512ATZ	500	150/300	52	1.71	D5030R	15,900	N2	505	87	T25S1322	STAB	417708-21
40	1750/2100	LC2512ATZ	500	150/300	68	2.4	D5040R	18,713	N2	580	6,87	T25S1323	STAB	417708-21
50	1750/2100	MC2812ATZ	500	150/300	85	2.01	D5050R	21,381	N2	775	6,87	T28S1313	STAB	417708-26
60	1750/2100	LC2812ATZ	500	300	100	2.77	D5060R	24,482	N2	850	6,87	T28S1314	STAB	417708-26

NOTE: Encoder and tachometer kits on page 277.

- (a) Field amps at 25°C
- (b) Field amps for high voltage connection
- (c) 180 TC C-face
- (e) Top mounted conduit box, if blower added, blower must be mounted F-1 or F-2
- (d) Power Code D

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

RPM III DC Motor Encoder and Tachometer Kits

Applications: Encoder and Tachometer Kits for Field Installation

Features: Kits include the encoder or tachometer and all mounting hardware required for installation on RPM III DC Motors.

Device Type	Output	Catalog Number	Frames	Enclosure	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
RD120-1	1 x 120 ppr	417708-30	DC180, C180, DC2112	DPG, DPFV	2,444	E8	5
		417708-32	C210-C250	DPG, DPFV, TENV	2,444	E8	5
		417708-33	C280-C400	DPG, DPFV, TENV	2,444	E8	5
		417708-153	C440	DPG, DPFV, TENV	2,444	E8	5
RD120-2	2 x 120 ppr	417708-34	DC180, C180, DC2112	DPG, DPFV	3,002	E8	5
		417708-36	C210-C250	DPG, DPFV, TENV	3,002	E8	5
		417708-37	C280-C400	DPG, DPFV, TENV	3,002	E8	5
		417708-154	C440	DPG, DPFV, TENV	3,002	E8	5
H20	1024 ppr	417708-133	DC180, C180, DC2112	DPG, DPFV, TENV	3,258	E8	5
		417708-134	C210-C250	DPG, DPFV, TENV	3,258	E8	5
		417708-135	C280-C400	DPG, DPFV, TENV	3,258	E8	5
		417708-151	C440	DPG, DPFV, TENV	3,258	E8	5
RL67	1024z ppr	417708-126	DC180, C180, DC2112	DPG, DPFV, TENV	4,275	E8	4
		417708-136	C210-C250	DPG, DPFV, TENV	4,275	E8	6
		417708-137	C280-C400	DPG, DPFV, TENV	4,275	E8	6
		417708-138	C440	DPG, DPFV	4,275	E8	4
RE045	45 VAC/ 1000 RPM	413327-W	DC180, C180, DC2112	DPG, DPFV, TENV	3,257	E8	8
		417708-20	C210-C250	DPG, DPFV, TENV	3,257	E8	11
		417708-25	C280-C400	DPG, DPFV, TENV	3,257	E8	11
		417708-152	C440	DPG, DPFV, TENV	3,257	E8	13

Encoder and Tachometer Mounting Kits (less tach)

Applications: Encoder and Tachometer mounting kits for field installation

Features: Kits include all mounting hardware required for installation on RPM III DC motors. Feedback device not included.

Device Type	Catalog Number	Frames	Enclosure	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
XC42, XC46, BC42, BC46, H56, 800123-R & -S	413336-2R	DC180, C180, DC2112	DPG, DPFV, TENV	1,080	E8	9
	417708-22	C210-C250	DPG, DPFV, TENV	1,080	E8	9
	417708-27	C280-C400	DPG, DPFV, TENV	1,080	E8	9
	417708-155	C440	DPG, DPFV, TENV	1,080	E8	9
	417709-21	C180	TEFC	2,159	E8	19
	417709-58	C210	TEFC	2,159	E8	20
	417709-59	C250	TEFC	2,159	E8	23
	417709-60	C280	TEFC	2,159	E8	23
XPY, XPYII, 5PY, RPY444	417709-61	C320	TEFC	2,159	E8	29
	413336-1R	DC180, C180, DC2112	DPG, DPFV, TENV	1,080	E8	7
	417708-21	C210-C250	DPG, DPFV, TENV	1,080	E8	7
	417708-26	C280-C400	DPG, DPFV, TENV	1,080	E8	7
	417708-156	C440	DPG, DPFV, TENV	1,080	E8	8
	417709-17	C180	TEFC	2,159	E8	6
	417709-65	C210	TEFC	2,159	E8	6
	417709-66	C250	TEFC	2,159	E8	9
RL67	417709-67	C280	TEFC	2,159	E8	15
	417709-68	C320	TEFC	2,159	E8	18
	417708-40	DC180, C180, DC2112	DPG, DPFV, TENV	205	E8	1
	417708-41	C210 - C250	DPG, DPFV, TENV	205	E8	2
	417708-42	C280 - C400	DPG, DPFV, TENV	205	E8	1
	417708-157	C440	DPG, DPFV, TENV	256	E8	1

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Blower Kits for use with RPM III DC Motors

Suitable for operation on 230/460V or 240/480V, 3-Phase, 50/60 Hz

Motor Frame	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt. (lb)	Description
C180ATZ, DC180ATZ	417077-51	1,273	A8	44	Blower Kit Without Filter
C210ATZ	419947-29	1,691	A8	52	Blower Kit Without Filter
C250ATZ	419947-30	1,934	A8	39	Blower Kit Without Filter
C280ATZ	419947-32	2,179	A8	55	Blower Kit Without Filter
C320ATZ	419947-34	2,422	A8	81	Blower Kit Without Filter
C3612ATZ	417077-74	2,748	A8	55	Blower Kit Without Filter
C3613ATZ	417077-127	2,616	A8	75	Blower Kit Without Filter
C400ATZ	417077-75	2,726	A8	85	Blower Kit Without Filter
C440ATZ	417077-126	8,345	A8	225	Blower Kit Without Filter

Filter Kits for use with DPG-FV, RPM III DC motors

Motor Frame	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt. (lb)	Description
C180ATZ, DC180ATZ	417077-57	554	A8	2	Washable Wire Mesh Canister Type
C2113ATZ	417077-58	704	A8	4	Washable Wire Mesh Canister Type
C2115ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C2512ATZ	417077-58	704	A8	4	Washable Wire Mesh Canister Type
C2514ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C2515ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C2812ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C2813ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C2815ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C3210ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C3212ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C3214ATZ	417077-59	554	A8	4	Washable Wire Mesh Canister Type
C3612ATZ	417077-65	727	A8	7	Washable Wire Mesh Canister Type
C3613ATZ	417077-102	1,070	A8	6	Washable Wire Mesh Canister Type
C400ATZ	417077-102	1,070	A8	6	Washable Wire Mesh Canister Type
C440ATZ	417077-124	1,588	A8	18	Square Replaceable Polyester Type

Sliding Bases for RPM III DC motors

Applications: Used for adjusting belt tension on belted applications. Not suitable for wall or ceiling mounting.

Motor Frame	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Description	Dimension Sheet
DC1810ATZ	42384-26D	459	A8	14	Standard Duty	609987-501
DC1811ATZ	42384-26BE	551	A8	17	Heavy Duty	609987-501
C1811ATZ	42384-26BE	551	A8	17	Heavy Duty	609987-1
C1812ATZ	42384-26BF	551	A8	17	Heavy Duty	609987-1
DC2112ATZ	42384-26BH	551	A8	29	Heavy Duty	609958-51
C2113ATZ	419914-1A	551	A8	50	Heavy Duty	609957-1
C2115ATZ	419914-1P	551	A8	36	Heavy Duty	609957-1
C2512ATZ	419914-1B	643	A8	33	Heavy Duty	609957-1
C2514ATZ	419914-1R	643	A8	59	Heavy Duty	609957-1
C2515ATZ	419914-1S	643	A8	36	Heavy Duty	609957-1
UC2812ATZ	419914-1C	825	A8	37	Heavy Duty	609957-1
UC2813ATZ	419914-1T	825	A8	26	Heavy Duty	609957-1
UC2815ATZ	419914-1U	825	A8	42	Heavy Duty	609957-1
UC3212ATZ	419914-1D	825	A8	69	Heavy Duty	609977-1
UC3214ATZ	419914-1W	825	A8	76	Heavy Duty	609977-1
UC3612ATZ	419914-1E	1,630	A8	76	Heavy Duty	609977-1
UC3613ATZ	419914-1X	1,630	A8	81	Heavy Duty	609977-1

SCR Drive Motors Shunt 5 thru 250 Hp and Stabilized Shunt Wound - DPF, Self Ventilated, Rigid Base

NEMA L186AT thru 506AT



Applications: Conveyors, plastic extruders, packaging machinery and other constant torque applications for DC SCR motors.

Features: Includes thermostat on interpole. Class F insulation system resistant to dirt, carbon, dust and moisture. High dielectric stability. Low moment of inertia armature for fast response. Constant pressure brush springs and longer brushes for reduced maintenance. Includes grease fittings and reliefs for bearing maintenance. Power code C and D or M-G sets. Maximum RPM by field weakening. Provisions for tach mounting. (See tach mounting kits on page 282). May be converted to blower ventilated (DPBV) for extended constant torque speed range.

Hp	Base/Max Speed (a)	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price Motors Only (c)	Mult. Sym.	Ap'x. Shpg. Wgt. (d)	XPY Tach Kit	Blower Catalog Number	Notes (e)
			Arm.	Field	Arm.	Field (b)							
5	1750/2300	L186AT	240	150/300	17.7	.68	D2005P	4,888	N2	178	TKP1836XP	FVB3180	2,20
			500	150/300	8.5	.6	D5005P	4,888	N2	162	TKP1836XP	FVB3180	2,20
7 1/2	1750/2300	1810AT	240	150/300	28.1	.8	D2007P	5,896	N2	239	TKP1836XP	FVB3180	2,20
		218AT	500	150/300	13.2	.69	D5007P	5,896	N2	239	TKP1836XP	FVB3210	2,20
10	1750/2300	219AT	240	150/300	36.6	2.16	D2010P	6,719	N2	259	TKP1836XP	FVB3210	2,20
			500	150/300	17.2	1.17	D5010P	6,719	N2	255	TKP1836XP	FVB3210	2,20
15	1750/2300	258AT	240	150/300	55	2.58	D2015P	8,083	N2	379	TKP1836XP	FVB3250	2,20
			500	150/300	25.2	1.4	D5015P	8,083	N2	379	TKP1836XP	FVB3250	2,20
20	1750/2300	259AT	240	150/300	70.5	2.48	D2020P	9,268	N2	429	TKP1836XP	FVB3250	2,20
			500	150/300	35.1	1.24	D5020P	9,268	N2	429	TKP1836XP	FVB3250	2,20
25	1750/2300	288AT	240	150/300	89.2	2.99	D2025P	10,938	N2	589	TKP1836XP	FVB4280	2,20
		287-8AT	500	150/300	43.4	1.64	D5025P	10,938	N2	529	TKP1836XP	FVB4280	2,20
30	1750/2300	288AT	240	150/300	106	4.52	D2030P	12,035	N2	589	TKP1836XP	FVB4280	2,20
			500	150/300	50	2	D5030P	12,035	N2	579	TKP1836XP	FVB4280	2,20
40	1750/2100	328AT	500	150/300	67.9	2.17	D5040P	14,850	N2	819	TKP1836XP	FVB6320	2,20
50	1750/2100	328AT	500	150/300	83.7	2	D5050P	16,923	N2	822	TKP1836XP	FVB6320	2,20
60	1750/2100	365-6AT	500	150/300	98.6	1.75	D5060P	19,371	N2	815	TKP1836XP	FVB6400	2,20
75	1750/2100	366AT	500	150/300	123	1.48	D5075P	22,756	N2	959	TKP1836XP	FVB6400	2,20
100	1750/2000	368AT	500	150/300	158	3	D50100P	28,548	N2	1129	TKP1836XP	FVB6400	2,20
125	1750/2000	407AT	500	150/300	200	3	D50125P	33,807	N2	1459	TKP400XP	FVB6400	2,20
150	1750/2000	409AT	500	150/300	237	3.7	D50150P	40,674	N2	1139	TKP400XP	FVB6400	2,20
200	1750/1900	504AT	500	150/300	320	3.9	D50200P	51,586	N2	2149	TKP500XP	FVB8500	2,20
250	1750/1900	506AT	500	150/300	392	5	D50250P	63,431	N2	2569	TKP500XP	FVB8500	2,20

NOTES:

- (a) DPF enclosure is self-ventilated. Speed can be reduced to approximately 60% of base speed with constant torque. See performance data in CA608 catalog for specific speed-torque curves. Separate blower can be used to increase operating range below 60% of base speed.
- (b) Field amps are for 150V connection on 240VDC motors; 300V connection on 500VDC motors. 360, 400 & 500 frames are 4 pole stabilized shunt until 3rd quarter 2006 when they became shunt. Others are 2 pole shunt.
- (c) Does not include price of blower. See page 282 for pricing.
- (d) Does not include weight of blower. See page 282 for weights.
- (e) See notes on inside back flap and pages 5-6.

180 frame motors are supplied without external conduit box, see online layout drawing for details.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

SCR Drive Motor Shunt and Stabilized Shunt Wound DPBV Enclosure - Rigid Base

40 thru 500 Hp

NEMA 328AT thru 5010AT

Applications: Conveyors, plastic extruders, packaging machinery and other constant torque applications for DC SCR motors.

Features: Includes thermostat on interpole. Class F insulation system resistant to dirt, carton, dust and moisture. High dielectric stability. Low moment of inertia armature for fast response. Constant pressure brush springs and longer brushes for reduced maintenance. Includes grease fittings and reliefs for bearing maintenance. Power code C or M-G sets. Maximum RPM by field weakening. Provisions for tach mounting. (See tach kits on page 282). Blower-ventilated, includes filter.



Hp	Base/Max Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price w/Blower & Filter	Mult. Sym.	Ap'x. Shpg. Wgt.	XPY Tach Kit	Notes (b)
			Arm.	Field	Arm.	Field (a)						
40	1750/2100	328AT	240	150/300	138	2.64	D2040P-BV	16,174	N2	889	TKP1836XP	2,20
			500	150/300	67.9	2.17	D5040P-BV	16,174	N2	871	TKP1836XP	2,20
50	1750/2100	328AT	240	150/300	175	2.64	D2050P-BV	18,090	N2	898	TKP1836XP	2,20
			500	150/300	83.7	2	D5050P-BV	18,090	N2	899	TKP1836XP	2,20
60	1750/2100	366AT	240	150/300	201	5.6	D2060P-BV	20,316	N2	996	TKP1836XP	2,20
		365-6AT	500	150/300	98.6	1.75	D5060P-BV	20,316	N2	869	TKP1836XP	2,20
75	1750/2100	366AT	240	150/300	256	5.6	D2075P-BV	23,394	N2	1015	TKP1836XP	2,20
			500	150/300	123	1.48	D5075P-BV	23,394	N2	999	TKP1836XP	2,20
100	1750/2000	368AT	500	150/300	158	3	D50100P-BV	28,489	N2	1179	TKP1836XP	2,20
125	1750/2000	368AT	500	150/300	197	3	D50125P-BV	33,440	N2	1189	TKP1836XP	2,20
150	1750/2000	407-9AT	500	150/300	238	2.7	D50150P-BV	38,358	N2	1519	TKP400XP	2,20
200	1750/1900	409AT	500	150/300	311	3.75	D50200P-BV	47,849	N2	1809	TKP400XP	2,20
250	1750/1900	504-6AT	500	150/300	405	4.9	D50250P-BV	58,661	N2	2289	TKP500XP	2,20
300	1750	506AT	500	150/300	478	6.2	D50300P-BV	69,640	N2	2659	TKP500XP	2,20
400	1750/1900	508AT	500	150/300	624	6.08	D50400P-BV	98,303	N2	3289	TKP5006XP	2,20
500	1750/1900	5010AT	500	150/300	788	6	D50500P-BV	129,266	N2	4169	TKP500XP	2,20

NOTE: (a) Field amps are for 150V connection on 240VDC motors; 300V connection on 500VDC motors. 360 through 500 frames are 4 pole stabilized shunt, until 3rd quarter 2006 when they became shunt. Others are 2 pole shunt. Tach mounting kits on page 282. (b) See notes on inside back flap and pages 5-6.

SCR Drive Motor 240V Armature - 240V Field Shunt Wound DPFG - Self-Ventilated Rigid Base and C-Face

3 thru 15 Hp

NEMA L186ATC thru 258ATC

Applications: Conveyors, plastic extruders, packaging machinery and other constant torque applications for DC SCR motors.

Features: Includes thermostat on interpole. Class F insulation system resistant to dirt, carton, dust and moisture. High dielectric stability. Low moment of inertia armature for fast response. Constant pressure brush springs and longer brushes for reduced maintenance. Includes grease fittings and reliefs for bearing maintenance. Power code C or M-G sets. Maximum RPM by field weakening.



Hp	Base/Max Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price Motor (b)	Mult. Sym.	Ap'x. Shpg. Wgt. (c)	XPY Tach Kit	Blower Catalog Number	Notes (d)
			Arm.	Field	Arm.	Field (a)							
3	1750/2300	L186ATC	240	120/240	10.6	.45	CD2003P-2	4,164	N2	170	TKP1836XP	FVB3180	1, 3
5	1750/2300	L186ATC	240	120/240	17.7	.45	CD2005P-2	5,048	N2	170	TKP1836XP	FVB3180	1, 3
7 1/2	1750/2300	1810ATC	240	120/240	28.1	.52	CD2007P-2	6,056	N2	233	TKP1836XP	FVB3180	1, 3
10	1750/2300	219ATC	240	120/240	36.6	1.26	CD2010P-2	7,191	N2	267	TKP1836XP	FVB3210	1, 3
15	1750/2300	258ATC	240	120/240	55	1.26	CD2015P-2	8,552	N2	409	TKP1836XP	FVB3250	1, 3

NOTE: (a) Field amps for 240VDC connection. (b) Does not include price of blower and filter. See page 282 for pricing. (c) Does not include weight of blower and filter. See page 282 for weights. Tach mounting kits on page 282. (d) See notes on inside back flap and pages 5-6. 180 frame motors are supplied without external conduit box, see online layout drawing for details.

Shunt Wound SCR Drive Motor - TEFC, Rigid Base

5 thru 25 Hp

NEMA 1810AT THRU 328AT

Applications: Conveyors and packaging machinery.

Features: Includes thermostat on interpole, grease fittings and reliefs. Class F insulation system. Constant pressure brush springs and precision brush holders. Provisions for tach mounting (See tach mounting kits page 282).



Hp	Base/Max Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price Motors Only	Mult. Sym.	Ap'x. Shpg. Wgt.	XPY Tach Kit	Notes (b)
			Arm.	Field	Arm.	Field (a)						
5	1750/2300	1810AT	240	150/300	17.6	0.68	D2505P	6,939	N2	379	N/A	1, 3
			500	150/300	8.3	0.34	D5505P	7,399	N2	229	N/A	1, 3
7 1/2	1750/2300	2110AT	240	150/300	26.6	2.10	D2507P	8,394	N2	319	TKP2136XPT	1, 3
			500	150/300	12.3	1.05	D5507P	8,394	N2	319	TKP2136XPT	1, 3
10	1750/2300	259AT	240	150/300	34.3	1.72	D2510P	9,582	N2	459	TKP2136XPT	1, 3
			500	150/300	16.3	0.86	D5510P	9,582	N2	459	TKP2136XPT	1, 3
15	1750/2300	288AT	240	150/300	51.7	1.96	D2515P	12,366	N2	629	TKP2136XPT	1, 3
			500	150/300	24.5	0.99	D5515P	12,366	N2	629	TKP2136XPT	1, 3
20	1750/2300	328AT	240	150/300	68.8	2.22	D2520P	14,202	N2	879	TKP2136XPT	1, 3
			500	150/300	32.7	1.11	D5520P	14,202	N2	867	TKP2136XPT	1, 3
25	1750/2300	328AT	240	150/300	84.8	2.22	D2525P	16,632	N2	872	TKP2136XPT	1, 3
			500	150/300	40.9	1.11	D5525P	16,632	N2	870	TKP2136XPT	1, 3

NOTE: (a) Field amps are for 150V connection on 240VDC motors; 300V connection on 500VDC motors. Tach mounting kits on page 282.

(b) See notes on inside back flap and pages 5-6.

180 frame motors are supplied without external conduit box, see online layout drawing for details.

Lifting Magnet Generators

5 thru 40 kW

NEMA 1810AT thru 329AT

Applications: Crane mounted lifting magnets for recyclers and steel mills.

Features: Heavy duty steel frame. Cast iron endplates. Class H insulation with Class F temperature rise. Precision brush holders. Constant force brush springs. Double sealed ball bearings. Compound wound with drooping voltage characteristics. DPGF enclosure. Weather resistant paint. F-2 conduit box. CDMG generators have C-face and base mounting for hydraulic pump or PTO mounting.



kW	Base Speed	NEMA Frame	Voltage D.C.		Full Load Amperage		Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Field Control Rheostat		Notes (a)
			Arm.	Field	Arm.	Field					Ohms	Amp Max.	
5	2500	1810AT	230	230	21.7	0.61	DMG2305	6,285	N2	220	300	0.85	1, 3
7 1/2	2500	219AT	230	230	32.6	1.14	DMG2307	7,230	N2	262	150	1.6	1, 3
10	2500	219AT	230	230	43.5	0.72	DMG2310	8,013	N2	246	200	1.4	1, 3
		219ATC	230	230	43.5	0.72	CDMG2310	8,515	N2	250	200	1.4	1, 3
15	1750	259AT	230	230	65	1.3	DMG2315	13,452	N2	429	200	1.82	1, 3
		259ATC	230	230	65	1.3	CDMG2315	13,943	N2	459	200	1.82	1, 3
20	1750	288AT	230	230	87	1.8	DMG2320	14,727	N2	589	125	2.52	1, 3
		288ATC	230	230	87	1.8	CDMG2320	15,565	N2	609	125	2.52	1, 3
25	1750	328AT	230	230	109	2.13	DMG2325	16,103	N2	849	100	3.0	1, 3
		328ATC	230	230	109	2.13	CDMG2325	16,935	N2	878	100	3.0	1, 3
33	1750	328AT	230	230	144	2.13	DMG2333	20,421	N2	831	100	3.0	1, 3
		328ATC	230	230	144	2.13	CDMG2333	21,246	N2	883	100	3.0	1, 3
40	1750	329AT	230	230	174	3.7	DMG2340	22,385	N2	910	50	5.2	1, 3

NOTE: Field control rheostat and meters are not included in price or available from Baldor.

(a) See notes on inside back flap and pages 5-6.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Tach Mounting Kits and Cooling Blowers for DC Integral Hp Motors



Applications: Allows addition of DC, AC and digital tachometers to large DC motors for closed-loop operation.

Features: Tach mounting kits supply adapter, coupling, accessory shaft and mounting hardware. Allows mounting to 8.5 inch accessory face on most large DC motors.

Tach Mounting Kits for DC Integral Hp Motor Catalog No. Ending With "P"

Tach Type	Motor Frame	Motor Enclosure	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
XPYII XPY, DPY BTG1000	180/360	DPFG, DPBV	TKP1836XP	872	A8	1
	210/360	TEFC	TKP2136XPT	872	A8	13
	400	DPFG, DPBV	TKP400XP	872	A8	3
	500	DPFG, DPBV	TKP500XP	872	A8	3
XC42 or XC46	210/360	DPFG, DPBV	TKP2136XC	1,218	A8	16
	500	DPFG, DPBV	TKP500XC	1,218	A8	7
ENC00NV ENCODER	180/360	DPFG, DPBV	TKP1836ENC	664	A8	17
	400	DPFG, DPBV	TKP400ENC	664	A8	16
	500	DPFG, DPBV	TKP500ENC	664	A8	17
NCS PANCAKE	210/360	DPFG, DPBV	TKP2136NC	53	A8	3
	400	DPFG, DPBV	TKP400NC	53	A8	1
	500	DPFG, DPBV	TKP500NC	53	A8	1
AC PANCAKE	210/360	DPFG, DPBV	TKP2136AC	53	A8	2
	400	DPFG, DPBV	TKP400AC	53	A8	1
	500	DPFG, DPBV	TKP500AC	53	A8	1

Blower and Mounting Kits for DC Integral Hp Motor Catalog No. Ending With "P"

Motor Frame	Catalog Number	Blower Power	Blower Size	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
Blower and Mounting Kit						
180	FVB3180	1 PH	LM 3	1,239	A8	18
210	FVB3210	3 PH	LM 3	1,239	A8	22
250	FVB3250	3 PH	LM 3	1,239	A8	19
280	FVB4280	3 PH	LM 4	1,513	A8	38
320	FVB6320	3 PH	LM 6	1,766	A8	46
360-400	FVB6400	3 PH	LM 6	1,933	A8	59
504-506	FVB8500	3 PH	LM 8	2,286	A8	79
508-5012	FVB95010 (a)	3 PH	LM 9	3,941	A8	171
Filter and Hardware for Above Blowers						
180, 210, 250	FLT3210-250 (b)	-	LM 3	593	A8	2
280	FLT4280	-	LM 4	593	A8	9
320,360,400	FLT6320-400	-	LM 6	593	A8	9
504-506	FLT8500	-	LM 8	754	A8	9

NOTE: (a) Includes Blower and Filter. (b) Also used with FVB3180.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Tach Generators DC, AC and Digital Output



Applications: Speed feedback for controls (encoders also offer position feedback).

Features: Ball bearing construction, standard mounting flanges and/or feet.

Generator Type	Voltage	Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
XPY Flange Mount (DC)					
30AFL-0	50VDC	BTG1000	466	DS	7
XPYII	100VDC	BTG100XPS	850	N5	2
XPYII	100VDC	PTG100XPS	1,257	N5	10
XPY	100VDC	PTG100XP	1,210	N5	3
XPY	50VDC	BTG50XPS	850	N5	2
XPYII	50VDC	PTG50XPS	1,257	N5	8
XPY	50VDC	PTG50XP	1,210	N5	3
XPY Washdown Flange Mount (DC)					
XPYII	100VDC	PTGWD100XPS	1,338	N5	9
XPYII	100VDC	BTGWD100XPS	1,011	N5	2
XPYII	50VDC	PTGWD50XPS	1,338	N5	10
XPYII	50VDC	BTGWD50XPS	1,011	N5	2
Encoder Based Digital PY Flange Mount					
DPY	1024PPR	PTG1024LD (a)	1,578	N5	1
Electrically Isolated Encoder					
E-ACC	1024PPR	ENC00NV (a) (b)	1,792	E8	2
Metric Flange Mount (DC)					
XPY	60VDC	PTG60XP-M (c)	1,210	N5	5
XPYII	60VDC	PTG60XPS-M (c)	1,257	N5	5
XPYII	60VDC	BTG60XPS-M (c)	850	N5	2
Foot Mount (DC)					
XPY	100VDC	PFTG100XP	1,210	N5	6
XPY	50VDC	PFTG50XP	1,210	N5	6
Foot Mount with Face (DC)					
XC42	100VDC	PFTG42100X	2,380	N5	33
XC42	50VDC	PFTG4250XC	2,432	N5	32
XC46	100VDC	PFTG46100X	4,184	N5	43
XC46	50VDC	PFTG4650XC	4,184	N5	44
Pancake Mount (AC & DC)					
AC	45/90VAC	PTG4590AC (d) **	1,163	N5	8
NCS	50VDC	PTG50NC (d) **	1,736	N5	8

NOTE: Flange mounted tachs require tach adapters shown on pages 282 & 284. XPY tachs have UL listing, file number E109527, CSA file number LR36841-5, XPYII tachs are pending approval.

(a) See page 210 for cables.

(b) Electrically isolated encoder & kit: Mounts to Fort Mill DC motors using appropriate adapter shown on page 282 may eliminate the need for EXB00801 isolated encoder feedback board.

(c) Requires adapter for metric flange tach. Will not mount on adapters for PY flanges.

(d) Does not mount to TEFC. See catalog MN605 for details. Will only mount to DPGF and DPBV motors on pages 279 & 280 using adapters shown on page 282.

Field Conversion Tach Mounting Kits for Permanent Magnet and Shunt Wound Motor

For PY Flange mounted BTG1000, XPY, XPYII and DPY tachometers

Complete kits consisting of fan cover (except TK3300), shaft extension coupling and tach adapter bracket with miscellaneous hardware. If you prefer, the conversion can be made by Baldor Mod Express. Tach kits will not work with Explosion Proof Motors (CDPX or CDX). See PY flange mount tachs shown on page 283.



Baldor Motor Type	Kit Catalog Number	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
3300P	TK3300	168	A8	1
3400D/P	TK3400	298	A8	4
3500D/P	TK3500	314	A8	9
3600D	TK3600	415	A8	5
3600P	TK3600PM	415	A8	3
7500D	TK7500	429	A8	17
9100D	TK9100	464	A8	23

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors







50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC Drives Selection Chart

Single Phase DC			Three Phase DC		
BC	DC2	DC3	Series 19H Non-Regen	Series 20H Regen	FlexPak 3000 Non-Regen & Regen
					
Main Attributes					
29 models to choose from with extensive list of available options to fit greatest range of applications	Enhanced operating features including process signal speed ref. and torque control models. Simple set up and operation.	Lowest cost single phase DC family. Plate style and enclosed models available.	Digital DC Drive with standard armature voltage feedback or built in encoder feedback capability. Many options available include high resolution analog input and digital output boards.	Digital DC Drive; user friendly OIM; Quick Start set up and diagnostics menu.	
Hp Range					
1/100 thru 5	1/4 to 2	1/8 to 2	5 thru 300	1.5 to 600	
Voltage Range					
115/230 1-phase	115/230 1-phase	115/230 1-phase	230/460 3-phase	230/460 3-phase	
Enclosure Selection					
Chassis, NEMA 1, NEMA 4X	Chassis, NEMA 4X, NEMA 12	Chassis, NEMA 1, NEMA 4X, NEMA 12	Chassis	Chassis, NEMA 1 (with kit); IP00, IP20	
Speed Control					
Armature voltage or Tach	Armature voltage or Tach	Armature voltage or Tach	Armature voltage or Encoder feedback, standard	Armature voltage or Tach	
Speed Regulation					
1% of base speed, 1% of set speed with tach feedback	2% of base speed, 1% with tach feedback	Base speed, 1% or 0.1% with tach feedback	1% of base speed, 0.1% of set speed with encoder feedback	Base speed, 2% armature feedback, 1% with analog tach feedback, .01% with encoder feedback.	
Speed Range					
20:1 or 50:1	20:1 or 30:1	60:1	100:1 based on top speed and feedback type	100:1 based on top speed and feedback type.	
Communications Options					
None	None	None	RS-232 Serial, RS-422/485, Device Net, Modbus Plus, Profibus DP.	DeviceNet, ControlNet, Profibus DP, AutoMax, Interbus-S	
Operator Interface					
Local analog controls on enclosed models; analog and discrete remote control.	Local analog controls on enclosed models; analog and discrete remote control.	Local analog controls on enclosed models; analog and discrete remote control.	Local keypad / display. 2 lines X 16 characters backlit LCD. 12 key membrane w/tactile response.	Local OIM (operator interface module), keypad with multi-line LCD display; remote mounting kit for standard OIM; CS300 PC software option	
Differentiating Feature					
HP range available from 1/100 through 5.	OEM feature/benefits, application flexibility.	Economical, Isolated analog speed ref. signal input models available without need for option kits.	High peak overload rating up to 300%. 15 preset speeds. 9 assignable digital inputs.	Extensive option list including: NEMA 1 enclosure kit, AC line disconnect kit, Blower Motor Starter, DB, OIM Remote mounting kit.	

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Fractional Horsepower DC Speed Controls for PMDC Motors

1/15 thru 1/4

115 VAC Single Phase 50/60 Hz.

Applications: Conveyors, machine tools and other applications requiring adjustable speed.

Features: Simple DC motor control with built-in circuit breaker, center lock reversing switch (center off), on/off switch, 7 foot SJO oil resistant cord, and variable voltage transformer for manual speed adjustment. NEMA 1 enclosure is standard. CSA list file # LR54532.



Max Hp	Catalog Number	List Price	Mult. Sym.	Ap'x Shpg. Wgt.	Amp Capacity	Input Voltage
1/15	BC110	490	E9	5	1.0	115VAC
1/8	BC115	523	E9	6	1.5	115VAC
1/4	BC130	666	E9	10	3.0	115VAC

NEMA 1 Enclosed DC Controls for PMDC and Shunt Wound Motors

1/100 thru 2 Hp

115/230 VAC Single Phase 50/60 Hz.

Applications: General purpose industrial use with permanent magnet or shunt wound DC motors.

Features: SCR controls have a free-wheeling diode and feature adjustable accel, decel, current limit, IR comp, min. and max speed pots to match applications. The anti-demag feature protects PM motors and helps protect the SCR power bridge against direct shorts. The controls have US and Canadian UL component recognition.

A Plug-in Horsepower Resistor® and armature fuse **must** be ordered and installed in BC138, BC139, BC140, BC140-FBR, BC141 and BC142.



BC140 ENCLOSED (NEMA 1)

Hp Range	Catalog Number	List Price	Mult. Sym.	Ap'x Shpg. Wgt. Lbs.	Input Voltage
1/100-1/3	BC138	194	E9	1	115
1/50-3/4	BC139	194	E9	1	230
1/100-2 (a)	BC140	329	E9	3	115/230
1/100-2 (a)	BC140-FBR	455	E9	3	115/230

NOTE: (a) 1 Hp at 115V and 2 Hp at 230V requires BC143 heatsink kit. See page 290 for features. FBR=Forward/Brake/Reverse.

DC Control Accessories

Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
BC24-LF	Ac Line Filter for use with CE Applications	66	E9	1
BC143	External Heatsink Kit (BC140, BC140-FBR, BC141, BC142, BC204)	63	E9	2
BC144	Forward-Brake-Reverse Switch Kit for BC140	110	E9	1
BC145	Signal Isolator Board	187	E9	1
BC146	Current Sensing Relay/Overload Protector	121	E9	1
BC147	Barrier Terminal Board (BC141 and BC142)	26	E9	1
BC148	Replacement Potentiometer Kit (5K ohm)	11	E9	1
BC149	Knob and Dial Kit	12	E9	1
BC152	Barrier Terminal Board With Signal Isolator (BC141 and BC142)	172	E9	1
BC218	DIN-rail mounting kit for BC141, BC142 or BC204	31	E9	1

NOTE: BC24-LF is an AC line filter required for applications where CE is required if the control is not filtered elsewhere in the application. This filter may be used on most 115 or 230 VAC, single phase applications where CE is required.

HVAC Motors
Farm Duty Motors
Definite Purpose Motors
Brake Motors
200 & 575 Volt Motors
IEC Frame Motors
50 Hertz Motors
Inverter/Vector Motors & Controls
DC Motors and Controls
Soft Start & Dynamic Brakes

Chassis Mount DC Controls

1/100 thru 1.5 Hp
1/50 thru 5 Hp

115 VAC Single Phase 50/60 Hz.
230 VAC Single Phase 50/60 Hz.



BC141 / BC142

Applications: General purpose industrial use with permanent magnet or shunt wound DC motors.

Features: Chassis-mount SCR controls have a free-wheeling diode and feature adjustable accel, decel, current limit, IR comp, min and max speed pots to match applications. The anti-demag feature protects PM motors and helps protect the SCR power bride against direct shorts. The controls have US and Canadian UL component recognition.

Hp Range	Catalog Number	Description Input Voltage / Max. Hp	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Input Voltage
1/100-1 1/2 (a)	BC141	Standard Model, single voltage	180	E9	1	115
1/100-1 1/2	BC141-SIH	BC141 with BC152 Signal Isolator and BC143 Heatsink factory installed	425	E9	2	115
1/100-3 (a)	BC142	Standard Model, single voltage	180	E9	2	230
1/100 - 3	BC142-SIH	BC142 with BC152 Signal Isolator and BC143 Heatsink factory installed	445	E9	2	115/230
1/100-1 1/2 (a) 1/50-3	BC142-5	Dual voltage, without fuse holders	180	E9	1	115/230
1/100 - 1 1/2 (a) 1/50 - 3	BC142-6	Standard Model, dual voltage	198	E9	1	115/230
1/100 - 1 1/2 1/50 - 3	BC142-6-SIH	BC142-6 with BC152 signal isolator board and BC143 heatsink factory installed	445	E9	1	115/230
5	BC155	120V - 1 Hp, 230V - 2 Hp	588	E9	5	230

NOTE: Above controls include 5k speed potentiometer.

(a) 1-1.5 Hp at 115 Volts and 2-3 Hp at 230 Volts, requires BC143 Heatsink kit.

BC155 Includes integral heatsink. Please refer to page 291 for features.

Plug-in Horsepower Resistor and Fuse Kit



A Plug-in Horsepower Resistor® and armature fuse **must** be ordered and installed in BC138, BC139, BC140, BC140-FBR, BC141 and BC142.

These should be selected based on the motor's **rated current**. The price of the Hp resistor and fuse is included in the BC138, BC139, BC140, BC140-FBR, BC141 and BC142 list price.

See selection below for catalog number.

Spare resistor kits are available for \$9.00 list, **E9** multiplier.

Motor Hp Armature Voltage		Plug-In Hp Resistor Resistance Value (Ohms)	Catalog Number	Ap'x DC Current (Amps)	DC Fuse Rating For Armature
90-130V	180V				
1/100	1/50	1.0	BR1000	0.20	0.5
1/50	1/25	0.51	BR0510	0.30	0.5
1/30	1/15	0.35	BR0350	0.33	0.5
1/20	1/10	0.25	BR0250	0.5	0.75
1/15	1/8	0.25	BR0251	0.8	1.0
1/12	1/6	0.18	BR0180	0.85	1.25
1/8	1/4	0.1	BR0100	1.3	2.0
1/6	1/3	0.1	BR0101	2.0	2.5
1/4	1/2	0.05	BR0050	2.5	4.0
1/3	3/4	0.035	BR0035	3.3	5.0
1/2	1	0.025	BR0025	5.0	8.0
3/4	1 1/2	0.015	BR0015SP	7.5	12.0
1 (a)	2 (a)	0.01	BR0010SP	10	15.0
1 1/2 (a)	3 (a)	0.006	BR0006	15	25.0 (b)

NOTE: (a) External Heatsink required. (b) Also used with AC Line Fuse. For AC line fuse rating see manual.

HVAC Motors

Farm Duty
Motors

Definite Purpose
Motors

Brake Motors

200 & 575 Volt
Motors

IEC Frame
Motors

50 Hertz
Motors

Inverter/Vector
Motors & Controls

DC Motors
and Controls

Soft Start &
Dynamic Brakes

NEMA 4X DC Control and Accessories

1/4 thru 2 Hp 115/230 VAC Single Phase 50/60 Hz.
3 Hp 230 VAC Single Phase 50/60 Hz.

Applications: Constant torque, new or replacement.

Features: BC154, BCWD140 and BC160 are non-regen controls with reversal by means of switching the armature leads (BCWD140 has a forward/brake/reverse switch mounted). BC254 is a line regenerative SCR control that can drive the motor to a timed stop. BC354 is a PWM control that provides low-ripple DC power to the motor allowing more Hp when used with a 140 or 280 VDC motor. All offer a choice of armature or tachometer feedback and a speed or torque mode. No Hp resistors are needed for these controls, current is jumper selectable. BC154, BC160, BC254 and BC354 are painted black and come with a start-stop switch. BCWD140 comes with white epoxy paint and also forward/brake/reverse and run-jog switches. See pages 290-291 for features.



Hp Range	Catalog Number	Description Input Voltage / Max. Hp	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Input Voltage
NEMA 4X SCR (black)						
1/4-2	BC154	Standard model - 120V - 1 Hp, 230V - 2 Hp	416	E9	5	115/230
	BC154-P	BC154 with POWER SWITCH instead of START/STOP SW.	416	E9	5	115/230
	BC154-R	BC154 with BC156 - FBR Switch factory installed	550	E9	5	115/230
	BC154-SI	BC154 with BC145 Signal Isolator Board and BC158 Auto/Man Switch kit factory installed	670	E9	5	115/230
3	BC160	230V - 3 Hp	479	E9	3	230
NEMA 4X Washdown Duty SCR (white)						
1/4-2	BCWD140	120V - 1 Hp, 230V - 2 Hp	557	E9	6	115/230
NEMA 4X Washdown Duty Line Regen SCR (black)						
1/8-2	BC254	120V - 1 Hp, 230V - 2 Hp (a)	599	E9	5	115/230
	BC254-FBR	BC254 with BC253 FWD-BRAKE-REV switch factory installed	622	E9	5	115/230
NEMA 4X Washdown Duty PWM DC (black) (b)						
1/4-2	BC354	120V - 1 Hp, 230V - 2 Hp	645	E9	5	115/230

NOTE: (a) See page 289 for BC254 accessories.

(b) Output current is 7.5 amps; Output voltage is 140VDC for 115VAC input - 280VDC for 230VAC input. Motors designed for these voltages will give the best performance.

DC SCR NEMA 4X DC Control Accessories

Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
BC153	Electronic Forward-Dynamic Brake-Reverse Kit for BC154, BC354	198	E9	1
BC156	Mechanical Forward-Dynamic Brake-Reverse Switch for BC154, BC354	128	E9	1
BC157	Run/Jog switch for BC154 & BC160, BC354	23	E9	1
BC158	Auto/Manual Installation Kit for BC145 signal isolator for BC154, BC160, BC354	53	E9	1
BC159	AC Line Switch Kit for BC154, BCWD140, BC254, BC354	28	E9	1
BC145	Signal Isolator Board	187	E9	1

NOTE: BC159 AC Line Switch Kit is factory installed on BC154, BCWD140, BC354. Listed here as replacement or spare parts.

HVAC Motors
Farm Duty Motors
Definite Purpose Motors
Brake Motors
200 & 575 Volt Motors
IEC Frame Motors
50 Hertz Motors
Inverter/Vector Motors & Controls
DC Motors and Controls
Soft Start & Dynamic Brakes

Line Regenerative DC Controls and Accessories



**1/4 thru 3 Hp
5 Hp**

**115/230 VAC
230 VAC**

**Single Phase 50/60 Hz.
Single Phase 50/60 Hz.**

Applications: Frequent start/stop/reverse applications or where controlled braking is required.

Features: Single phase line regenerative open chassis control to operate permanent magnet or wound field DC motors. These line regen controls are ideal for applications with overhauling loads. In torque mode, it can be used for tensioning applications. Several accessory boards are available to further customize the control. Includes 5k speed potentiometer. Jumper selectable current settings.

Hp Range	Catalog Number	Description Input Voltage / Max. Hp	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Input Voltage
Line Regen SCR						
1/8-2 (a)	BC204	120V 1 Hp, 230V 2 Hp, Standard Model	336	E9	3	115/230
	BC204-BPSI	BC204 with BC215 Bi-polar Signal Isolator factory installed	434	E9	3	
1/4-2	BC200	120V 1 Hp, 230V 2 Hp	628	E9	4	115/230
1/4-3	BC201	120V 1-1/2 Hp, 230V 3 Hp	746	E9	1	115/230
5	BC203	230V 5Hp	939	E9	10	230
NEMA 4X Washdown Duty Line Regen SCR						
1/8-2	BC254	120V - 1Hp, 230V - 2Hp Standard Model	599	E9	5	115/230
	BC254-FBR	BC254 with Power On/Off switch instead of Start/Stop switch, and BC253. Forward-Brake-Reverse switch factory installed	622	E9	5	115/230

NOTE: (a) 1 Hp at 115 volts and 2 Hp at 230 volts requires BC143 heatsink kit.

Line Regenerative DC Control Accessories

Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
Accessories for BC200, BC201 and BC203				
BC212	Bipolar signal isolator board	192	E9	1
Accessories for BC204				
BC143	External Heatsink Kit	63	E9	2
BC215	Bipolar signal isolator board	89	E9	3
BC216	Multispeed board for BC204	68	E9	1
BC218	DIN rail mounting kit	31	E9	1
Accessories for BC254				
BC245	Bipolar signal isolator for BC254	189	E9	1
BC253	Forward-Stop-Brake-Reverse Switch for BC254	23	E9	1
BC258	Auto-manual Switch for BC254	53	E9	1
BC259	AC Line Switch for BC254	23	E9	5

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

NEMA Enclosed DC Control Specifications

Features	Catalog Number											
	BC138		BC139		BC140 or BC140-FBR		BC154		BC160		BCWD140	
Enclosure	NEMA 1		NEMA 1		NEMA 1		NEMA 4X		NEMA 4X		NEMA 4X Washdown	
Control Type	NEMA K		NEMA K		NEMA K		NEMA K		NEMA K		NEMA K	
AC Line Input	115		230		115 230		115 230		230		115 230	
DC Armature Voltage Nominal	90		180		90 180		90 180		180		90 180	
Shunt Field Power Supply												
Voltage - DC	50/100		100/200		50/100 100/200		50/100 100/200		100/200		50/100 100/200	
Rated Horsepower Range	1/100 - 1/3		1/50-3/4		1/100-1 1/50-2		1/50-1 1/25-2		3		1/50-1 1/25-2	
External Heat Sink (BC143) Required	No		No		1 Hp 2Hp		Not Required		Not Required		Not Required	
Speed Range (Motor May Be 20: 1 Constant Torque)	50:1		50:1		50:1		50:1		50:1		50:1	
Adjustable Acceleration Time	Yes		Yes		Yes		Yes		Yes		Yes	
Adjustable Deceleration Time	Yes		Yes		Yes		Yes		Yes		Yes	
Minimum Speed Adjustable	Yes		Yes		Yes		Yes		Yes		Yes	
Maximum Speed Adjustable	Yes		Yes		Yes		Yes		Yes		Yes	
Current Limit Adjustable	Yes		Yes		Yes		Yes		Yes		Yes	
Adjustable Current Limit and Trip Out Type	No		No		No		Timed or Non-Timed		Timed or Non-Timed		Timed or Non-Timed	
Control Of Speed or Torque	Speed		Speed		Speed		Speed or Torque		Speed or Torque		Speed or Torque	
IR Compensation Adjustable	Yes		Yes		Yes		Yes		Yes		Yes	
Tachometer Feedback Input	No		No		No		Yes		Yes		Yes	
Plug-In Horsepower Resistor ®	Required		Required		Required		N/A		N/A		N/A	
UL & cUL Listing, CE	Yes		Yes		Yes		Yes		Yes		Yes	
AC Line Fuse	Included		Included		Included		External		External		External	
DC Armature Fuse	Included with Hp Resistor		Included with Hp Resistor		Included with Hp Resistor		Not Supplied with Control		External		Not Supplied with Control	
Options												
AC Line Switch	Standard		Standard		Standard		Opt - BC159		No		Standard	
Forward/Brake/Reverse Switch												
Mechanical	No		No		Opt-BC144		Opt-BC156		No		Standard	
Electronic	No		No		No		Opt-BC153		No		Opt-BC153	
Run/Jog Switch	No		No		No		Opt-BC157		Opt-BC157		Standard	
Input Signal							Internal		Internal		External	
Following Mode Capability							Mount		Mount		Mount	
Current (1-5, 4-20, 20-50mA)	No		No		Opt-BC145		Opt-BC145		Opt-BC145		Opt-BC145	
Voltage (0-25,0-120, VDC)							Opt-BC145		Opt-BC145		Opt-BC145	
Electrical Connection To Control Barrier Terminal Block	Standard		Standard		Standard		Standard		Standard		Standard	
Current Sensing Relay/Overload Protector	No		No		Opt - BC146		Standard		Standard		Standard	
AC Line Filter for CE	Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF		Opt-BC24-LF	

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Chassis Mount DC Control Specifications

Features	Catalog Number								
	BC141	BC142	BC142-6	BC155	BC204	BC200	BC201	BC203	
Enclosure	Chassis	Chassis	Chassis	Chassis	Chassis	Chassis	Chassis	Chassis	Chassis
Control Type	NEMA K	NEMA K	NEMA K	NEMA K	Regenerative	Regenerative	Regenerative	Regenerative	Regenerative
AC Line Input	115	230	115 230	230	115 230	115 230	115 230	115 230	230
DC Armature Voltage Nominal	90	180	90 180	180	90 180	90 180	90 180	90 180	180
Shunt Field Power Supply Voltage - DC	50/100	100/200	50/100 100/200	50/100 100/200	50/100 100/200	50/100 100/200	50/100 100/200	100/200	100/200
Rated Horsepower Range	1/100-1.5	1/50-3	1/100-1 1/2 1/50-3	5	1/8-1 1/4-2	1/4-1 1/2-2	1/4-1-1/2 1/2-3		5
External Heat Sink (BC143) Required	1 Hp-Up	2 Hp-Up	1/2 Hp-Up 1 Hp-Up	Not Required	90V-1Hp 180V-2Hp	Not Required	Not Required	Not Required	Not Required
Speed Range (Motor may be 20:1 Constant Torque)	50:1	50:1	50:1	50:1	50:1	50:1	50:1	50:1	50:1
Adjustable Acceleration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjustable Deceleration	Yes	Yes	Yes	Yes	Fwd & Rev Regen	Fwd & Rev Regen	Fwd & Rev Regen	Fwd & Rev Regen	Fwd & Rev Regen
Min. Speed Adjustable	Yes	Yes	Yes	Yes	No	No	No	No	No
Max. Speed Adjustable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjustable Current	Non	Non	Non	Non	Non				Timed
Limit and Tripout Type	Timed	Timed	Timed	Timed	Timed	Timed	Timed	Timed	Timed
Control of Speed or Torque	Speed	Speed	Speed	Speed Torque	Speed or Torque	Speed or Torque	Speed or Torque	Speed or Torque	Speed
IR Compensation Adjustment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tachometer Feedback Input	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Plug-in Horsepower Resistor®	Required	Required	Required	N/A	N/A	N/A	N/A	N/A	N/A
UL & cUL Listing, CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AC Line Fuse	Included	Included	Included	External	External	Included	Included	Included	External
DC Armature Fuse	Included with Hp Resistor	Included with Hp Resistor	Included with Hp Resistor	Included with Hp Resistor	External	Included with Hp Resistor	Included with Hp Resistor	Included with Hp Resistor	External
Options									
Input Signal									
Following Mode Capability					No				No
Current (1-5, 4-20, 20-50 mA)	Opt-BC145	Opt-BC145	Opt-BC145	Opt-BC145	Std	No	No	Std 0-±10VDC	
Voltage (0-25, 0-120, VDC)	Opt-BC145	Opt-BC145	Opt-BC145	Std 0-10 VDC	Opt BC215 with BC214	Std 0-±10 VDC	Std 0-±10 VDC	Opt-BC212	
0-25, 0-120, VDC)	No	No	No	No		Opt-BC212	Opt-BC212		
Electrical Connection									
To Control									No
Push-On Quick Connects	Standard	Standard	Standard	No	Standard	No	No	Standard	
Barrier Terminal Block	Opt-BC147	Opt-BC147	Opt-BC147	Standard	N/A	Standard	Standard		
Current Sensing Relay/									
Overload Protector	Opt-BC146	Opt-BC146	Opt-BC146	Opt-BC146	N/A	Standard	Standard	Standard	
Regenerative						Opt	Opt	Opt	
Accel / Decel Board	No	No	No	No	No				
AC Line Filter for CE	Opt-BC24-LF	Opt-BC24-LF	Opt-BC24-LF	Opt-BC24-LF	Opt-BC24-LF	Opt-BC24-LF	Opt-BC24-LF	Opt-BC24-LF	Opt-BC24-LF

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC2 DC Drives for 1/4 thru 2 Hp PMDC and Shunt Wound Motors

1/4-2 Hp 115/230 VAC 1 Phase 50/60 Hz.

Applications: General purpose industrial use with Permanent Magnet or Shunt Wound DC Motors.

Features: General purpose industrial use. Available in open chassis, plate style, NEMA 12 or NEMA 4/4X. Operates from either local or remote operator controls for added mounting flexibility, (Note: reversing drives are local control only). All models have a single, surface mount design, printed circuit board. Jumper reconnection for Line voltage, Horsepower, Feedback, "S" curve, and Zero speed. Adjustments for Min and Max speed, Current Limit, IR drop Compensation, and Accel/Decel rate. 20:1 constant torque speed range, 30:1 constant torque speed range with tachometer feedback.



1/4 - 1Hp @ 115 VAC 90 VDC Armature, 50 VDC Field ^(a)
1/2 - 2Hp @ 230 VAC 180 VDC Armature, 100 VDC Field ^(a)

Regulator Type	Catalog Number	List Price	Mult. Sym.	BC Series Alternate ^{(b)(e)}
Open Chassis, DC2 Series 40				
Basic Regulator	DC2-40U	357	VS3DC	BC140 + BC143
Basic Regulator with Instrument Interface ^(b)	DC2-42U	438	VS3DC	BC140 + BC143 + BC145
Torque Regulator	DC2-43U	400	VS3DC	
Plate Controller, DC2 Series 50 ^(c)				
Basic Regulator	DC2-50U	297	VS3DC	BC142-6 + BC143
Basic Regulator with Instrument Interface ^(b)	DC2-52U	324	VS3DC	BC142-6 + BC143 + BC152
Torque Regulator with Instrument Interface ^(b)	DC2-54U	324	VS3DC	
NEMA 12 Enclosure with Operator Control, DC2 Series 70				
Basic Regulator	DC2-70U	405	VS3DC	BC154
Basic Regulator with Reversing	DC2-71U ^(d)	524	VS3DC	BC154 + BC156 or order as BC154-R ^(f) with BC156-FBR Switch factory installed
Basic Regulator with Instrument Interface ^(b)	DC2-72U	550	VS3DC	BC154 + BC145 + BC158 or order as BC154-SI ^(f) with BC145, Signal Isolator Board, and BC158, Auto/Man Switch factory installed
Torque Regulator with Instrument Interface ^(b)	DC2-74U	562	VS3DC	BC154 + BC145 + BC158
Easy Clean NEMA 4/4X/12 Enclosure, DC2 Series 80 Without Operator Control				
Basic Regulator with Run/Jog	DC2-80U	405	VS3DC	
Basic Regulator with Instrument Interface ^(b)	DC2-82U	497	VS3DC	
Easy Clean NEMA 4/4X/12 Enclosure, DC2 Series 90 With Operator Control				
Basic Regulator	DC2-90U	427	VS3DC	BC154
Basic Regulator with Run/Jog	DC2-99U	486	VS3DC	BC154 + BC157
Basic Regulator with Reversing	DC2-91U ^(d)	551	VS3DC	BC154 + BC156 or order as BC154-R ^(f) with BC156-FBR, Switch factory installed
Basic Regulator with Instrument Interface ^(b)	DC2-92U	551	VS3DC	BC154 + BC145 + BC158 or order as BC154-SI ^(f) with BC145, Signal Isolator Board and BC158 Auto/Man Switch factory installed
Basic Regulator with Reversing and Run/Jog	DC2-98U ^(d)	594	VS3DC	BC154 + BC156 + BC157

NOTE: Conduit hole plugs are standard on NEMA 12K designs. Conduit hubs are standard on NEMA 4/12 designs only. Conduit hubs for either design can be ordered through Renewal Parts by referencing Reliance Part Number 608826-2A.

^(a) Jumper selection for 115VAC / 90 VDC or 230 VAC / 180 VDC.

^(b) Instrument Interface units also provide auxiliary control relay contact rated 0.6 Amps @ 125 VAC for customer use. Aux. relay not available on BC Series Signal Isolation Option Boards.

^(c) DC2 Series 50 Drive must be mounted to a metal surface 18" by 18" to meet 1hp @115 VAC and 2HP @ 230 VAC or an optional heat sink (HS1-50) can be purchased.

^(d) Switch reversing DC2 models include as standard an installed line fuse.

^(e) Review dimensions and applications I/O functionality for complete compatibility. Contact your local district office for assistance.

^(f) Catalog number indicates option kits factory installed for functional equivalent drive.

A transformer is mandatory for tachometer feedback operation using the Type RE-020 20.8 VDC/1000 RPM tachometer (Model Number R20E8000). The Type RE-007 (Model Number R07E1210) fully-isolated 7 VDC/1000 tachometer does not require an isolation transformer. Consult Instruction Manual D2-3231 for other recommended and mandatory use of isolation transformers.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC2 Accessories

Catalog Number	Description	List Price	Mult. Sym.
HS1-50	External Heatsink Kit for DC2-50 Series	108	VS3DC

Customer Installed Fuse Kits

The DC2 Drives are not supplied with line fuses. If needed, order the model number Fuse Kit below to match the DC2 drive selected.

Drive Style	DC2-Series	Catalog Number	List Price	Mult. Sym.
Open Chassis	40	F1DC2000	52	VS3DC
Plate Chassis	50	F2DC2000	108	VS3DC
NEMA 12K	70	F2DC2000	108	VS3DC
NEMA 4/12	80, 90	F2DC2000	108	VS3DC

Mounting Dimensions

Drive Style	Outside		Mounting		
	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Height Inches (mm)	Width Inches (mm)
Enclosed DC2 Series 70, 80, and 90	10.125 (260)	5.0 (128)	5.5 (141)	9.625 (247)	5.0 (128)
Open Chassis DC2 Series 40	7.875 (200)	5.0 (128)	4.875 (125)	7.375 (188)	5.0 (128)
Plate Style, Open Chassis DC2 Series 50	6.25 (159)	6.0 (152)	2.5 (64)	6.25 (159)	6.0 (152)

DC2 Drive Ratings

Motor HP	AC Input Voltage (Volts AC)	Rated AC Line Amps*	Input KVA	DC Armature Voltage	Rated Armature Current (Amps)	Available Field Voltage	Rated Field Current (Amps)
1/4	115	3.1	0.36	90	2.5	50	2
	—	—	—	—	—	—	—
1/3	115	4.2	0.48	90	3.7	50	2
	—	—	—	—	—	—	—
1/2	115	6.2	0.71	90	5	50	2
	230	3.1	0.71	180	2.5	100	2
3/4	115	9.4	1	90	7.5	50	2
	230	4.7	1	180	3.7	100	2
1**	115	12.5	1.4	90	10	50	2
	230	6.2	1.4	180	5	100	2
1 1/2	—	—	—	—	—	—	—
	230	9.4	2.2	180	7.5	100	2
2**	—	—	—	—	—	—	—
	230	12.5	2.9	180	10	100	2

NOTE: * Includes motor field current

** DC2 Series 50 designs must be mounted to a metal plate heatsink, 18" x 18", to meet 1 Hp @ 115 VAC and 2 Hp at 230 VAC, or an optional heat sink (HS1-50) may be purchased.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC3 DC Drives Fractional to 2HP for Non-Regen and Regen Applications

115/230 VAC 1 Phase 50/60 Hz.

Applications: General purpose industrial use with Permanent Magnet or Shunt Wound DC Motors.

Features: DC3 drives are available in plate style, NEMA 1 or NEMA 4X/12. Non-Regen and Regen types available to fill many applications. Every DC3 product carries UL, cUL, and CE certification labels. Plate drives are designed for mounting and integration into cabinets/enclosures. Plate models also include a 10K ohm speed pot for customer use.

Standard Specifications:

- AC line voltage variation – ±10% of selected input.
- AC line input frequency variation – 48 to 62 Hz.
- Output voltage – 0 to 90 VDC @ 115 VAC input, and 0 to 180 VDC @ 230 VAC input.
- Overload Capacity – 150% for 1 minute.
- Ambient temperature – -10°C to 55°C plate style. -10°C to 45°C enclosed.
- Elevation – 1000 meters without derating. (Derate 1% for every 90 meters above 1000 m)



DC3N Non-Regenerative DC Drives 1/8 - 1Hp @ 115 VAC, 1-Ph, 50/60 Hz, 90 VDC Armature 1/4 - 2Hp @ 230 VAC, 1-Ph, 50/60 Hz, 180 VDC Armature

Hp - Rating		Catalog Number	"Non-Isolated" Controller Selection – DC3N Chassis Model – 115/230 VAC, 1 Phase, 50/60 Hz For the Operation of Permanent Magnet DC Motors Only							
115 VAC Input	230 VAC Input		Chassis Type	Rated AC Line (Amps)	Input KVA	DC Armature Voltage	Rated Armature Current (Amps)	List Price	Mult. Sym.	BC Series Alternate (a)
1/8 to 1/2	—	DC3N-12D-00-010-AN	Plate	4.5 to 7.8	0.5 to 0.9	90	2.7 to 5.0	160	VS3DC	BC142-5 (b)
1/2 to 1.0	—		Plate	7.8 to 13	0.9 to 1.5	90	5.0 to 10*			
—	1/2 to 1.0		Plate	2.6 to 7.0	0.6 to 1.6	180	1.4 to 5.0			
—	1.0 to 2.0		Plate	7.0 to 12	1.6 to 2.8	180	5.0 to 9.2 *			

NOTE: * Requires addition of Heatsink Kit Option: DC3N-HS-00 List Price: \$98.00.
External isolated reference source, 90 VDC Armature: 0-1.4 VDC reference and 180 VDC: 0-2.8 VDC reference.
Instruction manual D2-3451
(a) Review dimensions and application I/O functionality for complete compatibility. Contact your local district office for assistance.
(b) BC143 Heatsink option required for 1 Hp @ 115 VAC or 2 Hp @ 230 VAC rating.

DC3N Plate Style Overall Dimensions

Height Inches (mm)	Width Inches (mm)	Length Inches (mm)
1.60 (41)	4.30 (109)	3.58 (91)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC3N Non-Regenerative DC Drives



1/8 - 1Hp @ 115 VAC, 1-Ph, 50/60 Hz, 90 VDC Armature
1/4 - 2Hp @ 230 VAC, 1-Ph, 50/60 Hz, 180 VDC Armature

Hp Rating		Catalog Number	"Non-Isolated" Controller Selection – DC3N Enclosed Models – 115/230 VAC, 1 Phase, 50/60 Hz For the Operation of Permanent Magnet DC Motors Only							
115 VAC Input	230 VAC Input		Enclosure Type	Rated AC Line (Amps)	Input KVA	DC Armature Voltage	Rated Armature Current (Amps)	List Price	Mult. Sym.	BC Series Alternate (a)
1/8 to 1/2	—	DC3N-12D-01-010-AN	NEMA 1	4.5 to 7.8	0.5 to 0.9	90	2.7 to 5.0	250	VS3DC	BC140 + BC143 (b)
1/2 to 1.0	—		NEMA 1	7.8 to 13	0.9 to 1.5	90	5.0 to 10 **			
—	1/2 to 1.0		NEMA 1	2.6 to 7.0	0.6 to 1.6	180	1.4 to 5.0			
—	1.0 to 2.0		NEMA 1	7.0 to 12	1.6 to 2.8	180	5.0 to 9.2 **			
1/8 to 1/2	—	DC3N-12D-4X-010-AN	NEMA 4X/12	4.5 to 7.8	0.5 to 0.9	90	2.7 to 5.0	360	VS3DC	BC154 or order as BC 154-P (c) with Power On/Off switch factory installed in place of Start/Stop switch
1/2 to 1.0	—		NEMA 4X/12	7.8 to 13	0.9 to 1.5	90	5.0 to 10			
—	1/2 to 1.0		NEMA 4X/12	2.6 to 7.0	0.6 to 1.6	180	1.4 to 5.0			
—	1.0 to 2.0		NEMA 4X/12	7.0 to 12	1.6 to 2.8	180	5.0 to 9.2			

NOTE: ** Requires addition of Heatsink Kit Option: DC3N-HS-01 List Price: \$124.00
 External isolated reference source, 90 VDC Armature: 0-1.4 VDC reference and 180 VDC: 0-2.8 VDC reference
 Instruction manual D2-3451

- (a) Review dimensions and application I/O functionality for complete compatibility. Contact your local district office for assistance.
- (b) BC143 Heatsink option required for 1 Hp @ 115 VAC or 2 Hp @ 230 VAC rating.
- (c) Catalog number indicates option kits factory installed for functional equivalence.

DC3N Non-isolated Enclosed Style Overall Dimensions

Enclosure Style	Overall		
	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)
NEMA 1	8.00 (203)	6.00 (152)	3.46 (88)
NEMA 4X/12	8.20 (208)	6.90 (175)	4.50 (114)
Heatsink	Height Inches (mm)	Width Inches (mm)	Length Inches (mm)
DC3N-HS-00	1.0 (25)	4.40 (112)	6.90 (175)
DC3N-HS-01	1.0 (25)	7.78 (198)	6.90 (175)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC3N Non-Regenerative DC Drives



1/8 - 1Hp @ 115 VAC, 1-Ph, 50/60 Hz, 90 VDC Armature
1/4 - 2Hp @ 230 VAC, 1-Ph, 50/60 Hz, 180 VDC Armature

Hp Rating		Catalog Number	"Isolated" Controller selection - DC3N Chassis and Enclosed- 115/230 VAC, 1 Phase, 50/60 Hz For the Operation of Permanent Magnet and Shunt wound DC Motors							
115 VAC Input	230 VAC Input		Enclosure Type	Rated AC Line (Amps)	DC Armature Voltage	Rated Armature Current (Amps)	Motor Field Voltage	List Price	Mult. Sym.	BC Series Alternate (a)
1/4 to 1	—	DC3N-12D-00-010-AI	Plate	4.5 to 13	90	2.7 to 10	50/100	356	VS3DC	BC142 + BC152 + BC143 (b) or order as BC141-SIH (c), (115VAC input) or BC142-SIH (c), (230VAC input) with BC152, Signal Isolator with Barrier Terminal Board and BC143 Heatsink factory installed
—	1/2 to 2		Plate	3.7 to 12	180	2.5 to 9.2	100/200			
1/4 to 1	—	DC3N-12D-4X-010-AI	NEMA 4X/12	4.5 to 13	90	2.7 to 10	50/100	529		
—	1/2 to 2		NEMA 4X/12	3.7 to 12	180	2.5 to 9.2	100/200			

NOTE: Instruction manual D2-3452

- (a) Review dimensions and application I/O functionality for complete compatibility. Contact your local district office for assistance.
- (b) BC143 Heatsink option required for 1 Hp @ 115 VAC or 2 Hp @ 230 VAC rating.
- (c) Catalog number indicates option kits factory installed for functional equivalence.

DC3N "isolated" Plate and Enclosed Style Overall Dimensions

Enclosure Style	Overall		
	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)
Plate	4.46 (113)	6.90 (175.26)	1.80 (46)
NEMA 4X/12	10.2 (260)	6.90 (175.26)	5.51 (140)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC3R Regenerative DC Drives



1/4 - 1Hp @ 115 VAC, 1-Ph, 50/60 Hz, 90 VDC Armature
1/2 - 2Hp @ 230 VAC, 1-Ph, 50/60 Hz, 180 VDC Armature

Hp Rating		Catalog Number	"Non-Isolated" Controller selection - DC3R Chassis model - 115/230 VAC, 1 Phase, 50/60 Hz For the Operation of Permanent Magnet and Shunt wound DC Motors							
115 VAC Input	230 VAC Input		Chassis Type	Rated AC Line (Amps)	DC Armature Voltage	Rated Armature Current (Amps)	Motor Field Voltage	List Price	Mult. Sym.	BC Series Alternate (a)
1/4 to 1/2	—	DC3R-12D-00-010-AN	Plate	4.2 to 7.5	90	2.7 to 5.0	50/100	398	VS3DC	BC204 (b)
1/2 to 1.0	—		Plate	7.5 to 12.1	90	5.0 to 10 ***	50/100			
—	1/2 to 1.0		Plate	3.8 to 6.7	180	2.5 to 5.0	100/200			
—	1.0 to 2.0		Plate	6.7 to 11.7	180	5.0 to 9.2***	100/200			
Hp Rating		Catalog Number	"Isolated" Controller selection - DC3R Chassis model - 115/230 VAC, 1 Phase, 50/60 Hz							
115 VAC Input	230 VAC Input		Chassis Type	Rated AC Line (Amps)	DC Armature Voltage	Rated Armature Current (Amps)	Motor Field Voltage	List Price	Mult. Sym.	BC Series Alternate (a)
1/4 to 1/2	—	DC3R-12D-00-010-AI	Plate	4.2 to 7.5	90	2.7 to 5.0	50/100	521	VS3DC	BC204 + BC215 + BC143 (b) or order as BC204-BPSI (c) with BC215 Bi-polar Signal Isolator
1/2 to 1.0	—		Plate	7.5 to 12.1	90	5.0 to 10***	50/100			
—	1/2 to 1.0		Plate	3.8 to 6.7	180	2.5 to 5.0	100/200			
—	1.0 to 2.0		Plate	6.7 to 11.7	180	5.0 to 9.2***	100/200			

NOTE: ***Requires addition of Heatsink Kit Option DC3R-HS-00. List Price, \$149.00

Drive instruction manual D2-3453

DC3R Isolation Board Option instruction manual D2-3454

(a) Review dimensions and application I/O functionality for complete compatibility. Contact your local district office for assistance.

(b) BC143 Heatsink option required for 1 Hp @ 115 VAC or 2 Hp VAC rating.

(c) Catalog number indicates option kits factory installed for functional equivalence.

DC3R "Non-isolated" and "isolated" Plate Style Overall Dimensions

Style	Height Inches (mm)	Width Inches (mm)	Length Inches (mm)
Non-isolated	1.86 (47)	4.75 (120)	8.90 (226)
Isolated	3.12 (78)	4.75 (120)	8.90 (226)
Heatsink			
DC3R-HS-00	1.0 (25)	6.9 (175)	9.78 (248)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

DC3R Regenerative DC Drives



1/4 - 1Hp @ 115 VAC, 1-Ph, 50/60 Hz, 90 VDC Armature
1/2 - 2Hp @ 230 VAC, 1-Ph, 50/60 Hz, 180 VDC Armature

Hp Rating		Catalog Number	"Non-Isolated" Controller selection - DC3R Enclosed - 115/230 VAC, 1 Phase, 50/60 Hz For the Operation of Permanent Magnet and Shunt wound DC Motors							
115 VAC Input	230 VAC Input		Enclosure Type	Rated AC Line (Amps)	DC Armature Voltage	Rated Armature Current (Amps)	Motor Field Voltage	List Price	Mult. Sym.	BC Series Alternate (a)
1/4 to 1.0	—	DC3R-12D-4X-010-AN	NEMA 4X/12	4.2 to 12.1	90	2.7 to 10	50/100	675	VS3DC	BC254 + BC253 or order as BC254-FBR (b) with BC253 FWD-STOP-REV switch factory installed
—	1/2 to 2.0		NEMA 4X/12	3.8 TO 11.7	180	2.5 TO 9.2	100/200			

NOTES: Instruction manual D2-3453

(a) Review dimensions and application I/O functionality for complete compatibility. Contact your local district office for assistance.

(b) Catalog number indicates option kits factory installed for functional equivalence.

DC3R Enclosed Style NEMA 4X/12 Overall Dimensions

Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)
10.2 (260)	6.90 (175.26)	5.51 (140)

DC3R Regenerative DC Drives



1/4 - 1Hp @ 115 VAC, 1-Ph, 50/60 Hz, 90 VDC Armature
1/2 - 2Hp @ 230 VAC, 1-Ph, 50/60 Hz, 180 VDC Armature

Hp Rating		Catalog Number	"Non-Isolated" Controller selection - DC3R Chassis model - 115/230 VAC, 1 Phase, 50/60 Hz For the Operation of Permanent Magnet and Shunt wound DC Motors						
115 VAC Input	230 VAC Input		Enclosure Type	Rated AC Line (Amps)	DC Armature Voltage	Rated Armature Current (Amps)	Motor Field Voltage	List Price	Mult. Sym.
1/4 to 1/2	—	DC3R-12D-4X-010-DN	NEMA 4X/12	4.2 to 7.5	90	2.7 to 5.0	50/100	855	VS3DC
1/2 to 1.0	—		NEMA 4X/12	7.5 to 12.1	90	5.0 to 10	50/100		
—	1/2 to 1.0		NEMA 4X/12	3.8 to 6.7	180	2.5 to 5.0	100/200		
—	1.0 to 2.0		NEMA 4X/12	6.7 to 11.7	180	5.0 to 9.2	100/200		

NOTES: Instruction manual D2-3455

DC3RD Enclosed Style NEMA 4X/12 Overall Dimensions

Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)
10.2 (260)	6.90 (175)	5.50 (140)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes



Series 19H Digital DC Controls

5 thru 75Hp
5 thru 300 Hp

180-264 VAC - 50/60 Hz
340-528 VAC - 50/60 Hz



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

Features: Chassis mounting, built-in armature or encoder feedback, high peak currents.

Design Specifications

- Three phase, full wave SCR armature control
- High peak overload, 250-300% (depending on rating)
- Selectable operating modes: Keypad; Standard Run, 15 Speed, Bipolar speed/torque; Serial; Process follower mode.
- Analog meter outputs
- Buffered encoder output
- 9 isolated inputs
- Chassis mounting

Operator Keypad

- Digital Speed Control
- Forward/Reverse Command
- Motor RUN and JOG
- Local/Remote Key
- Stop Command (coast or external DB to stop)
- 32 Character alpha-numeric display
- Remote mount to 100 feet from control
- NEMA 4X enclosure on keypad

Environmental and Operating Conditions

- Input Frequency - 50 or 60 Hz \pm 5%
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet max without derate

Protective Features

- Control Input over and under voltage
- Encoder, tach or resolver loss
- Torque proving
- Selectable manual or automatic restart at power loss
- Digital display for fault conditions

Motor Feedback

- 1024 PPR standard (with quadrature)
- Power output: +5VDC, 300 mA max
- Max frequency: 1 MHz
- Optional feedback: tachometer or resolver through expansion board

Output Ratings	Voltage	DC - 0-1.3 times VAC input
Input Ratings	Frequency	50 or 60 Hz \pm 5%
	Voltage	200-240 VAC \pm 10%; 380-480 VAC \pm 10%
	Phase	Three phase
Control Spec.	Impedance	5% maximum
	Control Method	Full wave-uni-directional DC control, NEMA type C
	Speed Setting	0-5VDC, 0-10VDC, 4-20 mA, digital via keypad, optional RS232/422/485
	Accel/Decel	0-3600 seconds (decel-coast or controlled by external DB resistors) - no S-curve decel
	Minimum Speed	0-maximum speed
	Maximum Speed	0-5000 RPM
	Motor Matching	Automatic tuning to motor with manual override
Field Power Supply	Type	Voltage limited, current regulated full wave single phase
	Voltage	0 to 10-85% of AC line Input in DC volts
	Current	0.1-15 Amps maximum-standard, 0.1-40 amps maximum-optional
	Field Economy Level	OFF, 25-100%
	Field Forcing Level	100-125% (hoist modes only)
Motor Feedback	Feedback Type	Armature or incremental encoder coupled to motor shaft
	Pulses/Rev	60-65535 selectable, 1024 standard
	Voltage Output	2 channel in quadrature, 5VDC differential
	Marker Pulse	Required for position orientation
	Power Input	5VDC, 300 mA maximum
	Maximum Frequency	1 MHz
Protective Functions	Optional Feedback	Tachometer or resolver via expansion board
	Control Trip	Missing control power, over current armature over voltage, motor overspeed over temperature (motor & control), field loss, encoder tach or resolver loss, phase loss, motor overload and overcurrent
	Fusing	Standard input line, armature and field power supply fuses
LCD Display	External Output	LED indicator for trip conditions, 4 assignable logic outputs - 30VDC Max, 2 assignable analog outputs 0-5VDC
	Running	Motor RPM, output current, voltage (selectable)
	Setting	Parameter values for setup and review
Ambient Conditions	Trip	Separate message for each trip, last 31 trips retained in memory
	Temperature	0-40°C for UL listing
	Cooling	Forced air included when required

NOTE: Use of DC tach for feedback requires DC Tachometer Interface Board, catalog number EXB006A01. Other expansion boards are available, see pages 253-254.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Series 19H Digital DC Controls continued...

Hp	Input Volt	Armature Output Current		Catalog Number	List Price	Mult. Sym.	Chassis Size
		Amps Cont	Amps Peak				
230 Volt Input - 240 VDC Output							
5	230	20	40	BC19H205-CO	5,005	E1	A
10	230	40	80	BC19H210-CO	5,005	E1	A
15	230	60	120	BC19H215-CO	5,378	E1	A
20	230	75	150	BC19H220-CO	5,814	E1	B
25	230	100	200	BC19H225-CO	6,124	E1	B
40	230	140	280	BC19H240-CO	7,853	E1	C
50	230	180	360	BC19H250-CO	8,444	E1	C
60	230	210	420	BC19H260-CO	9,330	E1	C
75	230	270	540	BC19H275-CO	10,117	E1	C
460 Volt Input - 500 VDC Output							
10	460	20	40	BC19H410-CO	5,097	E1	A
20	460	40	80	BC19H420-CO	5,097	E1	A
30	460	60	120	BC19H430-CO	5,503	E1	A
40	460	75	150	BC19H440-CO	5,950	E1	B
50	460	100	200	BC19H450-CO	6,262	E1	B
75	460	140	280	BC19H475-CO	8,257	E1	C
100	460	180	360	BC19H4100-CO	8,818	E1	C
125	460	210	419	BC19H4125-CO	9,701	E1	C
150	460	270	540	BC19H4150-CO	10,502	E1	C
200	460	350	875	BC19H4200-CO	12,876	E1	D
300	460	500	1000	BC19H4300-CO	17,256	E1	D

OPTIONS: See pages 253-254 for optional Expansion Boards including Tachometer Feedback, RS-232, RS-422, RS-485, Resolver, Interface, etc.
40 Amp field power supply. FPS40BC1920

Dimensions in/(mm)

Size	Hp	Outside			Mounting		Ap'x Shpg. Wgt.
		Height	Width	Depth	Height	Width	
A	ALL	20.60/(523.2)	11.00/(279.4)	9.87/(250.7)	18.00/(457.2)	10.25/(260.4)	39
B 230V	ALL	25.70/(652.8)	11.00/(279.4)	9.84/(249.9)	23.87/(606.3)	10.25/(260.4)	67
B 460V	ALL	26.75/(679.5)	11.00/(279.4)	9.84/(249.9)	24.94/(633.5)	10.25/(260.4)	69
C 230V	40-60	26.50/(673.1)	11.75/(298.5)	10.63/(270.0)	23.90/(607.0)	10.25/(260.4)	80
C 460V	75-100	27.25/(692.2)	11.75/(298.5)	10.63/(270.0)	24.65/(626.1)	10.25/(260.4)	84
C 230V	75	33.00/(838.2)	11.75/(298.5)	10.63/(270.0)	23.90/(607.6)	10.25/(260.4)	94
C 460V	125-200	33.75/(857.3)	11.75/(298.5)	10.63/(270.0)	24.65/(626.1)	10.25/(260.4)	97
D	ALL	43.80/(1112.5)	16.87/(428.5)	12.43/(315.7)	39.25/(997.0)	13.75/(349.3)	272

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Series 20H Line Regenerative Digital DC Controls



**5 thru 75Hp
5 thru 300 Hp**

**180-264 VAC - 50/60 Hz
340-528 VAC - 50/60 Hz**

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

Features: Chassis mounting, built-in armature or encoder feedback. High peak current.

Design Specifications

- Three phase, full wave, four quadrant SCR armature control.
- Peak overload capacity of 250-300% (depending on rating)
- Selectable operating modes: Keypad, Standard Run, 15 Speed, Bipolar speed/torque, Serial, Bipolar Hoist, 7 Speed Hoist, process follower
- Motor shaft orient to encoder marker or external switch closure (encoder feedback)
- 15 preset speeds (7 in Hoist Mode.)

Operator Keypad

- Digital Speed Control
- Forward/Reverse Command
- Motor RUN and JOG
- Local/Remote Key
- Stop Command
- 32 Character alpha-numeric display
- Remote mount to 100 feet from control
- NEMA 4X enclosure on keypad

Environmental and Operating Conditions

- Input frequency - 50 or 60Hz $\pm 5\%$
- Service factor - 1.0
- Duty - continuous
- Humidity - 90% max RH non-condensing
- Altitude - 3300 feet max without derate

Protective Features

- Torque proving
- Selectable manual or automatic restart at power loss
- Digital display for fault conditions

Motor Feedback

- Power output: +5VDC, 300 mA max
- Positioning: Buffered encoder pulse train output for position loop control
- Optional feedback: tachometer or resolver through expansion board

Output Ratings	Voltage	DC 0-1.13 times VAC input
Input Ratings	Frequency	50 or 60 Hz $\pm 5\%$
	Voltage	200-240 VAC $\pm 10\%$; 380-480 VAC $\pm 10\%$
	Phase	Three phase
Control Spec.	Impedance	5% maximum
	Control Method	Full wave-bi-directional regenerative DC control, NEMA type C
	Speed Setting	$\pm 5\text{VDC}$, 0-5VDC, $\pm 10\text{VDC}$, 0-10VDC, 4-20 mA, digital via keypad, optional RS232/422/485
	Accel/Decel	0-3600 seconds or s-curve
	Minimum Speed	0-maximum speed
	Maximum Speed	0-5000 RPM
	Motor Matching	Automatic tuning to motor with manual override
Field Power Supply	Type	Voltage limited, current regulated full wave single phase
	Voltage	0 to 10-85% of AC line Input in DC volts
	Current	0.1-15 Amps maximum-standard, 0.1-40 amps maximum-optional
	Field Economy Level	OFF, 25-100%
	Field Forcing Level	100-125% (hoist modes only)
Motor Feedback	Feedback Type	Armature or incremental encoder coupled to motor shaft
	Pulses/Rev	60-65535 selectable, 1024 standard
	Voltage Output	2 channel in quadrature, 5VDC differential
	Marker Pulse	Required for position orientation
	Power Input	5VDC, 300 mA maximum
	Maximum Frequency	1 MHz
	Positioning	Optional buffered encoder pulse train output for position loop controller
	Optional Feedback	Tachometer or resolver via expansion board
Protective Functions	Control Trip	Missing control power, over current armature over voltage, motor overspeed over temperature (motor & control), field loss, encoder tach or resolver loss, phase loss, motor overload and overcurrent
	Fusing	Standard input line, armature and field power supply fuses
	External Output	LED indicator for trip conditions, 4 assignable logic outputs - 30VDC Max, 2 assignable analog outputs 0-5VDC
LCD Display	Running	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	0-40°C for UL listing
	Cooling	Forced air included when required

NOTE: Use of DC tach for feedback requires DC Tachometer Interface Board, catalog number EXB006A01. Other expansion boards are available, see pages 253-254.

Series 20H Line Regenerative Digital DC Controls

Hp	Input Volt	Armature Output Current		Catalog Number	List Price	Mult. Sym.	Chassis Size
		Amps Cont	Amps Peak				
230 Volt Input - 240 VDC Output							
5	230	20	60	BC20H205-CL	5,832	E1	A
10	230	40	120	BC20H210-CL	5,832	E1	A
15	230	60	150	BC20H215-CL	5,832	E1	A
20	230	75	190	BC20H220-CL	6,112	E1	B
25	230	100	250	BC20H225-CL	6,883	E1	B
40	230	140	420	BC20H240-CL	8,928	E1	C
50	230	180	480	BC20H250-CL	9,660	E1	C
60	230	210	540	BC20H260-CL	10,215	E1	C
75	230	270	680	BC20H275-CL	12,531	E1	C
460 Volt Input - 500 VDC Output							
5, 7.5, 10	460	20	60	BC20H410-CL	6,137	E1	A
15, 20	460	40	120	BC20H420-CL	6,137	E1	A
25, 30	460	60	150	BC20H430-CL	6,335	E1	A
40	460	75	190	BC20H440-CL	6,615	E1	B
50	460	100	250	BC20H450-CL	7,336	E1	B
60, 75	460	140	420	BC20H475-CL	10,150	E1	C
100	460	180	480	BC20H4100-CL	10,953	E1	C
125	460	210	530	BC20H4125-CL	12,214	E1	C
150	460	270	680	BC20H4150-CL	13,359	E1	C
200	460	350	875	BC20H4200-CL	16,061	E1	D
250	460	420	1050	BC20H4250-CL	20,114	E1	D
300	460	510	1250	BC20H4300-CL	22,034	E1	D

OPTIONS: See pages 253-254 for optional expansion Boards including Tachometer Feedback, RS-232, RS-422, RS-485, Resolver, Interface, etc.
40 Amp field power supply. FPS40BC1920

Dimensions in/(mm)

Size	Hp	Outside Height	Width	Depth	Mounting		Ap'x Shpg. Wgt.
					Height	Width	
A	ALL	20.60/(523.2)	11.00/(279.4)	9.87/(250.7)	18.00/(457.2)	10.25/(260.4)	39
B 230V	ALL	25.70/(652.8)	11.00/(279.4)	9.84/(249.9)	23.87/(606.3)	10.25/(260.4)	67
B 460V	ALL	26.75/(679.5)	11.00/(279.4)	9.84/(249.9)	24.94/(633.5)	10.25/(260.4)	69
C 230V	40-60	26.50/(673.1)	11.75/(298.5)	10.63/(270.0)	23.90/(607.0)	10.25/(260.4)	80
C 460V	75-100	27.25/(692.2)	11.75/(298.5)	10.63/(270.0)	24.65/(626.1)	10.25/(260.4)	84
C 230V	75	33.00/(838.2)	11.75/(298.5)	10.63/(270.0)	23.90/(607.6)	10.25/(260.4)	94
C 460V	125-200	33.75/(857.3)	11.75/(298.5)	10.63/(270.0)	24.65/(626.1)	10.25/(260.4)	97
D	ALL	43.80/(1112.5)	16.87/(428.5)	12.43/(315.7)	39.25/(997.0)	13.75/(349.3)	272

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Digital DC Drives



Applications: Three-phase DC drive for regenerative and non-regenerative industrial applications from 1-1/2 to 600 Hp

Features: Flexible design allows for adaptability and use in many demanding applications. The Operator Interface Module has a keypad panel and easy to read graphics LCD display. Simple to set up and use with a step by step "Quick Start" program. Operating status and diagnostic information as well as help text aids in set up and operation. The drive may be operated from the OIM or from a remotely mounted control station.

230 VAC, 50/60 Hz, Non-Regenerative; 1-1/2 Hp-30 Hp

230 VAC drives use equivalent rated 460 VAC drives listed below with required 916FK0100 460 VAC/230 VAC conversion kits

240 VDC Armature; 150 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
1-1/2	10	7	10	3FN4042	VS50D	3,870
2	11	9	10	5FN4042	VS50D	3,870
3	13	12	10	7FN4042	VS50D	3,870
5	19	20	10	10FN4042	VS50D	3,885
7-1/2	26	29	10	15FN4042	VS50D	4,040
10	33	38	10	20FN4042	VS50D	4,070
15	48	55	10	30FN4042	VS50D	4,385
20	63	73	15	40FN4042	VS50D	5,201
25	80	93	15	50FN4042	VS50D	5,025
30	94	110	15	60FN4042	VS50D	5,090

230 VAC, 50/60 Hz, Regenerative; 1-1/2 Hp-30 Hp

230 VAC drives use equivalent rated 460 VAC drives listed below with required 916FK0100 460 VAC/230 VAC conversion kits

240 VDC Armature; 150 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
1-1/2	10	7	10	3FR4042	VS50D	4,380
2	11	9	10	5FR4042	VS50D	4,380
3	13	12	10	7FR4042	VS50D	4,380
5	19	20	10	10FR4042	VS50D	4,395
7-1/2	26	29	10	15FR4042	VS50D	4,550
10	33	38	10	20FR4042	VS50D	4,580
15	48	55	10	30FR4042	VS50D	4,895
20	63	73	15	40FR4042	VS50D	5,425
25	80	93	15	50FR4042	VS50D	5,635
30	94	110	15	60FR4042	VS50D	5,700

Dimensions

Catalog Number	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
All 230 VAC, (460 VAC Converted), catalog numbers, 1-1/2 through 30 Hp	10.65 (270.5)	18.79 (477.3)	12.23 (310.6)	58 (26.4)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Digital DC Drives



230 VAC, 50/60 Hz, Non-Regenerative; 40 Hp-75 Hp

230 VAC drives listed below use equivalent rated 460 VAC drives with required 916FK0200 460 VAC/230 VAC conversion kits.

240 VDC Armature; 150 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
40	125	146	15	75FN4042	VS50D	6,120
50	154	180	15	100FN4042	VS50D	6,835
60	186	218	15	125FN4042	VS50D	7,140
75	226	265	15	150FN4042	VS50D	7,750

230 VAC, 50/60 Hz, Regenerative; 40 Hp-75 Hp

230 VAC drives listed below use equivalent rated 460 VAC drives with required 916FK0200 460 VAC/230 VAC conversion kits.

240 VDC Armature; 150 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
40	125	146	15	75FR4042	VS50D	6,935
50	154	180	15	100FR4042	VS50D	7,650
60	186	218	15	125FR4042	VS50D	7,955
75	226	265	15	150FR4042	VS50D	8,570

Dimensions

Catalog Number	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
All 230 VAC catalog numbers, 40 through 75 Hp	18.11 (460)	490 (19.29)	13.46 (341.9)	122 (55)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Digital DC Drives



230 VAC, 50/60 Hz, Non-Regenerative; 100 Hp-150 Hp

230 VAC catalog numbers do not exist for these Hp ratings. Use a 460 VAC drive at 2X Hp rating and reconnect control power transformer for 230VAC operation at startup.

240 VDC Armature; 150 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
100	307	360	15	200FN4042	VS50D	12,035
125	370	434	15	250FN4042	VS50D	12,545
150	443	521	15	300FN4042	VS50D	12,545

230 VAC, 50/60 Hz, Regenerative; 100 Hp-150 Hp

230 VAC catalog numbers do not exist for these Hp ratings. Use a 460 VAC drive at 2X Hp rating and reconnect control power transformer for 230VAC operation at startup.

240 VDC Armature; 150 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
100	307	360	15	200FB4042	VS50D	19,100
125	370	434	15	250FB4042	VS50D	19,360
150	443	521	15	300FB4042	VS50D	20,300

Dimensions Shown for 460VAC Models

Catalog Number	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
All 230 VAC drives, 100 through 150 Hp, (All 460 VAC catalog numbers, 200 through 300 Hp)	23.6 (599)	33.5 (850)	16.7 (424.7)	220.5 (100.0)

NOTE: Option kits may add additional mounting depth. Please allow adequate clearance when option kits are mounted on the drive package.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Digital DC Drives



**460 VAC, 50/60 Hz, Non-Regenerative; 3 Hp-60 Hp
500 VDC Armature; 300 VDC Field**

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
3	10	6	10	3FN4042	VS50D	3,870
5	12	10	10	5FN4042	VS50D	3,870
7.5	15	14	10	75FN4042	VS50D	6,120
10	18	19	10	10FN4042	VS50D	3,885
15	24	27	10	15FN4042	VS50D	4,040
20	31	35	10	20FN4042	VS50D	4,070
25	39	45	10	25FN4042	VS50D	4,335
30	45	52	10	30FN4042	VS50D	4,385
40	63	73	15	40FN4042	VS50D	5,201
50	74	86	15	50FN4042	VS50D	5,025
60	86	100	15	60FN4042	VS50D	5,090

**460 VAC, 50/60 Hz, Regenerative; 3 Hp-60 Hp
500 VDC Armature; 300 VDC Field**

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
3	10	6	10	3FR4042	VS50D	4,380
5	12	10	10	5FR4042	VS50D	5,635
7.5	15	14	10	7FR4042	VS50D	4,380
10	18	19	10	10FR4042	VS50D	4,395
15	24	27	10	15FR4042	VS50D	4,550
20	31	35	10	20FR4042	VS50D	4,580
25	39	45	10	25FR4042	VS50D	4,845
30	45	52	10	30FR4042	VS50D	4,895
40	63	73	15	40FR4042	VS50D	5,425
50	74	86	15	50FR4042	VS50D	5,635
60	86	100	15	60FR4042	VS50D	5,700

Dimensions

Catalog Number	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
All 460 VAC catalog numbers, 3 through 60 Hp	10.65 (270.5)	18.79 (477.3)	12.23 (310.6)	58 (26.4)

FlexPak 3000 Digital DC Drives



**460 VAC, 50/60 Hz, Non-regenerative; 75 Hp-150 Hp
500 VDC Armature; 300 VDC Field**

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
75	110	129	15	75FN4042	VS50D	6,120
100	143	167	15	100FN4042	VS50D	6,835
125	177	207	15	125FN4042	VS50D	7,140
150	213	250	15	150FN4042	VS50D	7,750

**460 VAC, 50/60 Hz, Regenerative; 75 Hp-150 Hp
500 VDC Armature; 300 VDC Field**

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
75	110	129	15	75FR4042	VS50D	6,935
100	143	167	15	100FR4042	VS50D	7,650
125	177	207	15	125FR4042	VS50D	7,955
150	213	250	15	150FR4042	VS50D	8,570

Dimensions

Catalog Number	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
All 460 VAC catalog numbers, 75 through 150 Hp	18.11 (460)	19.29 (490)	13.46 (341.9)	122 (55)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Digital DC Drives



**460 VAC, 50/60 Hz, Non-Regenerative; 200 Hp-300 Hp
500 VDC Armature; 300 VDC Field**

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
200	281	330	15	200FN4042	VS50D	12,035
250	351	412	15	250FN4042	VS50D	12,545
300	421	495	15	300FN4042	VS50D	12,545

**460 VAC, 50/60 Hz, Regenerative; 75 Hp-150 Hp
500 VDC Armature; 300 VDC Field**

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Catalog Number	Mult. Sym.	List Price
200	281	330	15	200FB4042	VS50D	19,100
250	351	412	15	250FB4042	VS50D	19,360
300	421	495	15	300FB4042	VS50D	20,300

Dimensions

Catalog Number	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
All 460 VAC catalog numbers, 200 through 300 Hp	23.6 (599)	33.5 (850)	16.7 (424.7)	220.5 (100)

NOTE: Option kits may add additional mounting depth. Please allow adequate clearance when option kits are mounted on the drive package.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

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DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Digital DC Drives



460 VAC, 50/60 Hz, Non-Regenerative; 400 Hp-600 Hp 500 VDC Armature; 300 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Drive Catalog Number	Mult. Sym.	List Price
400	567	667	15	400FN4041	VS50D	19,025
500	680	800	15	500FN4041	VS50D	19,280
600	816	960	15	600FN4041	VS50D	19,890

460 VAC, 50/60 Hz, Regenerative; 400 Hp-600 Hp 500 VDC Armature; 300 VDC Field

Hp Rating	Full Load RMS AC Line Current	Full Load Rated DC Armature Current	Rated Field Current	Drive Catalog Number (a)	Mult. Sym.	List Price
400	567	640	15	400FR4041	VS50D	30,090
500	680	800	15	500FR4041	VS50D	30,600
600	816	960	15	600FR4041	VS50D	31,110

NOTE: (a) An inverting fault circuit breaker, Model Number 906FK3101 must be specified with 400-600 Hp regenerative drives and is included in Drive price. Refer to OPTIONS section for description.

Dimensions

Catalog Number	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
All 460 VAC catalog numbers, 400 through 600 Hp	26.68 (677.7)	42.25 (1149.2)	18.82 (478.1)	450 (204.5)

NOTE: Option kits may add additional mounting depth. Please allow adequate clearance when option kits are mounted on the drive package.

HVAC Motors

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FlexPak 3000 Digital DC Drives



Special AC Line Voltage Drives ^(b)

For 380 VAC or 415 VAC input, select the required armature amps to price the drive. Hp and kW ratings are estimated and should only be used as an approximation.

Special 380/415 VAC Non-Regenerative FlexPak 3000^(b)

380 VAC 400 VDC Armature 250 VDC Field ^(a)		415 VAC 460 VDC Armature 270 VDC Field ^(a)		460 VAC 500 VDC Armature 300 VDC Field ^(a)		AC Amps	DC Armature Amps	DC Field Amps	Catalog Number	Mult. Sym.	List Price
Hp	kW	Hp	kW	Hp	kW						
2.4	1.8	2.8	2.1	3	2.2	10	7	10	7FN3042	VS50D	4,380
12	9	13.8	10.3	15	11.2	26	29	10	29FN3042	VS50D	4,550
24	17.9	27.6	20.6	30	22.4	48	55	10	55FN3042	VS50D	4,895
48	35.8	55.2	41.2	60	44.7	94	110	15	110FN3042	VS50D	5,600
120	89.5	138	102.9	150	111.9	226	265	15	265FN3042	VS50D	8,160

Special 380/415 VAC Regenerative FlexPak 3000^(b)

2.4	1.8	2.8	2.1	3	2.2	10	7	10	7FR3042	VS50D	4,890
12	9	13.8	10.3	15	11.2	26	29	10	29FR3042	VS50D	5,060
24	17.9	27.6	20.6	30	22.4	48	55	10	55FR3042	VS50D	5,405
48	35.8	55.2	41.2	60	44.7	94	110	15	110FR3042	VS50D	6,210
120	89.5	138	102.9	150	111.9	226	265	15	265FR3042	VS50D	9,080

^(a) Hp and KW ratings are estimated.

^(b) Requires use of nonstandard voltage DC motors. Contact Baldor-Reliance sales office for motor pricing assistance.

Dimensions

Catalog Number	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
7 to 110A Rated Output	18.79 (477.3)	10.65 (270.5)	12.23 (310.6)	58 lb (26.4)
265A Rated Output	19.29 (490.0)	18.11 (460.0)	13.46 (341.9)	122 (55)

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Power Module Style Drives



Three-Phase DC Power Module Drive for Regenerative and Non-Regenerative Applications from 5 to 400 Hp

FlexPak 3000 Power Module drives can support 200-460 VAC line input voltages. The customer must select and provide the appropriate fusing, control transformer, and contactor for the desired line input voltage. Keypad Operator Interface Module (OIM) must be ordered separately.

Non-Regenerative Power Module					
Hp at 460 VAC ^(a)	Nom. Current Rating ^{(b)(d)}	Unit Type Current Rating ^{(c)(d)}	Catalog Number	Mult. Sym.	List Price
10	20	25	20FN8742	VS50D	3,570
29	50	60	50FN8742	VS50D	3,685
75	125	150	125FN8742	VS50D	4,115
125	208	250	200FN8742	VS50D	4,895
200	375	450	375FN8742	VS50D	7,140
400	667	800	650FN8742	VS50D	9,280
Regenerative Power Module					
10	20	25	20FR8742	VS50D	3,925
29	50	60	50FR8742	VS50D	4,080
75	125	150	125FR8742	VS50D	4,750
125	208	250	200FR8742	VS50D	5,825
200	375	450	375FR8742	VS50D	8,260
400	667	800	650FR8742	VS50D	11,525

(a) Hp based on 40°C ambient & 460 VAC line input voltage at nominal rating. Derate at 1.5% per °C above 40°C

(b) Nominal current rating is 100% continuous operation with 50% overload capability.

(c) Unit-type current rating based on maximum continuous operation without overload.

(d) Field current regulator rating: 4A (25-60A Ratings), 10A (150-450A Ratings), 12A (800A Rating). Rating is based on unit-type amp rating.

Note: All ratings are based on 40°C Ambient

Power Module Style Drive Options

Description	Catalog Number	Mult. Sym.	List Price
Keypad Operator Interface Module (OIM)	317C160D	VS50D	600
Configuration Software (CS3000)	2CS3000	E8	418

Power Module Dimensions

Hp at 460 VAC Rating ^(a)	Nom. Current ^(b)	Unit Type Current Rating ^(c)	Width Inches (mm)	Height Inches (mm)	Depth Inches (mm)	Weight lbs (kg)
10	20	25	10.6 (269)	15.8 (400)	11.3 (287)	22 (10)
29	50	60	10.6 (269)	15.8 (400)	11.3 (287)	22 (10)
75	125	150	10.6 (269)	16.9 (428)	11.3 (287)	31 (14)
125	208	250	10.6 (270)	21.7 (550)	13.3 (337)	88 (40)
200	375	450	10.6 (270)	21.7 (550)	13.3 (337)	88 (40)
400	667	800	12.1 (306)	26.0 (660)	17.2 (436)	183 (83)

(a) Hp based on 40°C Ambient & 460 VAC line input voltage at Nominal Rating. Derate at 1.5% per °C above 40°C.

(b) Nominal Current Rating is 100% continuous operation with 50% overload capability.

(c) Unit Type Current Rating based on maximum continuous operation without overload.

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Drive Options

AC Line Disconnects for Chassis or NEMA 1 Enclosed Drives

Select and price disconnect per the table below. This kit cannot be mounted on the FlexPak 3000 Power Module drives.

AC Line Disconnects Selection

Incoming Line Voltage		Disconnect for Chassis Drives			Disconnect for NEMA 1 Conversion Kit Mounting ^(a)		
230 VAC	460 VAC	Catalog Number	Mult. Sym.	List Price	Catalog Number	Mult. Sym.	List Price
1-1/2 - 25	3-50	901FK0101	VS50D	555	902FK0101	VS50D	400
30	60	901FK0201	VS50D	660	901FK0201	VS50D	660
40-60	75-125	901FK1102	VS50D	1,350	901FK1112	VS50D	1,425
75	150	901FK1202	VS50D	2,100	901FK1212	VS50D	2,175
100	200	901FK2101	VS50D	2,500	—	—	—
125-150	250-300	901FK2201	VS50D	4,075	—	—	—
—	400	901FK2401	VS50D	5,070	—	—	—
—	500	901FK2401	VS50D	5,070	—	—	—
—	600	901FK2501	VS50D	7,625	—	—	—

^(a) Enclosure not included in price.

Blower Motor Starter

This option provides a fused AC starter with adjustable overload and interlocking for control of the three-phase blower motor used to cool the DC motor. This kit cannot be mounted on FlexPak 3000 Power Module drives.

Blower 3-Phase Current Amps	Single Starter Catalog Number
.4-.63	902FK0101
.63-1.0	902FK0201
1.0-1.4	902FK0301
1.4-1.8	902FK0401
1.7-2.4	902FK0501
2.2-3.1	902FK0601
2.8-4.0	902FK0701
3.5-5.0	902FK0801
4.5-6.5	902FK0901
6.0-8.5	902FK0111
7.5-11.0	902FK0121

Description	List Price	Mult. Sym.
Kit	400	VS50D

FlexPak 3000 Drive Options

115V Control Interface

This option consists of a printed circuit board which converts customer-supplied 115 VAC signals to 24 VDC for operating a FlexPak 3000. This card mounts separately on the chassis drives or can be mounted in drives with optional NEMA 1 conversion kits.

INPUTS AND OUTPUTS

- Run
- Jog
- Auto/Man
- Customer Interlock
- Brush wear
- Stop
- Fwd/Rev
- Coast/Stop
- Fault reset
- Motor thermostat

Kit Catalog Number	Mult. Sym	List Price
917FK0101	VS50D	500

Conversion Kit 460 VAC to 230 VAC

This kit contains control transformer fuses that allows the user to convert a 460 VAC FlexPak 3000 to a 230 VAC drive at one-half the 460 VAC horsepower rating. This kit cannot be used with FlexPak 3000 Power Module drives.

A fuse kit is not required to convert 200-600 Hp 460 VAC FlexPak 3000 drives to 230 VAC.

The Control Circuit Transformer must be re-connected for 230 VAC.

Contact a Baldor representative for assistance.

Catalog Number	This fuse kit will convert	Mult. Sym.	List Price Ordered with Drive	List Price Ordered Separately
916FK0100	FlexPak 3000, 3-60 Hp @ 460 VAC to 1-1/2 - 30 Hp @ 230 VAC	VS50D	N/C	50
916FK0200	FlexPak 3000, 75-150 Hp @ 460 VAC to 40-75 Hp at 230 VAC	VS50D	N/C	50

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

**FlexPak 3000 Drive Options
Dynamic Braking (DB)**
240 VDC Dynamic Braking Loose Parts Kit ^(c)

	Hp Rating	Catalog Number	Mult. Sym.	Kit List ^(a)
Farm Duty Motors	1-1/2	912FK0010	VS50D	850
	2	912FK0020	VS50D	850
	3	912FK0030	VS50D	850
	5	912FK0050	VS50D	850
Definite Purpose Motors	7-1/2	912FK0070	VS50D	885
	10	912FK0100	VS50D	940
	15	912FK0150	VS50D	940
	20	912FK0200	VS50D	1,220
	25	912FK0250	VS50D	1,220
	30	912FK0300	VS50D	1,250
Brake Motors	40	912FK0400	VS50D	1,500
	50	912FK0500	VS50D	1,800
	60	912FK0500	VS50D	1,800
	75	912FK0750	VS50D	2,050

500 VDC Dynamic Braking Loose Parts Kit ^(c)

200 & 575 Volt Motors	3	913FK0030	VS50D	880
	5	913FK0050	VS50D	880
	7-1/2	913FK0070	VS50D	880
	10	913FK0100	VS50D	1,135
IEC Frame Motors	15	913FK0150	VS50D	1,135
	20	913FK0200	VS50D	1,210
	25	913FK0200	VS50D	1,210
	30	913FK0300	VS50D	1,240
	40	913FK0400	VS50D	1,240
	50	913FK0500	VS50D	1,325
	60	913FK0500	VS50D	1,325
	75	913FK0750	VS50D	1,850
50 Hertz Motors	100	913FK1000	VS50D	2,000
	125	913FK1000	VS50D	2,200
	150	913FK1500	VS50D	2,640
	200	913FK2000	VS50D	4,900
Inverter/Vector Motors & Controls	250	913FK2500	VS50D	5,000
	300	913FK3000	VS50D	5,000
	400	913FK4000	VS50D	2,800 ^(b)
	500	913FK5000	VS50D	3,000 ^(b)
	600	913FK6000	VS50D	3,200 ^(b)

^(a) Includes D/B contactor and D/B resistors. Customer must supply fuses and 115 VAC power for contactor.

^(b) Kit consists of resistors and enclosure only. Drive has DB pole on contactor as standard.

^(c) This kit cannot be used with FlexPak 3000 Power Module drives. Contact your local Baldor•Reliance sales office for assistance.

FlexPak 3000 Drive Options Enhanced Field Supply

This FlexPak 3000 Field Supply option provides the following additional features:

- Electronic Field trim
- Field economy
- Capability to provide 240 VDC field supply with 230 VAC input

AC Line Input	DC Field Voltage Output
230 VAC	103 to 207 DC
	207 to 259 DC
460 VAC	207 to 414 DC
	414 to 575 DC

This modification replaces the standard field supply or field current regulator. Motor field weakening is not possible with this kit.

230 VAC Hp	460 VAC Hp	DC Amps	Catalog Number	Mult. Sym.	Kit List Price
1-1/2 - 15	3 - 30	10	923FK0101	VS50D	500
20 - 300	40 - 600	20	923FK0201	VS50D	650

Field Current Regulator

The field current regulator kit replaces the standard field voltage supply with a current regulated supply. It provides field economy and constant horsepower above, base speed operation. It can be used in drive version 3.0 and later.

Approx. Hp ^(a)		Motor Hot Field Amps	Field Current Regulator Catalog Number ^{(b)(c)}	Mult. Sym.	Kit List ^(b)
230 VAC Hp	460 VAC Hp				
1-1/2 - 10	3 - 20	4	911FK0041	VS50D	280
1-1/2 - 15	3 - 30	10	911FK0101	VS50D	300
20-60	40-125	15	911FK0151	VS50D	320
75-300	150-600	15	—	—	Std.

^(a) For estimating only. Field current regulator should be sized according to motor hot field amps.

^(b) Requires V3.0 or later FlexPak 3000. (Second to last digit of drive M/N must be a "3" or larger.)

This kit is standard on all FlexPak 3000 drives 75 Hp @ 230 VAC/150 Hp @ 460 VAC and larger and on FlexPak 3000 Power Module drives.

^(c) A field current regulator kit cannot be used when using an Enhanced Field Supply kit.

FlexPak 3000 Drive Options I/O Expansion Card

The I/O expansion card mounts in the FlexPak 3000 chassis and gives the FlexPak 3000 additional analog, frequency and digital I/O capability. Some additional features with this card are:

- Dancer follower functions
- Outer Control Loop (OCL) applications
- External motor operated pot (MOP) function
- (3) preset speeds
- (2) user configurable analog outputs
- (1) user configurable frequency output
- (1) user configurable frequency input
- (2) timed threshold level detectors

Available I/O

5 Digital Inputs (24 VDC, isolated)
 (2) inputs for preset speed selection
 (2) inputs for MOP increment and decrement
 (1) input for OCL enable

2 Level Detectors (30 VDC or 250 VAC)

- Selectable normally open or normally closed
- Detected when signals exceed an adjustable threshold
- Timed delay output from 0 to 300 seconds

2 Analog Inputs (Isolated)

- Input 1: ± 10 VDC, 4-20 mA, 10-50 mA
- Input 2: 0-10 VDC (or ± 10 VDC)
- Voltage scalable from 4.4 V to 10.0 V
- Steerable to OCL reference and feedback, speed reference trim, positive current limit (negative also if regenerative) and inertia compensation

2 Analog Outputs (unfiltered)

- Output 1: ± 10 VDC (@ 4mA maximum)
- Output 2: ± 10 VDC (@ 4mA maximum)
- User configurable

1 Frequency Input

- Differential 5 to 15 V square wave (single direction)
- Scalable from 2 to 250 kHz
- User configurable

1 Frequency Output

- Differential 5 to 15 V square wave (single direction)
- Scalable from 2 to 250 kHz
- User configurable

Outer Control Loop (OCL)

- Dancer follower (Type I position loop)
- Dancer position regulator (Type II position loop)
- See I/M D2-3301 for more detailed information of the
- I/O expansion card.

Kit Model Number	Mult. Sym.	List Price
914FK0101	VS50D	660

(1) Requires V3.0 or later FlexPak 3000. (Second last digit of controller M/N must be "3" or higher.)

FlexPak 3000 Drive Options

Network Communications

AutoMax Network Communication Card

The AutoMax Network Communication card mounts in a FlexPak 3000 drive allowing it to communicate with an AutoMax network. The drive can be controlled, tuned, and monitored by way of the high speed (875 Kbaud) AutoMax network link. Up to 55 FlexPak 3000 drives can be connected to a single network using the basic configuration or up to 13 using the full configuration.

Kit Catalog Number	Mult. Sym.	List Price ^(a)
915FK0101	VS50D	441

ControlNet™ Communication Card

The ControlNet Communication card mounts in a FlexPak 3000 drive, allowing it to communicate over the open network ControlNet. ControlNet is a highly deterministic and repeatable control layer network. It provides real-time high speed transport of time critical I/O data and messaging data, all on one link. ControlNet is ideal for complex control systems that require synchronized and coordinated real-time performance.

Kit Catalog Number	Mult. Sym.	List Price ^{(a)(b)}
915FK2101	VS50D	735

DeviceNet™ Communication Card

The DeviceNet Communication card mounts in a FlexPak 3000 drive, allowing it to communicate over the open network DeviceNet. The card provides the ability to modify parameters plus operate and monitor the FlexPak 3000. Horner Electric Co. manufactures this card. More information is obtainable from I/M HE-FP3.

Kit Catalog Number	Mult. Sym.	List Price ^{(a)(c)}
915FK1100	VS50D	615

Interbus-S™ Communication Card

The Interbus-S Communication card mounts in the FlexPak 3000 drive, allowing it to communicate with an Interbus-S network. The card allows the FlexPak 3000 drive to be controlled and monitored over the network.

Kit Catalog Number	Mult. Sym.	List Price ^{(a)(c)}
915FK3101	VS50D	735

Note that this card also requires a remote to local bus connector, such as the Phoenix Model IBS24BK/LC

Profibus™ Communication Card

The Profibus Communication card allows the FlexPak 3000 to communicate over the Profibus network. This card allows the FlexPak 3000 to be controlled and monitored over the network.

Kit Catalog Number	Mult. Sym.	List Price ^{(a)(b)}
915FK4101	VS50D	735

- (a) Only one network card can be installed in the drive at one time
- (b) Must use V4.2 or higher firmware
- (c) Must use V3.12 or higher firmware

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

HVAC Motors

FlexPak 3000 Drive Options Inverting Fault Circuit Breaker

This modification replaces the standard inverting fault fuse. The inverting fault circuit breaker is recommended when applying regenerative FlexPak 3000 drives to high inertia loads (where the reflected load (WR2) to the motor is equal to or greater than the motor's). It also is used on applications where the drive is frequently in a low power regenerative mode, such as on un-winders and pay-offs. The inverting fault breaker must be mounted separately from the drive, unless the drive is mounted in a cabinet.

Farm Duty Motors

Definite Purpose Motors

Brake Motors

HP Rating 240 VDC	HP Rating 500 VDC	Kit Catalog Number	Mult. Sym.	Kit List Price
1-1/2 - 2	3-5	906FK0101	VS50D	775
3-5	7.5-10	906FK0201	VS50D	775
7-1/2 - 10	15-20	906FK0301	VS50D	775
15-20	25-40	906FK0401	VS50D	900
25-30	50-60	906FK0501	VS50D	950
40-60	75-125	906FK1101	VS50D	1,600
75	150	906FK1201	VS50D	2,350
100-150	200-300	Standard on FB model drives.		
—	400-600	906FK3101	VS50D	775 (a)

(a) Included in drive price and must be specified with regenerative 400-600 Hp drives.

200 & 575 Volt Motors

Line Filter Kit

The Line Filter kit is used on 400-600 Hp FlexPak 3000 drives when the primary of the drive's source transformer is greater than 2300 VRMS. The kit helps attenuate high voltage spikes that capacitively couple from the transformer primary to secondary.

IEC Frame Motors

Hp	Kit Catalog Number	Mult. Sym.	List Price
400-600	918FK0601	VS50D	750

Operator Interface Module (OIM) Remote Mounting Kit

The kit includes a cable, bezel and blank OIM replacement panel for mounting to the drive chassis in applications where it is desirable to locate the OIM away from the drive or in a cabinet door. The OIM can be then mounted up to 5 meters from the drive.

50 Hertz Motors

Kit Catalog Number	Mult. Sym.	List Price
905FK0101	VS50D	150

Inverter/Vector Motors & Controls

V4.3 Regulator Upgrade ^(b)

This kit includes a V4.3 regulator board, grounding harness, CS3000 software and V4.3 software manual. This kit can be used to upgrade V3.0(2) or higher FlexPak 3000 drives.

DC Motors and Controls

Kit Catalog Number	Mult. Sym.	List Price
920FK0042	VS50D	775

Operator Interface Module (OIM) Drive-Mounted Kit ^(c)

This kit includes an OIM and all necessary connection hardware. This option is available for FlexPak 3000 Power Module drives (standard on FlexPak 3000 drives).

Soft Start & Dynamic Brakes

Kit Catalog Number	Mult. Sym.	List Price
317C160D	VS50D	600

(b) Upgrading from a Version 2 FlexPak3000 Drive to Version 4 requires that both the regulator board and OIM kit be upgraded.
(c) Second last digit of controller M/N must be "3" or higher.

FlexPak 3000 Drive Options

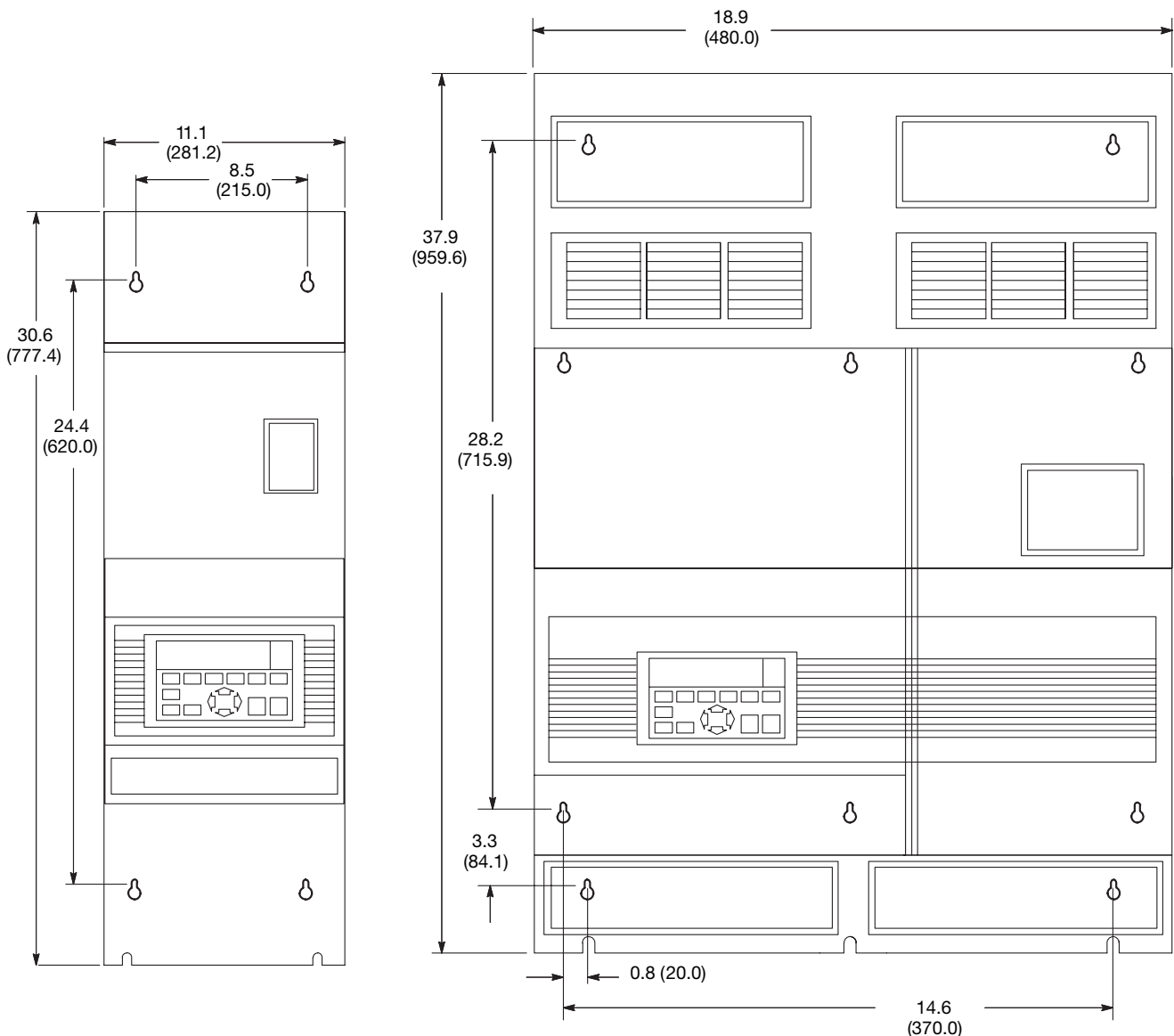
NEMA 1 Conversion Kit

This modification allows conversion of standard chassis to NEMA 1 enclosure. This kit cannot be used with FlexPak 3000 Power Module drives.

HP Rating 230 VAC	HP Rating 460 VAC	Kit Catalog Number	Mult. Sym.	Kit List Price
1-1/2 - 30	3-60	904FK0101	VS50D	900
40-75	75-150	904FK0201	VS50D	1,100
100-150	200-300	N/A	N/A	N/A
—	400-600	N/A	N/A	N/A

Dimensions

Hp Rating 230VAC	Hp Rating 460VAC	Width Inches (mm)	Height Inches (mm)	Attached Depth Inches (mm)
1-1/2 - 30	3-60	11.1 (281.2)	30.6 (777.4)	12.15 (308.57)
40-75	75-150	18.9 (480)	37.8 (959.6)	13.1 (332.8)



HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

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HVAC Motors

FlexPak 3000 Drive Options Software Programming and RS-232 Cables

CS3000 Software, Control and Configuration

This is a Microsoft Windows® based software package which allows drive Control & Configuration. The user is allowed to create, store, upload, download, monitor, control and/or compare parameter values in a user-friendly environment.

Compare; when performed either locally or over a remote modem allows quick qualification of any changed parameters. Differences are displayed on the PC and may be printed.

- Edit; allows programming via PC.
- Download; allows one step programming of multiple parameters from drive memory.
- Upload; allows identification of existing drive parameters from drive memory.
- Drive control;
 - Monitors 6 display values
 - Speed reference (scalable)
 - Motor speed
 - Armature volts
 - Motor current
 - Percent load
 - Configurable displays are;
 - Speed reference
 - Control source
 - Auto/Manual mode
 - Fwd/Rev direction
 - Operational keys displayed;
 - Run, Jog, Stop, Reset
- Fault/Alarm Log; allows fault and alarm history for diagnosis of operation.
- PC Scope feature; allows monitoring and trace of two drive parameters for diagnostics and tuning of the drive.

Captured data can also be saved as an ASCII text file or can be compared to previous traces. ^(a)

Provided on a 3.5" diskette with manual. ^(b) Note that this software is also compatible with GV3000 AC drives.

Reference Manual Number: D2-3348

Catalog Number	Mult. Sym.	List Price
2CS3000 ^(c)	E8	418

CS3000 Computer Cable

The 9-pin connector connects to the PC and the 25-pin connector connects to the FlexPak 3000 drive.

Model Number * **2CA3001**

^(a) Requires V4.0 or later

^(b) If a 3.5" disc drive is not available, contact your local Baldor•Reliance District Office for software package compatible with your PC storage.

^(c) Requires Microsoft Windows 2000® or earlier version.

Farm Duty Motors

Definite Purpose Motors

Brake Motors

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DC Motors and Controls

Soft Start & Dynamic Brakes

FlexPak 3000 Drive Options Tachometer/Encoder (Speed Feedback)

Advantages of Closed-Loop Speed Regulation

For improved speed regulation, add a motor-mounted tachometer. For the best regulation, use an encoder (pulse tachometer) kit. Use the chart below to select speed feedback kits.

Speed Feedback	Maximum Input	Type Tachometer	Regulation	Non-Regen.	Regen.	Speed Feedback Kit Catalog Number	Mult. Sym.	Speed Feedback Kit Less Tachometer/Encoder List
Armature Voltage	-	-	2%	√	√	-	-	-
AC Tachometer	250 VAC	RE 045	1%	√		907FK0301^(b)	VS50D	300
DC Tachometer ^(f)	250 VDC	5PY	1%	√	√	Std.	VS50D	Std.
Encoder (Pulse)	73KHz ^(a)	RD-120-1 ^{(c) (e)}	0.01%	√		907FK0101	VS50D	300
Encoder (Pulse)	73KHz ^(a)	RD-120-2 V	0.01%		√	907FK0101	VS50D	300
Encoder (Pulse)	73KHz ^(a)	H56 ^(c)	0.01%	√	√	907FK0101	VS50D	300
Encoder (Pulse)	73KHz ^(a)	RL-1024 ^(d)	0.01%	√	√	907FK0101	VS50D	300

(a) $\frac{PPR \times RPM}{60,000} = KHz$

(b) Kit is intended for use with existing motors that have RE045 tachometers. For new motor and tachometer applications, select another tachometer and appropriate feedback kit. AC tachometers are not suitable for Regenerative reversing drive applications.

(c) 120 PPR

(d) 1024 PPR

(e) Not suitable for use in TENV frames DC180, DC210, or C180.

(f) Requires minimum 18VDC/1000 tachometer.

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 that 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. For use with digital tachometers.

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

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Hall Effect Pickup HPU10



Provides square wave pulse feedback. HPU mounts to a stub shaft opposite the pulley end of the motor and provides 10 pulses per revolution. May be installed through Baldor's Mod-Express

Features: HPU10 Series pick-up mounts directly on shaft being monitored using a single 10-32 screw (motor shaft requires modification and/or an adapter). Use with BC450/BC440 DC controls and DTM8000 digital tachometer.

Specifications

Temperature	-10°C to +45°C
Supply Voltage	+4.5 to +24 VDC
Maximum Speed	5000 RPM
Output Cable	6 foot rubber-jacketed, 3 wire 18 AWG conductors Red Wire: +VDC supply input Black Wire: Common White Wire: Signal
Output Signal	10 pulses per revolution NPN output signal with built-in pull-up resistor. Square wave output, signal voltage equals supply voltage. +5 VDC to +24 VDC supply voltage. Current sink: 5 mA maximum
Bearings	Stainless steel ball bearing
Enclosure	Compact housing molded of "Santoprene" plastic rubber

Hall Effect Pickup RK60



Provides square wave pulse feedback. The RK models are ring kits that mount to the 56C and 145TC face of the motor. May be installed through Baldor's Mod-Express

Features: RK60 Series hall effect pick-up consists of a motor mounted C-face ring, sensor, mounting bolts, and magnet disc. Use with BC450/BC440 DC controls and DTM8000 digital tachometer.

Specifications

Temperature	-40°C to +125°C
Supply Voltage	+4.5 to +24 VDC
Output Connection	3 wires Red Wire: +VDC supply input Black Wire: Common Blue Wire: Signal
Output Signal	60 pulses per revolution NPN output signal (may require external pull-up resistor). Square wave output, signal voltage equals supply voltage. +5 VDC to +24 VDC supply voltage. Current sink: 20 mA
Sensing Disk	Molded magnet sensing disc, impervious to dust, dirt, and oil
Mounting	C-face mounting ring has double C-face and is 0.750" thick. (Please note that usable shaft length will be reduced by 0.750". Check application for suitability).



**TK3300-HPU
Mounting Kit
for TENV/33P
DC Motors**



**TK3400-HPU
Mounting Kit
for TEFC/34P
DC Motors**

Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.
HPU10	10 PPR Hall-Effect Pickup	192	E9	2
RK60-56	60 PPR Hall-Effect Pickup with 56C Ring Kit	632	E9	2
RK60-145	60 PPR Hall-Effect Pickup with 143-145TC Ring Kit	632	E9	2
TK3300-HPU	HPU10 Mounting Kit for TENV/33P DC Motors (does not include pickup)	95	A8	1
TK3400-HPU	HPU10 Mounting Kit for TEFC/34P DC Motors (does not include pickup)	110	A8	1

HVAC Motors

Farm Duty Motors

Definite Purpose Motors

Brake Motors

200 & 575 Volt Motors

IEC Frame Motors

50 Hertz Motors

Inverter/Vector Motors & Controls

DC Motors and Controls

Soft Start & Dynamic Brakes

Digital DC Controls

1/20 thru 1 Hp 115 VAC Single Phase 50/60 Hz
1/8 thru 2 Hp 230 VAC Single Phase 50/60 Hz



Applications: General purpose industrial use with permanent magnet motors.

Features: Compact programmable DC speed control with digital closed loop feedback and LED display. Front-panel programming allows customizing the control function and can display the set speed in RPM, FPM, GPM, process time or any other engineering units. Programmable parameters include minimum and maximum speed, decimal points, operating mode (leader or follower), and Run/Jog functions. Industry standard cutout dimensions of 1/8 DIN and 1/4 DIN provide easy panel installation and NEMA 4X faceplate with supplied gasket. Use with hall effect pickup shown on page 323.

Specifications

Temperature	-10 Deg C to +45 Deg C
AC input voltage	Universal power supply rated at 85 to 265 VAC
Input frequency	50/60 Hz
Overload capacity	200% for 1 minute
Motor Feedback Input	0-24 Volt Square Wave Digital Tachometer
On-board power supply	5 VDC, 50mA (for external feedback sensor)
Pulse input capacity	50,000 PPM (500,000 with divider function on)

Hp Range	Catalog Number	Description	List Price	Mult. Sym.	Ap'x. Shpg. Wgt.	Input Voltage
1/20-1/2	BC440-6	Digital Closed Loop DC Speed Control,	816	E9	2	115 VAC 50/60 Hz
1/8-1		1/8 DIN Panel Mount				230 VAC 50/60 Hz
1/8-1	BC450-6	Digital Closed Loop DC Speed Control,	1,111	E9	2	115 VAC 50/60 Hz
1/4-2		1/4 DIN Panel Mount				230 VAC 50/60 Hz

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