



AC DRIVES and CONTROLS

VLT 3000 SERIES

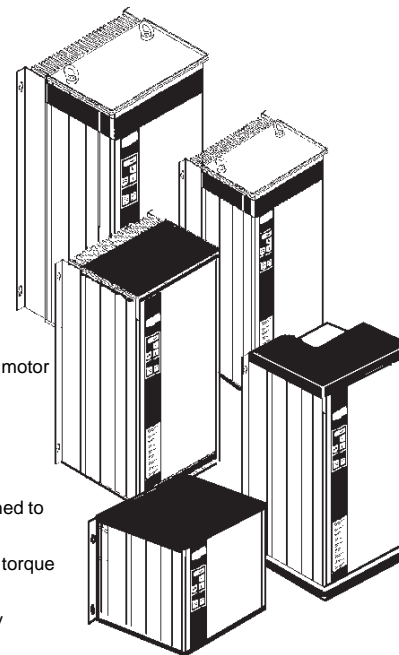
The Danfoss VLT 3000 AC Adjustable Speed Control incorporates Voltage Vector Control (VVC) which uses advanced microprocessor technology and custom Large Scale Integrated Circuits to give the closest approximation of a true sine wave.

A VVC Control results in: - high efficiency - quiet operation - a cooler motor - no motor derating
Modular Construction: All essential logic and power circuits are separate plug-in modules.

Extensive Diagnostics: Digital display indicates faults. Fault is retained in non-volatile memory.

FEATURES BENEFITS

Danfoss VVC System:	No motor derating for waveform distortion
Full rated motor voltage output with sinusoidal current:	Full rated motor torque regardless of supply line variance
Ground Fault Protection:	No isolation transformer needed
Switching on the output:	Circuit disconnect or contactor may be applied between the VLT and the motor
Three wire start/stop:	Momentary push buttons may be used
Local start/stop and speed control:	No remote control station required
Digital Programmable Control:	You can program to suit your application precisely
Electronic thermal motor protection:	Effective motor protection even at low speeds
User programmable torque characteristics:	Gives you either optimum motor efficiency or best motor dynamics matched to your application
160 % torque (momentary):	Enables a frequency converter to be used for loads with high breakaway torque
DC braking:	For faster stops
Built - in initial data settings:	Immediate start up of drive possible and single setting restores all factory settings
Four pre - set speeds:	Eliminates need for added circuits
Programmable start and slip compensation:	Gives best motor starting performance and superior speed and torque control without tach.



ORDERING INFORMATION (Many other configurations and options are available. We shall be glad to discuss your application and send you complete Danfoss literature. Perhaps these few typical listings will help with your budgeting)

VLT 3002 Series - 1.5 HP Three Phase 200 / 220 / 230 V, 50/60 Hz		
Catalog No.	Description	Net Price
175H4131	Chassis version with standard control card	\$1405.00
175H4133	NEMA 12 enclosure without brake	1608.00
1.5 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H1729	Chassis version with standard control card	1405.00
175H1731	NEMA 12 enclosure without brake	1608.00
VLT 3003 Series - 3 HP Three Phase 200 / 220 / 230 V, 50/60 Hz		
175H4135	Chassis version with standard control card	1585.00
175H4137	NEMA 12 enclosure without brake	1788.00
3 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H1733	Chassis version with standard control card	1585.00
175H1735	NEMA 12 enclosure without brake	1788.00
VLT 3004 Series - 5 HP Three Phase 200 / 220 / 230 V, 50/60 Hz		
175H4139	Chassis version with standard control card	1818.00
175H4141	NEMA 12 enclosure without brake	2021.00
5 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H1737	Chassis version with standard control card	1818.00
175H1739	NEMA 12 enclosure without brake	2021.00
VLT3006 Series - 5 HP Three Phase 200 / 220 / 230 V, 50/60 Hz		
175H4453	NEMA 12 enclosure without brake. Chassis version is not available in this voltage group. This model, in the 230 V group, is equipped with Variable torque.	2536.00
5 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H1741	Chassis version with standard control card	2332.00
175H1743	NEMA 12 enclosure without brake	2536.00
VLT3008 Series - 7.5 HP Three Phase 200 / 220 / 230 V, 50/60 Hz		
175H4461	NEMA 12 enclosure without brake. Chassis versions are not available in the 3008 family. The 3008 series comes equipped with Variable Torque	3243.00

VLT 3011 Series - 10 HP Three Phase 200 / 220 / 230 V, 50/60 Hz		
Catalog No.	Description	Net Price
175H4467	NEMA 12 enclosure without brake. Chassis versions are not available in the 3011 family. The 3011 series comes equipped with Variable Torque	\$4490.00
10 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H4405	NEMA 12 enclosure without brake	3943.00
VLT 3016 Series - 15 HP Three Phase 200 / 220 / 230 V, 50/60 Hz		
175H4477	NEMA 12 enclosure without brake. Chassis versions are not available in the 3016 family. The 3016 series comes equipped with Variable Torque	5021.00
15 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H4413	NEMA 12 enclosure without brake	5021.00
VLT 3022 Series - 20 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H4421	NEMA 12 enclosure without brake. Chassis version is not available in the 3022 family. The 3022 series comes equipped with Variable Torque	6116.00
VLT3032 Series - 30 HP Three Phase 440 / 460 / 500 V, 50/60 Hz		
175H4429	NEMA 12 enclosure without brake. Chassis version is not available in the 3032 family. The 3032 series comes equipped with Variable Torque	8320.00

NOTE: All models for use with motors of 7.5 HP or greater are equipped with Variable Torque. The 20 HP models and larger are not available in the 230 voltage group.

The sophisticated products available from DANFOSS cannot be adequately addressed in a few pages in this catalog. Application assistance is available from our field sales force, backed by our own group of system engineers and factory engineers. We can help you find the correct solution. Please call any of the toll-free numbers listed on the back cover of this catalog.

Complete DANFOSS literature is available for the asking.

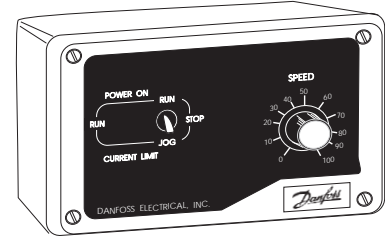


DC DRIVES and CONTROLS

DANFOSS Variable Speed Controls for DC motors include the RDS 20 Family, the VariSpeed Family and the Cycletrol Family. The following charts show many of the standard features of each product line. There are many options which we are not listing, and we urge you to call any **CARLTON-BATES COMPANY** store for additional literature or applications assistance.

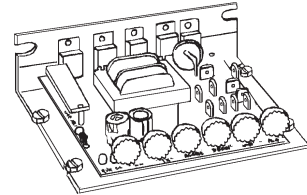


VARI SPEED A2000



FEATURES	RDS 20	A2000	S1000	VS180	CT150	CT2000
AC Input Voltage, Single Phase	120 / 240	120 / 240	120 / 240	120 / 240	120 / 240	120 / 240
Armature Voltage - VDC	0 - 90 0 - 180	0 - 90 0 - 180	0 - 90 0 - 180	0 - 90 0 - 180	0 - 90 0 - 180	0 - 90 1 - 180
Field Supply - VDC	50 / 100 100 / 200	50 / 100 100 / 200	50 / 100 100 / 200	50 / 100 100 / 200	NA	NA
Horsepower Range (120 V) (240 V)	1/8 - 1 1/4 - 3	1/8 - 1 1 - 3	1/20 - 1 1/10 - 2	1/8 - 1 1/8 - 5	1/8 - 1 1/8 - 3	1/8 - 1
Speed Range: (Speed Mode Only) Armature Feedback Tachometer Feedback	50 : 1 200 : 1	50 : 1 200 : 1	50 : 1 N/A	50 : 1 200 : 1	50 : 1 200 : 1	30 : 1 at full torque
Speed Regulation: Armature Feedback Tachometer Feedback	2% of base speed 1/2% of set speed	2% of base speed 1/2% of set speed	2% of base speed 95% of load change	3% 1/2%	± 5% ± 1/2%	< 5% base speed for 95% load change

VARI SPEED S1000



VARI SPEED A2000		UL & CSA Approved	
RATINGS	PART NUMBER	TYPE	NET PRICE
1/8 - 1/2 HP Input: 120 VAC, 1 Phase Output: ARM: 90 VDC, 9.6 A max. FLD: 50 / 100 VDC, 1 A max.	A11500A000	Chassis	\$174.00
	A11500S000	Stand Alone	174.00
To 3/4 HP Input: 120 VAC, 1 Phase Output: ARM: 90 VDC, 9.6 A max. FLD: 50 / 100 VDC, 1 A max.	A11750A000	Chassis	179.00
To 1 HP Input: 120 VAC, 1 Phase Output: ARM: 90 VDC, 12.2 A max. FLD: 50 / 100 VDC, 1 A max.	A11101A000	Chassis	188.00
Input: 240 VAC, 1 Phase	A21101A000	Chassis	184.00
Output: ARM: 180 VDC, 6.1 A max. FLD: 100 / 200 VDC, 1 A max.	A21101S000	Stand Alone	184.00
To 1 - 1/2 HP Input: 240 VAC, 1 Phase Output: ARM: 180 VDC, 6.1 A max. FLD: 100 / 200 VDC, 1 A max	A21151A000	Chassis	188.00
To 2 HP Input: 240 VAC, 1 Phase Output: ARM: 180 VDC, 10.8 A max. FLD: 100 / 200 VDC, 1 A max.	A21201A000	Chassis	199.00
To 3 HP Input: 240 VAC, 1 Phase Output:: ARM: 180 VDC, 16 A max. FLD: 100 / 200 VDC, 1 A max.	A21301A000	C hassis	252.00
PART NUMBER	OPTION KITS / ENCLOSURE KITS DESCRIPTION		NET PRICE
AGA0	Signal Input Isolation Board		\$126.00
AGB0	Signal Input Isolation Board w/ Current Limit Output & 0 - 10 V Speed Ref. Signal		169.00
27121	Speed Potentiometer Kit (includes knob & dial plate, for field installation		25.00
AC000	NEMA 12 Enclosure w/ RUN / JOG / STOP Operator		90.00
AD000	NEMA 4 Enclosure w/ RUN / JOG / STOP Operator		130.00
AE000	NEMA 4 Enclosure without Operators		76.00
NOTE: All enclosures with operators have speed potentiometers and L.E.D. indicators. Prices shown DO NOT include Factory Assembly charges.			

VARI SPEED S1000

UL & CSA Approved

PART NUMBER	HP	CURRENT SENSE ASSEMBLY PART NUMBER	NET PRICE	TOTAL NET PRICE
120 VAC Units 176B1111 NET PRICE \$99.00	1 / 20	176B1115	\$ 5.00	\$ 105.00
	1 / 8	176B1116	5.00	105.00
	1 / 4	176B1117	5.00	105.00
	1 / 2	176B1118	5.00	105.00
	3 / 4	176B1119	5.00	105.00
		with 176B1122 Heat Sink	29.00	134.00
240 VAC Units 176B1112 NET PRICE \$110.00	1	176B1120	5.00	134.00
		with 176B1122 Heat Sink	29.00	134.00
	1 / 10	176B1115	5.00	116.00
	1 / 4	176B1116	5.00	116.00
	1 / 2	176B1117	5.00	116.00
	1	176B1118	5.00	116.00
OPTIONS	1 - 1 / 2	176B1119	5.00	116.00
		with 176B1122 Heat Sink	29.00	145.00
	2	176B1120	5.00	116.00
		with 176B1122 Heat Sink	29.00	145.00
176B1113	120 VAC Terminal Board Assembly			39.00
176B1114	240 VAC Terminal Board Assembly			41.00
176B1121	Speed Potentiometer Kit w/ knob & dial plate			25.00

VARI SPEED 180

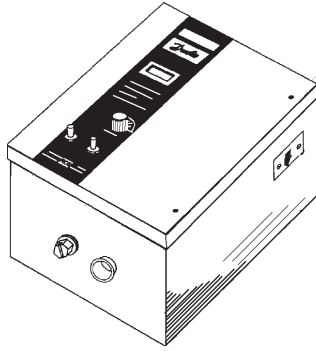
PART NUMBER	ENCLOSURE	AC VOLTAGE	HP	NET PRICE
700325	Chassis / Field	120 / 240 V	1 / 8 to 2	\$470.00
700335	NEMA 12 / Field	120 / 240 V	1 / 8 to 2	683.00
700350	Chassis / Field	120 / 240 V	3	508.00
700360	NEMA 12 / Field	120 / 240 V	3	717.00
700375	Chassis / Field	120 / 240 V	5	676.00
700385	NEMA 12 / Field	120 / 240 V	5	943.00

NOTE: The three Chassis models include speed adjustment potentiometer, knob and dial plate.



DC DRIVES and CONTROLS

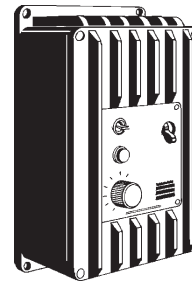
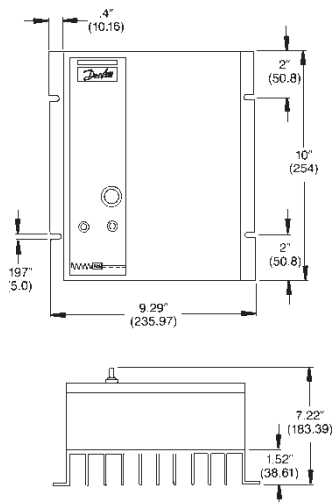
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RDS 20 Designed for UL & CSA Approval

PLATE VERSION	PART NUMBER	NET PRICE
Fractional to 2 HP (Includes 1.0 / 2.0 HP Current Shunt)	176B2010	\$241.00
3 HP (Includes 3.0 HP Current Shunt)	176B2011	309.00
Isolation Option	176B2034	161.00
CHASSIS VERSION		
Fractional to 2 HP	176B2012	315.00
3 HP	176B2013	386.00
Isolation Option	176B2034	161.00
Reversing up to 2 HP Option	176B2035	198.00
Reversing 3 HP Option	176B2053	198.00
Dynamic Brake Option	176B2036	139.00
ENCLOSURE OPTIONS FOR CHASSIS VERSION Choose one cover and one base for each unit.		
Dead - Front Cover (NEMA 12)	176B2070	52.00
Dead - Front Cover w/ Digital Display (NEMA 1)	176B2071	129.00
Standard Cover (NEMA 12)	176B2072	82.00
Standard Cover w/ Digital Display (NEMA 1)	176B2073	155.00
Reversing Cover (NEMA 12)	176B2074	103.00
Reversing Cover w/ Digital Display (NEMA 1)	176B2075	172.00
NEMA 12 Base (Up to 2 HP)	176B2056	50.00
NEMA 1 Base	176B2061	50.00
CIRCUIT BREAKER KIT FOR USE WITH ENCL.		
Single Pole, 15 Amp	176B2076	40.00
Double Pole, 15 Amp	176B2077	59.00
Double Pole, 25 Amp	176B2078	69.00
CURRENT SHUNTS		
.125 HP @ 90 V to .25 HP @ 180 V	176B2017	9.00
.25 HP @ 90 V to .5 HP @ 180 V	176B2018	9.00
.5 HP @ 90 V to 1.0 HP @ 180 V	176B2019	9.00
.75 HP @ 90 V to 1.5 HP @ 180 V	176B2020	9.00
1.0 HP @ 90 V to 2.0 HP @ 180 V	176B2021	9.00
3.0 HP @ 180 V	176B2022	9.00

Enclosure Option Dimensions



CYCLETROL 150

PART NUMBER		HP	NET PRICE
150300	120 VAC NEMA 12	1 / 8 to 1	\$ 465.00
150303	120 VAC Chassis	1 / 8 to 1	424.00
150310	240 VAC NEMA 12	1 / 8 to 1	543.00
150312	240 VAC NEMA 12	2	543.00
150314	240 VAC NEMA 12	3	584.00
150316	240 VAC Chassis	1 / 8 to 3	469.00

CYCLETROL C2000

PART NUMBER		HP	NET PRICE
176B3001	120 VAC Chassis	to 1 / 2	\$ 261.00
176B3002	120 VAC NEMA 12 w/ Operator	to 1 / 2	357.00
176B3005	240 VAC Chassis	to 1 / 2	269.00
176B3006	240 VAC NEMA 12 w/ Operator	to 1 / 2	360.00
176B3003	120 VAC Chassis	to 1	323.00
176B3004	120 VAC NEMA 12 w/ Operator	to 1	420.00
176B3007	240 VAC Chassis	to 1	336.00
176B3008	240 VAC NEMA 12 w/ Operator	to 1	431.00