ENGINEERING
TOMORROW

Fact Sheet | VACON® 3000 Drive Kit

Boost your **toughest applications** with a unique **modular** approach

The VACON® 3000 Drive Kit gives you a set of modules offering new opportunities to easily and reliably create purpose-built MV drives. These power modules can be engineered deeper than ever before into system solutions, allowing for designs that better suit the needs of your application.

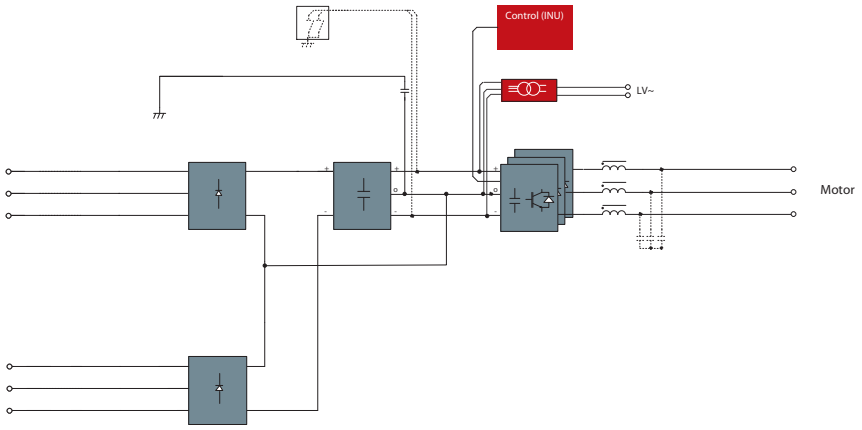
Definite purpose
Medium-voltage drives

drives.danfoss.com | VACON®

Power rating

12-pulse DFE drives

AC drive type	Continuous rating (variable torque)		Low overload rating 110% (constant torque)		High overload rating 150% (constant torque)		Output frame size
	Continuous current I_{th}[A]	Continuous power [kVA]	Continuous current I_L [A]	Continuous power [kVA]	Continuous current I_H [A]	Continuous power [kVA]	
Nominal voltage 3300 V							
VACON3000-12-0425-03	425	2430	386	2209	283	1620	L20HLx3 (425-03)
VACON3000-12-0640-03	640	3660	582	3327	427	2440	L30HLx3 (640-03)
VACON3000-12-0820-03	820	4690	745	4264	547	3127	L20HLx6 (425-03)
VACON3000-12-1230-03	1230	7030	1118	6391	650	4680	L30HLx6 (640-03)
Nominal voltage 4160 V							
VACON3000-12-0340-04	340	2450	309	2227	227	1633	L20HLx3 (340-04)
VACON3000-12-0510-04	510	3670	464	3336	340	2447	L30HLx3 (510-04)
VACON3000-12-0650-04	650	4680	591	4255	433	3120	L20HLx6 (340-04)
VACON3000-12-0980-04	980	7060	891	6418	650	4680	L30HLx6 (510-04)



Active Front End drives

AC drive type	Continuous rating (variable torque)		Low overload rating 110% (constant torque)		High overload rating 150% (constant torque)		Output frame size
	Continuous current I_{th}[A]	Continuous power [kVA]	Continuous current I_L [A]	Continuous power [kVA]	Continuous current I_H [A]	Continuous power [kVA]	
Nominal voltage 3300 V							
VACON3000-4Q-0425-03	425	2430	386	2209	283	1620	L20HLx3 (425-03)
VACON3000-4Q-0640-03	640	3660	582	3327	427	2440	L30HLx3 (640-03)
VACON3000-4Q-0820-03	820	4690	745	4264	547	3127	L20HLx6 (425-03)
VACON3000-4Q-1230-03	1230	7030	1118	6391	650	4680	L30HLx6 (640-03)
Nominal voltage 4160 V							
VACON3000-4Q-0340-04	340	2450	309	2227	227	1633	L20HLx3 (340-04)
VACON3000-4Q-0510-04	510	3670	464	3336	340	2447	L30HLx3 (510-04)
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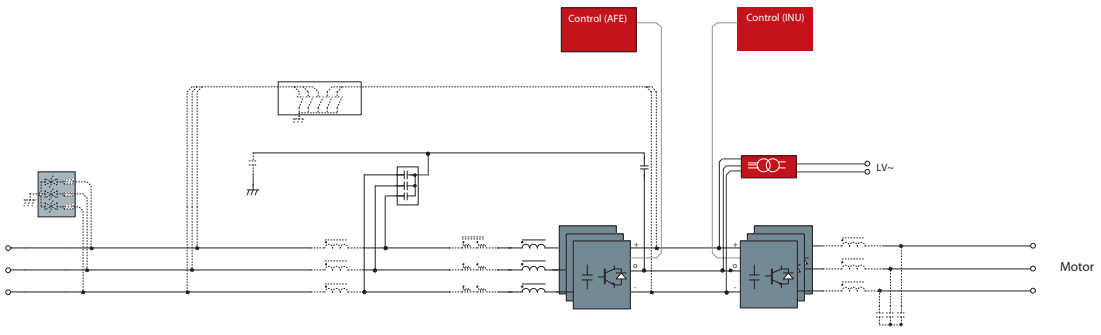


Options

VACON® 3000 Drive Kit

Factory option	Description	Option slot			
		B	C	D	E
I/O options					
+S_B1	6 x DI / DO, programmable	■			
+S_B2	1RO(NO/NC),1RO(NO), Thermistor		■	■	■
+S_B4	1 x A1, 2 x AO (isolated)		■	■	■
+S_B5	3 x RO		■	■	■
+S_B9	1 x RO, 5 x DI (42-240 V AC)		■	■	■
+S_BF	1 x AO, 1 x DO, 1 x RO		■	■	■
+S_BH	3 x Temp sensor inputs (PT100, PT1000, KTY84-130, KTY84-150, KTY84-131, NI1000)		■	■	■
Communications					
+S_E3	PROFIBUS DPV1			■	■
+S_E5	PROFIBUS DPV1 (D9)			■	■
+S_E6	CANopen			■	■
+S_E7	DeviceNet			■	■
+S_EC	EtherCAT			■	■
+S_E9	Dual Port Ethernet			■	■
+S_EA	Dual port Ethernet			■	■
Power dependent options					
+PICM	Input common mode filter *(for AFE variants only)*				
+PODU	Output dU/dt filter [1]				
+POSI	Output sine filter [1]				
+PHSI	High source impedance *(for AFE variants only)*				
+DBCU	Brake chopper for dynamic braking *(excl. resistor)* [2]				
Auxiliary units options					
+QAIT	Isolated auxiliary transformer for power section				
+QGSW	Grounding switch				
+QPTR	Potential transformer				
+QSPD	Surge protection device (for AFE variants only)				
+PMRK	Mounting rack				
+SAXB	Additional auxiliary I/O board				
+HGAS	Phase module gasket sealing				
+PGDN	DC neutral-to-ground resistor not connected				
Precharge input voltage					
+QP24	240 VAC				
+QP40	400 VAC				
+QP48	480 VAC				

[1] Contact Danfoss Drives for +PODU and +POSI options
[2] The +DBCU option is for DFE variants only. For AFE variants contact Danfoss Drives

VACON® 3000 Drive Kit

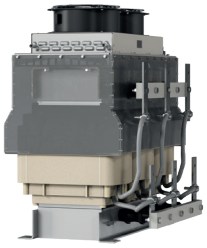
Standard factory option	Description
Default for all VACON® 3000 drives	
+HMGR	Graphical keypad


L20HL


L30HL


Control unit


Pre-charge unit


Choke

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Technical data

Topology	3-level neutral point clamped (NPC)	HV-IGBT
Inverter (INU) capacity	L20HLx3	425 A, 3300 V, 2.4 MVA[1] 340 A, 4160 V, 2.4 MVA[1]
	L30HLx3	640 A, 3300 V, 3.7 MVA[1] 510 A, 4160 V, 3.7 MVA[1]
Diode front-end (DFE) capacity	D22HL	1700 A, 1850 V 1700 A, 2360 V
Input operating voltage	Active Front End	3300 V, 3 phases ± 10 % | 4160 V, 3 phases ± 10 %
	12-pulse DFE[2]	2x 1850 V AC ± 10 % | 2x 2360 V AC ± 10 %
Input frequency		50 Hz ± 5 % (3300 V) or 60 Hz ± 5 % (4160 V)
Rectifier	Active Front End	AFE
	Diode Front End	12 and 24-pulse DFE
Input current THD	AFE	< 5 %
	12-pulse DFE	Typically <<15%
	24-pulse DFE	Typically <<8%
Power factor		>0.95
Output voltage levels		3 (5 phase-to-phase)
Output frequency		0-120 Hz
Acceleration/deceleration time		0.1-3600 s
Grounding		Isolated neutral, resonant earthing, high resistive earthing or solid earthing (IEC61936-1) For operation in unearthed neutral systems without a dedicated transformer, contact Danfoss Drives
Switching frequency	AFE	1050 Hz (50 Hz) and 1260 Hz (60 Hz)
	INU	900 Hz synchronous PWM
Motor control method	Asynchronous (induction) motor	U/f control Sensorless vector control (open loop) Vector control (closed loop, with fallback to sensorless operation available if encoder fails)
	SoftSync® functionality	Integrated SoftSync® functionality protects and enhances motor performance The SoftSync® function reduces typical motor current transients and lowers the current harmonic distortion during motor acceleration and deceleration, preventing pulsation or reduced motor shaft torque
Communication		AI/O, DI/O, fieldbuses (e.g. PROFIBUS DPV1, DeviceNet), industrial Ethernet protocols (PROFINET IO and EtherNet IP™), VACON® PC tool
Main protective functions		Torque and power limit, current limit, overcurrent, overvoltage, undervoltage, loss of auxiliary power, loss of communication, ground fault detection.
Efficiency at rated load	12 - 24-pulse DFE	≥98.8 %, excluding the input transformer
	AFE for dedicated transformer	≥97.8 %, excluding the input transformer
	AFE with input common mode filter (+PICM)	≥97.4 %
Protection rating		IP00
Temperature	Operational *(ambient)*	0 °C to +45 °C (+30 °F to +113 °F)
	Storage *(ambient)*	-40 °C to +70 °C (-40 °F to +158 °F); No liquid in heat sink under 0 °C (+32 °F)
	Power module inlet cooling liquid	0 °C to +43 °C (+32 °F to +109 °F) Lowest allowed cooling liquid temperature 2 °C (36 °F) above the dew point
Relative humidity		< 95 % RH, non-condensation, non-corrosive
Cooling	Power and phase modules *(Rectifier, inverter, and brake chopper units)*	Closed-loop liquid cooling with grounded heatsink using ethylene glycol-based heat transfer fluid with corrosion inhibitors No need to use de-ionised water, less complexity and less maintenance.
	Chokes	Hybrid cooling *(forced air cooled with air-to-liquid heat exchanger)*
Standards[3]		IEC, cUL, marine standards

1] Higher power capacities achieved by paralleling inverters
2] For lower voltage operation, please contact Danfoss Drives
3] Certification pending

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