

## FSPC.E70524 - Energy and Industrial Systems Certified for Functional Safety

## Energy and Industrial Systems Certified for Functional Safety

See General Information for Energy and Industrial Systems Certified for Functional Safety

DANFOSS L L C	E70524
1/101 NI Rall School Rd	

Loves Park, IL 61111-5600 USA

Listed products investigated to EN ISO/ISO 13849-1 (2015)

Safety	Safety				Beta			Diagnostic				
Function	Rating	SFF	PFH	HFT	Factor	$\mathbf{PFD}_{avg}$	$MTTF_d$	Coverage	Category	CCF		
ble Speed Drives "VLT Se	ries"											
ADS102, IR-302, IRV302, AKD102, CUE202, IVS102, DV-302, 3G3DV, ITT102, IPC102, KSB202, CAR102, LB-302, AF-600, AF-650, TR-200, TRV200 and WI-EFC Series												
Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
FC-102NXXXTXXXXPX series, FC-202NXXXTXXXXPX series, FC-302NXXXTXXXXPX series and FC-322NXXXTXXXXPX series, where P is identified for VLT parallel drive Modules												
Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
3, DTC302, FC-202, CUE 2, IVS102, IPC102, CAR -N710, or -N800, follow 154, -C20, -C21, -C54, -C S, followed by X, N, G, wed by X or Q, followe , AA, AE, AF, AG, AH, A. B2, B4, B5, B6, B7, BA,	202, FC- 102, or T red by -1 C2M, -C! J, K, or d by SX J, AK, AL BK, BR,	322, TR-20 T4, -T 5M, - L, fol XX, fo , AM BS, E	CU-33 00, fol 55, or C2H, llowed ollowed , AN, BT, BU	B1, KS lowed -T7, f -C5H, d by X ed by AP, A	BB202, F d by -N3 ollowed followed (, C, or l X, follo Q, AR, <i>F</i> BM, BP,	PNR202, 315, -N3: I by -E00 ed by H2 R, follow wed by A AS, AT, A BW, BY,	FC-102, 55, -N40 , -E20, - , H4, N2 ed by X, AX, A0, A U, AV, AX	AF-600, AKD 0, -N450, -N E21, -E54, -E , or N4, follo 3, 5, 7, A, or A1, A2, A3, A K, AY, or AZ, or BO, follow	102, FC-103, 500, -N560, - 2M, -E5M, -Co wed by X, B, D, followed l 4, A5, A6, A7, followed by E ed by CX, C0,	00, - R, by , , SX, C1,		
Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
MNXXXTXXXXHX series	where I	BDM	ident	ifies l	oase dri	ve mode	ls					
Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
	Function ble Speed Drives "VLT Se 2, IR-302, IRV302, AKD 3-600, AF-650, TR-200, Safe torque off (STO)  NXXXTXXXXPX series, XXTXXXXPX series, who Safe torque off (STO)  series, FC-102 Series, F2, IVS102, DV-302, 3G3  Safe torque off (STO) , IR-302, IRV302, CD-303, DTC302, FC-202, CUE 2, IVS102, IPC102, CAR N710, or -N800, followells4, -C20, -C21, -C54, -C5, followed by X, N, G, wed by X or Q, followells4, AE, AF, AG, AH, AB, B2, B4, B5, B6, B7, BA, C4, followed by X, A, E, DO.  Safe torque off (STO)  MNXXXTXXXXXHX series	Function Rating ble Speed Drives "VLT Series"  2, IR-302, IRV302, AKD102, CUE-600, AF-650, TR-200, TRV200  Safe torque off (STO) PL d  NXXXTXXXXPX series, FC-202N XXTXXXXPX series, where P is in  Safe torque off (STO) PL d  series, FC-102 Series, FC-202 Series, FC-202, CUE-202, FC-20, IVS102, DV-302, 3G3DV, ITT1  Safe torque off (STO) PL d  IR-302, IRV302, CD-302, MWU IR-302, IRV302, I	Function Rating SFF ble Speed Drives "VLT Series"  2, IR-302, IRV302, AKD102, CUE202, 5-600, AF-650, TR-200, TRV200 and V Safe torque off (STO) PL d  NXXXTXXXXPX series, FC-202NXXX XXTXXXXPX series, where P is identify Safe torque off (STO) PL d  series, FC-102 Series, FC-202 Series, 2, IVS102, DV-302, 3G3DV, ITT102, III Safe torque off (STO) PL d  - , IR-302, IRV302, CD-302, MWU302, 3, DTC302, FC-202, CUE202, FC-322, 2, IVS102, IPC102, CAR102, or TR-20, 154, -C20, -C21, -C54, -C2M, -C5M, -C5, followed by X, N, G, J, K, or L, followed by X or Q, followed by SXXX, for AA, AE, AF, AG, AH, AJ, AK, AL, AM, B2, B4, B5, B6, B7, BA, BK, BR, BS, EC4, followed by X, A, E, P, M, S, R, Z, DO.  Safe torque off (STO) PL d  MNXXXTXXXXXHX series where BDM	Function Rating SFF PFH ble Speed Drives "VLT Series"  2, IR-302, IRV302, AKD102, CUE202, IVS10 3-600, AF-650, TR-200, TRV200 and WI-EF Safe torque off (STO) PL d  NXXXTXXXXPX series, FC-202NXXXTXXX XXTXXXXPX series, where P is identified f Safe torque off (STO) PL d  series, FC-102 Series, FC-202 Series, FC-3 2, IVS102, DV-302, 3G3DV, ITT102, IPC102 Safe torque off (STO) PL d  , IR-302, IRV302, CD-302, MWU302, CDS3 3, DTC302, FC-202, CUE202, FC-322, CU-3: 2, IVS102, IPC102, CAR102, or TR-200, followed by T4, -T5, or 154, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C3, followed by X, N, G, J, K, or L, followed by X, N, G, J, K, or L, followed by X or Q, followed by SXXX, followed by X or Q, followed by SXXX, followed by X, A, E, P, M, S, R, Z, 5, or DO.  Safe torque off (STO) PL d  MNXXXTXXXXXHX series where BDM identifications of the component of the	Function Rating SFF PFH HFT ble Speed Drives "VLT Series"  2, IR-302, IRV302, AKD102, CUE202, IVS102, DVE-600, AF-650, TR-200, TRV200 and WI-EFC Ser Safe torque off (STO) PL d  NXXXTXXXXPX series, FC-202NXXXTXXXXPX s XXTXXXXPX series, where P is identified for VL Safe torque off (STO) PL d  series, FC-102 Series, FC-202 Series, FC-322 Series, FC-102, IVS102, DV-302, 3G3DV, ITT102, IPC102, KSB  Safe torque off (STO) PL d  , IR-302, IRV302, CD-302, MWU302, CDS302, Dr 3, DTC302, FC-202, CUE202, FC-322, CU-331, KS 2, IVS102, IPC102, CAR102, or TR-200, followed by -T4, -T5, or -T7, fr 454, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, -C	Function Rating SFF PFH HFT Factor ble Speed Drives "VLT Series"  2, IR-302, IRV302, AKD102, CUE202, IVS102, DV-302, 35-600, AF-650, TR-200, TRV200 and WI-EFC Series  Safe torque off (STO) PL d	Function   Rating   SFF   PFH   HFT   Factor   PFD <sub>avg</sub>	Function Rating SFF PFH HFT Factor PFD <sub>avg</sub> MTTF <sub>d</sub> ble Speed Drives "VLT Series"  2, IR-302, IRV302, AKD102, CUE202, IVS102, DV-302, 3G3DV, ITT102, IF -600, AF-650, TR-200, TRV200 and WI-EFC Series  Safe torque off (STO) PL d	Function   Rating SFF PFH HFT Factor PFDavg MTTFd   Coverage	Function   Rating   SFF   PFH   HFT   Factor   PFD <sub>avg</sub>   MTTF <sub>d</sub>   Coverage   Category		

Listed products investigated to EN/IEC 61508, Parts 1 - 7 (2010)

Model	Safety	Safety	Beta	Diagnostic	
No.	Function	Rating SFF	PFH HFT Factor PFD <sub>avg</sub>	MTTF <sub>d</sub> Coverage Category Co	CF

	able Speed Drives "VLT Se	ies"									
	)2, IR-302, IRV302, AKD F-600, AF-650, TR-200,						3DV, ITT	102, IPC	102, KSB202	, CAR102, L	.B-
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	2NXXXTXXXXPX series, l (XXTXXXXPX series, whe					-			PX series and	d FC-	
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	2 series, FC-102 Series, F 02, IVS102, DV-302, 3G3I		-			-	=	=	-	=	
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	2, IR-302, IRV302, CD-30										
CDS30 ADS10 N630, H21, - T, U, o X, foll A8, A9 B0, B1	03, DTC302, FC-202, CUE 02, IVS102, IPC102, CAR -N710, or -N800, follow H54, -C20, -C21, -C54, -C or S, followed by X, N, G, owed by X or Q, followed 0, AA, AE, AF, AG, AH, AJ , B2, B4, B5, B6, B7, BA, C4, followed by X, A, E,	202, FC-3 102, or TI ed by -T4 C2M, -C5 J, K, or L d by SXX , AK, AL, BK, BR, F	322, ( R-20( 4, -T! M, -( ., foll X, fo AM, 3S, B	CU-33 D, follo 5, or - C2H, - Owed Ilowe AN, A T, BU,	1, KSE owed T7, fo C5H, t by X, d by X AP, AQ	3202, PN by -N31 llowed followed C, or R, (, follow ), AR, AS M, BP, B	NR202, Fo l5, -N355 by -E00, d by H2, followed yed by AX S, AT, AU, SW, BY, B	C-102, A 5, -N400, -E20, -E2 H4, N2, d d by X, 3 X, A0, A1 , AV, AX, Z, Bl, or	F-600, AKD1 , -N450, -N50 11, -E54, -E2N or N4, follow , 5, 7, A, or E I, A2, A3, A4, AY, or AZ, fo	02, FC-103, 00, -N560, - M, -E5M, -Co ved by X, B, V, followed , A5, A6, A7 ollowed by I I by CX, C0,	00, - R, by , BX, C1,
CDS30 ADS10 N630, H21, - T, U, o X, foll A8, A9 B0, B1 C2, or	03, DTC302, FC-202, CUE 02, IVS102, IPC102, CAR -N710, or -N800, follow H54, -C20, -C21, -C54, -C or S, followed by X, N, G, owed by X or Q, followed 0, AA, AE, AF, AG, AH, AJ , B2, B4, B5, B6, B7, BA, C4, followed by X, A, E,	202, FC-3 102, or TI ed by -T4 C2M, -C5 J, K, or L d by SXX , AK, AL, BK, BR, F	322, ( R-20( 4, -T! M, -( ., foll X, fo AM, 3S, B	CU-33 D, follo 5, or - C2H, - Owed Ilowe AN, A T, BU,	1, KSE owed T7, fo C5H, t by X, d by X AP, AQ	3202, PN by -N31 llowed followed C, or R, (, follow ), AR, AS M, BP, B	NR202, Fo l5, -N355 by -E00, d by H2, followed yed by AX S, AT, AU, SW, BY, B	C-102, A 5, -N400, -E20, -E2 H4, N2, d d by X, 3 X, A0, A1 , AV, AX, Z, Bl, or	F-600, AKD1 , -N450, -N50 11, -E54, -E2N or N4, follow , 5, 7, A, or E I, A2, A3, A4, AY, or AZ, fo	02, FC-103, 00, -N560, - M, -E5M, -Co ved by X, B, V, followed , A5, A6, A7 ollowed by I I by CX, C0,	00, - R, by , BX, C1,
CDS30 ADS10 N630, H21, - T, U, o X, foll A8, A9 B0, B1 C2, or DX or	D3, DTC302, FC-202, CUE D2, IVS102, IPC102, CAR -N710, or -N800, follow H54, -C20, -C21, -C54, -C Or S, followed by X, N, G, owed by X or Q, followed D, AA, AE, AF, AG, AH, AJ B2, B4, B5, B6, B7, BA, C4, followed by X, A, E, DO.	202, FC-3 102, or TI ed by -T- C2M, -C5 J, K, or L d by SXX , AK, AL, BK, BR, E P, M, S, R	22, 0 R-200 4, -T! M, -C ., foll X, fo AM, 3S, B' R, Z, 5	CU-33 D, follo 5, or - C2H, - Owed Ilowe AN, A T, BU, 5, or 6	1, KSE owed T7, fo C5H, t by X, d by X AP, AQ BV, B , follo	B202, PN by -N31 llowed followed C, or R, C, follow D, AR, AS M, BP, E bwed by	NR202, F0 15, -N35! by -E00, d by H2, followed yed by A2 5, AT, AU, SW, BY, B XX, 10,	C-102, A 5, -N400, -E20, -E2 H4, N2, d by X, 3 X, A0, A1, AV, AX, Z, BI, or	F-600, AKD1 , -N450, -N50 11, -E54, -E2N or N4, follow , 5, 7, A, or E I, A2, A3, A4, AY, or AZ, fo	02, FC-103, 00, -N560, - M, -E5M, -Co ved by X, B, V, followed , A5, A6, A7 ollowed by I I by CX, C0,	00, - R, by , BX, C1,

Listed products investigated to EN/IEC 61800-5-2 (2016)

Model No.	Safety Function	Safety Rating	SFF	PFH	HFT	Beta Factor	PFD <sub>avg</sub>	MTTF <sub>d</sub>	Diagnostic Coverage	Category	CCF
Adjusta	able Speed Drives "VLT Se	ries"									
	)2, IR-302, IRV302, AKD F-600, AF-650, TR-200, <sup>1</sup>	•	-		-	-	3DV, ITT	102, IPC	102, KSB202	, CAR102, L	.B-
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	NXXXTXXXXPX series, l					-			PX series and	d FC-	
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	2 series, FC-102 Series, F 2, IVS102, DV-302, 3G3I										
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-

FC-302, IR-302, IRV302, CD-302, MWU302, CDS302, DV-302, LB-302, AF-650, FCK302, XAC302, TRV200, CDS303, DTC302, FC-202, CUE202, FC-322, CU-331, KSB202, PNR202, FC-102, AF-600, AKD102, FC-103, ADS102, IVS102, IPC102, CAR102, or TR-200, followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO. Safe torque off (STO) SIL 2 FC-BDMNXXXTXXXXHX series where BDM identifies base drive models Safe torque off (STO) SIL 2

Listed products investigated to EN/IEC 62061 (2015)

Model No.	Safety Function	Safety Rating	SFF	PFH	HFT	Beta Factor	PFD <sub>avg</sub>	MTTF <sub>d</sub>	Diagnostic Coverage	Category	CCF
Adjusta	able Speed Drives "VLT Se	ries"									
	)2, IR-302, IRV302, AKD IF-600, AF-650, TR-200,						3DV, ITT	102, IPC	102, KSB202	, CAR102, L	.B-
	Safe torque off (STO)	SIL cl 2	-	-	-	-	-	-	-	-	-
	2NXXXTXXXXPX series, (XXTXXXXPX series, wh								PX series and	I FC-	
	Safe torque off (STO)	SIL cl 2	-	-	-	-	-	-	-	-	-
CUE20	Safe torque off (STO)	DV, ITT10 SIL cl 2	2, IPC	- -	KSB2	02, TRV	200, WI- -	EFC, CAF	102 and DT0	C302 Series	-
CDS30 ADS10 N630, H21, - T, U, o X, follo A8, A9 B0, B1	2, IR-302, IRV302, CD-30, OTC302, FC-202, CUE 02, IVS102, IPC102, CAR -N710, or -N800, follow H54, -C20, -C21, -C54, -r S, followed by X, N, G, owed by X or Q, followed by X, A, E, B2, B4, B5, B6, B7, BA, C4, followed by X, A, E, DO.	202, FC-3 102, or TF ved by -T4 C2M, -C5I , J, K, or L d by SXX J, AK, AL, BK, BR, B	22, C R-200 I, -T5 M, -C , follo X, fol AM, A SS, BT	U-331 , follo , or -1 2H, -0 owed lowed AN, A	I, KSB wed   I7, fol ISH, f by X, I by X P, AQ BV, BI	5202, PN by -N31 llowed b followed C, or R, I, follow , AR, AS M, BP, B	IR202, FC 5, -N355 by -E00, - d by H2, l followed red by A) 6, AT, AU, W, BY, B	C-102, AI , -N400, E20, -E2 H4, N2, o I by X, 3 (, A0, A1 AV, AX, Z, BI, or	F-600, AKD10 -N450, -N50 1, -E54, -E2N or N4, follow , 5, 7, A, or E , A2, A3, A4, AY, or AZ, fo BO, followed	02, FC-103, 00, -N560, - 1, -E5M, -Co red by X, B, 0, followed A5, A6, A7 ollowed by 0 1 by CX, C0,	00, - R, by , BX, C1,
		1									
	Safe torque off (STO)	SIL cl 2	-	-	-	-	-	-	-	-	-
FC-BD	Safe torque off (STO)  MNXXXTXXXXHX series		- DM id	- dentif	- ies ba	- se drive	- e models	-	-	-	-

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.



# FSPC7.E70524 - Energy and Industrial Systems Certified for Functional Safety Certified for Canada

### Energy and Industrial Systems Certified for Functional Safety Certified for Canada

See General Information for Energy and Industrial Systems Certified for Functional Safety Certified for Canada

DANFOSS L L C	E70524
4401 N Bell School Rd	

Loves Park, IL 61111-5600 USA

Listed products investigated to EN ISO/ISO 13849-1 (2015)

No.	Sarety Function	Sarety Rating	SFF	PFH	HFT	Beta Factor	PFD <sub>avg</sub>	MTTF <sub>d</sub>	Coverage	Category	CCF		
Adjusta	ble Speed Drives "VLT Se	ries"											
	ADS102, IR-302, IRV302, AKD102, CUE202, IVS102, DV-302, 3G3DV, ITT102, IPC102, KSB202, CAR102, LB-302, AF-600, AF-650, TR-200, TRV200 and WI-EFC Series												
	Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
	NXXXTXXXXPX series, XXTXXXXPX series, who					-				nd FC-			
	Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
	series, FC-102 Series, F 2, IVS102, DV-302, 3G3		-			-	=	=	=	= =			
	Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
FC-302, IR-302, IRV302, CD-302, MWU302, CDS302, DV-302, LB-302, AF-650, FCK302, XAC302, TRV200, CDS303, DTC302, FC-202, CUE202, FC-322, CU-331, KSB202, PNR202, FC-102, AF-600, AKD102, FC-103, ADS102, IVS102, IPC102, CAR102, or TR-200, followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.													
	Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		
FC-BDI	MNXXXTXXXXHX series	where I	BDM	ident	ifies l	oase dri	ve mode	ls					
	Safe torque off (STO)	PL d	-	-	-	-	-	-	-	Category 3	-		

No.	Safety Function	Safety Pating	SEE	DEH	нет	Beta Factor	<b>PFD</b> <sub>avg</sub>	MTTE.	Diagnostic Coverage	Category	ccı
	ble Speed Drives "VLT Se		<u> </u>			Tactor	r i Davg	Wiiiid	Coverage	category	
Aujusta	bie speed Drives VLI Se	ries									
	2, IR-302, IRV302, AKD F-600, AF-650, TR-200,						3DV, ITT	102, IPC	102, KSB202	, CAR102, L	В-
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	NXXXTXXXXPX series, XXTXXXXPX series, wh					-			PX series and	i FC-	
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
- 2N2	series, FC-102 Series, F	C-202 Se									
	2, IVS102, DV-302, 3G3	DV, ITT10	2, IP	C102,	N3D2	I					Г
CUE202 FC-302	2, IVS102, DV-302, 3G3  Safe torque off (STO)  , IR-302, IRV302, CD-30	SIL 2 <b>D2, MWU</b> 3	- 302, (	- CDS30	- 02, D\	- /-302, Ll	- B-302, A				
FC-302 CDS303 ADS103 N630, - H21, - H7, U, or X, follo A8, A9, B0, B1,	2, IVS102, DV-302, 3G3  Safe torque off (STO)  , IR-302, IRV302, CD-30  3, DTC302, FC-202, CUE  2, IVS102, IPC102, CAR  -N710, or -N800, follow  154, -C20, -C21, -C54, -  5, followed by X, N, G,  wed by X or Q, followe  , AA, AE, AF, AG, AH, A.  B2, B4, B5, B6, B7, BA,  C4, followed by X, A, E,	SIL 2  202, MWU: 202, FC-3 102, or TI yed by -T- C2M, -C5 , J, K, or L d by SXX J, AK, AL, BK, BR, E	- 302, 0 22, 0 4, -T5 M, -0 , foll X, fo AM, 3S, B	CDS3( CU-33 ), follo 5, or - C2H, - owed Ilowed AN, <i>F</i> T, BU,	22, D\ 1, KSE owed T7, fo C5H, t by X, d by X	- J-302, LI B202, PN by -N31 Illowed I followed C, or R, C, follow Q, AR, AS	B-302, Al IR202, Fo 5, -N355 by -E00, d by H2, followed red by Al 5, AT, AU,	C-102, A 5, -N400, -E20, -E2 H4, N2, d d by X, 3 X, A0, A1 , AV, AX, Z, Bl, or	F-600, AKD1 -N450, -N50 1, -E54, -E2N or N4, follow , 5, 7, A, or E , A2, A3, A4, AY, or AZ, fo BO, followed	02, FC-103, 00, -N560, - M, -E5M, -Co ved by X, B, O, followed , A5, A6, A7 ollowed by I I by CX, C0,	00, R, by , 3X,
FC-302 CDS303 ADS103 N630, - H21, -H T, U, or X, follo A8, A9, B0, B1, C2, or C	2, IVS102, DV-302, 3G3  Safe torque off (STO)  , IR-302, IRV302, CD-30  3, DTC302, FC-202, CUE  2, IVS102, IPC102, CAR  -N710, or -N800, follow  154, -C20, -C21, -C54, -  5, followed by X, N, G,  wed by X or Q, followe  , AA, AE, AF, AG, AH, A.  B2, B4, B5, B6, B7, BA,  C4, followed by X, A, E,	SIL 2  202, MWU: 202, FC-3 102, or TI yed by -T- C2M, -C5 , J, K, or L d by SXX J, AK, AL, BK, BR, E	- 302, 0 22, 0 4, -T5 M, -0 , foll X, fo AM, 3S, B	CDS3( CU-33 ), follo 5, or - C2H, - owed Ilowed AN, <i>F</i> T, BU,	22, D\ 1, KSE owed T7, fo C5H, t by X, d by X	- J-302, LI B202, PN by -N31 Illowed I followed C, or R, C, follow Q, AR, AS	B-302, Al IR202, Fo 5, -N355 by -E00, d by H2, followed red by Al 5, AT, AU,	C-102, A 5, -N400, -E20, -E2 H4, N2, d d by X, 3 X, A0, A1 , AV, AX, Z, Bl, or	F-600, AKD1 -N450, -N50 1, -E54, -E2N or N4, follow , 5, 7, A, or E , A2, A3, A4, AY, or AZ, fo BO, followed	02, FC-103, 00, -N560, - 1/, -E5M, -C( 1/ed by X, B, 1/o, followed 1/o, A5, A6, A7 1/ollowed by 1/o 1/oved, C0,	00, R, by , 3X,
FC-302 CDS303 ADS103 N630, - H21, T, U, or X, follo A8, A9, B0, B1, C2, or C	2, IVS102, DV-302, 3G3  Safe torque off (STO)  , IR-302, IRV302, CD-303, DTC302, FC-202, CUE 2, IVS102, IPC102, CAR -N710, or -N800, followed by X, N, G, owed by X or Q, followed, AA, AE, AF, AG, AH, AB, B2, B4, B5, B6, B7, BA, C4, followed by X, A, E, DO.	SIL 2  202, FC-3  102, or TI  red by -T4  C2M, -C5  J, K, or L  d by SXX  J, AK, AL,  BK, BR, E  P, M, S, R	802, ( 22, C R-200 M, -C , foll X, fo AM, 3S, B	CDS3( CU-33 ), follo 5, or - C2H, - owed Ilowed AN, A T, BU, 5, or 6	D2, DV 1, KSE owed T7, fo C5H, t by X, d by X AP, AQ BV, B	- J-302, LI B202, PN by -N31 Illowed C, or R, K, follow D, AR, AS M, BP, E Dwed by	B-302, Al IR202, Fo 5, -N355 by -E00, d by H2, followed yed by Al 5, AT, AU, SW, BY, B XX, 10,	C-102, A 5, -N400, -E20, -E2 H4, N2, d d by X, 3 X, A0, A1 , AV, AX, Z, BI, or 11, 12, 1	F-600, AKD1 -N450, -N50 1, -E54, -E2N or N4, follow , 5, 7, A, or E , A2, A3, A4, AY, or AZ, fo BO, followed	02, FC-103, 00, -N560, - 1/, -E5M, -C( 1/ed by X, B, 1/o, followed 1/o, A5, A6, A7 1/ollowed by 1/o 1/oved, C0,	00, R, by , 3X,

Listed

Model No.	Safety Function	Safety Rating	SFF	PFH	HFT	Beta Factor	PFD <sub>avg</sub>	MTTF <sub>d</sub>	Diagnostic Coverage	Category	CCF
Adjusta	Adjustable Speed Drives "VLT Series"										
	2, IR-302, IRV302, AKD1 F-600, AF-650, TR-200, 1						i3DV, ITT	102, IPC	102, KSB202	, CAR102, L	.B-
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	NXXXTXXXXPX series, I								PX series and	I FC-	
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-
	? series, FC-102 Series, F 2, IVS102, DV-302, 3G3[										
	Safe torque off (STO)	SIL 2	-	-	-	-	-	-	-	-	-

FC-302, IR-302, IRV302, CD-302, MWU302, CDS302, DV-302, LB-302, AF-650, FCK302, XAC302, TRV200, CDS303, DTC302, FC-202, CUE202, FC-322, CU-331, KSB202, PNR202, FC-102, AF-600, AKD102, FC-103, ADS102, IVS102, IPC102, CAR102, or TR-200, followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO. Safe torque off (STO) SIL 2 FC-BDMNXXXTXXXXHX series where BDM identifies base drive models Safe torque off (STO) SIL 2

Listed products investigated to EN/IEC 62061 (2015)

Model No.	Safety Function	Safety Rating	SFF	PFH	HFT	Beta Factor	PFD <sub>avg</sub>	MTTF <sub>d</sub>	Diagnostic Coverage	Category	CCF
Adjusta	able Speed Drives "VLT Se	ries"									
	)2, IR-302, IRV302, AKD IF-600, AF-650, TR-200,						3DV, ITT	102, IPC	102, KSB202	, CAR102, L	.B-
	Safe torque off (STO)	SIL cl 2	-	-	-	-	-	-	-	-	-
	2NXXXTXXXXPX series, (XXTXXXXPX series, wh								PX series and	I FC-	
	Safe torque off (STO)	SIL cl 2	-	-	-	-	-	-	-	-	-
CUE20	Safe torque off (STO)	DV, ITT10 SIL cl 2	2, IPC	- -	KSB2	02, TRV	200, WI- -	EFC, CAF	102 and DT0	C302 Series	-
CDS30 ADS10 N630, H21, - T, U, o X, follo A8, A9 B0, B1	2, IR-302, IRV302, CD-30, OTC302, FC-202, CUE 02, IVS102, IPC102, CAR -N710, or -N800, follow H54, -C20, -C21, -C54, -r S, followed by X, N, G, owed by X or Q, followed by X, A, E, B2, B4, B5, B6, B7, BA, C4, followed by X, A, E, DO.	202, FC-3 102, or TF ved by -T4 C2M, -C5I , J, K, or L d by SXX J, AK, AL, BK, BR, B	22, C R-200 I, -T5 M, -C , follo X, fol AM, A SS, BT	U-331 , follo , or -1 2H, -0 owed lowed AN, A	I, KSB wed   I7, fol ISH, f by X, I by X P, AQ BV, BI	5202, PN by -N31 llowed b followed C, or R, I, follow , AR, AS M, BP, B	IR202, FC 5, -N355 by -E00, - d by H2, l followed red by A) 6, AT, AU, W, BY, B	C-102, AI , -N400, E20, -E2 H4, N2, o I by X, 3 (, A0, A1 AV, AX, Z, BI, or	F-600, AKD10 -N450, -N50 1, -E54, -E2N or N4, follow , 5, 7, A, or E , A2, A3, A4, AY, or AZ, fo BO, followed	02, FC-103, 00, -N560, - 1, -E5M, -Co red by X, B, 0, followed A5, A6, A7 ollowed by 0 1 by CX, C0,	00, - R, by , BX, C1,
		1									
	Safe torque off (STO)	SIL cl 2	-	-	-	-	-	-	-	-	-
FC-BD	Safe torque off (STO)  MNXXXTXXXXHX series		- DM id	- dentif	- ies ba	- se drive	- e models	-	-	-	-

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.



# NMMS.E70524 - Power Conversion Equipment

### Power Conversion Equipment

See General Information for Power Conversion Equipment

DANFOSS L L C E70524

4401 N Bell School Rd Loves Park, IL 61111-5600 USA

Trademark and/or Tradename: "E70524", "VLT", "www.danfoss.com",



#### **Investigated to ANSI/UL 508C**

3R conversion kits (optional) Model(s) 0296, 0298, 1749, 176F0295, 1771, 4600, 4601

3R Cover Kit for E5S Enclosure (Optional) Model(s) 176F3691, 176F5744, 6302 (D1), 6303 (D2)

**AC motor controllers** Model(s) 1772, 3G3DV, 3G3DV, ADS102, AF-600, AF-650, AKD102, AKD102, CAR102, CAR102, CAR102, CD302, CDS302, CUE202, CUE203, CUE203, CUE203, DAA102, dsa, DV-302, DV-302, DV302, E94 followed by ASHE, ASPE, ASSE, or ASTE(+), FC 103 Series, FC-102 Series, FC-103, FC-103, FC-202 Series, FC-302 Series, FC-322 Series, IPC102, IR-302, IR302, IRV302, IRV302, ITT102, IVS102, IVS102, IVS102, KSB202, KSB202, LB-302, LD302, MWU302, TR-200, TRV200, TRV200, TRV200, WI-EFC, WI-EFC, WI-EFC Series, XAC302

AC Motor controllers, Base Drive Model(s) FC-BDMNXXXTXXXXHX series

AC Motor controllers, VLT Parallel Drive Modules Model(s) FC-102NXXXTXXXXPX where P is identified for VLT parallel drive modules.

FC-202NXXXTXXXXPX where P is identified for VLT parallel drive modules.

FC-302NXXXTXXXXPX where P is identified for VLT parallel drive modules.

FC-322NXXXTXXXXPX where P is identified for VLT parallel drive modules.

Accessory Back Wall Cooling Duct Kit (Optional), Model(s) 176F6482 (D1n), 176F6481 (D2n)

Accessory Cooling Kits Model(s) 176F3678 (D3), 176F3679 (D4), 176F3680 (D3), 176F3681 (D4), 176F3682 (D3), 176F3683 (D4), 176F3684 (D3), 176F3685 (D4), 176F3686 (D3), 176F3686 (D3), 176F3686 (D3), 176F3687 (D4), 176F3726 (D3), 176F3727 (D4)

Accessory Pedestal Options Model(s) 176F3452 (D5, D6), 176F3539 (D7, D8)

AccessoryEnclosed Advanced Active Filter Model(s) A190, A250, A310, A400

Cooling Kit with Extended Options (optional) Model(s) 176F3530 (D1), 176F3531 (D2)

Cooling Kit with Pedestal (optional) Model(s) 176F3532 (D1), 176F3533 (D2)

Cooling kits (optional) Model(s) 176F3519 (D3), 176F3520 (D3), 176F3522 (D1,D3), 176F3523 (D1,D3), 176F3524 (D4), 176F3525 (D4), 176F3527 (D2,D4), 176F3528 (D2,D4), 176F3625 (D3), 176F3626 (D4), 176F3648 (D1), 176F3649 (D2), 176F3654 (D3), 176F3655 (D4), 176F3657 (D2)

Cooling kits 3R (optional) Model(s) 176F3521 (D3), 176F3526 (D4), 176F3633 (D3), 176F3634 (D4)

Drive Adapter Plate Kit (optional) Model(s) 176F3409 (D1,D3), 176F3410 (D2,D4)

Duct kits (optional) Model(s) 176F3627 (D3), 176F3628 (D4), 176F3629 (D3), 176F3630 (D4)

Duct work cooling kits (optional) Model(s) 176F1823, 1824, 1825, F1826, F1850

Enclosed, AC Drive Model(s) AF-600, AF-650, DTC302 series, LB-302, TR-200

Mains shield kits (optional) Model(s) 176F0799 (D1, D2), 176F1851 (E1), 177G5034 (D1), 177G5035 (D2)

Pedestal option for Type 1 and Type 12 Model(s) 176F1827, 176F3631 (D1), 176F3632 (D2)

**Top entry kits (optional)** Model(s) 176F1832, 176F1833, 176F1834, 176F1835, 176F1836, 176F1837, 176F1838, 176F1839, 176F1840, 176F1841, 176F1845, 176F1846, 176F1848

#### Investigated to UL 61800-5-1

Accessory Model(s) Kit, Auxiliary Ground Kit -176F6609

Pedestal accessories kit, tall plinth, e1--176f6764 kit, tall plinth, e2--176F6763

Accessory - Ducting Kits Model(s) KIT,600MM CAB,BTM IN-BACK OUT,E3,P4001--176F6612

KIT,600MM CAB,BTM IN-TOP OUT,E3,P4001--176F6606

KIT,800MM CAB,BTM IN-BACK OUT,E3,P4001--176F6613

KIT,800MM CAB,BTM IN-BACK OUT,E4,P4001--176F6614

KIT,800MM CAB,BTM IN-TOP OUT,E3,P4001--176F6607

KIT,800MM CAB,BTM IN-TOP OUT,E4,P4001--176F6608

KIT,BACK IN-BACK OUT,E3,P4001--176F6610, KIT,BACK IN-BACK OUT,E4,P4001--176F6611, KIT,BACK IN-TOP OUT,E3,P4001--176F6615, KIT,BACK IN-TOP OUT,E4,P4001--176F6616, KIT,E1h, BACK IN-BACK OUT, P4001--176F6617, KIT,E2h, BACK IN-BACK OUT, P4001--176F6618

Pedestal Kits Model(s) kit, tall plinth, e1--176f6764, kit, tall plinth, e2--176F6763

Power Conversion Equipment, "Accessories" Model(s) Handle and shaft Kit, E3, E4 - 176F3857

Power Conversion Equipment, "Listed Accessory 3R Duct Kits" Model(s) 176F3924, 176F3925, 176F3926

**Power Conversion Equipment** Model(s) ADS102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

AF-600 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

AF-650 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

AKD102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CAR102 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CD-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CDS302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX,

followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CDS303 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CU-331 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CUE202 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CUE203 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

DAA102- followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

DTC302 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

DV-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-103 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-202 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-322 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FCK302 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IPC102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IR-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IRV302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IVS102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

KSB202 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

LB-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

MWU302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

PNR202 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX,

followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

TR-200 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

TRV200 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

WI-EFC followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

XAC302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

+ - followed by 1454,1724,2024,2454,2924,3664,4604,5724,6354,6954

Last Updated on 2020-06-25

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.



## NMMS7.E70524 - Power Conversion Equipment Certified for Canada

### Power Conversion Equipment Certified for Canada

See General Information for Power Conversion Equipment Certified for Canada

**DANFOSS L L C** E70524

4401 N Bell School Rd Loves Park, IL 61111-5600 USA

#### Investigated to CAN/CSA C22.2 No. 274

3R conversion kits (optional) Model(s) 0296, 0298, 1749, 176F0295, 1771, 4600, 4601

3R Cover Kit for E5S Enclosure (Optional) Model(s) 176F3691, 176F5744, 6302 (D1), 6303 (D2)

**AC motor controllers** Model(s) 1772, 3G3DV, 3G3DV, ADS102, AF-600, AF-650, AKD102, AKD102, CAR102, CAR102, CAR102, CD302, CDS302, CUE202, CUE203, CUE203, CUE203, DAA102, dsa, DV-302, DV-302, DV302, E94 followed by ASHE, ASPE, ASSE, or ASTE(+), FC 103 Series, FC-102 Series, FC-103, FC-103, FC-202 Series, FC-302 Series, FC-322 Series, IPC102, IR-302, IR302, IRV302, IRV302, ITT102, IVS102, IVS102, IVS102, KSB202, KSB202, LB-302, LD302, MWU302, TR-200, TRV200, TRV200, TRV200, WI-EFC, WI-EFC, WI-EFC Series, XAC302

Accessory Model(s) Kit, Auxiliary Ground Kit -176F6609

Pedestal accessories kit, tall plinth, e1--176f6764 kit, tall plinth, e2--176F6763

Accessory Back Wall Cooling Duct Kit (Optional), Model(s) 176F6482 (D1n), 176F6481 (D2n)

**Accessory Cooling Kits** Model(s) 176F3678 (D3), 176F3679 (D4), 176F3680 (D3), 176F3681 (D4), 176F3682 (D3), 176F3683 (D4), 176F3684 (D3), 176F3685 (D4), 176F3686 (D3), 176F3687 (D4), 176F5726 (D3), 176F5727 (D4

Accessory Pedestal Options Model(s) 176F3452 (D5, D6), 176F3539 (D7, D8)

Accessory - Ducting Kits Model(s) KIT,600MM CAB,BTM IN-BACK OUT,E3,P4001--176F6612

KIT,600MM CAB,BTM IN-TOP OUT,E3,P4001--176F6606

KIT,800MM CAB,BTM IN-BACK OUT,E3,P4001--176F6613

KIT,800MM CAB,BTM IN-BACK OUT,E4,P4001--176F6614

KIT,800MM CAB,BTM IN-TOP OUT,E3,P4001--176F6607

KIT,800MM CAB,BTM IN-TOP OUT,E4,P4001--176F6608

KIT,BACK IN-BACK OUT,E3,P4001--176F6610, KIT,BACK IN-BACK OUT,E4,P4001--176F6611, KIT,BACK IN-TOP OUT,E3,P4001--176F6615, KIT,BACK IN-TOP OUT,E4,P4001--176F6616, KIT,E1h, BACK IN-BACK OUT, P4001--176F6617, KIT,E2h, BACK IN-BACK OUT, P4001--176F6618

AccessoryEnclosed Advanced Active Filter Model(s) A190, A250, A310, A400

Cooling Kit with Extended Options (optional) Model(s) 176F3530 (D1), 176F3531 (D2)

Cooling Kit with Pedestal (optional) Model(s) 176F3532 (D1), 176F3533 (D2)

Cooling kits (optional) Model(s) 176F3519 (D3), 176F3520 (D3), 176F3522 (D1,D3), 176F3523 (D1,D3), 176F3524 (D4), 176F3525 (D4), 176F3527 (D2,D4), 176F3528 (D2,D4), 176F3625 (D3), 176F3626 (D4), 176F3648 (D1), 176F3649 (D2), 176F3654 (D3), 176F3655 (D4), 176F3657 (D2)

Cooling kits 3R (optional) Model(s) 176F3521 (D3), 176F3526 (D4), 176F3633 (D3), 176F3634 (D4)

Drive Adapter Plate Kit (optional) Model(s) 176F3409 (D1,D3), 176F3410 (D2,D4)

Duct kits (optional) Model(s) 176F3627 (D3), 176F3628 (D4), 176F3629 (D3), 176F3630 (D4)

Duct work cooling kits (optional) Model(s) 176F1823, 1824, 1825, F1826, F1850

Enclosed, AC Drive Model(s) AF-600, AF-650, DTC302 series, LB-302, TR-200

Mains shield kits (optional) Model(s) 176F0799 (D1, D2), 176F1851 (E1), 177G5034 (D1), 177G5035 (D2)

Pedestal Kits Model(s) kit, tall plinth, e1--176f6764, kit, tall plinth, e2--176F6763

Pedestal option for Type 1 and Type 12 Model(s) 176F1827, 176F3631 (D1), 176F3632 (D2)

Power Conversion Equipment, "Accessories" Model(s) Handle and shaft Kit, E3, E4 - 176F3857

Power Conversion Equipment, "Listed Accessory 3R Duct Kits" Model(s) 176F3924, 176F3925, 176F3926

**Power Conversion Equipment** Model(s) ADS102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

AF-600 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

AF-650 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

AKD102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CAR102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CD-302 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CDS302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CDS303 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CU-331 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CUE202 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

CUE203 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

DAA102- followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

DTC302 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

DV-302 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-103 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-202 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FC-322 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

FCK302 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX,

followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IPC102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IR-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IRV302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

IVS102 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

KSB202 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

LB-302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

MWU302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by X, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

PNR202 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

TR-200 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

TRV200 followed by -N315, -N355, -N400, -N450, -N500, -N500, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

WI-EFC followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

XAC302 followed by -N315, -N355, -N400, -N450, -N500, -N560, -N630, -N710, or -N800, followed by -T4, -T5, or -T7, followed by -E00, -E20, -E21, -E54, -E2M, -E5M, -C00, -H21, -H54, -C20, -C21, -C54, -C2M, -C5M, -C2H, -C5H, followed by H2, H4, N2, or N4, followed by X, B, R, T, U, or S, followed by X, N, G, J, K, or L, followed by X, C, or R, followed by X, 3, 5, 7, A, or D, followed by X, followed by X or Q, followed by SXXX, followed by AX, A0, A1, A2, A3, A4, A5, A6, A7, A8, A9, AA, AE, AF, AG, AH, AJ, AK, AL, AM, AN, AP, AQ, AR, AS, AT, AU, AV, AX, AY, or AZ, followed by BX, B0, B1, B2, B4, B5, B6, B7, BA, BK, BR, BS, BT, BU, BV, BM, BP, BW, BY, BZ, BI, or BO, followed by CX, C0, C1, C2, or C4, followed by X, A, E, P, M, S, R, Z, 5, or 6, followed by XX, 10, 11, 12, 13, 14, 15, or 30, followed by DX or DO.

**Top entry kits (optional)** Model(s) 176F1832, 176F1833, 176F1834, 176F1835, 176F1836, 176F1837, 176F1838, 176F1839, 176F1840, 176F1841, 176F1845, 176F1846, 176F1847, 176F1848

#### Investigated to CAN/CSA C22.2. No. 14-10

AC Motor controllers, Base Drive Model(s) FC-BDMNXXXTXXXXHX series

AC Motor controllers, VLT Parallel Drive Modules Model(s) FC-102NXXXTXXXXPX where P is identified for VLT parallel drive modules.

FC-202NXXXTXXXXPX where P is identified for VLT parallel drive modules.

FC-302NXXXTXXXXPX where P is identified for VLT parallel drive modules.

FC-322NXXXTXXXXPX where P is identified for VLT parallel drive modules.

+ - followed by 1454,1724,2024,2454,2924,3664,4604,5724,6354,6954

Trademark and/or Tradename: "E70524", "VLT", "www.danfoss.com"



Last Updated on 2020-06-25

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.