



***Control Techniques Drives
EU 2019/1781 Ecodesign
Regulation Energy Efficiency
Indicators***

Variable Speed AC drives for Induction Motors.



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1. Introduction

- The European Commission Regulation EU 2019/1781, known as the 'Ecodesign Regulation' establishes an energy efficiency framework for a range of three-phase electric motors and variable speed drives.
- The goal of the regulation is to achieve energy saving through the design of better energy related product, leading to a more sustainable future and economic saving for end users and businesses.
- The latest regulation (phase 1), which came into effect in 2019 (1st July for 2021 for VSDs), covers all AC induction motors and variable speed drives in the power range of 0.12 kW up to 1000 kW and with a voltage between 100 V and 1000 V.
- A second phase is scheduled for 1st July 2023, which will expand the scope of the regulation and will increase the requirements on motors.
- For variable speed drives, the latest regulation requires a minimum efficiency of IE2.
- Control Techniques products will show the efficiency rating at the nominal operating point on their rating label and this document contains all efficiency/operating points required by the regulation for the following product ranges:
 - Digitax HD M75x
 - Commander C200 & 300
 - Unidrive HSxx
 - Unidrive Mxxx
 - Unidrive E300
 - Unidrive Fxxx
 - Unidrive Hxxx
- The maximum operating temperature of Control Techniques products listed in this document is:

Product Range	Maximum Operating Temperature (°C)
Digitax HD M75x Unidrive E300/M600/M70x/M88x Commander C200/C300 (Frame 5 – 9)	55
Commander C200/C300/M400/HS30 (Frame 1 – 4)	60

- The frequency range of Control Techniques products listed in this document is 45 to 66 Hz.
- Measurements are made with a supply frequency of 50 Hz and a switching frequency of 4 kHz (rated power up to and including 90 kW), or 2 kHz (rated power above 90 kW).
- Power Loss values quoted for energy efficiency are given as a percentage of apparent power (1.732 x Drive Rated Current x Drive Rated Voltage).
- The IE Class is determined by the power losses measured with the variable speed drive operating at 90 % rated output frequency and at 100 % rated torque. A variable speed drive meets the IE2 efficiency level, if the losses are at least 25 % lower than the losses of a reference variable speed drive defined within the regulation.
- Additional operating points are also defined at different combinations of torque and speed, at which power losses are to be determined. The purpose of these points is to reflect the losses at part load for both variable and constant torque applications. Standby losses are also measured.

Operating point for measured power loss	Relative motor stator frequency (%)	Torque producing current (%)
Standby	0	0
1	25	25
2	25	50
3	25	100
4	50	25
5	50	50
6	50	100
7	90	50
8	90	100

The name and address of the manufacturer is listed below:

Manufacturer
Nidec Control Techniques Ltd The Gro Newtown Powys SY16 3BE UK Registered in England and Wales. Company Reg. No. 01236886

2. Energy Efficiency - % of Apparent Power

Table 1-1 Digitax HD M75x

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
0.3	0.7	1.0	1.5	0.5	1.1	1.9	1.2	2.1	97.6	IE2	01200022	0.76	0.37	2.2	200 to 240 $\pm 10\%$
0.2	0.7	1.0	1.5	0.5	1.1	1.9	1.2	2.1	97.6	IE2	01200040	1.39	0.75	4	200 to 240 $\pm 10\%$
0.1	0.7	0.9	1.4	0.5	1.1	1.8	1.2	2.0	97.6	IE2	01200065	2.25	1.1	6.5	200 to 240 $\pm 10\%$
0.1	0.4	0.5	1.2	0.4	0.8	1.3	0.6	1.7	97.7	IE2	02200090	3.12	2.2	9	200 to 240 $\pm 10\%$
0.1	0.4	0.5	1.2	0.4	0.8	1.3	0.6	1.7	97.7	IE2	02200120	4.16	2.2	12	200 to 240 $\pm 10\%$
0.0	0.5	0.7	1.3	0.6	1.1	1.2	1.2	2.1	97.3	IE2	03200160	5.54	4	16	200 to 240 $\pm 10\%$
0.6	0.6	0.6	1.2	0.4	0.7	1.2	1.3	1.7	97.9	IE2	01400015	1.04	0.37	1.5	380 to 480 $\pm 10\%$
0.3	0.6	0.6	1.2	0.4	0.6	1.2	1.3	1.7	97.9	IE2	01400030	2.08	0.75	3	380 to 480 $\pm 10\%$
0.2	0.5	0.5	1.0	0.3	0.5	1.0	1.1	1.4	97.9	IE2	01400042	2.91	1.5	4.2	380 to 480 $\pm 10\%$
0.1	0.3	0.3	0.8	0.3	0.6	0.9	0.7	1.9	97.7	IE2	02400060	4.16	2.2	6	380 to 480 $\pm 10\%$
0.1	0.3	0.3	0.8	0.3	0.6	0.9	0.7	1.9	97.7	IE2	02400080	5.54	3	8	380 to 480 $\pm 10\%$
0.1	0.3	0.3	0.8	0.3	0.6	0.9	0.7	1.9	97.7	IE2	02400105	7.27	4	10.5	380 to 480 $\pm 10\%$
0.1	0.3	0.2	0.7	0.2	0.5	0.7	0.6	1.5	97.7	IE2	03400135	9.35	5.5	13.5	380 to 480 $\pm 10\%$
0.0	0.3	0.3	0.8	0.3	0.6	0.9	0.7	1.9	97.7	IE2	03400160	11.09	5.5	16	380 to 480 $\pm 10\%$

Table 1-2 Commander C200/C300/M400/HS30 (Frame 1 – 4)

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
0.9	1.6	2.0	2.8	1.9	2.1	3.4	2.4	3.7	95.8	IE2	01200017	0.59	0.25	1.7	200 to 240 $\pm$ 10%
0.7	1.6	2.0	2.8	1.9	2.1	3.4	2.4	3.7	95.8	IE2	01200024	0.83	0.37	2.4	200 to 240 $\pm$ 10%
0.5	1.6	2.0	2.8	1.9	2.1	3.4	2.4	3.7	95.8	IE2	01200033	1.14	0.55	3.3	200 to 240 $\pm$ 10%
0.4	1.4	1.6	2.3	1.6	1.8	2.8	2.0	3.1	95.8	IE2	01200042	1.45	0.75	4.2	200 to 240 $\pm$ 10%
0.5	2.0	1.9	3.3	1.9	2.0	2.9	2.4	3.6	95.9	IE2	02200024	0.83	0.37	2.4	200 to 240 $\pm$ 10%
0.9	0.9	1.2	2.0	0.9	1.1	1.9	1.4	2.5	97.5	IE2	02200033	1.14	0.55	3.3	200 to 240 $\pm$ 10%
0.7	0.9	1.2	2.0	0.9	1.1	1.9	1.4	2.5	97.5	IE2	02200042	1.45	0.75	4.2	200 to 240 $\pm$ 10%
0.5	0.9	1.2	2.0	0.9	1.1	1.9	1.4	2.5	97.5	IE2	02200056	1.94	1.1	5.6	200 to 240 $\pm$ 10%
0.4	0.8	1.0	1.6	0.7	0.9	1.6	1.2	2.1	97.5	IE2	02200075	2.60	1.5	7.5	200 to 240 $\pm$ 10%
0.3	0.6	1.2	1.4	0.9	1.1	1.3	1.3	2.1	97.5	IE2	03200100	3.46	2.2	10	200 to 240 $\pm$ 10%
0.2	0.6	0.8	1.7	0.7	0.9	1.6	1.0	2.3	97.6	IE2	04200133	4.61	3	13.3	200 to 240 $\pm$ 10%
0.2	0.5	0.6	1.4	0.6	0.7	1.3	0.8	1.9	97.6	IE2	04200176	6.10	4	17.6	200 to 240 $\pm$ 10%
0.9	1.0	1.1	1.4	0.9	1.1	1.6	1.4	2.1	97.7	IE2	02400013	0.90	0.37	1.3	380 to 480 $\pm$ 10%
0.7	1.0	1.1	1.4	0.9	1.1	1.6	1.4	2.1	97.7	IE2	02400018	1.25	0.55	1.8	380 to 480 $\pm$ 10%
0.5	1.0	1.1	1.4	0.9	1.1	1.6	1.4	2.1	97.7	IE2	02400023	1.59	0.75	2.3	380 to 480 $\pm$ 10%
0.4	1.0	1.1	1.4	0.9	1.1	1.6	1.4	2.1	97.7	IE2	02400032	2.22	1.1	3.2	380 to 480 $\pm$ 10%
0.3	0.9	0.9	1.2	0.8	1.0	1.4	1.2	1.9	97.7	IE2	02400041	2.84	1.5	4.1	380 to 480 $\pm$ 10%
0.3	0.4	0.6	1.1	0.1	0.5	1.1	0.4	1.2	98.3	IE2	03400056	3.88	2.2	5.6	380 to 480 $\pm$ 10%
0.2	0.4	0.6	1.1	0.1	0.5	1.1	0.4	1.2	98.3	IE2	03400073	5.06	3	7.3	380 to 480 $\pm$ 10%
0.2	0.4	0.5	1.0	0.1	0.5	1.0	0.4	1.1	98.3	IE2	03400094	6.51	4	9.4	380 to 480 $\pm$ 10%
0.1	0.4	0.6	1.0	0.6	0.6	1.1	1.1	1.6	98.1	IE2	04400135	9.35	5.5	13.5	380 to 480 $\pm$ 10%
0.1	0.4	0.5	0.9	0.5	0.5	1.0	0.9	1.4	98.1	IE2	04400170	11.78	7.5	17	380 to 480 $\pm$ 10%

Table 1-3 Unidrive E300/M600/M70x/M88x, Commander C200/C300 (Frame 5 – 9)

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
1.0	1.0	1.5	2.2	0.8	1.4	2.1	1.4	2.3	97.5	IE2	03200050	1.73	0.75	5	200 to 240 $\pm 10\%$
0.7	1.0	1.5	2.2	0.8	1.4	2.1	1.4	2.3	97.5	IE2	03200066	2.29	1.1	6.6	200 to 240 $\pm 10\%$
0.6	1.0	1.5	2.2	0.8	1.4	2.1	1.4	2.3	97.5	IE2	03200080	2.77	1.5	8	200 to 240 $\pm 10\%$
0.5	0.8	1.2	1.8	0.7	1.2	1.8	1.1	1.8	97.5	IE2	03200106	3.67	2.2	10.6	200 to 240 $\pm 10\%$
0.4	0.9	1.2	2.8	1.1	1.3	2.5	1.2	2.8	97.0	IE2	04200137	4.75	3	13.7	200 to 240 $\pm 10\%$
0.3	0.7	0.9	2.2	0.9	1.1	2.0	0.9	2.2	97.0	IE2	04200185	6.41	4	18.5	200 to 240 $\pm 10\%$
0.3	0.9	1.2	2.0	0.9	1.6	2.8	1.8	4.4	97.5	IE2	05200250	8.66	5.5	25	200 to 240 $\pm 10\%$
0.2	0.6	1.0	1.5	0.8	0.9	1.6	1.2	2.5	97.4	IE2	06200330	11.43	7.5	33	200 to 240 $\pm 10\%$
0.1	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	06200440	15.24	11	44	200 to 240 $\pm 10\%$
0.1	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	07200610	21.13	15	61	200 to 240 $\pm 10\%$
0.1	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	07200750	25.98	18.5	75	200 to 240 $\pm 10\%$
0.1	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	07200830	28.75	22	83	200 to 240 $\pm 10\%$
0.1	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	08201160	40.18	30	116	200 to 240 $\pm 10\%$
0.0	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	08201320	45.73	37	132	200 to 240 $\pm 10\%$
0.0	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	09201760	60.97	45	176	200 to 240 $\pm 10\%$
0.0	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	09202190	75.86	55	219	200 to 240 $\pm 10\%$
0.0	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	10202830	98.03	75	283	200 to 240 $\pm 10\%$
0.0	0.5	0.8	1.2	0.6	0.7	1.2	1.0	2.0	97.4	IE2	10203000	103.92	90	300	200 to 240 $\pm 10\%$
1.1	0.8	1.1	1.5	0.5	1.1	1.6	1.2	2.0	97.5	IE2	03400025	1.73	0.75	2.5	380 to 480 $\pm 10\%$
0.9	0.8	1.1	1.5	0.5	1.1	1.6	1.2	2.0	97.5	IE2	03400031	2.15	1.1	3.1	380 to 480 $\pm 10\%$
0.6	0.8	1.1	1.5	0.5	1.1	1.6	1.2	2.0	97.5	IE2	03400045	3.12	1.5	4.5	380 to 480 $\pm 10\%$
0.4	0.8	1.1	1.5	0.5	1.1	1.6	1.2	2.0	97.5	IE2	03400062	4.30	2.2	6.2	380 to 480 $\pm 10\%$
0.3	0.8	1.1	1.5	0.5	1.1	1.6	1.2	2.0	97.5	IE2	03400078	5.40	3	7.8	380 to 480 $\pm 10\%$
0.3	0.8	1.1	1.5	0.5	1.1	1.6	1.2	2.0	97.5	IE2	03400100	6.93	4	10	380 to 480 $\pm 10\%$
0.2	0.4	0.6	1.3	0.5	0.9	1.3	0.9	1.8	97.8	IE2	04400150	10.39	5.5	15	380 to 480 $\pm 10\%$
0.2	0.4	0.7	1.5	0.6	1.1	1.5	1.0	2.1	97.8	IE2	04400172	11.92	7.5	17.2	380 to 480 $\pm 10\%$
0.1	0.4	0.5	0.9	0.4	0.7	1.2	0.8	1.9	97.5	IE2	05400220	15.24	9	22	380 to 480 $\pm 10\%$
0.1	0.4	0.6	0.9	0.4	0.7	1.3	0.8	2.0	97.5	IE2	05400270	18.71	11	27	380 to 480 $\pm 10\%$
0.1	0.4	0.5	0.9	0.4	0.7	1.2	0.8	1.9	97.5	IE2	05400300	20.78	15	30	380 to 480 $\pm 10\%$
0.1	0.4	0.5	1.1	0.4	0.8	1.5	0.6	2.1	97.0	IE2	06400350	24.25	15	35	380 to 480 $\pm 10\%$
0.1	0.5	0.8	1.6	0.6	1.1	2.1	0.9	3.1	97.0	IE2	06400420	29.10	18.5	42	380 to 480 $\pm 10\%$
0.1	0.5	0.8	1.6	0.6	1.1	2.1	0.9	3.1	97.0	IE2	06400470	32.56	22	47	380 to 480 $\pm 10\%$
0.1	0.3	0.5	0.6	0.3	0.5	1.2	0.8	0.9	98.7	IE2	07400660	45.73	30	66	380 to 480 $\pm 10\%$
0.1	0.3	0.5	0.6	0.3	0.5	1.2	0.8	0.9	98.7	IE2	07400770	53.35	37	77	380 to 480 $\pm 10\%$
0.1	0.3	0.5	0.6	0.3	0.5	1.2	0.8	0.9	98.7	IE2	07401000	69.28	45	100	380 to 480 $\pm 10\%$

Table 1-3 Unidrive E300/M600/M70x/M88x, Commander C200/C300 (Frame 5 – 9) continued

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
0.1	0.3	0.5	0.6	0.3	0.5	1.2	0.8	0.9	98.7	IE2	08401340	92.84	55	134	380 to 480 $\pm 10\%$
0.0	0.3	0.5	0.6	0.3	0.5	1.2	0.8	0.9	98.7	IE2	08401570	108.77	75	157	380 to 480 $\pm 10\%$
0.0	0.8	1.1	1.9	0.9	1.1	2.0	1.2	1.9	97.5	IE2	09402000	138.56	90	200	380 to 480 $\pm 10\%$
0.0	0.8	1.1	1.9	0.9	1.1	2.0	1.2	1.9	97.5	IE2	09402240	155.19	110	224	380 to 480 $\pm 10\%$
0.0	0.5	0.7	1.2	0.6	0.7	1.3	0.8	1.2	97.5	IE2	10402700	187.06	132	270	380 to 480 $\pm 10\%$
0.0	0.6	0.9	1.6	0.7	0.9	1.7	1.0	1.6	97.5	IE2	10403200	221.70	160	320	380 to 480 $\pm 10\%$
0.0	0.8	0.9	0.9	0.9	0.8	1.3	1.1	0.9	98.7	IE2	11403770	261.19	185	377	380 to 480 $\pm 10\%$
0.0	0.8	0.9	0.9	0.9	0.8	1.3	1.1	0.9	98.7	IE2	11404170	288.91	200	417	380 to 480 $\pm 10\%$
0.0	0.8	0.9	0.9	0.9	0.8	1.3	1.1	0.9	98.7	IE2	11404640	321.47	250	464	380 to 480 $\pm 10\%$
	0.7		1.0	0.4	0.5	1.0	0.6	1.1	98.0	IE2	12404800	332.55	250	480	380 to 480 $\pm 10\%$
	0.6		1.0	0.4	0.5	1.0	0.6	1.1	98.0	IE2	12405660	392.14	315	566	380 to 480 $\pm 10\%$
	0.5		1.0	0.4	0.5	1.0	0.6	1.1	98.0	IE2	12406600	457.26	355	660	380 to 480 $\pm 10\%$
	0.5		1.0	0.4	0.5	1.0	0.6	1.1	98.0	IE2	12407200	498.83	400	720	380 to 480 $\pm 10\%$
0.8	0.6	1.0	2.2	0.9	1.6	2.2	1.5	3.0	97.8	IE2	05500030	2.99	1.5	3	500 to 575 $\pm 10\%$
0.6	0.8	1.1	1.9	0.8	1.3	2.2	1.4	2.6	97.8	IE2	05500040	3.98	2.2	4	500 to 575 $\pm 10\%$
0.3	0.8	1.0	1.8	0.7	1.2	2.1	1.3	2.5	97.8	IE2	05500069	6.87	4	6.9	500 to 575 $\pm 10\%$
0.3	0.7	0.9	1.5	0.6	1.0	1.7	1.1	2.1	97.8	IE2	06500100	9.96	5.5	10	500 to 575 $\pm 10\%$
0.2	0.6	0.8	1.4	0.6	1.0	1.6	1.0	2.0	97.8	IE2	06500150	14.94	7.5	15	500 to 575 $\pm 10\%$
0.1	0.6	0.8	1.3	0.6	0.9	1.5	1.0	1.8	97.8	IE2	06500190	18.92	11	19	500 to 575 $\pm 10\%$
0.1	0.6	0.8	1.3	0.6	0.9	1.5	1.0	1.8	97.8	IE2	06500230	22.91	15	23	500 to 575 $\pm 10\%$
0.1	0.7	0.9	1.5	0.6	1.0	1.7	1.1	2.1	97.8	IE2	06500290	28.88	18.5	29	500 to 575 $\pm 10\%$
0.1	0.7	1.0	1.6	0.7	1.1	2.1	1.3	1.8	98.1	IE2	06500350	34.86	22	35	500 to 575 $\pm 10\%$
0.1	0.7	0.9	1.5	0.6	1.0	1.8	1.1	2.1	97.8	IE2	07500440	43.82	30	44	500 to 575 $\pm 10\%$
0.1	0.6	0.8	1.3	0.5	0.9	1.5	1.0	1.8	97.8	IE2	07500550	54.78	37	55	500 to 575 $\pm 10\%$
0.1	0.8	1.1	1.8	0.8	1.2	2.1	1.3	2.5	97.8	IE2	08500630	62.74	45	63	500 to 575 $\pm 10\%$
0.1	0.8	1.1	1.8	0.8	1.2	2.1	1.4	2.5	97.8	IE2	08500860	85.65	55	86	500 to 575 $\pm 10\%$
0.1	0.6	0.7	1.3	0.5	0.9	1.5	0.9	1.8	97.8	IE2	09501040	103.58	75	104	500 to 575 $\pm 10\%$
0.0	0.5	0.8	1.2	0.5	0.8	1.6	1.0	1.3	98.1	IE2	09501310	130.47	90	131	500 to 575 $\pm 10\%$
0.0	0.5	0.7	1.1	0.5	0.7	1.5	0.9	1.3	98.1	IE2	10501520	151.38	110	152	500 to 575 $\pm 10\%$
0.0	0.4	0.7	1.0	0.5	0.7	1.4	0.8	1.2	98.1	IE2	10501900	189.23	132	190	500 to 575 $\pm 10\%$
0.0	0.5	0.8	1.2	0.5	0.8	1.6	1.0	1.4	98.1	IE2	11502000	199.19	150	200	500 to 575 $\pm 10\%$
0.0	0.5	0.8	1.2	0.5	0.8	1.6	1.0	1.4	98.1	IE2	11502540	252.97	185	254	500 to 575 $\pm 10\%$
0.0	0.5	0.8	1.2	0.5	0.8	1.6	1.0	1.4	98.1	IE2	11502850	283.84	225	285	500 to 575 $\pm 10\%$

Table 1-3 Unidrive E300/M600/M70x/M88x, Commander C200/C300 (Frame 5 – 9) continued

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
0.2	0.6	0.8	1.3	0.5	0.9	1.5	1.0	1.8	97.8	IE2	07600190	22.71	15	19	500 to 690 $\pm 10\%$
0.2	0.6	0.7	1.2	0.5	0.9	1.4	0.9	1.7	97.8	IE2	07600240	28.68	18.5	24	500 to 690 $\pm 10\%$
0.1	0.6	0.7	1.2	0.5	0.8	1.4	0.9	1.7	97.8	IE2	07600290	34.66	22	29	500 to 690 $\pm 10\%$
0.1	0.6	0.8	1.3	0.5	0.9	1.5	1.0	1.8	97.8	IE2	07600380	45.41	30	38	500 to 690 $\pm 10\%$
0.1	0.6	0.7	1.3	0.5	0.9	1.5	0.9	1.8	97.8	IE2	07600440	52.59	37	44	500 to 690 $\pm 10\%$
0.1	0.5	0.7	1.1	0.5	0.8	1.3	0.8	1.6	97.8	IE2	07600540	64.54	45	54	500 to 690 $\pm 10\%$
0.1	0.7	0.9	1.5	0.6	1.0	1.7	1.1	2.1	97.8	IE2	08600630	75.29	55	63	500 to 690 $\pm 10\%$
0.0	0.7	0.9	1.5	0.6	1.0	1.8	1.1	2.1	97.8	IE2	08600860	102.78	75	86	500 to 690 $\pm 10\%$
0.0	0.4	0.6	1.0	0.4	0.7	1.3	0.8	1.1	98.1	IE2	09601040	124.29	90	104	500 to 690 $\pm 10\%$
0.0	0.4	0.6	1.0	0.4	0.7	1.3	0.8	1.1	98.1	IE2	09601310	156.56	110	131	500 to 690 $\pm 10\%$
0.0	0.4	0.6	1.0	0.5	0.7	1.4	0.8	1.1	98.1	IE2	10601500	179.27	132	150	500 to 690 $\pm 10\%$
0.0	0.4	0.6	1.0	0.4	0.6	1.3	0.8	1.1	98.1	IE2	10601780	212.73	160	178	500 to 690 $\pm 10\%$
0.0	0.5	0.7	1.1	0.5	0.7	1.4	0.9	1.2	98.1	IE2	11602100	250.97	185	210	500 to 690 $\pm 10\%$
0.0	0.5	0.7	1.1	0.5	0.7	1.4	0.9	1.2	98.1	IE2	11602380	284.44	200	238	500 to 690 $\pm 10\%$
0.0	0.5	0.7	1.1	0.5	0.7	1.5	0.9	1.2	98.1	IE2	11602630	314.32	250	263	500 to 690 $\pm 10\%$

Table 1-4 Powerdrive F300, Pump F600, HVAC H300

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
0.7	0.7	1.1	1.7	0.6	1.1	1.6	1.1	1.7	97.5	IE2	03200066	2.29	1.1	6.6	200 to 240 $\pm 10\%$
0.6	0.8	1.2	1.8	0.7	1.2	1.8	1.2	1.9	97.5	IE2	03200080	2.77	1.5	8	200 to 240 $\pm 10\%$
0.4	0.7	1.1	1.6	0.6	1.0	1.6	1.0	1.6	97.5	IE2	03200110	3.81	2.2	11	200 to 240 $\pm 10\%$
0.4	0.7	1.0	1.5	0.5	1.0	1.5	1.0	1.5	97.5	IE2	03200127	4.40	3	12.7	200 to 240 $\pm 10\%$
0.3	0.7	0.9	2.1	0.8	1.0	1.9	0.9	2.1	97.0	IE2	04200180	6.24	4	18	200 to 240 $\pm 10\%$
0.2	0.5	0.7	1.6	0.6	0.8	1.5	0.7	1.6	97.0	IE2	04200250	8.66	5.5	25	200 to 240 $\pm 10\%$
0.2	0.7	1.0	1.7	0.8	1.3	2.3	1.5	3.7	97.5	IE2	05200300	10.39	7.5	30	200 to 240 $\pm 10\%$
0.1	0.4	0.7	1.0	0.5	0.6	1.0	0.8	1.6	97.4	IE2	06200500	17.32	11	50	200 to 240 $\pm 10\%$
0.1	0.4	0.6	0.9	0.5	0.6	0.9	0.7	1.5	97.4	IE2	06200580	20.09	15	58	200 to 240 $\pm 10\%$
0.1	0.4	0.6	1.0	0.5	0.6	1.0	0.8	1.6	97.4	IE2	07200750	25.98	18.5	75	200 to 240 $\pm 10\%$
0.1	0.4	0.6	1.0	0.5	0.6	1.0	0.8	1.6	97.4	IE2	07200940	32.56	22	94	200 to 240 $\pm 10\%$
0.0	0.4	0.6	0.9	0.4	0.5	0.9	0.7	1.4	97.4	IE2	07201170	40.53	30	117	200 to 240 $\pm 10\%$
0.0	0.4	0.6	1.0	0.5	0.6	1.0	0.8	1.5	97.4	IE2	08201490	51.62	37	149	200 to 240 $\pm 10\%$
0.0	0.4	0.6	0.9	0.5	0.5	0.9	0.7	1.5	97.4	IE2	08201800	62.35	45	180	200 to 240 $\pm 10\%$
0.0	0.4	0.6	1.0	0.5	0.6	1.0	0.8	1.6	97.4	IE2	09202160	74.82	55	216	200 to 240 $\pm 10\%$
0.0	0.4	0.6	1.0	0.5	0.6	1.0	0.8	1.6	97.4	IE2	09202660	92.15	75	266	200 to 240 $\pm 10\%$
0.0	0.4	0.7	1.1	0.5	0.6	1.1	0.8	1.7	97.4	IE2	10203250	112.58	90	325	200 to 240 $\pm 10\%$
0.0	0.4	0.7	1.0	0.5	0.6	1.0	0.8	1.7	97.4	IE2	10203600	124.71	110	360	200 to 240 $\pm 10\%$
0.8	0.6	0.8	1.1	0.4	0.8	1.2	0.8	1.5	97.5	IE2	03400034	2.36	1.1	3.4	380 to 480 $\pm 10\%$
0.6	0.6	0.8	1.0	0.4	0.7	1.1	0.8	1.4	97.5	IE2	03400045	3.12	1.5	4.5	380 to 480 $\pm 10\%$
0.4	0.6	0.8	1.1	0.4	0.8	1.2	0.8	1.4	97.5	IE2	03400062	4.30	2.2	6.2	380 to 480 $\pm 10\%$
0.4	0.7	0.9	1.2	0.4	0.9	1.3	0.9	1.6	97.5	IE2	03400077	5.33	3	7.7	380 to 480 $\pm 10\%$
0.3	0.6	0.8	1.1	0.4	0.8	1.2	0.9	1.5	97.5	IE2	03400104	7.21	4	10.4	380 to 480 $\pm 10\%$
0.2	0.6	0.9	1.2	0.4	0.9	1.3	0.9	1.6	97.5	IE2	03400123	8.52	5.5	12.3	380 to 480 $\pm 10\%$
0.1	0.3	0.5	1.1	0.4	0.7	1.0	0.7	1.4	97.8	IE2	04400185	12.82	7.5	18.5	380 to 480 $\pm 10\%$
0.1	0.3	0.5	1.1	0.4	0.8	1.0	0.7	1.5	97.8	IE2	04400240	16.63	11	24	380 to 480 $\pm 10\%$
0.1	0.4	0.5	0.8	0.4	0.7	1.2	0.7	1.8	97.5	IE2	05400300	20.78	15	30	380 to 480 $\pm 10\%$
0.1	0.4	0.5	0.9	0.4	0.7	1.2	0.7	1.9	97.5	IE2	05400310	21.48	15	31	380 to 480 $\pm 10\%$
0.1	0.3	0.5	1.0	0.4	0.7	1.3	0.6	2.0	97.0	IE2	06400380	26.33	18.5	38	380 to 480 $\pm 10\%$
0.1	0.5	0.7	1.4	0.5	1.0	1.8	0.8	2.7	97.0	IE2	06400480	33.26	22	48	380 to 480 $\pm 10\%$
0.1	0.4	0.6	1.2	0.4	0.8	1.6	0.6	2.3	97.0	IE2	06400630	43.65	30	63	380 to 480 $\pm 10\%$
0.1	0.2	0.4	0.5	0.2	0.4	1.0	0.7	0.8	98.7	IE2	07400790	54.73	37	79	380 to 480 $\pm 10\%$
0.1	0.2	0.4	0.5	0.2	0.4	1.0	0.6	0.7	98.7	IE2	07400940	65.13	45	94	380 to 480 $\pm 10\%$
0.1	0.3	0.4	0.5	0.2	0.5	1.1	0.7	0.8	98.7	IE2	07401120	77.60	55	112	380 to 480 $\pm 10\%$

Table 1-4 Powerdrive F300, Pump F600, HVAC H300 continued

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
0.0	0.2	0.4	0.5	0.2	0.4	1.0	0.7	0.8	98.7	IE2	08401550	107.39	75	155	380 to 480 $\pm 10\%$
0.0	0.2	0.4	0.5	0.2	0.4	1.0	0.7	0.8	98.7	IE2	08401840	127.48	90	184	380 to 480 $\pm 10\%$
0.0	0.7	1.0	1.7	0.8	1.0	1.8	1.1	1.7	97.5	IE2	09402210	153.11	110	221	380 to 480 $\pm 10\%$
0.0	0.6	0.9	1.6	0.7	0.9	1.7	1.0	1.6	97.5	IE2	09402660	184.29	132	266	380 to 480 $\pm 10\%$
0.0	0.4	0.6	1.0	0.5	0.6	1.1	0.7	1.0	97.5	IE2	10403200	221.70	160	320	380 to 480 $\pm 10\%$
0.0	0.6	0.8	1.4	0.6	0.8	1.5	0.9	1.4	97.5	IE2	10403610	250.11	200	361	380 to 480 $\pm 10\%$
0.0	0.7	0.8	0.8	0.8	0.7	1.1	0.9	0.7	98.7	IE2	11404370	302.76	225	437	380 to 480 $\pm 10\%$
0.0	0.7	0.8	0.8	0.8	0.7	1.1	0.9	0.7	98.7	IE2	11404870	337.40	250	487	380 to 480 $\pm 10\%$
0.0	0.7	0.9	0.9	0.9	0.7	1.2	1.0	0.8	98.7	IE2	11405070	351.26	315	507	380 to 480 $\pm 10\%$
	0.6		0.8	0.3	0.4	0.8	0.5	0.8	98.0	IE2	12406080	421.23	315	608	380 to 480 $\pm 10\%$
	0.5		0.8	0.4	0.5	0.9	0.5	0.9	98.0	IE2	12406600	457.26	355	660	380 to 480 $\pm 10\%$
	0.5		0.8	0.4	0.5	0.9	0.5	0.9	98.0	IE2	12407550	523.08	400	755	380 to 480 $\pm 10\%$
	0.4		0.8	0.4	0.4	0.8	0.5	0.9	98.0	IE2	12408650	599.29	500	865	380 to 480 $\pm 10\%$
0.6	0.5	0.8	1.7	0.7	1.2	1.7	1.1	2.3	97.8	IE2	05500039	3.88	2.2	3.9	500 to 575 $\pm 10\%$
0.4	0.6	0.7	1.2	0.5	0.8	1.4	0.9	1.7	97.8	IE2	05500061	6.08	4	6.1	500 to 575 $\pm 10\%$
0.2	0.6	0.7	1.2	0.5	0.8	1.4	0.9	1.7	97.8	IE2	05500100	9.96	5.5	10	500 to 575 $\pm 10\%$
0.2	0.6	0.7	1.2	0.5	0.9	1.4	0.9	1.7	97.8	IE2	06500120	11.95	7.5	12	500 to 575 $\pm 10\%$
0.2	0.6	0.7	1.2	0.5	0.8	1.4	0.9	1.7	97.8	IE2	06500170	16.93	11	17	500 to 575 $\pm 10\%$
0.1	0.5	0.7	1.1	0.5	0.8	1.3	0.8	1.6	97.8	IE2	06500220	21.91	15	22	500 to 575 $\pm 10\%$
0.1	0.5	0.7	1.1	0.5	0.8	1.3	0.8	1.6	97.8	IE2	06500270	26.89	18.5	27	500 to 575 $\pm 10\%$
0.1	0.6	0.8	1.3	0.5	0.9	1.5	1.0	1.8	97.8	IE2	06500340	33.86	22	34	500 to 575 $\pm 10\%$
0.1	0.5	0.8	1.3	0.6	0.9	1.7	1.0	1.5	98.1	IE2	06500430	42.82	30	43	500 to 575 $\pm 10\%$
0.1	0.6	0.7	1.3	0.5	0.9	1.5	0.9	1.8	97.8	IE2	07500530	52.78	45	53	500 to 575 $\pm 10\%$
0.1	0.4	0.6	1.0	0.4	0.7	1.1	0.7	1.4	97.8	IE2	07500730	72.70	55	73	500 to 575 $\pm 10\%$
0.1	0.6	0.8	1.3	0.6	0.9	1.5	1.0	1.9	97.8	IE2	08500860	85.65	75	86	500 to 575 $\pm 10\%$
0.0	0.7	0.9	1.4	0.6	1.0	1.7	1.1	2.0	97.8	IE2	08501080	107.56	90	108	500 to 575 $\pm 10\%$
0.0	0.5	0.6	1.1	0.4	0.7	1.2	0.8	1.5	97.8	IE2	09501250	124.49	110	125	500 to 575 $\pm 10\%$
0.0	0.4	0.7	1.0	0.5	0.7	1.4	0.8	1.2	98.1	IE2	09501500	149.39	110	150	500 to 575 $\pm 10\%$
0.0	0.4	0.5	0.8	0.4	0.6	1.1	0.7	1.0	98.1	IE2	10502000	199.19	130	200	500 to 575 $\pm 10\%$
0.0	0.4	0.6	1.0	0.4	0.6	1.3	0.8	1.1	98.1	IE2	11502480	246.99	175	248	500 to 575 $\pm 10\%$
0.0	0.5	0.7	1.1	0.5	0.7	1.4	0.9	1.2	98.1	IE2	11502880	286.83	225	288	500 to 575 $\pm 10\%$
0.0	0.5	0.7	1.1	0.5	0.7	1.5	0.9	1.3	98.1	IE2	11503150	313.72	250	315	500 to 575 $\pm 10\%$

Table 1-4 Powerdrive F300, Pump F600, HVAC H300 continued

Power Loss at Operating Point [% Speed / % Torque] (% of Apparent Output Power)									Efficiency (%)	Efficiency Level	Model Identifier	Apparent Output Power (kVA)	Indicated Motor Power (kW)	Rated Output Current (A)	Rated Supply Voltage (V)
Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]							
0.2	0.5	0.6	1.1	0.4	0.7	1.2	0.8	1.5	97.8	IE2	07600230	27.49	18.5	23	500 to 690 $\pm 10\%$
0.1	0.5	0.6	1.0	0.4	0.7	1.2	0.7	1.4	97.8	IE2	07600300	35.85	22	30	500 to 690 $\pm 10\%$
0.1	0.4	0.6	1.0	0.4	0.7	1.1	0.7	1.4	97.8	IE2	07600360	43.02	30	36	500 to 690 $\pm 10\%$
0.1	0.5	0.6	1.1	0.4	0.7	1.2	0.8	1.5	97.8	IE2	07600460	54.98	37	46	500 to 690 $\pm 10\%$
0.1	0.5	0.6	1.1	0.4	0.7	1.2	0.8	1.5	97.8	IE2	07600520	62.15	45	52	500 to 690 $\pm 10\%$
0.1	0.4	0.5	0.8	0.3	0.6	1.0	0.6	1.2	97.8	IE2	07600730	87.24	55	73	500 to 690 $\pm 10\%$
0.0	0.5	0.6	1.1	0.5	0.8	1.3	0.8	1.5	97.8	IE2	08600860	102.78	75	86	500 to 690 $\pm 10\%$
0.0	0.5	0.7	1.2	0.5	0.8	1.4	0.9	1.7	97.8	IE2	08601080	129.07	90	108	500 to 690 $\pm 10\%$
0.0	0.4	0.5	0.8	0.4	0.6	1.1	0.7	0.9	98.1	IE2	09601250	149.39	110	125	500 to 690 $\pm 10\%$
0.0	0.4	0.5	0.8	0.4	0.6	1.1	0.7	1.0	98.1	IE2	09601550	185.24	132	155	500 to 690 $\pm 10\%$
0.0	0.4	0.6	0.9	0.4	0.6	1.2	0.7	1.0	98.1	IE2	10601720	205.56	160	172	500 to 690 $\pm 10\%$
0.0	0.4	0.6	0.9	0.4	0.6	1.2	0.7	1.0	98.1	IE2	10601970	235.44	185	197	500 to 690 $\pm 10\%$
0.0	0.4	0.6	1.0	0.4	0.7	1.3	0.8	1.1	98.1	IE2	11602250	268.90	200	225	500 to 690 $\pm 10\%$
0.0	0.4	0.6	0.9	0.4	0.6	1.2	0.8	1.1	98.1	IE2	11602750	328.66	250	275	500 to 690 $\pm 10\%$
0.0	0.4	0.6	0.9	0.4	0.6	1.3	0.8	1.1	98.1	IE2	11603050	364.51	315	305	500 to 690 $\pm 10\%$

3. Power Losses

Table 1-5 Digitax HD M75x

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
01200022	0.37	2.2	200	2.2	5.7	7.3	11.2	4	8.4	14.5	9.4	15.7
01200040	0.75	4	200	2.2	10.3	13.3	20.4	7.3	15.4	26.4	17.2	28.5
01200065	1.1	6.5	200	2.2	15.9	20.5	31.5	11.4	23.8	40.9	26.7	44.2
02200090	2.2	9	200	3.2	13.2	16.6	37.4	12.5	23.8	39.9	19	52.2
02200120	2.2	12	200	4.3	17.6	22.2	49.9	16.7	31.8	53.2	25.3	69.6
03200160	4	16	200	2.2	30.3	39.3	72.8	35.7	59.1	68.0	68.7	118.9
01400015	0.37	1.5	400	6.1	6.7	6.5	12.9	3.8	6.8	12.6	13.9	17.7
01400030	0.75	3	400	6.1	13.5	12.9	25.8	7.5	13.5	25.3	27.9	35.4
01400042	1.5	4.2	400	6.1	15.7	15.1	30.1	8.8	15.8	29.5	32.5	41.3
02400060	2.2	6	400	5.0	13.9	12.4	34.6	12.6	26.8	36.5	29.4	79.1
02400080	3	8	400	5.0	18.5	16.5	46.1	16.8	35.8	48.7	39.3	105.4
02400105	4	10.5	400	5.0	24.3	21.7	60.5	22.0	46.9	63.9	51.5	138.3
03400135	5.5	13.5	400	5.0	24.8	22.1	61.6	22.4	47.8	65.1	52.5	140.9
03400160	5.5	16	400	5.0	37.1	33	92.2	33.5	71.5	97.4	78.5	210.8

Table 1-6 Commander C200/C300/M400/HS30 (Frame 1 – 4)

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
01200017	0.25	1.7	200	5.6	9.7	11.5	16.4	11.0	12.5	19.8	14.1	22.0
01200024	0.37	2.4	200	5.6	13.7	16.3	23.1	15.6	17.6	28.0	19.9	31.0
01200033	0.55	3.3	200	5.6	18.8	22.3	31.8	21.4	24.2	38.5	27.3	42.6
01200042	0.75	4.2	200	5.6	19.9	23.7	33.7	22.7	25.7	40.8	29.0	45.2
02200024	0.37	2.4	200	10.4	7.7	9.8	16.3	7.2	8.9	16.0	11.9	21.1
02200033	0.55	3.3	200	10.4	10.6	13.5	22.4	9.9	12.2	22.0	16.4	29.0
02200042	0.75	4.2	200	10.4	13.5	17.2	28.5	12.6	15.5	28.0	20.9	36.9
02200056	1.1	5.6	200	10.4	18	22.9	38.0	16.8	20.7	37.3	27.8	49.1
02200075	1.5	7.5	200	10.4	20	25.3	42.1	18.7	22.9	41.3	30.8	54.4
03200100	2.2	10	200	9.0	21.1	41.8	50.1	31.5	36.8	45.9	44.4	73.9
04200133	3	13.3	200	10.7	28.9	35.5	79.6	32.6	40.6	74.5	47.1	104.9
04200176	4	17.6	200	10.7	31.6	38.9	87.1	35.6	44.4	81.5	51.5	114.8
02400013	0.37	1.3	400	8.5	9.3	9.7	12.7	8.4	10.3	14.3	12.7	19.4
02400018	0.55	1.8	400	8.5	12.9	13.4	17.6	11.6	14.2	19.8	17.6	26.8
02400023	0.75	2.3	400	8.5	16.5	17.2	22.5	14.9	18.1	25.2	22.5	34.2
02400032	1.1	3.2	400	8.5	23	23.9	31.4	20.7	25.2	35.1	31.3	47.6
02400041	1.5	4.1	400	8.5	25.9	26.9	35.3	23.3	28.4	39.5	35.2	53.6
03400056	2.2	5.6	400	10.2	15.2	22.5	43.2	5.1	20.5	43.0	16.7	47.1
03400073	3	7.3	400	10.2	19.8	29.3	56.3	6.6	26.7	56.1	21.8	61.4
03400094	4	9.4	400	10.2	24	35.5	68.2	8.1	32.4	68.0	26.4	74.4
04400135	5.5	13.5	400	9.8	37.9	56.6	94.8	53.2	57.5	106.9	98.2	148.9
04400170	7.5	17	400	9.8	42.6	63.7	106.7	59.9	64.7	120.3	110.6	167.7

Table 1-7 Unidrive E300/HS7x/M600/M70x/M88x, Commander C200/C300 (Frame 5 – 9)

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
03200050	0.75	5	200	16.5	16.8	25.3	38.1	13.9	24.8	37.0	24.3	39
03200066	1.1	6.6	200	16.5	22.1	33.3	50.3	18.3	32.8	48.8	32.0	51.5
03200080	1.5	8	200	16.5	26.8	40.4	61.0	22.2	39.7	59.1	38.8	62.4
03200106	2.2	10.6	200	16.5	29.2	43.9	66.4	24.1	43.2	64.3	42.2	67.9
04200137	3	13.7	200	18.7	43.9	56.9	130.6	52.7	63.8	119.8	55.8	132.1
04200185	4	18.5	200	18.7	46.7	60.4	138.7	56.0	67.7	127.2	59.3	140.3
05200250	5.5	25	200	22.5	75.3	106.7	176.1	78.6	139.4	240.9	153.7	382.7
06200330	7.5	33	200	20.1	72.7	113.4	175.6	89.8	106.5	179.4	140.2	285.7
06200440	11	44	200	20.1	77.2	120.3	186.2	95.2	113.0	190.3	148.7	303
07200610	15	61	200	20.1	107.0	166.8	258.1	132.0	156.7	263.8	206.2	420.1
07200750	18.5	75	200	20.1	131.5	205.1	317.4	162.3	192.6	324.4	253.5	516.5
07200830	22	83	200	20.1	145.5	226.9	351.2	179.6	213.2	359.0	280.5	571.6
08201160	30	116	200	20.1	203.4	317.2	490.9	251	297.9	501.7	392.0	798.8
08201320	37	132	200	20.1	231.5	360.9	558.6	285.6	339.0	570.9	446.1	909
09201760	45	176	200	20.1	308.6	481.2	744.8	380.8	452.0	761.2	594.8	1212
09202190	55	219	200	20.1	384	598.8	926.8	473.8	562.4	947.2	740.1	1508
10202830	75	283	200	20.1	496.2	773.7	1198	612.3	726.8	1224	956.4	1949
10203000	90	300	200	20.1	526.0	820.2	1270	649.1	770.5	1298	1014	2066
03400025	0.75	2.5	400	18.9	13.8	19.5	25.3	9.1	18.44	28.1	20.0	34.2
03400031	1.1	3.1	400	18.9	17.2	24.1	31.3	11.3	22.9	34.8	24.8	42.5
03400045	1.5	4.5	400	18.9	24.9	35.0	45.5	16.3	33.2	50.5	36.0	61.6
03400062	2.2	6.2	400	18.9	34.9	49.0	63.7	22.9	46.5	70.7	50.4	86.3
03400078	3	7.8	400	18.9	43.2	60.7	78.9	28.3	57.5	87.5	62.4	106.9
03400100	4	10	400	18.9	55.3	77.8	101.1	36.3	73.8	112.2	80.0	137
04400150	5.5	15	400	18.7	38.6	62.1	136.7	55.9	95.5	131.8	90.9	185.6
04400172	7.5	17.2	400	18.7	51.0	82.0	180.4	73.8	126.0	174.0	120.0	245
05400220	9	22	400	22.5	57.4	81.4	134.3	59.9	106.3	183.7	117.23	291.9
05400270	11	27	400	22.5	75.3	106.7	175.9	78.5	139.3	240.7	153.5	382.4
05400300	15	30	400	22.5	78.3	111.0	183.1	81.7	145.0	250.5	159.8	398
06400350	15	35	400	26.2	89.5	127.7	266.3	94.4	184.5	352.6	145.0	518.6
06400420	18.5	42	400	26.2	155.7	222	463.1	164.2	320.8	613.0	252.2	901.7
06400470	22	47	400	26.2	174.2	248.4	518.2	183.7	359.0	686.0	282.2	1009
07400660	30	66	400	51.1	128.3	226.5	275.8	119.8	232.5	553.2	358.2	412.4
07400770	37	77	400	51.1	149.7	264.3	321.7	139.8	271.2	645.4	417.9	481.1
07401000	45	100	400	51.1	194.4	343.2	417.8	181.5	352.2	838.2	542.7	624.8

Table 1-7 Unidrive E300/HS7x/M600/M70x/M88x, Commander C200/C300 (Frame 5 – 9) continued

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
08401340	55	134	400	51.1	260.5	460	559.9	243.2	472	1123	727.2	837.3
08401570	75	157	400	51.1	305.2	538.9	656	285	553	1316	852	981
09402000	90	200	400	53	1067	1481	2592	1185	1556	2815	1629	2592
09402240	110	224	400	53	1195	1659	2904	1327	1742	3153	1825	2903
10402700	132	270	400	53	946	1314	2299	1051	1380	2496	1445	2299
10403200	160	320	400	53	1440	2000	3500	1600	2100	3800	2200	3500
11403770	185	377	400	81	2124	2432	2432	2432	2092	3324	2757	2270
11404170	200	417	400	81	2350	2690	2690	2690	2314	3677	3049	2511
11404640	250	464	400	81	2620	3000	3000	3000	2580	4100	3400	2800
12404800	250	480	400		2400		3218	1443	1776	3385	1942	3551
12405660	315	566	400		2400		3795	1701	2093	3991	2290	4187
12406600	355	660	400		2400		4425	1984	2442	4654	2671	4883
12407200	400	720	400		2400		4827	2164	2664	5077	2913	5327
05500030	1.5	3	575	22.5	18.9	30.3	66.7	27.3	46.6	64.4	44.4	90.6
05500040	2.2	4	575	22.5	33.7	43.9	74.6	31.3	51	86.4	55.5	104.4
05500069	4	6.9	575	22.5	54.9	71.7	121.7	51	83.1	141	90.5	170.3
06500100	5.5	10	575	26.2	67.4	87.9	149.2	62.6	101.9	172.8	111	208.9
06500150	7.5	15	575	26.2	95.1	124.1	210.7	88.3	143.9	244.1	156.8	295
06500190	11	19	575	26.2	112.6	146.8	249.4	104.6	170.3	288.9	185.6	349.1
06500230	15	23	575	26.2	135.8	177.1	300.8	126.1	205.5	348.5	223.8	421.1
06500290	18.5	29	575	26.2	196.6	256.5	435.5	182.6	297.5	504.5	324.1	609.7
06500350	22	35	575	26.2	233.6	351.9	547.4	246.7	366.4	738.2	448.8	624.8
07500440	30	44	575	51.1	299.2	390.2	662.7	277.8	452.6	767.6	493.1	927.6
07500550	37	55	575	51.1	323.7	422.2	716.9	300.6	489.7	830.4	533.5	1004
08500630	45	63	575	51.1	511.8	667.5	1134	475.2	774.2	1313	843.5	1587
08500860	55	86	575	51.1	702.5	916.2	1556	652.4	1063	1802	1158	2178
09501040	75	104	575	53	590.5	770.1	1308	548.4	893.3	1515	973.2	1831
09501310	90	131	575	53	652.8	983.3	1530	689.3	1024	2063	1254	1746
10501520	110	152	575	53	718.8	1083	1684	759	1127	2271	1381	1923
10501900	132	190	575	53	828.1	1247	1940	874.4	1299	2617	1591	2215
11502000	150	200	575	81	1015	1528	2377	1071	1591	3206	1949	2713
11502540	185	254	575	81	1300	1958	3045	1372	2038	4106	2497	3476
11502850	225	285	575	81	1478	2226	3462	1560	2318	4669	2839	3952

Table 1-7 Unidrive E300/HS7x/M600/M70x/M88x, Commander C200/C300 (Frame 5 – 9) continued

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
07600190	15	19	690	51.1	131.2	171.1	290.6	121.9	198.5	336.7	216.3	406.9
07600240	18.5	24	690	51.1	161.8	211.1	358.5	150.3	244.8	415.2	266.7	501.8
07600290	22	29	690	51.1	192.5	251	426.3	178.7	291.1	493.8	317.2	596.7
07600380	30	38	690	51.1	262.4	342.3	581.3	243.7	397	673.3	432.6	813.7
07600440	37	44	690	51.1	301	392.6	666.7	279.5	455.4	772.3	496.1	933.3
07600540	45	54	690	51.1	326.7	426.1	723.7	303.4	494.3	838.3	538.5	1013
08600630	55	63	690	51.1	510	665.2	1130	473.6	771.5	1309	840.6	1581
08600860	75	86	690	51.1	702	915.6	1555	651.9	1062	1801	1157	2178
09601040	90	104	690	53	526.4	792.8	1233	555.8	825.6	1663	1011	1408
09601310	110	131	690	53	661.3	996.1	1550	698.3	1037	2090	1271	1769
10601500	132	150	690	53	767.7	1156	1799	810.6	1204	2426	1475	2053
10601780	160	178	690	53	862.6	1299	2021	910.8	1353	2726	1657	2307
11602100	185	210	690	81	1136	1712	2663	1200	1782	3591	2183	3039
11602380	200	238	690	81	1294	1949	3032	1366	2029	4088	2486	3461
11602630	250	263	690	81	1446	2178	3388	1527	2268	4568	2778	3867

Table 1-8 Powerdrive F300, Pump F600, HVAC H300

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
03200066	1.1	6.6	200	16.5	16.8	25.3	38.1	13.9	24.8	37	24.3	39
03200080	1.5	8	200	16.5	22.1	33.3	50.3	18.3	32.8	48.8	32	51.5
03200110	2.2	11	200	16.5	26.8	40.4	61	22.2	39.7	59.1	38.8	62.4
03200127	3	12.7	200	16.5	29.2	43.9	66.4	24.1	43.2	64.3	42.2	67.9
04200180	4	18	200	18.7	43.9	56.9	130.6	52.7	63.8	119.8	55.8	132.1
04200250	5.5	25	200	18.7	46.7	60.4	138.7	56	67.7	127.2	59.3	140.3
05200300	7.5	30	200	22.5	75.3	106.7	176.1	78.6	139.4	240.9	153.7	382.7
06200500	11	50	200	20.1	72.7	113.4	175.6	89.8	106.5	179.4	140.2	285.7
06200580	15	58	200	20.1	77.2	120.3	186.2	95.2	113	190.3	148.7	303
07200750	18.5	75	200	20.1	107	166.8	258.1	132	156.7	263.8	206.2	420.1
07200940	22	94	200	20.1	131.5	205.1	317.4	162.3	192.6	324.4	253.5	516.5
07201170	30	117	200	20.1	145.5	226.9	351.2	179.6	213.2	359	280.5	571.6
08201490	37	149	200	20.1	203.4	317.2	490.9	251	297.9	501.7	392	798.8
08201800	45	180	200	20.1	231.5	360.9	558.6	285.6	339	570.9	446.1	909
09202160	55	216	200	20.1	308.6	481.2	744.8	380.8	452	761.2	594.8	1212
09202660	75	266	200	20.1	384	598.8	926.8	473.8	562.4	947.2	740.1	1508
10203250	90	325	200	20.1	496.2	773.7	1198	612.3	726.8	1224	956.4	1949
10203600	110	360	200	20.1	526	820.2	1270	649.1	770.5	1298	1014	2066
03400034	1.1	3.4	400	18.9	13.8	19.5	25.3	9.1	18.44	28.1	20	34.2
03400045	1.5	4.5	400	18.9	17.2	24.1	31.3	11.25	22.9	34.8	24.8	42.5
03400062	2.2	6.2	400	18.9	24.9	35	45.5	16.3	33.2	50.5	36	61.6
03400077	3	7.7	400	18.9	34.9	49	63.7	22.9	46.5	70.7	50.4	86.3
03400104	4	10.4	400	18.9	43.2	60.7	78.9	28.3	57.5	87.5	62.4	106.9
03400123	5.5	12.3	400	18.9	55.3	77.8	101.1	36.3	73.8	112.2	80	137
04400185	7.5	18.5	400	18.7	38.6	62.1	136.7	55.9	95.5	131.8	90.9	185.6
04400240	11	24	400	18.7	51	82	180.4	73.8	126	174	120	245
05400300	15	30	400	22.5	78.3	111	183.1	81.7	145	250.5	159.8	398
06400380	18.5	38	400	26.2	89.5	127.7	266.3	94.4	184.5	352.6	145	518.6
06400480	22	48	400	26.2	155.7	222	463.1	164.2	320.8	613	252.2	901.7
06400630	30	63	400	26.2	174.2	248.4	518.2	183.7	359	686	282.2	1009

Table 1-8 Powerdrive F300, Pump F600, HVAC H300 continued

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
07400790	37	79	400	51.1	128.3	226.5	275.8	119.8	232.5	553.2	358.2	412.4
07400940	45	94	400	51.1	149.7	264.3	321.7	139.8	271.2	645.4	417.9	481.1
07401120	55	112	400	51.1	194.4	343.2	417.8	181.5	352.2	838.2	542.7	624.8
08401550	75	155	400	51.1	260.5	460	559.9	243.2	472	1123	727.2	837.3
08401840	90	184	400	51.1	305.2	538.9	656	285	553	1316	852	981
09402210	110	221	400	53	1067	1481	2592	1185	1556	2815	1629	2592
09402660	132	266	400	53	1195	1659	2904	1327	1742	3153	1825	2903
10403200	160	320	400	53	946	1314	2299	1051	1380	2496	1445	2299
10403610	200	361	400	53	1440	2000	3500	1600	2100	3800	2200	3500
11404370	225	437	400	81	2124	2432	2432	2432	2092	3324	2757	2270
11404870	250	487	400	81	2350	2690	2690	2690	2314	3677	3049	2511
11405070	315	507	400	81	2620	3000	3000	3000	2580	4100	3400	2800
12406080	315	608	400		2400		3218	1443	1776	3385	1942	3551
12406600	355	660	400		2400		3795	1701	2093	3991	2290	4187
12407550	400	755	400		2400		4425	1984	2442	4654	2671	4883
12408650	500	865	400		2400		4827	2164	2664	5077	2913	5327
05500039	2.2	3.9	575	22.5	18.9	30.3	66.7	27.3	46.6	64.4	44.4	90.6
05500061	4	6.1	575	22.5	33.7	43.9	74.6	31.3	51	86.4	55.5	104.4
05500100	5.5	10	575	22.5	54.9	71.7	121.7	51	83.1	141	90.5	170.3
06500120	7.5	12	575	26.2	67.4	87.9	149.2	62.6	101.9	172.8	111	208.9
06500170	11	17	575	26.2	95.1	124.1	210.7	88.3	143.9	244.1	156.8	295
06500220	15	22	575	26.2	112.6	146.8	249.4	104.6	170.3	288.9	185.6	349.1
06500270	18.5	27	575	26.2	135.8	177.1	300.8	126.1	205.5	348.5	223.8	421.1
06500340	22	34	575	26.2	196.6	256.5	435.5	182.6	297.5	504.5	324.1	609.7
06500430	30	43	575	26.2	233.6	351.9	547.4	246.7	366.4	738.2	448.8	624.8
07500530	45	53	575	51.1	299.2	390.2	662.7	277.8	452.6	767.6	493.1	927.6
07500730	55	73	575	51.1	323.7	422.2	716.9	300.6	489.7	830.4	533.5	1004
08500860	75	86	575	51.1	511.8	667.5	1134	475.2	774.2	1313	843.5	1587
08501080	90	108	575	51.1	702.5	916.2	1556	652.4	1063	1802	1158	2178
09501250	110	125	575	53	590.5	770.1	1308	548.4	893.3	1515	973.2	1831
09501500	110	150	575	53	652.8	983.3	1530	689.3	1024	2063	1254	1746
10502000	130	200	575	53	718.8	1083	1684	759	1127	2271	1381	1923
11502480	175	248	575	81	1015	1528	2377	1071	1591	3206	1949	2713
11502880	225	288	575	81	1300	1958	3045	1372	2038	4106	2497	3476
11503150	250	315	575	81	1478	2226	3462	1560	2318	4669	2839	3952

Table 1-8 Powerdrive F300, Pump F600, HVAC H300 continued

Model Number	Nominal Power (kW)	Maximum Continuous Output Current (A)	Rated Voltage (V)	Power Loss at Operating Point [% Speed / % Torque] (W)								
				Standby [0/0]	1 [25/25]	2 [25/50]	3 [25/100]	4 [50/25]	5 [50/50]	6 [50/100]	7 [90/50]	8 [90/100]
07600230	18.5	23	690	51.1	131.2	171.1	290.6	121.9	198.5	336.7	216.3	406.9
07600300	22	30	690	51.1	161.8	211.1	358.5	150.3	244.8	415.2	266.7	501.8
07600360	30	36	690	51.1	192.5	251	426.3	178.7	291.1	493.8	317.2	596.7
07600460	37	46	690	51.1	262.4	342.3	581.3	243.7	397	673.3	432.6	813.7
07600520	45	52	690	51.1	301	392.6	666.7	279.5	455.4	772.3	496.1	933.3
07600730	55	73	690	51.1	326.7	426.1	723.7	303.4	494.3	838.3	538.5	1013
08600860	75	86	690	51.1	510	665.2	1130	473.6	771.5	1309	840.6	1581
08601080	90	108	690	51.1	702	915.6	1555	651.9	1062	1801	1157	2178
09601250	110	125	690	53	526.4	792.8	1233	555.8	825.6	1663	1011	1408
09601550	132	155	690	53	661.3	996.1	1550	698.3	1037	2090	1271	1769
10601720	160	172	690	53	767.7	1156	1799	810.6	1204	2426	1475	2053
10601970	185	197	690	53	862.6	1299	2021	910.8	1353	2726	1657	2307
11602250	200	225	690	81	1136	1712	2663	1200	1782	3591	2183	3039
11602750	250	275	690	81	1294	1949	3032	1366	2029	4088	2486	3461
11603050	315	305	690	81	1446	2178	3388	1527	2268	4568	2778	3867