

Eaton 9703-6004-00P

Eaton DG1 Variable frequency drive, 500 V
AC, 3-phase, 144 A, 90 kW, IP21/NEMA1, DC
link choke

PRODUCT NAME	Eaton DG1 variable frequency drive
CATALOG NUMBER	9703-6004-00P
PRODUCT LENGTH/DEPTH	371 mm
PRODUCT HEIGHT	1035 mm
PRODUCT WIDTH	486 mm
PRODUCT WEIGHT	116.6 kg
CERTIFICATIONS	UkrSEPRO IEC/EN61800-3 CUL UL Category Control No.: NMMS, NMMS7 UL File No.: E134360 UL508 UL Certified by UL for use in Canada CSA-C22.2 No. 274-13 UL report applies to both US and Canada CE Specification for general requirements: IEC/EN 61800-2 C-Tick EAC IEC/EN 61800-3 RoHS, ISO 9001 Safety requirements: IEC/EN 61800-5 IEC/EN61800-5

PRODUCT CATEGORY	Variable frequency drives
FEATURES	Externally accessible fan Parameterization: Fieldbus Parameterization: Keypad Parameterization: Power Xpert inControl
10.10 TEMPERATURE RISE	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 SHORT-CIRCUIT RATING	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 ELECTROMAGNETIC COMPATIBILITY	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 MECHANICAL FUNCTION	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
10.2.2 CORROSION RESISTANCE	Meets the product standard's requirements.
10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES	Meets the product standard's requirements.
10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT	Meets the product standard's requirements.
10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS	Meets the product standard's requirements.
10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION	Meets the product standard's requirements.
10.2.5 LIFTING	Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 MECHANICAL IMPACT	Does not apply, since the entire switchgear needs to

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	be evaluated.
10.2.7 INSCRIPTIONS	Meets the product standard's requirements.
10.3 DEGREE OF PROTECTION OF ASSEMBLIES	Does not apply, since the entire switchgear needs to be evaluated.
10.4 CLEARANCES AND CREEPAGE DISTANCES	Meets the product standard's requirements.
10.5 PROTECTION AGAINST ELECTRIC SHOCK	Does not apply, since the entire switchgear needs to be evaluated.
10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS	Does not apply, since the entire switchgear needs to be evaluated.
10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS	Is the panel builder's responsibility.
10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS	Is the panel builder's responsibility.
10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH	Is the panel builder's responsibility.
10.9.3 IMPULSE WITHSTAND VOLTAGE	Is the panel builder's responsibility.
10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL	Is the panel builder's responsibility.
FITTED WITH:	Additional PCB protection IGBT inverter PC connection Control unit Internal DC link Radio interference suppression filter DC link choke Multi-line graphic display
POLLUTION DEGREE	2
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion
CONNECTION TO SMARTWIRE-DT	Yes In conjunction with DXG-NET-SWD SmartWire DT module
OPERATING MODE	U/f control Sensorless vector control (SLV) Speed control with slip compensation

	Torque regulation
FRAME SIZE	FS6
AIR VOLUME CAPACITY	679 m ³ /h
ALTITUDE	Above 1000 m with 1 % derating per 100 m Max. 1000 m Max. 2000 m
ENVIRONMENTAL CLASS	3C2, 3S2 (Air quality)
APPLICATION IN DOMESTIC AND COMMERCIAL AREA PERMITTED	Yes
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 60 seconds
APPLICATION IN INDUSTRIAL AREA PERMITTED	Yes
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	50 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-30 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
APPARENT POWER AT 600 V	216.2 kVA
MOUNTING POSITION	Vertical
RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)	100 kA
RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE	10 %
RELATIVE SYMMETRIC NET VOLTAGE TOLERANCE	10 %
PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
HEAT DISSIPATION	Operation (with 150 %

DETAILS	overload), allow for derating
RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE	90 kW
RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE, 110% OVERLOAD	132 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE	110 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE, 110% OVERLOAD	160 kW
RESOLUTION	0.01 Hz (Frequency resolution, setpoint value)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	84.3 W
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	1050 VDC
VOLTAGE RATING - MAX	600 VAC
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	Modbus RTU, built in BACnet MS/TP, built in Modbus TCP, built in DeviceNet, optional CANopen®, optional PROFIBUS, optional SmartWire-DT, optional Ethernet IP, built in
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	IP21 NEMA 1
PROTOCOL	MODBUS BACnet DeviceNet CAN PROFIBUS TCP/IP PROFINET IO Other bus systems EtherNet/IP
ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 110% OVERLOAD	184 A

ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 150% OVERLOAD	129 A
ASSIGNED MOTOR CURRENT IM AT 550 - 600 V, 60 HZ, 150% OVERLOAD	125 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 50 HZ, 110% OVERLOAD	197 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 50 HZ, 150% OVERLOAD	137 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 60 HZ, 110% OVERLOAD	192 A
SYSTEM CONFIGURATION TYPE	TN-S, TN-C, TN-C-S, TT, IT
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE	150 HP
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE, 110 % OVERLOAD	200 HP
BRAKING RESISTANCE	2.5 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT PVID	2502 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT- DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 110% OVERLOAD	192 A
INPUT CURRENT ILN AT 150% OVERLOAD	133.9 A
MAINS CURRENT DISTORTION	31.5 %
CURRENT LIMITATION	0.1 - 2 x IH (CT), motor, main circuit
NUMBER OF SLOTS	2 (expansion)
BRAKING TORQUE	Adjustable to 150 % (I/Ie), DC - Main circuit Max. 30 % MN, Standard - Main circuit

	Adjustable to 150 %, DC - Main circuit Max. 100 % of rated operational current I _e with external braking resistor - Main circuit
CABLE LENGTH	200 m, screened, maximum permissible, Motor feeder C3 ≤ 10 m, Radio interference level, maximum motor cable length
OUTPUT VOLTAGE (U2)	600 V AC, 3-phase
NUMBER OF INPUTS (ANALOG)	2
NUMBER OF INPUTS (DIGITAL)	8
RADIO INTERFERENCE CLASS	C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments C1: with external filter, for conducted emissions only
NUMBER OF OUTPUTS (DIGITAL)	1
STARTING CURRENT - MAX	200 %, I _H , max. starting current (High Overload), For 2 seconds every 20 seconds, Power section
NUMBER OF PHASES (INPUT)	3
NUMBER OF RELAY OUTPUTS	3 (parameterizable, 2 changeover contacts and 1 N/O, 6 A (240 V AC) / 6 A (24 V DC))
NUMBER OF PHASES (OUTPUT)	3
POWER CONSUMPTION	2502 W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (U _s , max. 10 mA)

EFFICIENCY	98.5 % (η)
RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 250 mA options incl.)
SUPPLY FREQUENCY	50/60 Hz
LEAKAGE CURRENT AT GROUND IPE - MAX	11.8 mA
MAINS VOLTAGE - MAX	600 V
MAINS VOLTAGE - MIN	525 V
NOMINAL OUTPUT CURRENT I2N	144 A
NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)	1
NUMBER OF HW-INTERFACES (OTHER)	1
NUMBER OF HW-INTERFACES (PARALLEL)	0
NUMBER OF HW-INTERFACES (RS-232)	0
NUMBER OF HW-INTERFACES (RS-422)	0
NUMBER OF HW-INTERFACES (RS-485)	1
NUMBER OF HW-INTERFACES (SERIAL TTY)	0
NUMBER OF HW-INTERFACES (USB)	0
NUMBER OF INTERFACES (PROFINET)	0
NUMBER OF OUTPUTS (ANALOG)	2
OUTPUT AT LINEAR LOAD AT RATED OUTPUT VOLTAGE - MAX	110 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	132 kW
OUTPUT FREQUENCY - MAX	400 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE - MAX	600 V
OVERLOAD CURRENT IL AT 110% OVERLOAD	228.8 A
OVERLOAD CURRENT IL AT 150% OVERLOAD	216 A
SHOCK RESISTANCE	UPS drop test (for weights

	inside the UPS frame) Storage and transportation: maximum 15 g, 11 ms (inside the packaging) Mechanical, According to EN 61800-5-1, IEC/EN 60068-2-27
SUITABLE FOR	Branch circuits, (UL/CSA)
SWITCHING FREQUENCY	1.5 kHz, 1 - 6 kHz adjustable, fPWM, Power section, Main circuit
RATED OPERATIONAL VOLTAGE	600 V AC, 3-phase
SHORT-CIRCUIT PROTECTION RATING	400 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
VIBRATION	Resistance: 5 - 150 Hz, According to EN 61800-5-1, IEC/EN 60068-2-6 Resistance: 5 - 15.8 Hz, Amplitude 1 mm (peak) Resistance: 15.8 – 150 Hz, 1 g, Maximum acceleration amplitude
RATED FREQUENCY - MAX	66 Hz
RATED FREQUENCY - MIN	45 Hz
RATED OPERATIONAL CURRENT (IE) AT 110% OVERLOAD	208 A
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	144 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	144 A
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL1, PLc Cat 1)
HEAT DISSIPATION AT CURRENT/SPEED	1055 W at 25% current and 50% speed 1271 W at 100% current and 50% speed 1437 W at 50% current and 50% speed 1498 W at 50% current and 90% speed 2165 W at 100% current and 0% speed 2490 W at 50% current and 0% speed

2726 W at 100% current
and 90% speed
984 W at 25% current and
0% speed

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

:



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