

CHAPTER 8 STANDARD SPECIFICATIONS

Series		G1	H1	P1
Max. Applicable Motor Output Range	1-phase, 200-240VAC	0.4-2.2kW (0.5-3Hp)	0.4-2.2kW (0.5-3Hp)	
	3-phase, 200-230VAC	0.4-75kW (0.5-100Hp)	0.4-75kW (0.5-100Hp)	0.75-90kW (1-120Hp)
	3-phase, 380-460VAC	0.75-315kW (1-422Hp)	0.75-75kW (1-100Hp)	1.5-400kW (2-535Hp)
Output	Output Frequency	0.1 - 600Hz	0.1 - 6000Hz	0.1 - 600Hz
	Overload Endurance	150% of rated current for 1 minute/10 minutes, Ta <=40, 200% of rated current for 2 seconds		125% of rated current for 1 minute/10 minutes, Ta <=40,165% of rated current for 2 seconds
	Maximum Output Voltage	Proportional to Input Voltage, 3-Phase		
	Power factor/Efficiency	Power factor no lower than 0.95. Efficiency no lower than 95% at full load		
CONTROL CHARACTERISTICS	Control System	SPWM (Sinusoidal Pulse Width Modulation), V/F control and Sensorless Vector Control		
	Output Frequency	0.1 - 600Hz,Programable	0.1 - 6000Hz, Programmable	0.1 - 600Hz, Programmable
	Output Frequency Resolution	0.01Hz		
	PWM Carrier Frequency	1kHz -18kHz Adjustable (Some models are limited)		
	Torque Characteristics	Including the auto-torque, auto-slip compensation; starting torque can be 150% at 1.0Hz		
	Skip Frequency	Setting range 0.1-600Hz, Max. 3 points	Setting range 0.1-6000Hz, Max. 3 points	Setting range 0.1-600Hz, Max. 3 points
	Accel/Decel Time	0.1-6000 seconds (2 Independent settings for Accel/Decel Time)		
	Stall Prevention Level	10 to 250%, Setting of Rated Current. Setting range 0.1-600Hz while stop.		
	DC Braking	DC Braking Current Level: 0 to 125% of rated output current. DC Braking time: 0 to 60 seconds. Start-Point for DC Braking: 0.1-600Hz both when start up and stop.		DC Braking Current Level: 0 to 100% of rated output current. DC Braking time: 0 to 60 seconds. Start-Point for DC Braking: 0.1-600Hz both when start up and stop.
	Braking Torque	Approx. 20%. Dynamic Brake chopper built-in in Frame code:G1-a and G1-B. Others can be built-in as an option. All models can connect to external Dynamic Brake Unit (DBU).		
	V/F Pattern	Adjustable V/F curve using 4 independent points.		
OPERATING CHARACTERISTICS	Frequency Setting	Keypad	By a rotary encoder (setting resolution 0.01Hz/step)	
		External Signal	0 ~ +10VDC((Input impedance 20kΩ), -10 ~ +10VDC((Input impedance 10kΩ),4 ~20mA dc ((Input impedance 250Ω),Multi-Function Inputs 1 ~ 6 (15 Steps Jog, up/down), PLC run, RS-485 Interface MODBUS protocol	
	Operation Setting	Keypad	Set by RUN, STOP and JOG	
		External Signal	FWD, REV, MI1 to MI6 can be combined to offer various modes of operation, RS-485 serial interface MODBUS protocol	
	Multi-Function Input Signal (6 signals)	Multi-step selection 0 to 15, first to second accel/decel switches, accel/decel inhibit, EF Input, Emergency Stop, auxiliary motor control is invalid, ACI/AVI/AUI speed command selection,, Reset, PLC Run, Jog, Up/Down command, Sink/Source selection		
	Multi-Function Output Indication (5 indications)	Drive Operating, Frequency Attained, Non-zero, Base Block, Fault Indication, Local/Remote indication, PLC Operation indication, and Auxiliary Motor Output		
	Analog Output Signal	Analog signal output. Proportional to output frequency, output current, voltage, frequency command or motor's speed.		
	Fault Indication	The output will be activated when faults occur (1 Relay contact point RA, RB, RC. or 2 Open-collector output)		
Other Functions		PID feedback control, automatic voltage regulation, Momentary Power Loss restart, S-Curve, External Fault, Fault Reset, Auto Restart, Fault Records, Prevention, Frequency Limits, Fan & Pump Control, Parameter Lock/Reset, Auto Tuning, Reverse Inhibition, Over-Voltage/ Over-Current Stall Prevention, automatic energy-saving, DC Braking, Speed Search during Start-up, PLC, MODBUS Communication,		
Protection		Self-testing, AC source Over Voltage, Over Voltage, Over Current, Under Voltage, Over Load, Overheating, External Fault, Electronic thermal, Ground Fault, Stall Prevention, Output short circuit, IGBT short circuit		
Digital Keypad		Eight Function keys: Access Run, Stop, Reset/ Digit Shift, Forward/ Reverse run, Display mode, Keypad Enable, Programming data and Jog operation.		
		One 360 degree Rotary Encoder: Sets the parameter number and changes the numerical data		
		One 6 digits 7 segment display: Display the Setting frequency/actual operation frequency, Output current/Voltage, User defined unit,		
		Six LED Display for status indication: Display the Drive run/stop status, forward/Reverse run status, Keypad enable, and Frequency command source.		
		Removable Keypad, remote control distance up to 150 meters.		
Environ ment	Temperature	Ambient: -10℃ ~ +40℃ (Non-Condensing and not frozen). Storage: -20℃ ~ +60℃		
	Humidity	Below 90%RH (Non-Condensing)		
	Vibration	Below 20Hz: 1G, above 20Hz: 0.6G		
	Installation Location	Altitude 1,000 m or lower, keep away from corrosive gasses, liquid and dust		

***TOPVERT G1,H1 and P1 series are designed and manufactured base on CNS and IEC standard.**

TOPVERT G1, H1 Series: 1-Phase, 200~240VAC, 50/60 Hz (Tolerance Range: 180~264V, 47~63Hz)											
Model	Applicable Motor (230V 4 P)		Rated Output				Source	Enclosure Construction			
TOPVERT G1-xxxxx H1-xxxxx	Power (kW)	Horse Power (Hp)	Capacity (kVA)	Current (A)	Voltage (V)	Frequency (Hz)	Current (A)	Cooling Methods	Protection Methods (IP/NEMA)	Gross Weight (kg)	Frame Code
210P4	0.4	0.5	1.1	3	3- Phase, 0-240 (Max)	G1 series 0.1- 600 H1 series 0.1-6000	5.7	Convention cooled	IP 20 NEMA 1	2.62	G1-A H1-A
210P7	0.75	1	1.9	5			9.5	Fan- cooled		2.67	
211P5	1.5	2	2.9	7.5			14.3			2.73	
212P2	2.2	3	4.2	11			21			2.79	

TOPVERT G1, H1 Series: 3-Phase, 200~240VAC, 50/60 Hz (Tolerance Range: 180~264V, 47~63Hz)											
Model	Applicable Motor (230V 4 P)		Rated Output				Source	Enclosure Construction			
TOPVERT G1-xxxxx H1-xxxxx	Power (kW)	Horse Power (Hp)	Capacity (kVA)	Current (A)	Voltage (V)	Frequency (Hz)	Current (A)	Cooling Methods	Protection Methods (IP/NEMA)	Gross Weight (kg)	Frame Code
230P4	0.4	0.5	1.1	3	3- Phase, 0-240 (Max)	G1 series 0.1-600 H1 series 0.1-6000	3.3	Convention cooled	IP 20 NEMA 1	2.60	G1-A H1-A
230P7	0.75	1	1.9	5			5.5	Fan- cooled		2.65	
231P5	1.5	2	2.9	7.5			8.3			2.68	
232P2	2.2	3	4.2	11			12.1			2.74	
233P7	3.7	5	6.5	17			18.7			2.79	
235P5	5.5	7.5	9.5	25			27.5			3.20	
237P5	7.5	10	12.6	33			36.3			4.60	G1-B,H1-B
23011	11	15	18.7	49			53.9	IP 00 NEMA 0		G1-C H1-C	
23015	15	20	24.8	65			71.5				
23018	18.5	25	28.6	75			82.6				
23022	22	30	34.3	90			99				
23030	30	40	45.7	120			132	(IP 20 NEMA 1 IP 21 NEMA 4 optional)		G1-D H1-D	
23037	37	50	55.6	146			161				
23045	45	60	69	182			200				
23055	55	75	83.8	220			242				G1-E H1-E
23075	75	100	114	300			330				

TOPVERT G1, H1 Series: 3-Phase, 380~460VAC, 50/60 Hz (Tolerance Range: 342~528V, 47~63Hz)											
Model	Applicable Motor (460V 4 P)		Rated Output				Source	Enclosure Construction			
TOPVERT G1-xxxxx H1-xxxxx	Power (kW)	Horse Power (Hp)	Capacity (kVA)	Current (A)	Voltage (V)	Frequency (Hz)	Current (A)	Cooling Methods	Protection Methods (IP/NEMA)	Gross Weight (kg)	Frame Code
430P7	0.75	1	2.3	3	3- Phase, 0-460 (Max)	G1 series 0.1-600	3.3	Fan- cooled	IP 20 NEMA 1	2.61	G1-A H1-A
431P5	1.5	2	3.2	4.2			4.6			2.66	
432P2	2.2	3	4.6	6			6.6			2.68	
433P7	3.7	5	6.5	8.5			9.4			2.83	
435P5	5.5	7.5	9.9	13			14.3			3.27	
437P5	7.5	10	13.7	18			19.8			3.30	
43011	11	15	18.3	24			26.4			4.79	G1-B H1-B
43015	15	20	24.4	32			35.2			4.95	G1-C H1-C
43018	18.5	25	29.0	38			41.8				
43022	22	30	34.3	45			49.5				
43030	30	40	45.7	60		H1 series 0.1-6000	66		IP 00 NEMA 0		G1-D H1-D
43037	37	50	55.6	73			80.3				
43045	45	60	69.3	91			100				
43055	55	75	83.8	110			121				G1-E
43075	75	100	114	150			165				
43090	90	120	137	180			198				
43110	110	150	168	220			242		(IP 20 NEMA 1 IP 21 NEMA 4 optional)		G1-F
43132	132	175	198	260			286				
43160	160	215	236	310			341				
43200	200	268	280	368			405				G1-G
43220	220	300	305	400			440				
43250	250	335	370	486			535				
43315	315	422	450	590			649				

TOPVERT P1 Series: 3-Phase, 200~240VAC, 50/60 Hz (Tolerance Range: 180~264V, 47~63Hz)											
Model	Applicable Motor (230V 4 P)		Rated Output				Source	Enclosure Construction			
TOPVERT P1-xxxxx	Power (kW)	Horse Power (Hp)	Capacity (kVA)	Current (A)	Voltage (V)	Frequency (Hz)	Current (A)	Cooling Methods	Protection Methods (IP/NEMA)	Gross Weight (kg)	Frame Code
230P7	0.75	1	1.4	3.6	3- Phase, 0-240 (Max)	0.1-600	4	Fan- cooled	IP 20 NEMA 1	2.6	P1-A
231P5	1.5	2	2.3	6			6.6			2.65	
232P2	2.2	3	3.4	9			9.9			2.68	
233P7	3.7	5	5	13.2			14.5			2.74	
235P5	5.5	7.5	7.8	20.4			22.4			2.79	
237P5	7.5	10	11.4	30			33			3.2	P1-B
23011	11	15	15.1	40			43.6			4.6	
23015	15	20	22.4	59			65				
23018	18.5	25	29.7	78			86				P1-C
23022	22	30	34.3	90			99				
23030	30	40	41.2	108			119				
23037	37	50	54.9	144			158		IP 00 NEMA 0 (IP 20 NEMA 1 IP 21 NEMA 4 optional)		P1-D
23045	45	60	66.8	175			193				
23055	55	75	83.2	218			240				
23075	75	100	101	264			290				P1-E
23090	90	120	137	360			396				

TOPVERT P1 Series: 3-Phase, 380~460VAC, 50/60 Hz (Tolerance Range: 342~528V, 47~63Hz)											
Model	Applicable Motor (460V 4 P)		Rated Output				Source	Enclosure Construction			
TOPVERT P1-xxxxx	Power (kW)	Horse Power (Hp)	Capacity (kVA)	Current (A)	Voltage (V)	Frequency (Hz)	Current (A)	Cooling Methods	Protection Methods (IP/NEMA)	Gross Weight (kg)	Frame Code
431P5	1.5	2	2.7	3.6	3-Phase, 0-460 (Max)	0.1-600	4	Fan- cooled	IP 20 NEMA 1	2.61	P1-A
432P2	2.2	3	3.8	5			6			2.66	
433P7	3.7	5	5.5	7.2			8			2.68	
435P5	5.5	7.5	7.8	10.2			11			2.83	
437P5	7.5	10	11.9	15.6			17			3.72	
43011	11	15	16.5	21.6			24			3.3	P1-B
43015	15	20	21.9	28.8			32			4.79	
43018	18.5	25	29.3	38.4			42			4.95	
43022	22	30	34.8	45.6			50		IP 00 NEMA 0 (IP 20 NEMA 1 IP 21 NEMA 4 optional)		P1-C
43030	30	40	41.2	54			59				
43037	37	50	55	72			79				
43045	45	60	67	88			96				P1-D
43055	55	75	83	109			120				
43075	75	100	101	132			145				
43090	90	120	137	180			198				P1-E
43110	110	150	165	216			238				
43132	132	175	201	264			290				
43160	160	215	238	312			343				P1-F
43200	200	268	283	372			409				
43220	220	300	337	442			486				
43250	250	335	366	480			528				P1-G
43315	315	422	444	583			642				
43400	400	535	540	708			779				