

AC DRIVES

Turning the World

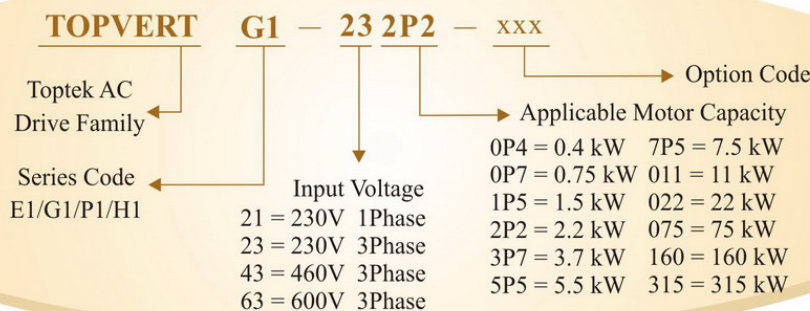




TOPVERT FAMILY >>> Sensorless Current Vector Inverters

TOPVERT FAMILY

Explanation



TOPVERT E1 Series 110V Class

Model E1-xxxxx		1-Phase 100-120VAC, 50 / 60Hz (Tolerance: 90-132V, 47-63Hz)			
		110P2	110P4	110P7	111P5
Motor	KW	0.2	0.4	0.75	1.5
	HP	1/4	1/2	1	2
Rated Output	Capacity (kVA)	0.6	1.1	1.9	2.9
	Current (A)	1.6	3	5	7.5
	Voltage (V)	AC 3-Phase, 0-240V(Max.)			
	Frequency (Hz)	0.1-600Hz			
Source	Current (A)	6.1	11.4	19.1	28.6
Enclosure Construction	Cooling System	Conven.-Cooled	Fan-Cooled		
	Protection	IP 20 NEMA 1			
	N. Weight (kg)				
	Frame	E1-A			

Digital Keypad

Model No.: PU-01 For: E1/G1/P1/H1 Series



TOPVERT E1 Series 200V Class

Model E1-xxxxx		1-Phase 200-240VAC, 50 / 60Hz (Tolerance: 180-264V, 47-63Hz)					3-Phase 200-240VAC, 50 / 60Hz (Tolerance: 180-264V, 47-63Hz)						
		210P2	210P4	210P7	211P5	212P2	230P4	230P7	231P5	232P2	233P7	235P5	237P5
Motor	KW	0.2	0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
	HP	1/4	1/2	1	2	3	1/2	1	2	3	5	7.5	10
Rated Output	Capacity (kVA)	0.6	1.1	1.9	2.9	4.2	1.1	1.9	2.9	4.2	6.5	9.5	12.6
	Current (A)	1.6	3	5	7.5	11	3	5	7.5	11	17	25	33
	Voltage (V)	AC 3-Phase, 0-240V(Max.)											
	Frequency (Hz)	0.1-600Hz											
Source	Current (A)	3.0	5.7	9.5	14.3	21	3.3	5.5	8.3	12.1	18.7	27.5	36.3
Enclosure Construction	Cooling System	Conven.-Cooled	Fan-Cooled										
	Protection	IP 20 NEMA 1											
	N. Weight (kg)	1.5	1.51	1.56	1.62	1.68	1.5	1.51	1.56	1.62	1.68		
	Frame	E1-A										E1-B	

TOPVERT E1 Series 400V Class

Model E1-xxxxx		3-Phase 380-460VAC, 50 / 60Hz (Tolerance: 342-528V, 47-63Hz)							
		430P4	430P7	431P5	432P2	433P7	435P5	437P5	
Motor	KW	0.4	0.75	1.5	2.2	3.7	5.5	7.5	
	HP	1/2	1	2	3	5	7.5	10	
Rated Output	Capacity (kVA)	1.2	2.3	3.2	4.6	6.5	9.9	13.7	
	Current (A)	1.6	3	4.2	6	8.5	13	18	
	Voltage (V)	AC 3-Phase, 0-460V(Max.)							
	Frequency (Hz)	0.1-600Hz							
Source	Current (A)	1.8	3.3	4.6	6.6	9.4	14.3	19.8	
Enclosure Construction	Cooling System	Fan-Cooled							
	Protection	IP 20 NEMA 1							
	N. Weight (kg)	1.57	1.57	1.62	1.64	1.74			
	Frame	E1-A						E1-B	

TOPVERT G1 Series 200V Class

Model G1-xxxxx		1-Phase 200-240VAC, 50 / 60Hz (Tolerance: 180-264V, 47-63Hz)				3-Phase 200-240VAC, 50 / 60Hz (Tolerance: 180-264V, 47-63Hz)																	
		210P4	210P7	211P5	212P2	230P4	230P7	231P5	232P2	233P7	235P5	237P5	23011	23015	23018	23022	23030	23037	23045	23055	23075		
Motor	KW	0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75		
	HP	1/2	1	2	3	1/2	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100		
Rated Output	Capacity (kVA)	1.1	1.9	2.9	4.2	1.1	1.9	2.9	4.2	6.5	9.5	12.6	18.7	24.8	28.6	34.3	45.7	55.6	69	83.8	114		
	Current (A)	3	5	7.5	11	3	5	7.5	11	17	25	33	49	65	75	90	120	146	182	220	300		
	Voltage (V)	AC 3-Phase, 0-240V(Max.)																					
	Frequency (Hz)	0.1-600Hz																					
Source	Current (A)	5.7	9.5	14.3	21	3.3	5.5	8.3	12.1	18.7	27.5	36.3	53.9	71.5	82.5	99	132	161	200	242	330		
Enclosure Construction	Cooling System	Conven.-Cooled	Fan-Cooled				Conven.-Cooled	Fan-Cooled															
	Protection	IP 20 NEMA 1				IP 20 NEMA 1										IP 00 NEMA 0		IP 20 NEMA 1				IP 21 NEMA 4	
	N. Weight (kg)	2.62	2.67	2.73	2.79	2.6	2.65	2.68	2.74	2.79	3.2	4.6											
	Frame	G1-A				G1-A						G1-B		G1-C				G1-D			G1-E		

TOPVERT G1 Series 400V Class

Model G1-xxxxx		3-Phase 380-460VAC, 50 / 60Hz (Tolerance: 342-528V, 47-63Hz)																										
		430P7	431P5	432P2	433P7	435P5	437P5	43011	43015	43018	43022	43030	43037	43045	43055	43075	43090	43110	43132	43160	43200	43220	43250	43315				
Motor	KW	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	220	250	315				
	HP	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	120	150	175	215	268	300	335	422				
Rated Output	Capacity (kVA)	2.3	3.2	4.6	6.5	9.9	13.7	18.3	24.4	29	34.3	45.7	55.6	69.3	83.8	114	137	168	198	236	280	305	370	450				
	Current (A)	3	4.2	6	8.5	13	18	24	32	38	45	60	73	91	110	150	180	220	260	310	368	400	486	590				
	Voltage (V)	AC 3-Phase, 0-460V(Max.)																										
	Frequency (Hz)	0.1-600Hz																										
Source	Current (A)	3.3	4.6	6.6	9.4	14.3	19.8	26.4	35.2	41.8	49.5	66	80.3	100	121	165	198	242	286	341	405	440	535	649				
Enclosure Construction	Cooling System	Fan-Cooled																										
	Protection	IP 20 NEMA 1										IP 00 NEMA 0					IP 20 NEMA 1								IP 21 NEMA 4			
	N. Weight (kg)	2.61	2.66	2.68	2.83	3.27	3.3	4.79	4.95																			
	Frame	G1-A							G1-B			G1-C			G1-D			G1-E		G1-F				G1-G				

TOPVERT P1 Series 200V Class

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

TOPVERT P1 Series 400V Class

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

TOPVERT H1 Series 200V Class

Model H1-xxxxx		1-Phase 200-240VAC, 50 / 60Hz (Tolerance: 180-264V, 47-63Hz)				3-Phase 200-240VAC, 50 / 60Hz (Tolerance: 180-264V, 47-63Hz)																					
		210P4	210P7	211P5	212P2	230P4	230P7	231P5	232P2	233P7	235P5	237P5	23011	23015	23018	23022	23030	23037	23045	23055	23075						
Motor	KW	0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75						
	HP	1/2	1	2	3	1/2	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100						
Rated Output	Capacity (kVA)	1.1	1.9	2.9	4.2	1.1	1.9	2.9	4.2	6.5	9.5	12.6	18.7	24.8	28.6	34.3	45.7	55.6	69	83.8	114						
	Current (A)	3	5	7.5	11	3	5	7.5	11	17	25	33	49	65	75	90	120	146	182	220	300						
	Voltage (V)	AC 3-Phase, 0-240V(Max.)																									
	Frequency (Hz)	0.1-6000Hz																									
Source	Current (A)	5.7	9.5	14.3	21	3.3	5.5	8.3	12.1	18.7	27.5	36.3	53.9	71.5	82.6	99	132	161	200	242	330						
Enclosure Construction	Cooling System	Conven.-Cooled	Fan-Cooled				Conven.-Cooled	Fan-Cooled																			
	Protection	IP 20 NEMA 1				IP 20 NEMA 1												IP 00 NEMA 0				IP 20 NEMA 1				IP 21 NEMA 4	
	N. Weight (kg)	2.62	2.67	2.73	2.79	2.6	2.65	2.68	2.74	2.79	3.2	4.6															
	Frame	H1-A				H1-A						H1-B		H1-C				H1-D			H1-E						

TOPVERT H1 Series 400V Class

Model H1-xxxxx		3-Phase 380-460VAC, 50 / 60Hz (Tolerance: 342-528V, 47-63Hz)																
		430P7	431P5	432P2	433P7	435P5	437P5	43011	43015	43018	43022	43030	43037	43045	43055	43075		
Motor	KW	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75		
	HP	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100		
Rated Output	Capacity (kVA)	2.3	3.2	4.6	6.5	9.9	13.7	18.3	24.4	29	34.3	45.7	55.6	69.3	83.8	114		
	Current (A)	3	4.2	6	8.5	13	18	24	32	38	45	60	73	91	110	150		
	Voltage (V)	AC 3-Phase, 0-460V(Max.)																
	Frequency (Hz)	0.1-6000Hz																
Source	Current (A)	3.3	4.6	6.6	9.4	14.3	19.8	26.4	35.2	41.8	49.5	66	80.3	100	121	165		
Enclosure Construction	Cooling System	Fan-Cooled																
	Protection	IP 20 NEMA 1											IP 00 NEMA 0		IP 20 NEMA 1		IP 21 NEMA 4	
	N. Weight (kg)	2.61	2.66	2.68	2.83	3.27	3.3	4.79	4.95									
	Frame	H1-A						H1-B			H1-C			H1-D				

TOPVERT Family Specifications

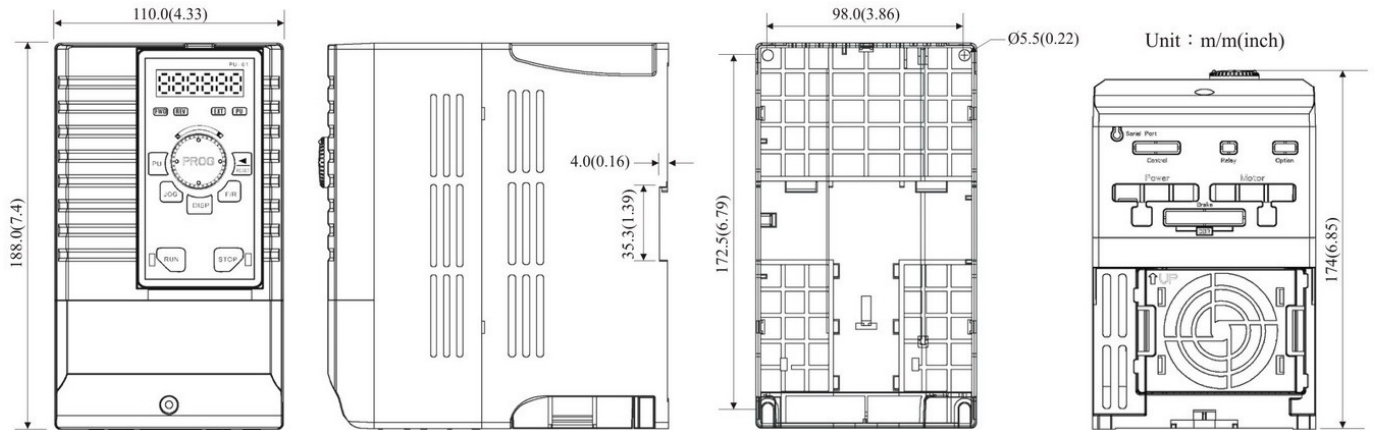
Series		E1 General Purpose Compact Drive	G1 General Purpose Multi-Function Drive	P1 Variable Torque Drive for Fan & Pump	H1 High Speed Drive
Output and Control Characteristics	Output Frequency	0.1 ~ 600Hz	0.1 ~ 600Hz	0.1 ~ 600Hz	0.1 ~ 6000Hz
	Overload Endurance	150% (125% for P1) of rated current for 60 seconds/10 minutes, Ta ≤ 40 °C, 200% (160% for P1) of rated current for 60 seconds			
	Maximum Output Voltage	Proportional to Input Voltage, 3-Phase (For 110 Class, Output Volt = Input Volt x 2)			
	Power Factor/Efficiency	Power factor no lower than 0.95. Efficiency no lower than 95% at full load			
	Control System	Sinusoidal Pulse Width Modulation (SPWM), (V/F control and Sensorless Vector Control switchable)			
	Output Frequency Settings	0.1~600Hz Programmable	0.1~600Hz Programmable	0.1~600Hz Programmable	0.1~6000Hz Programmable
	Output Frequency Resolution	0.01Hz			
	PWM Carrier Frequency	1kHz -18kHz Adjustable (restrictions on some models)			
	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 0.1~600Hz, Max. 3 points	Setting range 0.1~600Hz, Max. 3 points	Setting range 0.1~6000Hz, 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, Max.			
	DC Braking	Start-Point for DC Braking: 0.1-600Hz; DC Braking Current Level: 0 to 100% of rated output DC Braking time: 0 to 60 seconds			
	Braking Torque	Approx. 20% (125% Maximum). The models from G1-A, G1-B, H1-A, H1-B, P1-A and P1-B frames have built-in Dynamic Brake. All other models can be connect to Dynamic Brake unit module (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)(E1 without this External Signal), 4~20mA DC (Input impedance 250Ω), Multi-Function Inputs 1 ~ 6 (15 Steps Jog, up/down), PLC run, RS-485 Interface		
	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)		
	Multi-Function Input Signal (6 terminals)		Multi-step selection 0 to 15, first to second accel/decel switches, accel/decel inhibit, Emergency Stop, Auxiliary motor control is invalid, ACI/AVI speed command selection, Reset, PLC Run, Jog, Up/Down command, Sink/Source selection, Sink/Source selection		
	Multi-Function Output Indication (5 indications)		AC 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.		
Environment	Fault Indication		The output will be activated when faults occur (1 Relay contact point RA, RB, RC. Or 2 Open-collector output)		
	Embedded 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, Over Voltage, Over Current, Under Voltage, Overload, Overheating, External Fault, Electronic thermal, Ground Fault, Output short circuit, Over torque, Stall Prevention, 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 Displays for status indication: Display the AC drive run/stop status, forward/Reverse run status, Keypad enable, and Frequency command source. Keypad operator remote control distance up to 150 meters		
Environment	Operation Temperature		-10°C ~ +40°C (Non-Condensing and not frozen)		
	Storage Temperature		Storage: -20°C ~ +60°C		
	Humidity		Below 90%RH (Non-Condensing)		
	Vibration		Below 20Hz: 1.0G, above 20Hz: 0.6G		
	Installation Location		Altitude 1,000 m or lower, keep away from corrosive gasses, liquid and dust		

TOPVERT G1/H1/P1 series are designed and manufactured based on CNS and IEC standards.

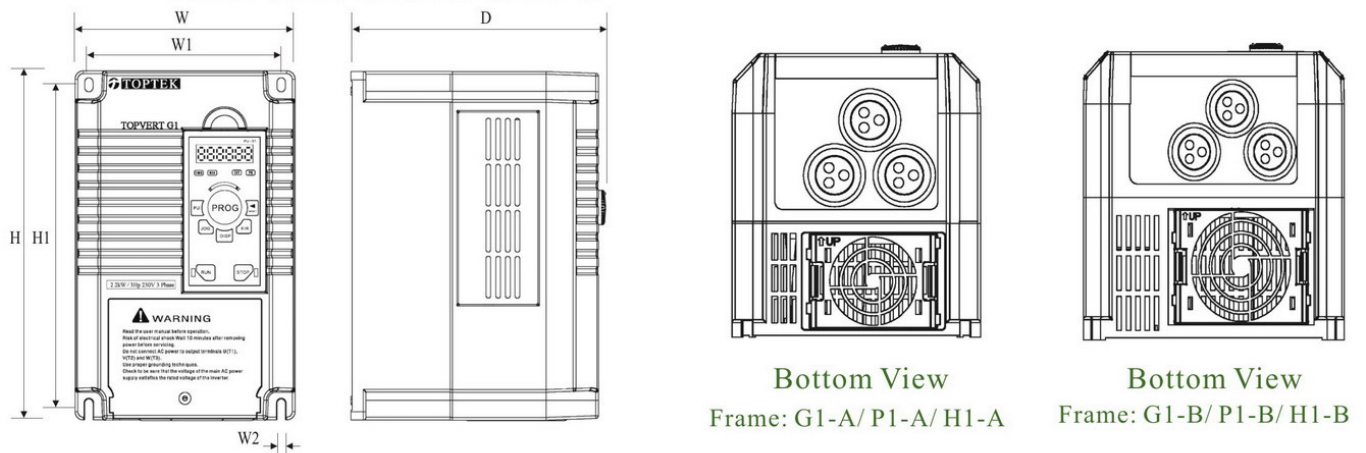


Dimensions

Frame Code: E1-A



Frame Code: G1-A/ P1-A/ H1-A



Bottom View

Frame: G1-A/ P1-A/ H1-A

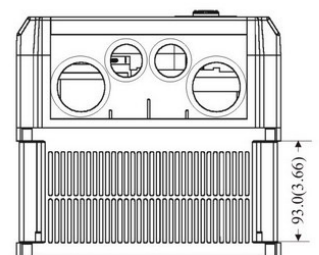
Bottom View

Frame: G1-B/ P1-B/ H1-B

G1/P1/H1 Dimensions

Unit: m/m(inch)

Frame Code	W	W1	W2	H	H1	D
G1-A P1-A H1-A	160 (6.30)	140 (5.51)	6 (0.24)	250 (9.84)	230 (9.06)	186 (7.32)
G1-B P1-B H1-B	200 (7.87)	180 (7.09)	6 (0.24)	275 (10.83)	255 (10.04)	206 (8.11)
G1-C P1-C H1-C	260 (10.24)	236 (9.29)	9 (0.35)	420 (16.54)	410 (16.14)	232 (9.13)



Bottom View

Frame: G1-C/ P1-C/ H1-C

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