THE FIRST CHOICE OF ENERGY EFFICIENCY

700Q ELCO **0121**

Rated Kvar
0121 – 12.1Kvar
II
0363 – 36.3Kvar

ELCO CYLINDRICAL TYPE POWER CAPACITOR

700 SERIES

6/15 KV

Three-phase Cylindrical - Type Power Capacitor is used to correct power factor for motors, low voltage transformer and inside industrial switchboard. It is sometimes used with blocking reactors with harmonics presence.

FEATURES

- Dry type, Cylindrical aluminum case
- 3 phase connection
- Rated voltage 440V
- Maximum permissible current 1.43x rated current
- Maximum inrush current 200 x rated current
- Compliance to standard IEC 60831 – 1 & 2
- Equipped with pressure activated series interruptor
- Statistical Life Expectancy > 150,000 operating hours

TECHNICAL SPECIFICATION

Construction			
Type	Dry Metalized Film, Self-Healing		
Casing	Cylindrical Extruded Aluminium Can		
Dielectric	Bi-Axially Oriented Polypropylene		
Plate	with Zinc-Aluminium Alloy		
Encapsulation/Impregnation	Polyurethane Resin Oven Cured		
Electrical Performance			
Rated Voltage (UN)	440V		
Frequency (fN)	50 / 60 Hz		
Connection	Internal Delta		
Temperature Category	D / -25°C to +55°C		
Relative Humidity	≤ 95%		
Capacitance Tolerance	-5% / 10%		
Dielectric Loss (excluding discharge resistor)	< 0.2W / kvar		
Total Losses (Including Discharge Resistor)	< 0.4W / kvar		
Total Losses (excluding discharge resistor)	< 0.3W / kvar		
Testing Voltage Between Terminals	2.15 Un For 2s		
Testing Voltage Between Terminals and Container / Time	6 KV / 10s		
Maximum Permissible Current	1.43 IN		
Lighting Impulse Test Between Terminal-Container	15KV (Peak)		
Maximum Inrush Current	200 IN		
Capacitor Discharge Time	3 min to 75V		
Statistical Life Expectancy	> 150,000 Operating Hours		
Standards	IEC 60831-1 & 2		
Installation			
Terminal Arrangements	Terminal Block		
Screw Torque	M5 : ≤ 2 Nm , M12 : ≤ 15 Nm		
Minimum Installation Clearance	50mm Between Top of Capacitor to Enclosure and 50mm Between Units		
Service Condition			
Residual voltage at energization	Not exceed 10% rated voltage		
Altitude	Not exceeding 2000 m		
Ambient temperature : Highest mean over any period of	24 Hours : 45°C , 1 year : 35°C		
Maximum Permissible Voltage	1.00 UN - Continuous	1.10 UN - 8 H in every 24 H	1.15 UN - 30 min in every 24 H
	1.20 UN - 5 min	1.3 UN - 1 min	
Safety Features			
Safety Device	Pressure Activated Series Interrupter		
IP Rating	IP20		



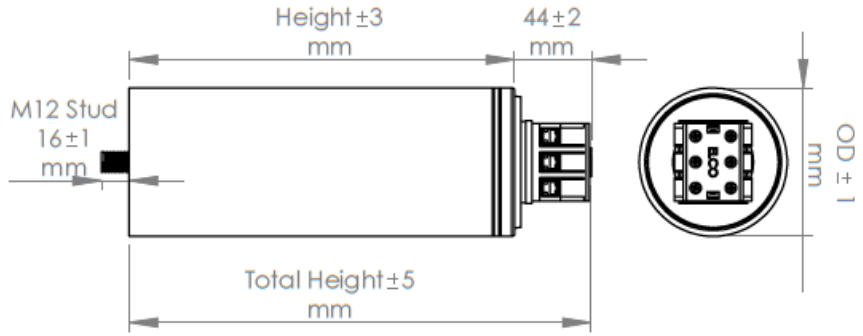
PRODUCT INFORMATION - 700 SERIES

	f_N	50Hz						Dimension			Weight (kg)
	U_N	400		415		440		(mm)			+/- 0.2
Product Code	**Capacitance (uF)**	**Q_N**	**I_N**	**Q_N**	**I_N**	**Q_N**	**I_N**	**OD**	**Height**	**Total Height**	**Weight**
700QELCO0121	3 x 66.3	10.0	14.4	10.8	15.0	12.1	15.9	75	225	270	1.3
700QELCO0182	3 x 99.4	15.0	21.7	16.1	22.5	18.2	23.8	75	287	332	2.0
700QELCO0242	3 x 132.6	20.0	28.9	21.5	30.0	24.2	31.8	86	287	332	2.0
700QELCO0300	3 x 165.7	25.0	36.1	26.9	37.4	30.3	39.7	86	329	374	2.5
700QELCO0360	3 x 198.9	30.0	43.3	32.3	44.9	36.3	47.6	100	287	332	2.8

	f_N	60Hz						Dimension			Weight (kg)
	U_N	400		415		440		(mm)			+/- 0.2
Product Code	**Capacitance (uF)**	**Q_N**	**I_N**	**Q_N**	**I_N**	**Q_N**	**I_N**	**OD**	**Height**	**Total Height**	**Weight**
700QELCO0121	3 x 66.3	12.0	17.3	12.9	18.0	14.5	19.1	75	225	270	1.3
700QELCO0182	3 x 99.4	18.0	26.0	19.4	27.0	21.8	28.6	75	287	332	2.0
700QELCO0318	3 x 132.6	24.0	34.6	25.8	35.9	29.0	38.1	86	287	332	2.0
700QELCO0303	3 x 165.7	30.0	43.3	32.3	44.9	36.3	47.6	86	329	374	2.5
700QELCO0363	3 x 198.9	36.0	52.0	38.8	53.9	43.6	57.2	100	287	332	2.8

Q_N = kVAr ; I_N = Amps

PRODUCT DIMENSION



12.1 kvar to 36.3 kvar

THE FIRST CHOICE OF ENERGY EFFICIENCY

705Q ELCO **0100**

Rated Kvar
0100 – 1Kvar
II
0400 – 40Kvar

ELCO CYLINDRICAL TYPE POWER CAPACITOR

705 SERIES

6/15 KV

Three-phase Cylindrical - Type Power Capacitor is used to correct power factor for motors, low voltage transformer and inside industrial switchboard. It is sometimes used with blocking reactors with harmonics presence.

FEATURES

- Dry type, Cylindrical aluminum case
- 3 phase connection
- Available for rated voltage 525V
- Maximum permissible current 1.43x rated current
- Maximum inrush current 200 x rated current
- Compliance to standard IEC 60831 – 1 & 2
- Equipped with pressure activated series interruptor
- Statistical Life Expectancy > 150,000 operating hours

TECHNICAL SPECIFICATION

Construction			
Type	Dry Metalized Film, Self-Healing		
Casing	Cylindrical Extruded Aluminium Can		
Dielectric	Bi-Axially Oriented Polypropylene		
Plate	with Zinc-Aluminium Alloy		
Encapsulation/Impregnation	Polyurethane Resin Oven Cured		
Electrical Performance			
Rated Voltage (UN)	525V		
Frequency (fN)	50 / 60 Hz		
Connection	Internal Delta		
Temperature Category	D / -25°C to +55°C		
Relative Humidity	≤ 95%		
Capacitance Tolerance	-5% / 10%		
Dielectric Loss (excluding discharge resistor)	< 0.2W / kvar		
Total Losses (Including Discharge Resistor)	< 0.4W / kvar		
Testing Voltage Between Terminals	2.15 Un For 2s		
Testing Voltage Between Terminals and Container / Time	6 KV / 10s		
Maximum Permissible Current	1.43 IN		
Lighting Impulse Test Between Terminal-Container	15KV (Peak)		
Maximum Inrush Current	200 IN		
Capacitor Discharge Time	3 min to 75V		
Statistical Life Expectancy	> 150,000 Operating Hours		
Standards	IEC 60831-1 & 2		
Installation			
Terminal Arrangements	Terminal Block		
Screw Torque	M5 : ≤ 2 Nm , M12 : ≤ 15 Nm		
Minimum Installation Clearance	50mm Between Top of Capacitor to Enclosure and 50mm Between Units		
Service Condition			
Residual voltage at energization	Not exceed 10% rated voltage		
Altitude	Not exceeding 2000 m		
Ambient temperature : Highest mean over any period of	24 Hours : 45°C , 1 year : 35°C		
Maximum Permissible Voltage	1.00 UN - Continuous	1.10 UN - 8 H in every 24 H	1.15 UN - 30 min in every 24 H
	1.20 UN - 5 min	1.3 UN - 1 min	
Safety Features			
Safety Device	Pressure Activated Series Interrupter		
IP Rating	IP20		

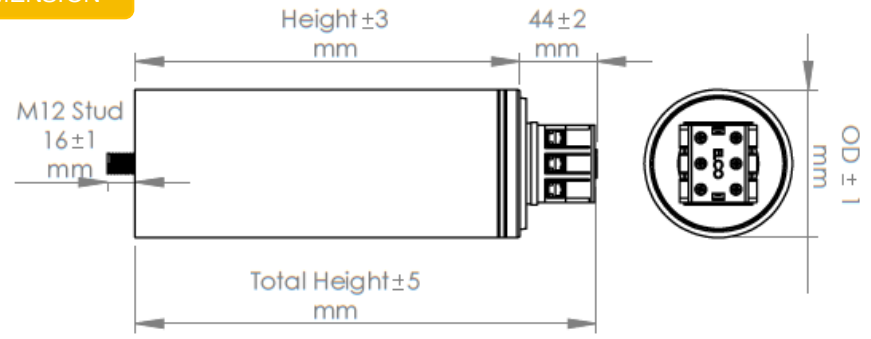


PRODUCT INFORMATION - 705 SERIES

	f_N	50Hz								Dimension		
	U_N	525		500		480		400		(mm)		
Product Code	**Capacitance (uF)**	**Q_N**	**I_N**	**Q_N**	**I_N**	**Q_N**	**I_N**	**Q_N**	**I_N**	**OD**	**Height**	**Total Height**
705QELCO0100	3 x 38.5	10.0	11.0	9.1	10.5	8.4	10.1	5.8	8.4	75	225	292
705QELCO0150	3 x 57.7	15.0	16.5	13.6	15.7	12.5	15.1	8.7	12.6	75	287	360
705QELCO0200	3 x 77.0	20.0	22.0	18.1	20.9	16.7	20.1	11.6	16.8	86	287	360
705QELCO0250	3 x 96.2	25.0	27.5	22.7	26.2	20.9	25.1	14.5	20.9	86	287	360
705QELCO0300	3 x 115.5	30.0	33.0	27.2	31.4	25.1	30.2	17.4	25.1	86	329	360

	f_N	60Hz								Dimension		
	U_N	525		500		480		400		(mm)		
Product Code	**Capacitance (uF)**	**Q_N**	**I_N**	**Q_N**	**I_N**	**Q_N**	**I_N**	**Q_N**	**I_N**	**OD**	**Height**	**Total Height**
705QELCO0100	3 x 38.5	12.0	13.2	10.9	12.6	10.0	12.1	7.0	10.1	75	225	292
705QELCO0150	3 x 57.7	18.0	19.8	16.3	18.9	15.0	18.1	10.4	15.1	75	287	360
705QELCO0200	3 x 77.0	24.0	26.4	21.8	25.1	20.1	24.1	13.9	20.1	86	287	360
705QELCO0250	3 x 96.2	30.0	33.0	27.2	31.4	25.1	30.2	17.4	25.1	86	287	360
705QELCO0300	3 x 115.5	36.0	39.6	32.7	37.7	30.1	36.2	20.9	30.2	86	329	360

PRODUCT DIMENSION



10.0 kvar to 30 kvar

ELCO CAPACITOR DUTY CONTACTOR

ELCO CNNK series AC-6B contactor is designed for power factor correction application. The contactor is equipped with damping resistor which protect the capacitor from high rush current (approximately 100~200 times of rated current) during capacitor switching.

FEATURES

- In conformity with: IEC 60947-4-1
- Switching of 3 phase capacitors
- Available for rated voltage 525V
- Ambient temperature up to 55°C
- Maximum permissible peak current I ≤ 200 I



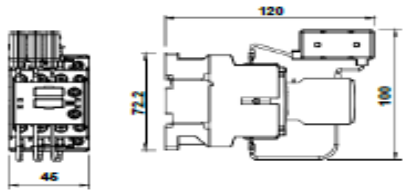



PRODUCT INFORMATION

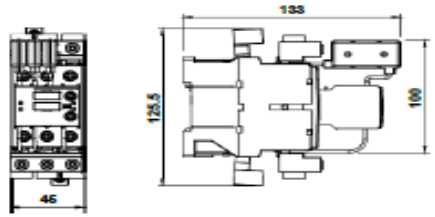
Type			CNNK 12	CNNK 20	CNNK 30	CNNK 40	CNNK 50	CNNK 60	CNNK 75	CNNK 80
Rated operation current Ie Amps			18	29	44	58	72	87	108	116
Rated Capacitor Power	220/240V AC-6b (Kvar)		6.7	11	20	25	29	32	38	45
	400/440V AC-6b (Kvar)		12.5	20	30	40	50	60	75	80
	500/550V AC-6b (Kvar)		15	24	35	50	60	70	80	100
	660/690V AC-6b (Kvar)		18	30	40	58	70	80	105	115
Electrical Endurance		*Operating-cycles*	250,000	175,000	125,000				100,000	
Permissible Operating Temperature		*°C*	-25 to +55							
Frequency of Opertion, max		*Cycles/Hour*	240	120		100				
Rated Impulse Withstand Voltage		*KV*	6			8				
Degree of Protection			IP20							IP00
Rated Insulating Voltage Ui		*V*	690			1000				
Maximum Permissible Fuse Rating		*main circuit gL/gG, A*	35	50	80	100	125	160	160	
		auxilliary circuit, A	16							
Consumption of electromagnet in cold state with Un AC Operated		*Closing, VA*	62		65	155			204	400
		p.f.	0.75		0.75	0.6			0.54	0.48
		Closed,VA	7		8	12			16	26
		p.f.	0.3		0.3	0.29			0.26	0.24
Coil energizing voltage		*V*	230 +10% / -15%							

PRODUCT DIMENSION

CNNK 12 / 20



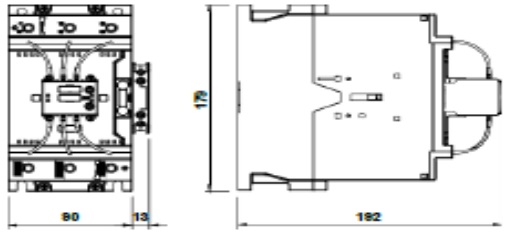
CNNK 30



CNNK 40, 50, 60 / 75



CNNK 80



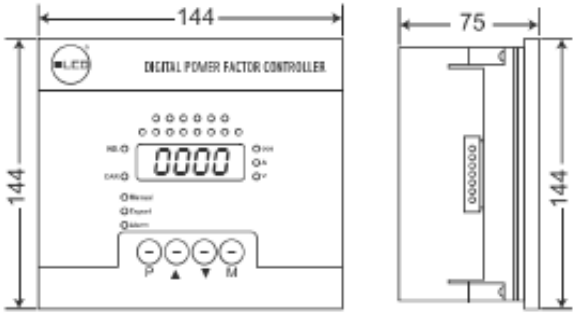
THE FIRST CHOICE OF ENERGY EFFICIENCY

ELCO POWER FACTOR CONTROLLER

PFR5ELCO0006
PFR5ELCO0014

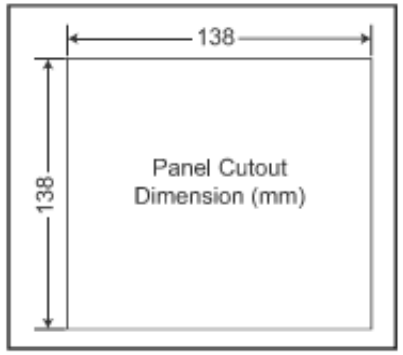
The power factor controller (PFC) serves as the central control unit for automatic capacitor bank systems. Its primary function is to manage the switching of capacitors in order to attain the desired user-defined target power factor (cosϕ). By incorporating a power factor controller, it becomes feasible to streamline operations, expedite problem-solving, and lower the expenses associated with supervisory systems.

PRODUCT DIMENSION



Front View

Side View





MEASUREMENT

- Full Measurement Range of Cos ϕ (0.8L - 0.8C)
- Phase To Neutral Voltage & Current
- Reactive Power
- Total Harmonic Distortion (THD) For Voltage & Current
- Harmonic Spectrum Info Up Tp 19th Order For Voltage & Current
- Capacitor Harmonic Load Factor (CHL)
- Switching Sensitivity From Range Of 5 - 1200 Seconds
- Ambient Temperature

Power Factor Compensation For Inductive & Capacitive

Programmable Cos ϕ Desired (0.8 Inductive - 0.8 Capacitive)

Step Switching Operation Mode
- Auto (Rotational, Linear, Four-Quadrant)
- Manual

Automatic Connection Configuration Detection

Automatic Step Power Recognition For Both Capacitor & Choke

Automatic CT Polarity Correction

Two Tariff Setting For Power Import & Export Mode

Control Bandwidth (Anti-Hunting Function)

Programmable Fixed Steps & LED Indication For Individual Step

Programmable Fan, Alarm Relay & Error Message

Working Temperature -40ºC To +60ºC

Alarm Trigger Setting
- Over / Under - Voltage & Current, Voltage Failure
- THDI / THDU / CHL Higher Than Limit Set
- Number of Switching Operations Exceeded
- Cooling & Heating Threshold, Overheated
- Step Error, Compensation Error, Export Error

PRODUCT INFORMATION – POWER FACTOR CONTROLLER

	Parameters	PFR5ELCO0006	PFR5ELCO0014
Adjustable Parameters	Power Factor Desired	0.80 Inductive – 0.8 Capacitive	
	Connection Time	5 - 1200 Seconds	
	Reconnection Delay Time	5 - 1200 Seconds	
	Operating Mode	Automatic Mode (Rational, Linear, Four-Quadrant), Manual Mode	
Ranges, Accuracy	Power Supply and Voltage Measurement	90 – 275 VAC; 43 – 67Hz; 7VA	
	Voltage Measurement Accuracy	±1% of Range, ± 1 Digit	
	Measuring Voltage Loss Response Time	≤ 20 ms	
	Measurement Current	0.02 – 7 A	
	Current Input Serial Impedance	≤ 10 mΩ	
	Current Measurement Accuracy • Range 0.5 – 7 A • Range 0.02 – 0.5 A	 ± 0.02A , ± 1 Digit ± 0.002A , ± 1 Digit	
	Maximum Phase Angle Error (Power Factor and Powers Measurement)	±1° at I > 3 % of Range; Otherwise ±3°	
	Voltage and Current Harmonic Measurement	Up to 19th Harmonic	
	Harmonic Components and THD Measurement Accuracy	±5%, ±1 Digit (For U, I > 10% of Range)	
	Temperature Measurement Range and Accuracy	-30 to +60°C , ±5°C	
	Number of Output Relays	6	14
	Output Relay Load Rating	250 VAC / 4 A	
	Installation Category / Level of Pollution	In Compliance With Standard: EN61010-1, III-2	
Operating Conditions	Operating Temperature	-40°C to +60°C	
	Relative Humidity	5 – 100%	
In Compliance with Standards	Noise Suppression Level	EN 50081-2 EN 55011 Class A EN 55022 Class A	
	Electromagnetic Compatibility (EMC) – Immunity Test	IEC61000-6-2 : 2016, IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEC61000-4-11	
	Electromagnetic Compatibility (EMC) – Emission	IEC61000-6-4 : 2018 EN55011 Ed.3:2010 Class A, EN55022 Ed.3:2011 Class A	
	Product Safety Requirement	IEC60255-27 : 2013 Clause 10.6.4.2 & 10.6.4.3	
Physical	Enclosure • Front Panel	IP 40	
	• Back Panel	IP 20	
	Dimension • Front Panel	144 x 144 (mm)	
	• Built-in Depth	75 mm	
	• Installation Cutout	138+1 x 138+1 (mm)	
	Mass	Max 0.7 Kg	

ELCO_SYSTEMS ADVANCED STATIC VAR GENERATOR (ASVG) – PRO

ELCO_Systems ASVG – PRO is a hybrid IGBT based device connected in parallel with a non-linear load that requires harmonic mitigation as well as power factor correction.

ELCO_Systems ASVG - PRO works by injecting compensating harmonic currents by generating an equal compensation current for each selected harmonic order 180° phase shifted to the incident harmonic. It also monitors the power factor and injects required reactive currents. The result in simultaneous power factor & harmonics correction.

KEY FEATURES

- Protection of loads and equipment from waveform distortions, voltage variations, harmonic disturbance, low power factor and load unbalance.
- Energy efficiency and savings: Lower energy losses and a higher efficiency of the system.
- Allows reduced production downtime.
- Increase MTBF by damping dangerous negative sequence harmonics.
- Real time compensation of current harmonics.
- Flexibility: Take care of individual disturbance patterns and automatically adapt to changing load conditions and sudden network load changes
- Simple dimensioning and installation.
- Automatic detection from 0% to 100% based on the selected compensation priority setting (e.g., VAR priority, Power Factor priority, or Unbalance priority)
- Allows compliance to ER UK G5/4 Harmonics Standard

PRODUCT INFORMATION - ELCO_SYSTEMS ADVANCED STATIC VAR GENERATOR (ASVG) - PRO

System Parameter	30amp / 21kvar 50amp / 35kvar	75amp / 52kvar	100amp / 70kvar	150amp / 104kvar
Rated Voltage	400V ±20%			
Frequency	50Hz -10% +20%			
Parallel	Max 15 for 7"HMI			
Efficiency	Up to 98%			
Wiring	3P4W + PE			
Inverter topology	3-level IGBT Inverter with PWM and DSP			
Protection Functions	Over or under -voltage/grid voltage unbalance, over or under-current/over or under-temperature/voltage abnormality/ over or underfreqeuncy, pre-charge fault, IGBT overheat, sequence fault and CT fault			
Heat Loss	< 2.5%			
CT	100/5 ~ 10000/5			
Respective climatic environmental limits	Up to 100,000 hours			
Switching Frequency	20kHz			
Unbalanced current compensation	Negative sequence/zero sequence			
Cable Connection	Drawer type : Rear of module, Wall mounted type : Top of module			
Harmonic compensation capacity	0% ~ 100% (based on priority setting)			
Mitigation Harmonic Order	2 ~ 61			
Alarm record	Available			
Cooling Direction	Drawer type : Air inlet from front , Wall mounted type : Air inlet from bottom			
Performance				
Instantaneous response time	<0.05 ms or < quarter cycle			
Full Response Time	< 5 ms			
Target Power Factor	1.0 or as setting			
Cooling Mode	Fan cooling			
Noise	≤ 55db			
Module	Drawer Type and Wall Mounted Type			
Dimension - Drawer Type (WxHxD)	450 x 88 x 643	450 x 110 x 643	450 x 160 x 639	450 x 192 x 639
Dimension - Wall Mounted Type (WxHxD)	450 x 643 x 118	450 x 643 x 140	450 x 639 x 190	450 x 639 x 222
Net Weight	18kg	21kg	30kg	38kg
Environment Condition				
Altitude	≤1000m			
Operating Temperature	-10°C~+40°C			
Relative Humidity	5%~95% without condensation			
Communication Function				
Communication interface	RS485 for status monitoring and multiple module connection			
Module Display	64.5mm*13.8mm LCD screen			
HMI Monitoring Screen	7-inch LCD touch screen (155mm x 88mm) - with IP65 Display with USB Port Display Function - % working of ASVG that compensate to system and internal temperature, Voltage, Current, THDv, THDi, Harmonic Spectrum, Power Factor, Active Power, Reactive Power, Apparent Power in grid and load side. Control Fuction - Current Compensation, Current Vectors, Compensation Priority.			
Standards and Certifications				
Electrical Safety	Low Voltage Directive 2014/35/EU, EN 62477-1:2012+A11:2014+A1:2017, EIT022001			
Electromagnetic Compatibility	IEC 61000-3-2 : 2019, IEC 61000-3-3 : 2019, IEC 61000-6-1:2019, IEC 61000-6-3 : 2007/A1:2011 IEC 61000-4-2 , IEC 61000-4-3, IEC 61000-4-4 , IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-11, 2014/30/EU, G 5/4-1, BS EN 61000-6-4, BS EN 61000-6-2			
Third Party Approvals	CE Certificate,CQC,Type Test Report , ISO9001 Certificate			

Wall Mounted Type



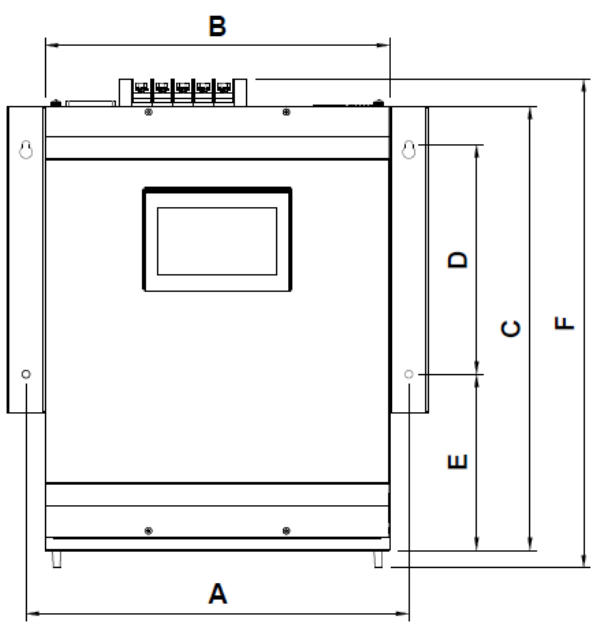
Drawer Type

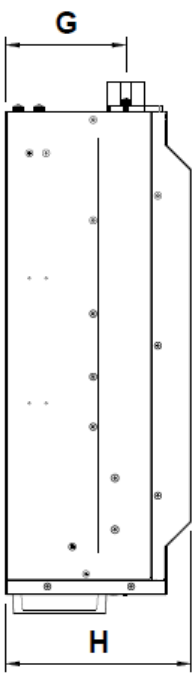


PRODUCT INFORMATION - ELCO_SYSTEMS ASVG - PRO

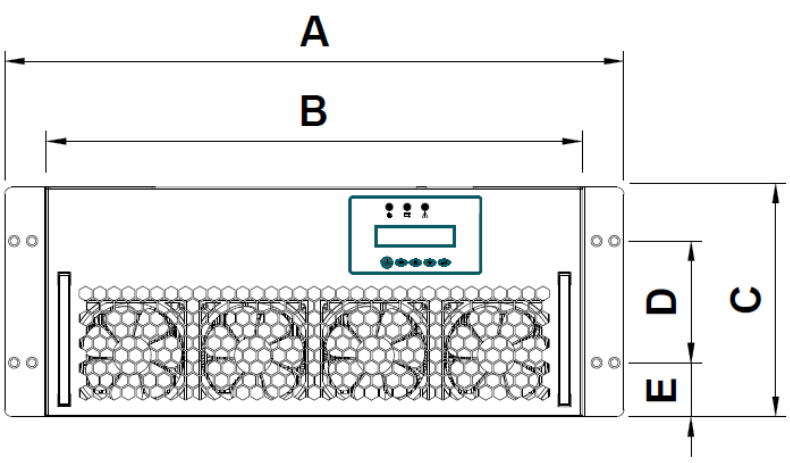
Product Code	Type	amp / kvar	Dimension (mm)							
			A	B	C	D	E	F	G	H
ASVGELCOP030400D	Drawer Type	30amp / 21kvar	520	450	88	50	19	450	580	643
ASVGELCOP050400D		50amp / 35kvar	520	450	88	50	19	450	580	643
ASVGELCOP075400D		75amp / 52kvar	520	450	110	72	19	450	580	643
ASVGELCOP100400D		100amp / 70kvar	520	450	160	70	45	450	580	639
ASVGELCOP150400D		150amp / 104kvar	520	450	192	102	45	450	580	639
ASVGELCOP030400W	Wall Mounted	30amp / 21kvar	500	450	580	300	230	643	63.5	118
ASVGELCOP050400W		50amp / 35kvar	500	450	580	300	230	643	63.5	118
ASVGELCOP075400W		75amp / 52kvar	500	450	580	300	230	643	85.5	140
ASVGELCOP100400W		100amp / 70kvar	500	450	580	300	230	639	123.5	190
ASVGELCOP150400W		150amp / 104kvar	500	450	580	300	230	639	148.5	222

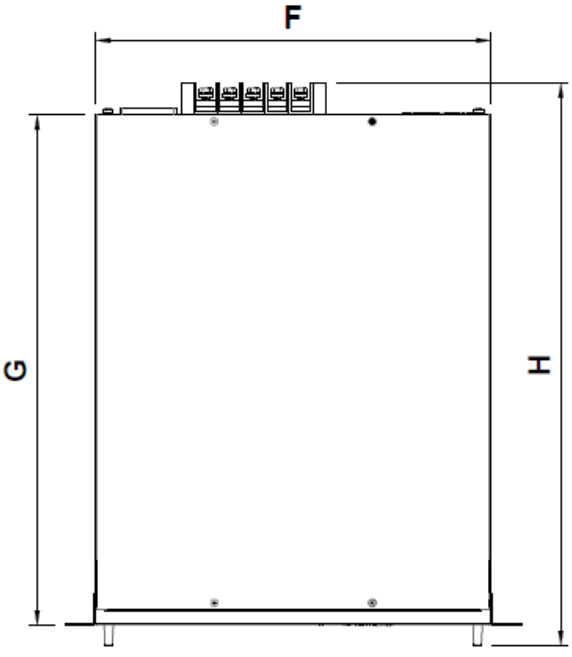
PRODUCT DIMENSION





Wall Mounted Type (30A/ 50A / 75A / 100A / 150A)





Drawer Type (30A / 50A / 75A / 100A / 150A)