MVPC

Medium Voltage Power Converter System

- **Rated up to 7,200 VAC**
- **Control loads up to 22MW**
- **Full SCR (Zero-Cross) or Hybrid (SCR/Contactor) Power Control**
- **Control loads from 0 – 100% with proprietary Chromalox control algorithm**
- **Patented Automatic Element Dry-Out Functionality**
- **Indoor, Outdoor, and Arc Containment Enclosures Available**

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DESCRIPTION

The DirectConnect™ medium voltage power converter system (MVPC) provides a safe, efficient, and cost effective solution for controlling power to DirectConnectTM heating bundles.

Coupled with Chromalox's patented MV heating technology, the MVPC greatly reduces the number of circuits, installation and maintenance costs, as well as the footprint required to heat an application compared to a low voltage (< 1,000V) system.

The DirectConnect™ medium voltage power converter system controls all Chromalox DirectConnect™ MV heaters including bundles, circulation heaters, steam generators, and hot water generators.

BENEFITS

Automatic Element Dry-Out dries elements when excess moisture is detected via variable SCR firing modes and patented logic; drastically reducing process downtime and maintenance costs.

In-house Design and Build from the only third party certified manufacturer of medium voltage converter systems and metal-sheathed heaters. The MVPC has been independently tested and approved by the foremost medium voltage test lab in the world. All-In-One Control provides power and heating system control in one system. One system reduces installation cost and system complexity while ensuring power and heating control are in sync.

Reduced Footprint compared to a low voltage system, the MVPC controls the same heat load in a smaller package. Utilizing a reduced number of circuits and smaller cables results in instant installation cost savings.

Proven Industry Leading Voltage Capabilities for resistance heating applications. The use of higher voltages results in an increase in system power efficiency through the reduction of I^2R losses leading to operational cost savings.

Low Noise Power Transmission via overvoltage and overcurrent protection ensure reliable power transmission from a system with a Total Harmonic Distortion of less than 5%.

MVPC

Medium Voltage Power Converter System *(Cont.)*

SPECIFICATIONS

Electrical	Standard Feature	Optional
Nominal (Rated) Voltage, 50/60Hz	4.16kV (4.76kV) 6.60kV (7.20kV)	1.00 - 6.90kV1 (up to 7.20kV)
Nominal (Rated) Capacity	960A (1,000A)	1,920A (2,000A)
Short Circuit Current Rating (SCCR)	50.0kA	
Basic Impulse Level (BIL)	40.0kV	
Power Control Options	Hybrid (1 SCR + Contactor(s))	Full SCR
Control Circuit Power	120V (internally derived)	120V, 230/240V (externally derived)
Main Bus	Tin plated copper with direct on linesupply power termination	
Cable Entry/Exit Options	Bottom	Top (NEMA 2 / IP42, NEMA 1 / IP20Donly)
Safety/Protection	Kirk Key Interlock per circuit, Disconnector per circuit, Surge Arrestors, Type E Branch Fuses, Isolated Low Voltage Control compartment	Arc Flash Optic Sensors

[1]*Supply voltage tolerance cannot exceed 7.2kV*

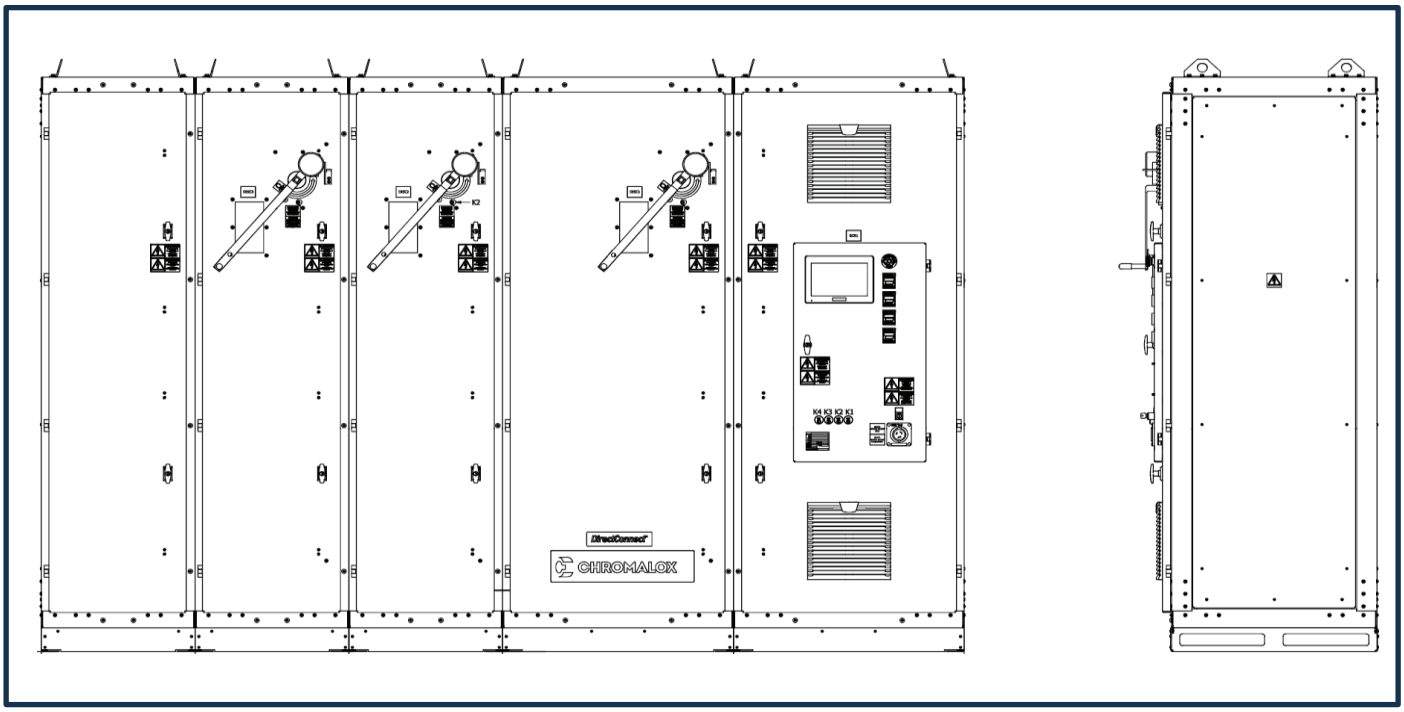
General	Standard Feature	Optional
Ingress Rating	Non-arc resistant, indoor: NEMA 2 / IP42	Arc resistant, indoor: NEMA 1 / IP20D Non-arc resistant, outdoor: NEMA 3R / IP54, NEMA 3RX / IP54 Z-Purge, Cl. 1, Div. 2 Gr. A – D, uncertified (NEMA 3R / IP54, NEMA 3RX / IP54 only)
Enclosure Finish	Powder Coated Carbon Steel, RAL 7035	316SS, 2B finish (NEMA 3RX / IP54 only)
Central Control Unit	Proface™ HMI with Allen-Bradley® CompactLogix™ Controller	Remote HMI
Control Input/Output	24V: Remote Shutdown, Remote Start/Stop, Remote Enable, Common Alarm, Ready Status, Run Status 4-20mA: Over Temperature Retransmit	MVSGI[1] only: Pump ON/OFF, Blowdown Control Power (120V)
Process Input Options	Temperature (Sensor) Pressure (Transducer) (MVSGI[1] only) Heat Demand Signal (4 - 20mA, 0 – 100%)	MVSGI[1] only:Primary Low Water Cutoff, Auxiliary Low Water Cutoff
Monitoring	Ground Fault, Circuit Output Current, SCR Output Voltage, Over Temperature (up to 8 sensors)	
Communications	Modbus TCP	ModBus RTU
Ambient Temperature	32°F (0 °C) min., 104 °F (40 °C) max.	-40 °F / °C min.
Certifications	IEC/EN 62477-2, 2011/65/EU (RoHS 3), 2014/30/EU (EMC)	CSA-SPE-1000

[1]*Visit our website for more information on the MVSGI Medium Voltage Steam Generator, www.chromalox.com*

MVPC

Medium Voltage Power Converter System *(Cont.)*

NEMA 1 (IP20) / NEMA 2 (IP42) ENCLOSURE DIMENSIONS (3 CIRCUIT SYSTEM SHOWN)



STANDARD SIZE SPECIFICATIONS

4,160V, 50/60Hz, Hybrid Power Control

Circuits	Max. Power (kW)	Approx. Dimensions & Weights (in/mm, lbs/kg)*			
		Height	Width	Depth	Weight
1	1,150	94/2400	94/2400	33/829	3055/1385
2	2,300	94/2400	118/3000	33/829	3885/1762
3	4,600	94/2400	142/3600	33/829	4715/2139
4	6,900	94/2400	165/4200	33/829	5545/2515

6,600V, 50/60Hz, Hybrid Power Control

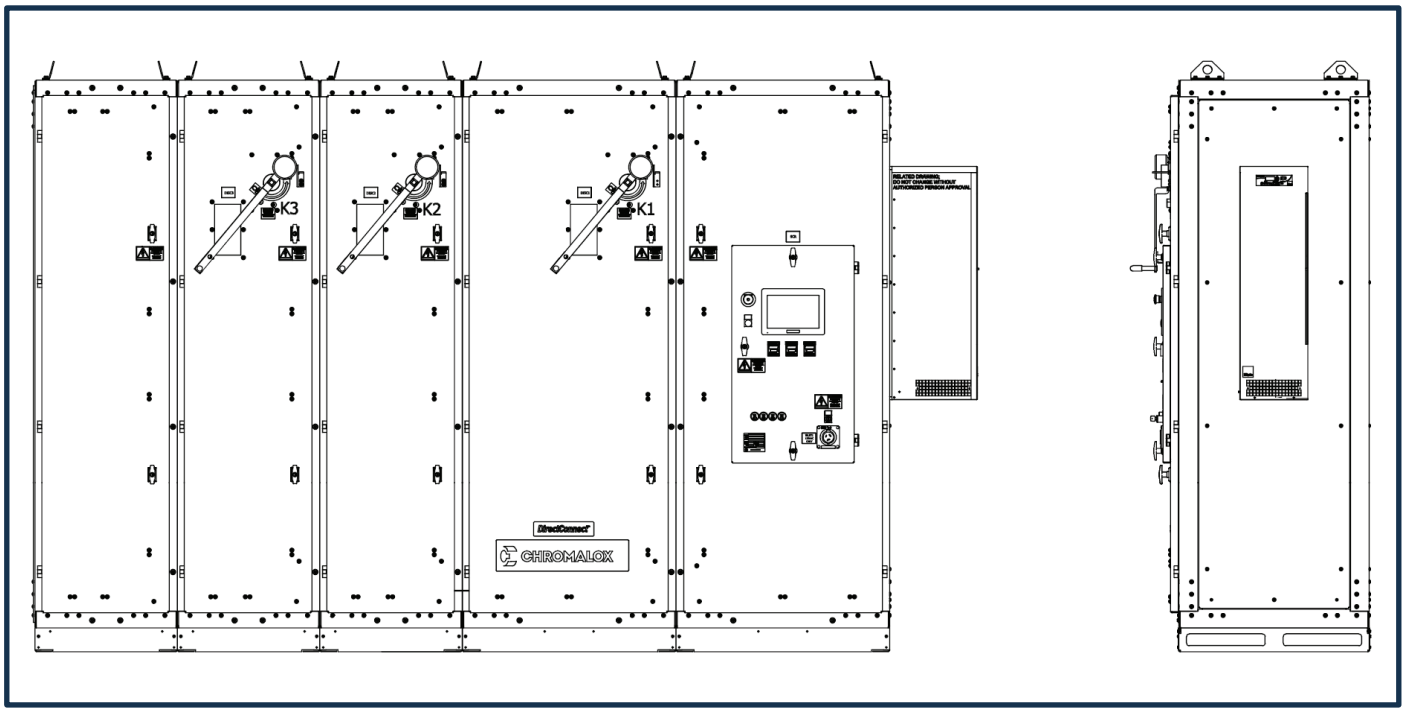
Circuits	Max. Power (kW)	Approx. Dimensions & Weights (in/mm, lbs/kg)*			
		Height	Width	Depth	Weight
1	1,820	94/2400	94/2400	33/829	3055/1385
2	3,650	94/2400	118/3000	33/829	3885/1762
3	7,300	94/2400	142/3600	33/829	4715/2139
4	10,960	94/2400	165/4200	33/829	5545/2515

** 20" (508mm) arc shroud not shown or included in Dimensions & Weights, NEMA 1 (IP20) enclosure only*

MVPC

Medium Voltage Power Converter System *(Cont.)*

NEMA 3R (IP54) / NEMA 3RX (IP54) ENCLOSURE DIMENSIONS (3 CIRCUIT SYSTEM SHOWN)



STANDARD SIZE SPECIFICATIONS

4,160V, 50/60Hz, Hybrid Power Control

Circuits	Max. Power (kW)	Approx. Dimensions & Weights (in/mm, lbs/kg)			
		Height	Width	Depth	Weight
1	1,150	94/2400	109/2780	33/829	3205/1454
2	2,300	94/2400	133/3380	33/829	4035/1830
3	4,600	94/2400	157/3980	33/829	4865/2207
4	6,900	94/2400	180/4580	33/829	5695/2583

6,600V, 50/60Hz, Hybrid Power Control

Circuits	Max. Power (kW)	Approx. Dimensions & Weights (in/mm, lbs/kg)			
		Height	Width	Depth	Weight
1	1,820	94/2400	109/2780	33/829	3205/1454
2	3,650	94/2400	133/3380	33/829	4035/1830
3	7,300	94/2400	157/3980	33/829	4865/2207
4	10,960	94/2400	180/4580	33/829	5695/2583