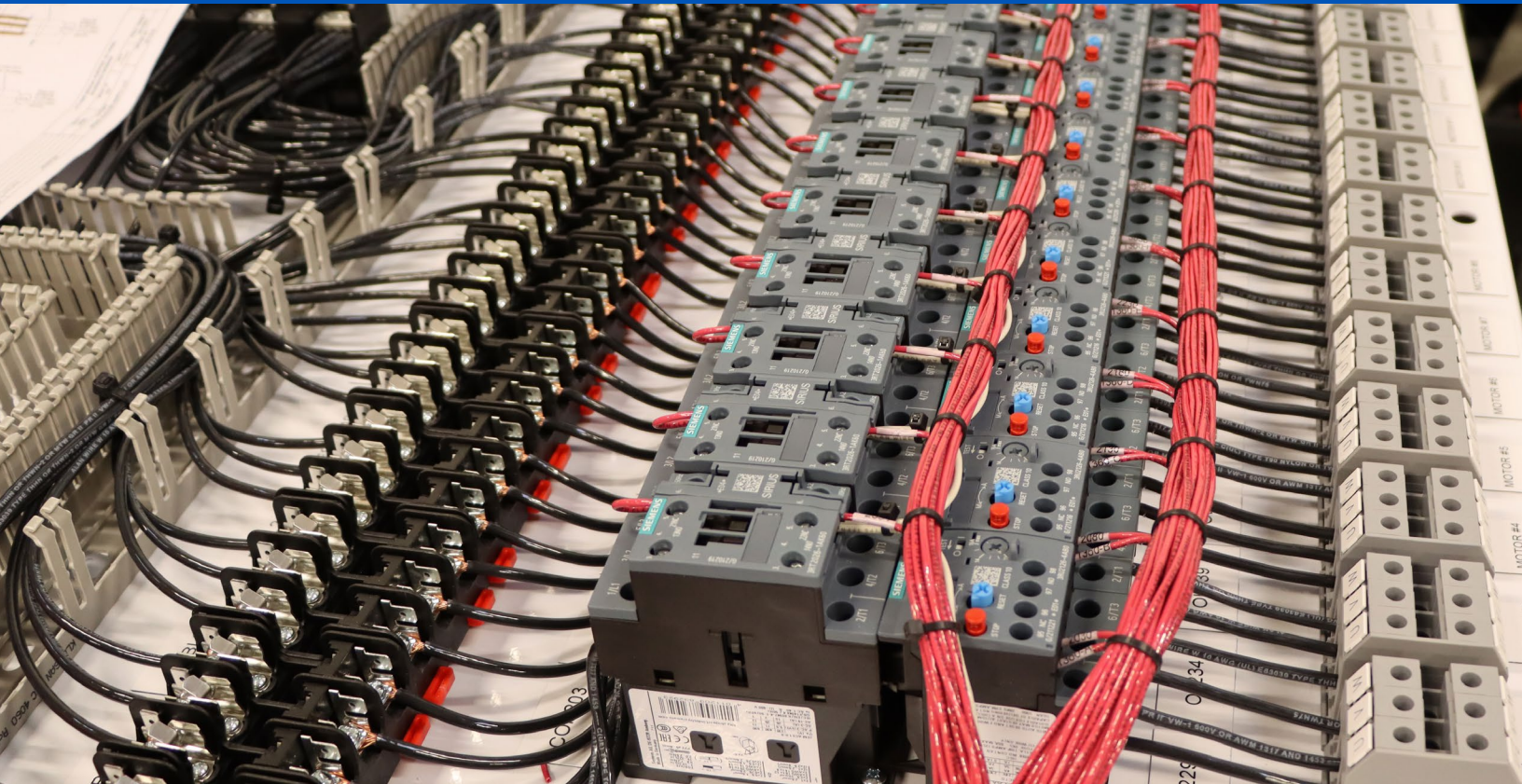


Motor Controls Made Easy

Motor Controls Brochure





North American Electric's NAE Motor Control division was established in 2014. We have an engineering staff along with a UL508A panel shop where we manufacture a wide range of high quality in-stock and custom control panel options along with engineered custom application solutions. We partner with high quality brands to meet all UL standards and requirements allowing us to provide you with exceptional quality, a quick lead time, all at a competitive value.

All of our panels meet UL standards and requirements and are live system tested for accuracy and performance allowing us to provide you with exceptional quality, and a quick lead time, all at a competitive value.

From Safety Switches, Across the Line Starters, Part Wind Starters, and Soft Starters to Variable Frequency Drives, we've got you covered. Our sales and customer service staff are here to help you find the motor control that is right for your application needs and we offer 24-hour to 2-week shipping on most pre-engineered, in-stock motor controls. Choose North American Electric for your control panels where we make Motor Controls Easy.



*Motor Controls
Made Easy!*

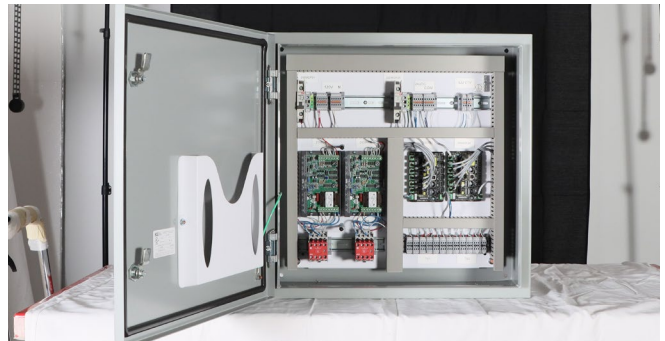
Quality Products & Testing

NAE control panels are built with quality enclosures and premium products that allow us to assemble a control panel second to none. Each panel is built to engineer specifications, built-in our UL 508A panel shop, and is live system tested to assure the accuracy and performance of each panel before it ships to our customers.



Inventory & Custom Orders

NAE has strategic warehouse locations to serve our customers across the U.S. With our dedicated inventory management team, we stock all the necessary parts needed to build the catalog models as well as the custom panels, allowing us to meet all the demands of you and your customers.



Fast Delivery

NAE can turn your order around and provide 24hr to two (2) weeks delivery on select in-stock catalog models. NAE understands that down time for your customer is a loss of business and revenue, so with our quick delivery and custom drop ships we can keep your customers up and running. For added protection all NAE control panels that ship-out come shrink and bubble wrapped, wrapped in double walled cardboard and shrink wrapped again. Then each panel is securely strapped to a heavy duty pallet.



Warranty

NAE's Motor Controls are some of the best in the industry. All panels are backed by our 2 year warranty and are eligible for up to 6 years of protection. NAE also offers a "No Hassle" Chassis Exchange Program. This revolutionary motor control panel warranty helps minimize unplanned downtime. We make motor controls easy!



Safety Switch / Disconnect Panels

Safety switches are effective for disconnecting equipment and circuits from their power source in a quick and safe manner. They are utilized in multiple ways and in various industries. Safety Switches are a necessity in all commercial and industrial applications. NAE offers fused and non-fused options to help keep you and your equipment safe.



Safety Switch
Disconnect - Non-Fused



Safety Switch
Disconnect - Fused



Safety Switch
Disconnect - Fused
w/ Lightning Protection



3-Pole / 3-Wire

AMPS	30 – 600	30 – 1200	30 – 1200
Volts	480VAC, 600VAC	480VAC, 600VAC	480VAC, 600VAC
Enclosure	NEMA 3R	NEMA 3R	NEMA 3R
Type	3-Pole / 3-Wire	3-Pole / 3-Wire	3-Pole / 3-Wire
Fused	No	Yes	Yes
Options	Neutral Kits Available	Neutral Kits Available	Neutral Kits Available

Applications

All Applications	•	•	•
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Across The Line (ATL) Control Panels

Across the Line (ATL) starters are the simplest and straight-forward of the starter types NAE offers. ATL starters apply the full voltage to the motor terminals, allowing the motor to reach max speed immediately. NAE offers Across the Line starters for general purpose, irrigation and washdown applications and are available in NEMA 3R and NEMA 4X enclosures.



General Purpose

General Purpose Applications



Irrigation

Irrigation Pump Applications



Washdown



	General Purpose	Irrigation	Washdown
HP	2 – 200	2 – 200	1 – 200
Volts	240, 480 w/ 120V Transformer	240, 480	240, 480 w/ 120V Transformer
AMPS	5.7 – 270	5.7 – 270	1 – 200
Enclosure	NEMA 3R	NEMA 3R	NEMA 4X
Disconnect	Circuit Breaker & Fused (Both w/ Flange)	Circuit Breaker & Fused (Both w/ Flange)	Combination Circuit Breaker w/ Through Door
NEMA Sizes Available	NEMA 1 - NEMA 5	NEMA 1 - NEMA 5	

Applications

Application	General Purpose	Irrigation	Washdown
Mechanical Presses	•		
Mixers	•		•
Oil Pump Jacks	•		
Commercial/ Industrial Pumping		•	•
Waste Water	•		•
Chemical Manufacturing			•
Food Processing			•

Associated Motors

Compressor Duty Rolled Steel



Vertical Hollow Shaft



Washdown Duty Stainless Steel



Part Wind Starter (PWS) Control Panels

Part Wind starters are used to connect to a power supply in sequence to produce reduced starting current and reduced starting torque. They are used to drive centrifugal loads such as fans, blowers, or centrifugal pumps. They are also used for other loads where a reduced starting torque is necessary.



General Purpose
General Purpose
Applications
UL



Irrigation
Irrigation Pump
Applications
UL

	General Purpose	Irrigation Pump
HP	10 – 200	10 – 200
Volts	240, 480 w/ 120V Transformer	240, 480 w/ 120V Transformer
AMPS	10 – 300	10 – 300
Enclosure	NEMA 3R	NEMA 3R
Disconnect	Combination Circuit Breaker w/ Through Door	Combination Circuit Breaker w/ Through Door
Applications		
Mechanical Presses	•	
Mixers	•	
Oil Pump Jacks	•	
Commercial/ Industrial Pumping	•	•
Farming	•	•

Associated Motors

General Purpose
Rolled Steel



Open Drip Proof
Rolled Steel



Soft Starter Control Panels

Soft starters allow equipment to start up slowly and gradually reach max speed. These are utilized across multiple industries because they help reduce the wear and tear of equipment by easing into high gear, while also reducing maintenance requirements. NAE provides soft starter solutions for a variety of industries. By utilizing our line of soft starters, your equipment is able to start up slowly which minimizes damage, giving the, motors, chains, and gearing a longer useful life.



General Purpose
Economy Package



General Purpose
Standard Package



Irrigation
Economy Package



Washdown
Economy | Standard



Crusher Duty
Economy | Standard



General Purpose			Special Purpose			
Device	3RW40, 50, 52, 55	3RW40, 50, 52, 55	3RW40	3RW40, 50, 52, 55	3RW50, 52, 55	SAF MS6
Enclosure	NEMA 3R, 4/12	NEMA 3R, 4/12	NEMA 3R	NEMA 4X		NEMA 3R, 4/12
HP	3 – 1000	3 – 1000	15 – 300	3 – 1000		20 – 600
Volts	240, 480	240, 480	240, 480	240, 480		480
Overload Trip Class	10, 10E, 20E, 30E	10E, 20E, 30E	10	10, 10E, 20E, 30E	10E, 20E, 30E	30E
Disconnect	Combination Circuit Breaker w/ Through Door	Combination Circuit Breaker w/ Through Door	Combination Circuit Breaker w/ Through Door	Combination Circuit Breaker w/ Through Door		Combination Circuit Breaker w/ Through Door

Applications						
Conveyor belts	•	•				
Roller conveyors	•	•				
Screw conveyors	•	•				
Escalators	•	•				
Piston compressors	•	•				
Screw compressors	•	•				
Commercial/ Industrial Pumping	•	•	•			
Stirrers	•	•				
Extruders	•	•				
Milling machines	•	•				
Circular saws/bandsaws	•	•				
Oil Pump Jack	•	•				• •
Rock Crushing	•	•				• •
Beverage	•	•		•	•	
Waste Water	•	•		•	•	
Shredding	•	•				• •

Associated Motors



Variable Frequency Drive (VFD) Control Panels

NAE's VFDs can reduce energy consumption and prevent unnecessary wear and tear on equipment, saving the user money and minimizing downtime. VFDs allow the user to control the speed in which the motor runs. By controlling your motor's speed you are only using the energy required to operate, thus saving energy.



General Purpose
Economy



General Purpose
Standard



Special Purpose
Irrigation



Special Purpose
Submersible



Beam Pump
Standard



General Purpose		Special Purpose			
Drive	Siemens G120X, G120	Siemens G120X, G120	Siemens G120X	Siemens G120X	Siemens G120X
Enclosure	NEMA 3R, 4, 12	NEMA 3R, 4, 12	NEMA 3R	NEMA 3R	NEMA 3R
HP	1 – 700	1 – 700	1 – 700	.5 – 200	3 – 300
Volts	240, 480	240, 480	240, 480	240, 480	480
Disconnect	Combination Circuit Breaker	Combination Circuit Breaker	Combination Circuit Breaker	Combination Circuit Breaker	Combination Circuit Breaker
Torque	Variable, Constant	Variable, Constant	Variable	Variable	Constant
Phase	3	3	3	3	3

Applications					
Conveyor Systems	•	•			
Blowers	•	•			
Pumps	•	•			
Machine Tool Speeds	•	•			
Oil Pump Jacks					•
Submersibles				•	
Irrigation Center Pivots	•	•	•		
Cattle Feeding	•	•			
Commercial/ Industrial Pumping			•		
General Purpose					
Food & Beverage Manufacturing					
Coastal (Salt water)					
Chemical					

Associated Motors					
	Heavy Duty Cast Iron	Rolled Steel C-Flange w/ Feet	Closed Coupled JM or JP Frame - Cast Iron	Vertical Hollow Shaft	Oil Well Pump Cast Iron



Variable Frequency Drive (VFD) Control Panels

Due to their wide functionality, VFDs have opened the door to applications which were previously not possible. Coupled with reduced cost, VFDs are now the choice of many specifiers for a wide variety of applications and industries including Water Wastewater, Irrigation, and Oil and Gas.



Beam Pump
w/ Two Contactor
By-Pass
UL



Positive Displacement
Standard
UL



Positive Displacement
Advanced
UL



Positive Displacement
Deluxe
UL



Washdown
Economy



Washdown
Standard

Special Purpose

Siemens G120X	Siemens G120X	Siemens G120X	Siemens G120X	Siemens G120X, G120	Siemens G120X, G120
NEMA 3R	NEMA 3R	NEMA 3R	NEMA 3R	NEMA 4X	NEMA 4X
3 – 300	1 – 500	40 – 500	40 – 500	1 – 200	1 – 200
480	480	480	480	480	480
Combination Circuit Breaker	Combination Circuit Breaker	Combination Circuit Breaker	Combination Circuit Breaker	Combination Circuit Breaker w/ Through-door	Combination Circuit Breaker w/ Through-door
Constant	Constant	Constant	Constant	Variable, Constant	Variable, Constant
3	3	3	3	3	3

Applications

				•	•
•					
				•	•
				•	•
				•	•
				•	•

Associated Motors

Oil Well Pump
Cast Iron



Heavy Duty
Cast Iron



Heavy Duty
Cast Iron



Heavy Duty
Cast Iron



Washdown Duty
Stainless Steel



Washdown Duty
Stainless Steel



Drive Chassis

VFD Chassis's are designed to vary the motor input frequency and control associated voltage or current variations. They are used for increased reliability, and efficiency and to meet stringent energy standards.



G100



S100



S100-4X



IS7



LS				
Enclosure	NEMA 1	IP20, NEMA 1	IP66, NEMA 4X	IP00, NEMA 1
HP	1 – 15	1 – 100	.5 – 30	1 – 700
Volts	240, 480	240, 480	240, 480	240, 480
Design	Compact	Standard	Washdown Duty	High Performance DC Choke
Torque	Variable	Variable, Constant	Constant	Variable, Constant



Motor Control Panel Customization Made Easy!

NAE Motor Controls offers customers the ability to custom configure and order their control panel to meet their specific needs and have it shipped quickly. We offer control panels from across the line panels to variable frequency drives and everything in between.







NAE Motor Controls can package the most common controls to the most complex control systems. All NAE packaged panels are backed by our two (2) year warranty and eligible for up to six (6) years of protection with our “No Hassle” Chassis Exchange Program.

Contact customer service at 800.884.0404 to get your order started today!

Do You Have the Right NEMA Enclosure?

A NEMA enclosure is rated to provide protection against environmental hazards such as water, dust, oil, coolant or atmospheres containing corrosive agents. At NAE we offer a wide range of NEMA Enclosures to fit the needs of your applications. Make sure you have the right NEMA enclosure for your disconnect, ATL, part wind starrer, soft starter, and variable frequency drive panels. To view a full list of our NEMA enclosure panels visit our website at www.naemotors.com or contact your customer service agent at 800.884.0404.

	Indoor	Protection to Personnel (Against Access to Hazardous Parts)	Falling Dirt	Windblown Dust	Circulating Dust, Lint Fibers	Dripping / Light Splashing	Outdoor	"Knockout" Construction OK	Rain	Sleet	Snow	External Protection from Ice	Splashing Water	Hose Directed Water	Corrosion
NEMA 1	✓	✓	✓												
NEMA 3R	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓			
NEMA 3RX	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓			✓
NEMA 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NEMA 4X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NEMA 12	✓	✓	✓	✓	✓	✓									

	○ ······	NEMA 1^{1,2}	<p>General-purpose.</p> <ul style="list-style-type: none"> Protects against dust, light, and indirect splashing but not dust-tight; primarily prevents contact with live parts. General indoor use and under normal atmospheric conditions.
	○ ······	NEMA 3R^{1,2}	<p>Weather-resistant.</p> <ul style="list-style-type: none"> Protects against falling dirt, rain, sleet and snow. General outdoor use for electrical components, power distribution, switch gears, etc.
	○ ······	NEMA 3RX^{1,2}	<p>Weather-resistant.</p> <ul style="list-style-type: none"> Protects against falling dirt, rain, sleet and snow. Protects against external ice formation that can cause corrosion General indoor or outdoor use for electrical components, power distribution, switch gears, etc.
	○ ······	NEMA 12^{1,2}	<p>General-purpose.</p> <ul style="list-style-type: none"> Protects against dust, falling dirt, and dripping non-corrosive liquids. General indoor use for Industrial, manufacturing, and machining applications.
	○ ······	NEMA 4^{1,2}	<p>Watertight and dustproof.</p> <ul style="list-style-type: none"> Protects against falling dirt, rain, sleet, snow, windblown and circulating dust, and dripping. General indoors or outdoors use for ship docks, dairies, breweries, and wastewater treatment plants.
	○ ······	NEMA 4X^{1,2}	<p>Corrosion resistant, watertight, and dust proof.</p> <ul style="list-style-type: none"> Protects against falling dirt, rain, sleet, snow, windblown and circulating dust, dripping and corrosive agents. General indoors or outdoors use for ship docks, dairies, breweries, and wastewater treatment plants.

*** Notes:**

1. NEMA Enclosure Types (from NEMA 250-2013)
2. NEMA/IEC enclosure ratings, Cole-Parmer Technic



Motor Controls Warranty Policy

North American Electric, LLC warrants to that all products will conform to final specifications and/or drawings and will be free from defects in materials and workmanship. Special build panels will require the final specifications and drawings to be approved in writing by the Buyer before being released for production. The warranty shall remain in effect for a period specified for each product line (24, 36 or 60 months) from the date of the invoice.

Warranty Period For Product Line			
	60 Months (from date of invoice)	36 Months (from date of invoice)	24 Months (from date of invoice)
Chassis			
Siemens Soft Starter Chassis: – 3RW30 Series, 3RW40 Series, 3RW44 Series			•
LSis VFD Chassis – C100 Series, S100 Series, S100-4X Series, H100 Series, iS7 Series			•
Siemens VFD Chassis: – V20 Series, G120 Series, G120X Series, G130 Series			•
Enclosed Panel Packages			
Heavy Duty Safety Switches			•
Heavy Duty Safety Switches with “Lightning & Surge” Protection		•	
Across the Line Starter Panels			•
Part Wind Starter Panels			•
General Purpose & Washdown Duty Soft Starters – Normal Duty and Heavy Duty			•
SAF Crusher/Ultra Heavy Duty Soft Starters (SAF Opal Pro M6 Series; Warranty Includes SCRs)	•		
SAF Ultra Heavy Duty Soft Starters (SAF Opal Pro M6 Series; Warranty Includes SCRs)	•		
General Purpose & Washdown Duty – Non-Combo & Economy Panel Pkg – Variable Torque and Constant Torque			•
General Purpose & Washdown Duty – Standard Panel Packages – Variable Torque and Constant Torque			•
General Purpose – Integrator Packages – Variable Torque and Constant Torque			•
Special Purpose – Irrigation Pump Panel Packages with “Lightning & Surge” Protection INCLUDING “No Hassle” Chassis Exchange Program		•	
Special Purpose – Positive Displacement Pump Panel Packages: Standard, Advanced and Deluxe Panel Packages with “Lightning & Surge” Protection INCLUDING “No Hassle” Chassis Exchange Program		•	
Special Purpose – Beam Pump Panel Package with “Lightning & Surge” Protection INCLUDING “No Hassle” Chassis Exchange Program		•	
Special Purpose – Custom / Build To Order Panel Package (Customer must review, approve and sign drawings prior to panel being released for production)			•

For more information about warranty policies and procedures please contact our customer service department at (800) 884-0404, visit our website at www.naemotors.com or send us an email at sales@naemotors.com.



"No Hassle" Chassis Exchange Program



"Providing reliable control panel service for up to six (6) years!"

NAE "NO HASSLE" CHASSIS EXCHANGE PROGRAM

North American Electric's "No Hassle" Chassis Exchange Program is a revolutionary motor control panel warranty designed to keep you up and running. Our "No Hassle" Chassis Exchange Program makes it easy to exchange your soft starter or VFD chassis without needlessly having to purchase a chassis while at the same time minimizing unplanned downtime.

"BUMPER TO BUMPER" COVERAGE

Your entire panel is further protected with our three (3) year "Bumper to Bumper" coverage, and includes "Lightning & Surge" Protection covering momentary anomaly including line side events such as lightning, surge and severe over voltage, and load side events such as single phasing, phase reversal and voltage unbalance.

"NO HASSLE" CHASSIS EXCHANGE PROGRAM WARRANTY

NAE's "No Hassle" Chassis Exchange Program Warranty period is three (3) years from the date of delivery, and must be activated by an NAE Authorized or Certified Installer. This warranty protection may be extended to cover the chassis or the entire panel for up to six (6) years!

Program warranty benefits include:

- Lightning, surge and severe over voltage protection
- Single phasing, phase reversal and voltage unbalance protection
- "Bumper to Bumper" panel coverage
- Same day shipment of exchange chassis (Next Day Air, Second Day Air and Hot Shot Service is available for an additional charge)

Visit our website at https://www.naemotors.com/No_Hassle_Chassis/ for complete terms and conditions.

Advanced Tunnel Design for Maximum Cooling

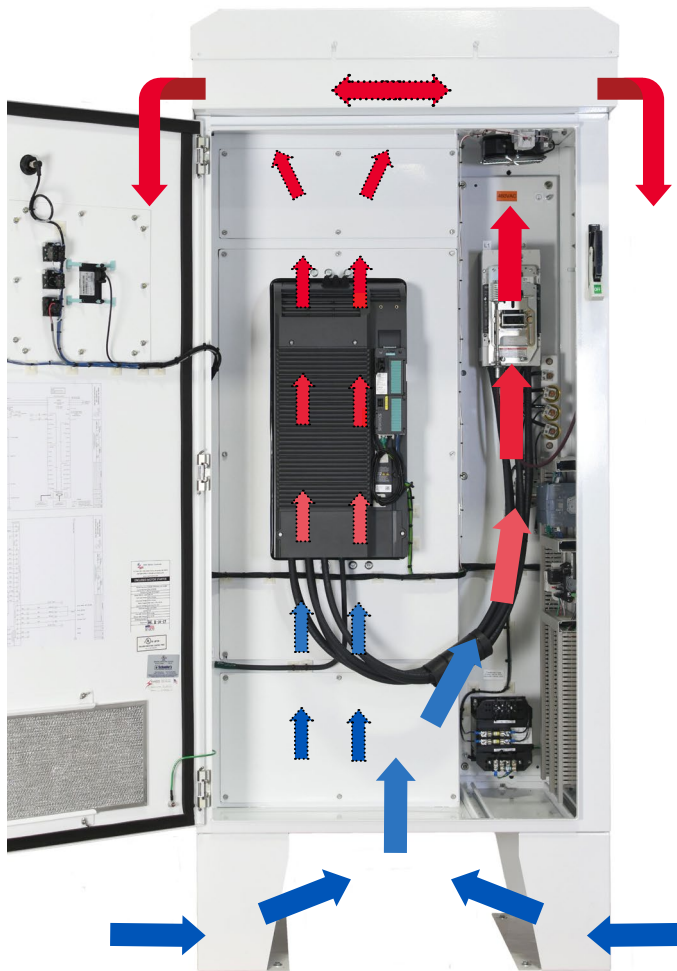
NAE's Vortex™ Cooling Tunnel is designed for select Variable Frequency Drive NEMA 3R Enclosures. This innovative design efficiently maximizes cooling of drive components and significantly reduces contamination inside the Enclosure.

Contact customer service at 800.884.0404 for more information



VORTEX™
COOLING TUNNEL

Patent Pending



Top



Side



Back



Bottom



Features:

- 53" and up
- NEMA 3R only
- 40°C / 104°F VT; 50°C / 122°F CT (V20 and G120)
- 45°C / 113°F VT and CT (G120X)
- Significantly reduces contaminants

powered by
SIEMENS

Continuing Education

North American Electric's continuing education courses were created with you in mind to provide information, tools, technical support, and training to sell, install, and support low voltage AC drives.



At NAE University, we provide you with an in-depth, hands on training designed for the beginner to the expert. The class will consist of a general overview and lab exercises of motor controls and their applications.

Our class will range from basic control programming training to in-depth product information. You'll get one on one time with our engineers who will be demonstrating how to solve complex issues in the field for your applications.



Contact Us



naemotors.com

▶ Check us out online, or call us at **800-884-0404**

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