



# BENSHAW

Applied Motor Controls

AN AMCONEX GROUP COMPANY



## MVRNXE Genius Series - Up to 3000 HP

Next Gen Medium Voltage Soft Starters

Rapid | Rugged | Global



## **MVRNXE - Next Gen**

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# Introduction

***Benshaw offers the most rugged, reliable and proven soft starter for your most demanding applications.***

Next Gen “Genius” starters provide solid state reduced voltage starting for normal operation and full voltage emergency back-up starting, with complete electronic motor protection at the flip of a switch.

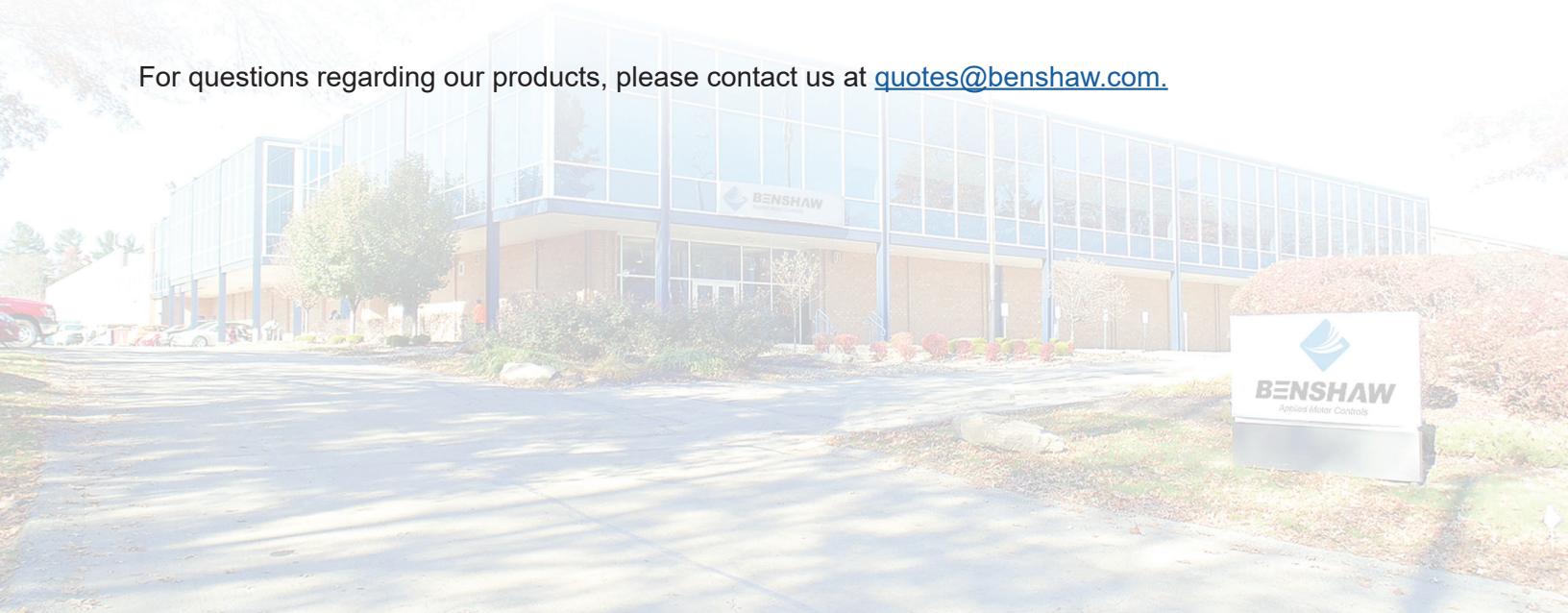
This unique design is ideal for critical applications where downtime is extremely disruptive and cannot be tolerated.

Next Gen “NX” solid state controls provide precise digital starting and stopping, motor protection, metering, diagnostics and communications as standard features.

- Standard packaged MVRNXE Starters - In Stock
- Prepackaged and Engineered control solutions
- ATL, two-speed, synchronous, reversing or wound rotor control
- 5kV, 7.2 or 15 kV to 30,000 HP
- 3, 10 or 20 mW class power electronics
- Intelligent motor control centers and lineups
- Retrofits and turnkey modernization solutions



For questions regarding our products, please contact us at [quotes@benshaw.com](mailto:quotes@benshaw.com).



# MVRNXE Genius Series

Next level NX technology takes motor control into the future delivering all the functionality and rugged, dependable performance that you've come to expect from a Benshaw product, while allowing wireless connectivity, seamless troubleshooting, advanced monitoring, and even more configurable options. The NX controller comes standard with cyber secured Bluetooth capabilities allowing you to seamless and safely connect to your equipment through a phone app to shorten commissioning times and improve troubleshooting.

The NX controller has been designed to meet global standards and is RoHS compliant.

The PLC type architecture of the controller allows for options to be easily integrated into the system, and the upgraded HMI shows wave forms and data sampling to quickly troubleshoot any issues to get the system back up and running.

## Ratings from 2300V -4160V up to 3000HP at 4160V

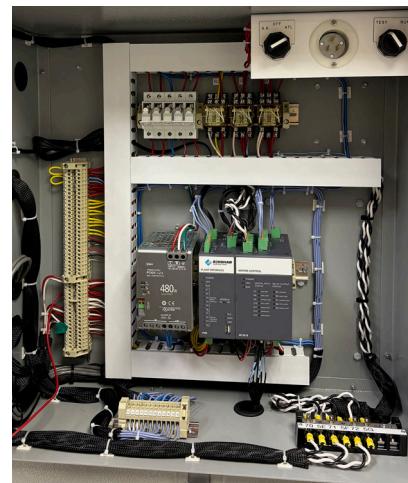
Robust design for standard and heavy duty applications.

### Unique Features:

- Bluetooth interface using phone apps for iPhone and Android
- USB port for downloading waveform capture data



***"A generational change in processor speed, protection/monitoring functionality and communications capabilities."***



Low Voltage Compartment



# MVRNXE Genius Series

## Pre-Packaged Quick Ship Starters

Benshaw's MVRNXE sets the industry standard for performance and reliability.

### Class E2 Heavy Duty Starter with Load Break Fusible Disconnect and Emergency ATL Bypass.

#### KEY ADVANTAGES:

- NEMA 12 or NEMA 3R
- 60 kV BIL
- Built-in self test (BIST) features for "quick commissioning"
- Switch-selectable emergency back-up full voltage starter
- Next Gen (NX) embedded digital control

#### STANDARD FEATURES:

- 50 kA (4800 VAC) / 50 kA (2600 VAC) withstand rating
- 500%-30 seconds rated solid state starter
- "R" class fusing protection
- Door-mounted controls
- Modbus communications standard
- UL 347 certified and listed

#### MVRNXE - 2300 V

Model Number	HP	Dimensions (in.)				Weight (lbs.)
		A	H	W	D	
MVRNXE-500-2300**	500	131	92.5	36	30	1,800
MVRNXE-750-2300**	750	180	92.5	36	30	1,800
MVRNXE-1000-2300**	1000	225	92.5	36	30	1,800
MVRNXE-1500-2300**	1500	360	92.5	36	30	2,000



#### MVRNXE - 4160 V

Model Number	HP	Dimensions (in.)				Weight (lbs.)
		A	H	W	D	
~MVRNXE-1000-4160**	1000	131	92.5	36	30	2,000
~MVRNXE-1500-4160**	1500	180	92.5	36	30	2,000
MVRNXE-2000-4160**	2000	266	92.5	36	30	2,000
~MVRNXE-3000-4160**	3000	360	92.5	36	30	2,200

**It's Genius**  
by Benshaw

Starters are top entry/bottom exit – Dimensions and weights are approximate.

\*\* Insert appropriate option code as shown: NEMA 12 = 12 / NEMA 3R = 3R

~ Web stocked.

#### OPTIONS

Option	Description
A	8-Channel RTD Module, 100 ohm Platinum
B	16-Channel RTD Module, 100 ohm Platinum
C	Ground Fault CT, 2000:1, 4.0:dia. (For NX Use)
D	Communication Options - Ethernet/IP Module

#### NOTE:

Power fuses ship loose. Must provide motor full load amps at time of order for proper fuse sizing.

Contact factory for additional options, accessories and higher ratings.

# Next Gen (NX) Control Features

## KEY FEATURES

- **Expandable system**
  - HMI with full-color display (panel-mount)
  - DIN rail-mounted control modules
  - Additional DIN rail-mounted modules (can be connected via CAN bus to expand the system and provide additional features)
- **Built-in connectivity**
  - Bluetooth Low Energy (BLE) wireless connection to mobile app
  - Built-in Modbus RTU
  - 6 x digital inputs
  - 4 x relay outputs
  - Analog output with digital offset and span adjustment
  - USB-A socket
  - CAN bus-based expansion to other modules
- **Easy to understand interface**
  - Plain text menus and displays
  - Color-coded status bar
  - Informative on-screen metering
  - Real-time clock
  - Programmable metering
  - Resettable run time and power consumption metering
  - Multi-language menus and displays
  - Passcode protection
- **Versatile starting/stopping options**
  - Constant current
  - Current ramp
  - Voltage ramp
  - TrueTorque ramp
  - Power ramp
  - 2 and 3 wire start/stop control





# Next Gen (NX) Control Features

## KEY FEATURES

- Customizable protection
  - Motor overload (thermal model)
  - Underrun/Overcurrent
  - Underpower/Overpower
  - Undervoltage/Oversupply
  - Current imbalance
  - Stalled motor protection (Excess start time /UTS)
  - Line frequency
  - Phase sequence
  - Phase loss (single phasing)
  - Power factor leading/lagging
  - Residual or zero-sequence ground fault protection
  - Backspin/restart timer
  - Starts per hour
  - Time between starts
  - Power outage ride-through

### • Motor control modes

- Soft start - supports two motor sets
- Smart ATL - injection test compatible
- Smart Wye/Delta
- Power loss ride-through
- Emergency mode

### • Commissioning/troubleshooting tools

- Extensive trip and event logging
- Versatile trip actions
- High-speed waveform capture during start, stop and faults
- Self-test and run simulation mode

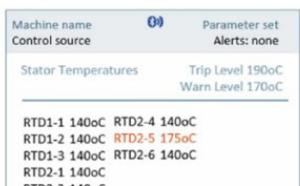
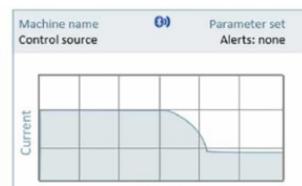
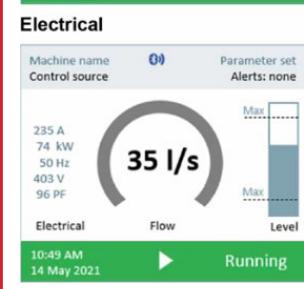
### • Cybersecurity

- PIN number protection
- Digitally signed firmware
- Secure Bluetooth pairing

### • Optional expansion modules

- 8 or 16 RTD inputs, with overload biasing
- Ethernet/IP
- CAN bus isolation
- Profinet
- Profibus

Benshaw's Next Gen medium voltage soft start introduces a true generational change in processor speed, motor protection, monitoring and communication capabilities. An easy-to-use, door-mounted HMI operator is included. The HMI displays waveforms and data sampling . . . ideal for 'must run', critical motor applications including pumping systems, compressors, conveyors and more!

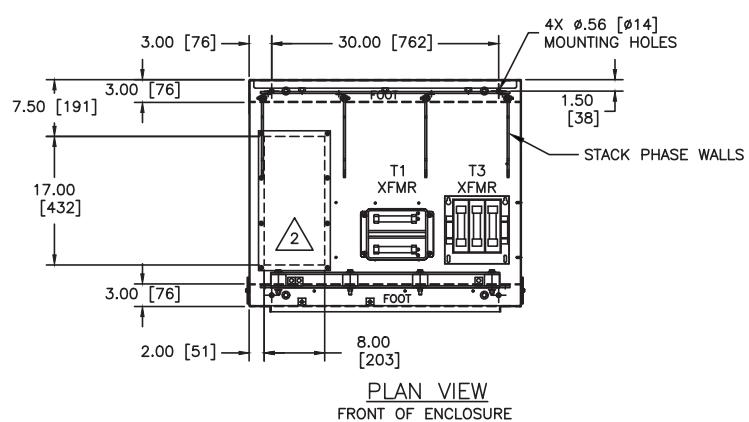
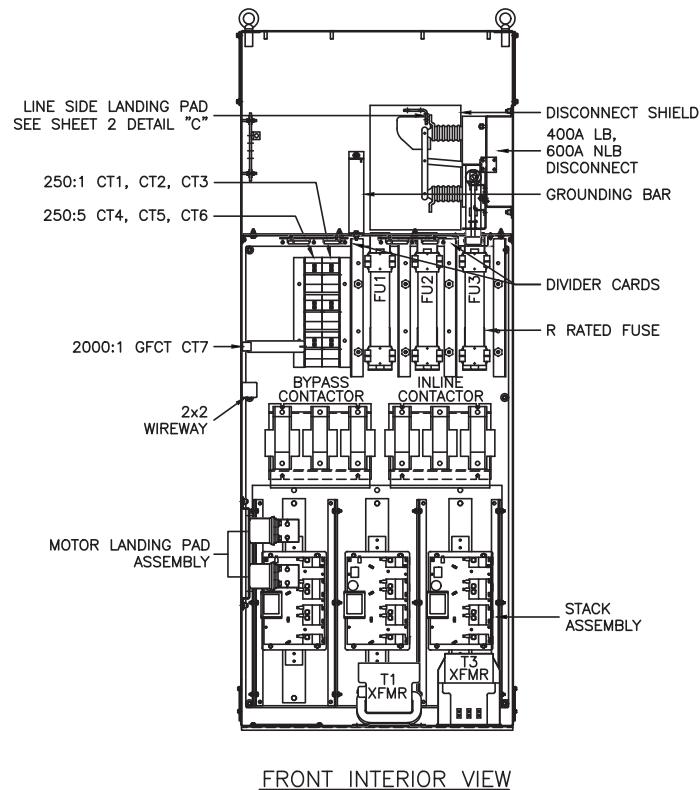
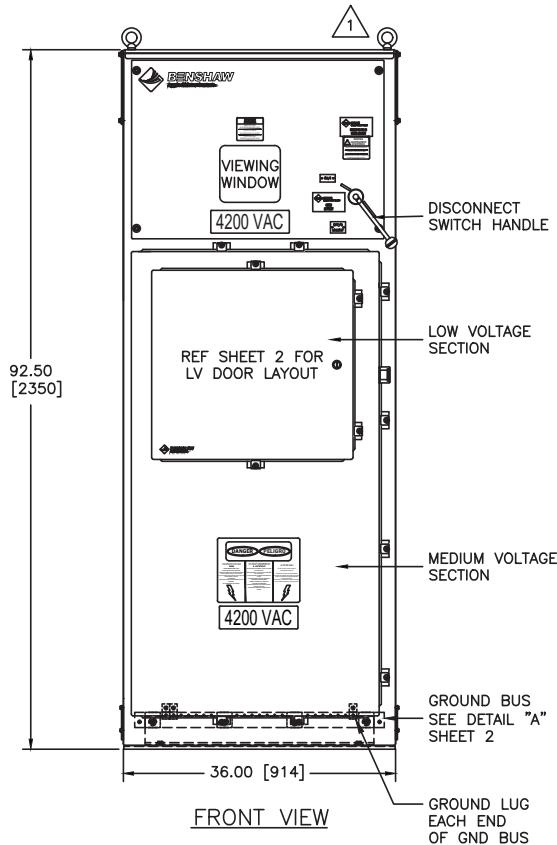
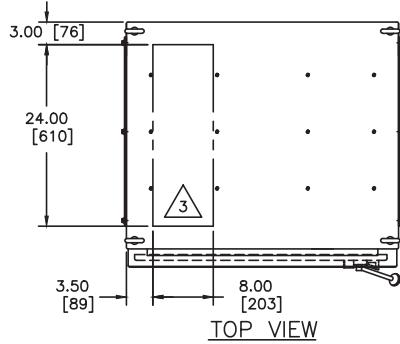


Pump Screen

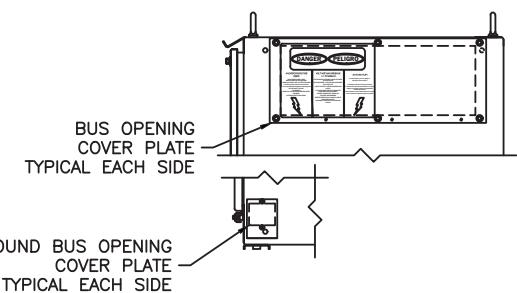
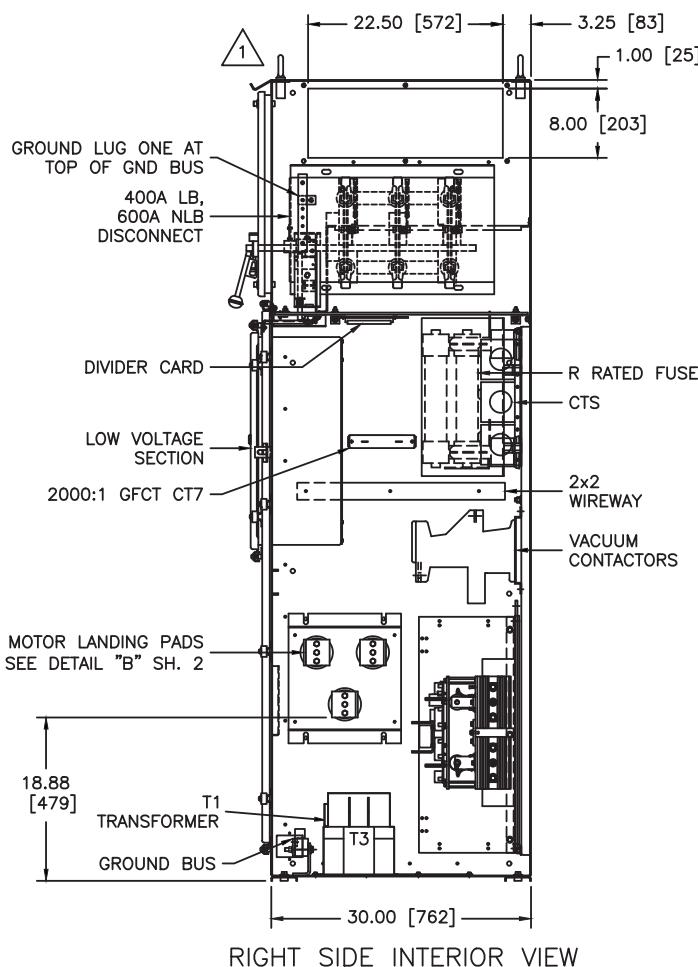
Automation Screen (aka soft PLC)

Multi-Motor Screen

# MVRNXE Series - Drawings



# MVRNXE Series - Drawings



NOTES:

- 1 REMOVABLE LIFTING EYEBOLTS
- 2 CABLE ENTRY/EXIT AREA. CUTOUT W/ COVER PLATE SUPPLIED
- 3 CABLE ENTRY/EXIT AREA. NO CUTOUT SUPPLIED. CUSTOMER TO CUT AS REQUIRED.
- 4. ENCLOSURE COLOR: ANSI 61 GREY
- 5. TIGHTEN BOLTS PER CHART BELOW

STEEL BOLT TORQUE IN POUND-FOOT [NEWTON-METER]				
1/4-20	5/16-18	3/8-16	1/2-13	5/8-11
5 [6.8]	12 [16.3]	20 [27]	50 [67.8]	95 [128.8]

6. APPROXIMATE WEIGHT IS 1600LBS [726KG]

7. ITEMS SHIPPED LOOSE. CUSTOMER TO INSTALL IN FIELD. REFERENCE APPROPRIATE ASSEMBLY AND SCHEMATIC DRAWINGS FOR PROPER INSTALLATION. CALL BENSHAW CUSTOMER SERVICE WITH QUESTIONS, 1-800-203-2416.

# Spare Part Kits

Want to Minimize Downtime Loss of Production?

**Recommended Spare Parts Kits Include the Following:**

- Power phase/stack assembly (x1)
  - Includes the following packaged heat sink assembly:
    - Fiber optic SCR firing card
    - SCRs (x4)
- MCM - Motor control module (x1)
- PIM - Plant interface module (x1)
- Voltage divider board (x1)
- “R” class line fuses (x3)
- Primary fuses for CPT (x2)
- Secondary fuses for CPT (x3)
- Door-mounted keypad
- Door-mounted pilot lights, pushbuttons and switches
- Overload relay
- Control relays



## 1000 HP STARTERS (4160V)

Model Number	Motor Amps
MVRNXE-400101-SP	46 to 55 A
MVRNXE-400102-SP	56 to 75 A
MVRNXE-400103-SP	76 to 90 A
MVRNXE-400104-SP	91 to 131 A

## 1700 HP AND 3000 HP STARTERS (4160V)

Model Number	Motor Amps
MVRNXE-400107-SP	46 to 55 A
MVRNXE-400108-SP	56 to 75 A
MVRNXE-400109-SP	76 to 90 A
MVRNXE-400110-SP	91 to 131 A
MVRNXE-400111-SP	132 to 180 A
MVRNXE-400112-SP	181 to 270 A
MVRNXE-400113-SP	271 to 360 A

\*For amperage or voltage range not shown, consult factory.

# Technical Support Services

## Service and Support

**Why Benshaw? Because when it absolutely has to work, it absolutely has to be from Benshaw.**

### FACTORY WARRANTY

Benshaw offers a three year warranty on all of our medium voltage soft starters packages.\*

Other manufacturers limit their warranties to one year.

But at Benshaw, we believe that because we build them better, we can guarantee them longer.

\* With factory startup



***Our technical support team is available 24/7 to answer questions and solve pressing issues before, during and after the sale.***

Benshaw's knowledgeable Technical Support team help you evaluate both current and future motor control system requirements and develop a sound strategy for retrofit, upgrade or replacement. We can also help you submit a Request for Service Quotation. All services are performed by trained, experienced service technicians using the latest engineering, diagnostics and testing equipment.

- Retrofits
- Field service
- Factory service
- Technical training support
- Spare/repair parts
- Maintenance

Phone support hotline (1-800-203-2416)

Centralized coordination of all support services

24-hour dispatch from our operations in Pittsburgh, PA (USA) and Listowel, ON (Canada)

Overnight parts shipment

**Benshaw, Inc.**

615 Alpha Drive  
Pittsburgh, PA 15238 United States  
Phone: +1 412-968-0100

**Benshaw Canada Controls, Inc.**

550 Bright Street East  
Listowel, Ontario N4W 3W3 Canada  
Phone: +1 519-291-5112

**AuCom**

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- South Korea
- China

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For more information and your local contact visit [www.benshaw.com](http://www.benshaw.com)

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