

# VMX2

## COMPACT SOFT STARTER

200 - 600VAC, 1 - 1250A, 5 - 1200HP

- 500% overcurrent capacity for 60 sec.
- ANSI Rated
- Advanced Motor Protection
- Multiple Ramp Profiles
- Pump-Flex Decel
- Integral Bypass Contactor
- 65KA Rated with Circuit Breaker



690V Rated units available

UL Listed 65KA @ 480V

# VMX2 Series Compact Soft Starter



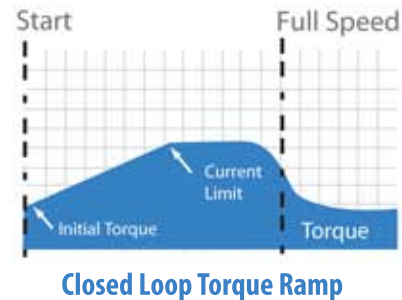
## Rugged – Compact - Versatile

Heavy Duty Ratings, Built-in Bypass, and Advanced Motor Protection make the VMX2 Series Soft Starter suitable for the most demanding motor applications.

## Choose Ramp Method for your Application

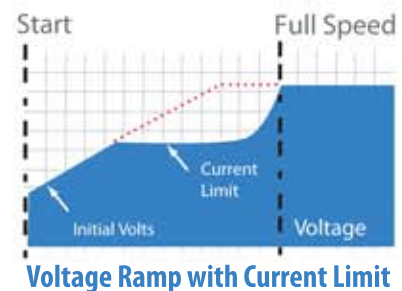
### Pumps, Fans, Bowers & Conveyors

Closed Loop Torque/Current Ramping provides a linear increase in output torque during acceleration and maximizes the available torque using an internal PID feedback loop ensuring a smooth linear ramp.



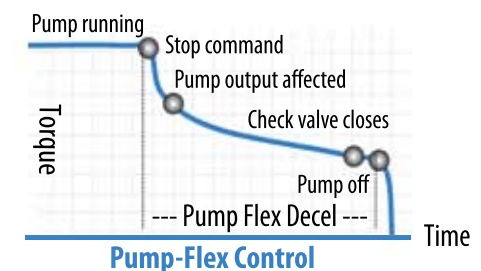
### Compressors & Chillers

Voltage Ramp with Current Limit provides the smoothness of voltage ramping while maintaining the ability to start in limited power environments.

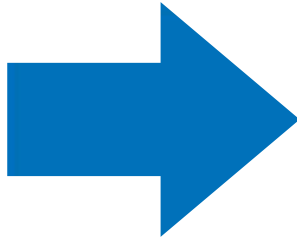


### Pump-Flex Decel Control

Eliminate Water Hammer with Pump-Flex Decel Control. A gradual reduction in the output torque of your pump motor is provided when a stop signal is initiated. Check valves close gently and other fluid system components are no longer subjected to the shock and destructive potential of water hammer.



# Complete Package for your Application



## VMX-B & VMX-H Include:

- N12/4 Enclosure
- VMX2 Softstarter with built-in Start Rated Bypass
- Circuit Breaker Disconnect (54A- & up)
- Fusible Switch Disconnect (18A-42A)
- Advanced Motor Protection
- Control Power Transformer
- Interface Board for easy control connections
- Smart Door Customer Interface including:
  - Emergency Stop Pushbutton with E-Stop Pilot Light
  - Soft Start – X-Line Mode selector (Door "H" / Inside "B")
  - Local-Off-Remote Selector Switch
  - Start /Stop Pushbuttons
  - Motor Run Pilot Light
  - Power On Pilot Light
  - Starter Fault Pilot Light



VMX-B Command Center allows for Superior Functionality and Diagnostics.



VMX-H Smart Door Customer Interface Panel allows for Superior Functionality and Diagnostics.

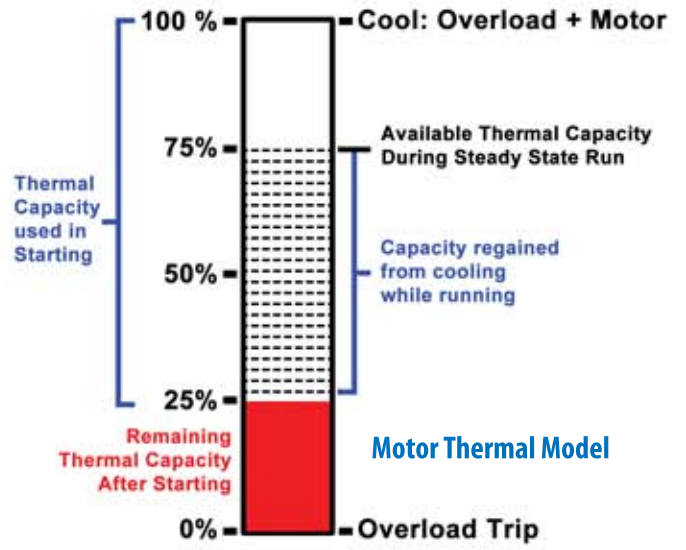
## VMX-H also includes:

- Door Mounted Digital Keypad
- X-Line Enabled Pilot Light
- External Interlock Input and Pilot Light



# Advanced Motor Protection

- ✓ **Real-Time Thermal Modeling**  
Continuously calculates motor operating temperature
- ✓ **Dynamic Reset Capacity**  
Knows when the motor is cool enough for a successful start
- ✓ **Separate Start & Run Overload Protection**  
For closely matched overload protection during start and run
- ✓ **Pre-start Shorted Load Protection**  
Checks for motor lead or winding damage before starting
- ✓ **Over Current Trip**  
Acts as an Electronic Shear Pin
- ✓ **Under Current Trip**  
Acts as a Load Loss Trip (broken belt monitor)
- ✓ **Phase Loss and Phase Rotation Trip**  
Adjustable time delay
- ✓ **Current and Voltage Imbalance Trip**  
Adjustable level and time delay
- ✓ **Over and Under Voltage Trip**  
Adjustable level and time delay
- ✓ **Kilowatt and Power Factor Trip**  
Adjustable level and time delay
- ✓ **Minimum Time Between Starts Lockout**  
Helps reduce utility demand charges
- ✓ **Coast Down Lockout**  
Inhibits Start attempts that could harm equipment
- ✓ **Starts per hour Lockout**  
Matches motor protection to motor or utility limits
- ✓ **Restart Delay**  
Allows for staggered starting of motors
- ✓ **Equipment Ground Fault**  
Residual Current type
- ✓ **Manual / Automatic Overload Reset**  
Match overload protection type to the application
- ✓ **Shorted SCR Lockout**  
Self Diagnostic
- ✓ **4-20mA Analog Output**  
Programmable to various functions



## Msmart Touch Screen (Optional)

**Single Universal Smart HMI Panel for all Motortronics devices with support for 8 languages**



# Easy to Install and Easy to Wire

## Specifications

### POWER COMPONENTS

6 SCRs in inverse parallel pairs for full phase angle soft start control

1600V PIV minimum rating on all units

RC snubber for dv/dt protection of each SCR pair

### LINE VOLTAGE RANGE

200 to 600 VAC, 3 phase +10% -15% on all units, 50/60Hz

### CURRENT RATINGS

18 - 1250A depending on unit selection

Range of each unit is 50-100% of maximum current rating based on 1.0 service factor

### AC SUPPLY VOLTAGE

User supplied 110/120VAC +10% -15%, 50/60Hz

Optional 240VAC 50/60Hz control available

### OVERLOAD CAPACITY (% OF MOTOR FLA)

500% for 60 seconds

### BYPASS CONTACTOR

Standard on all units

### START/STOP CONTROL CHOICES

2-wire Run-Stop using dry contacts

3-wire Start/Stop with built-in seal in contact

N.C. Interlock input (dry contact) for remote devices

### RAMP CONTROL CHOICES (4 BUILT-IN)

Voltage Ramp, Voltage Ramp with Current Limit,

CLT© Closed Loop Torque Ramp (Current Ramp)

Current Step (current limit only)

Ramp times adjustable 1 - 120 seconds

Current Limit adjustable 200 - 600% of FLA

### DUAL RAMPS

Select via dry contact closure between any combinations of the above

### JOG

Dry contact closure selects a non-ramping Jog function at an adjustable torque

### INPUTS

External Lockout and Reset Input



### KICK START

10 - 100% starting voltage for 0.1 - 2 seconds

### PUMP-FLEX DECELERATION RAMP

Fully adjustable to match field conditions:

Begin Decel setting, 0 - 100% of line voltage

Decel ramp time, 1 - 60 seconds

End Decel setting (Off), 0 - 1% of begin setting

### START & RUN PROTECTION

Two programmable overload trip curves allow for the thermal capacity required to start the load while providing motor overload protection needed during the run time.

### RESTART DELAY TIMER (SEQUENTIAL START DELAY)

Programmable time delay 1 - 999 seconds after loss of control power for staggered restarts

### REAL-TIME CLOCK (RTC)

24 hr/7 day real-time clock to provide automatic restart after powerloss

### REAL-TIME THERMAL MODELING

Continuously calculates motor operating temperature even when the motor is not running

### RETENTIVE THERMAL MEMORY

Remembers the thermal condition of the motor even in the event of a power brown-out or black-out when power is restored. Extrapolates motor temperature using a real-time clock

### ANALOG OUTPUT

Programmable Analog Output 4-20mA

### PROTECTION

Equipment ground fault, Phase Current Imbalance/Loss Protection, Phase Rotation, Electronic Shear Pin, Motor Duty Cycle, Short Circuit, Shorted SCR

### METERING

Monitors phase current, ground current, motor thermal capacity, line voltage, power factor and kilowatts

### RS-485 SERIAL COMMUNICATIONS

Up to 247 starters per link, Modbus RTU protocol built-in

Full programming over the serial link, Remote starter control

### OPERATOR INTERFACE

Tactile feedback keypad, Easy to read LED display, Run and fault, status indicators

# VMX2 Series

# Rugged - Compact - Versatile

## Ratings

### Nominal Motor HP Rating

Model Number	Amps	208V/HP		240V/HP		480V/HP		600V/HP	
		Shunt Bypass	Start Bypass	Shunt Bypass	Start Bypass	Shunt Bypass	Start Bypass	Shunt Bypass	Start Bypass
VMX2-18-BP	9-18	5	3	5	5	10	10	15	10
VMX2-28-BP	14-28	7.5	7.5	7.5	7.5	20	15	25	20
VMX2-39-BP	19-39	10	10	10	10	25	25	30	30
VMX2-48-BP	24-48	15	10	15	15	30	30	40	30
VMX2-62-BP	31-62	20	15	20	20	40	40	60	50
VMX2-78-BP	39-78	25	20	25	25	60	50	75	60
VMX2-92-BP	46-92	30	25	30	30	60	60	75	75
VMX2-112-BP	56-112	30	30	40	30	75	75	100	75
VMX2-150-BP	75-150	40	40	50	50	100	100	125	75
VMX2-160-BP	80-160	50	40	60	50	125	100	150	75
VMX2-210-BP	105-210	60	50	75	60	150	150	200	150
VMX2-275-BP	138-275	75	60	100	75	200	150	200	150
VMX2-361-BP	181-361	125	75	125	125	300	250	350	300
VMX2-450-BP	225-450	150	125	150	150	350	300	450	300
VMX2-550-BP	275-550	200	150	200	200	450	400	500	500
VMX2-600-BP	300-600	200	200	250	200	500	500 (4)	600	600 (4)
VMX2-862-BP	431-862	250	250	300	300	600	500	700	600
VMX2-900-BP	450-900	300	250	350	300	700	600	900	600
VMX2-1006-BP	503-1006	350	300	400	400	800	800	1,000	900
VMX2-1250-BP	625-1250	450	350	500	450	1,000	900	1,200	1,000

#### NOTES:

- 1 – 690V Rated units available – Contact Factory.
- 2 – Size the Soft Starter based on the actual motor nameplate FLA.
- 3 – All VMX2 units rated 500% current 60 sec; Start bypass ratings allow for use of 1.15 service factor motors.
- 4 – VMX2-600-BP @ 480V and 600VAC is 1.0 S.F.
- 5 – Control power is required for all units.
- 6 – Fuses are required for 65kA SCCR on Models 18-48, and 862-900.

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