MOTORTRONICS™
Solid State AC Motor Control

Low Voltage Soft Starter

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

Motortronics Motor Controls Made Easy

VMX2 Series Compact Soft Starter

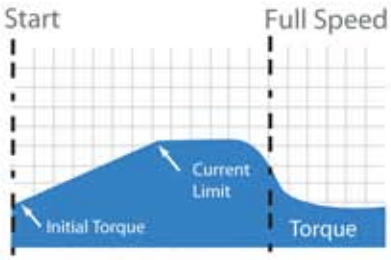
Rugged – Compact - Versatile

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

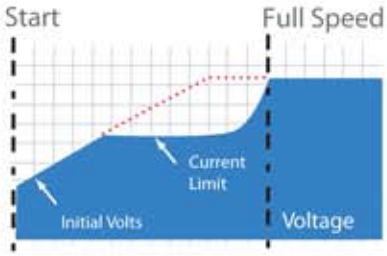
Closed Loop Torque/Current Ramping provides a linear increase in output torque during acceleration and maximizes the available torque using an internal PID feedback loop ensuring a smooth linear ramp.



Closed Loop Torque Ramp

Compressors & Chillers

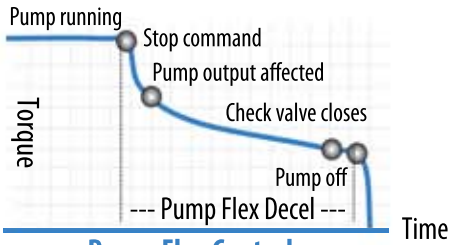
Voltage Ramp with Current Limit provides the smoothness of voltage ramping while maintaining the ability to start in limited power environments.



Voltage Ramp with Current Limit

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.



Pump-Flex Control

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-H also includes:

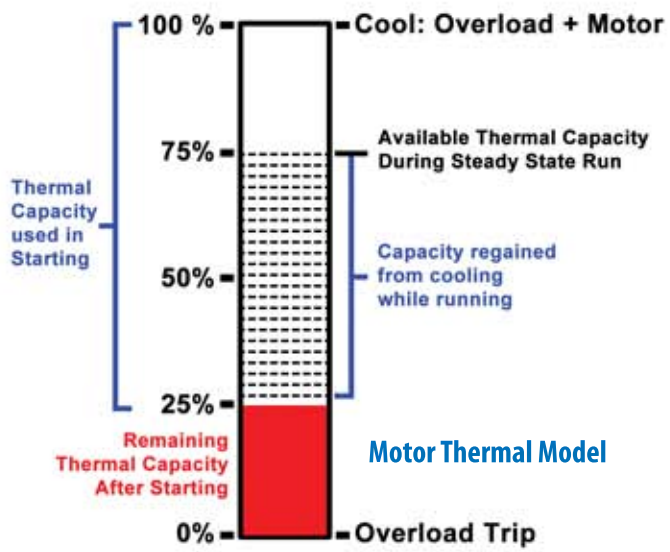
Door Mounted Digital Keypad
X-Line Enabled Pilot Light
External Interlock Input and Pilot Light

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

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

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 Shunt Bypass	208V/HP Start Bypass	240V/HP Shunt Bypass	240V/HP Start Bypass	480V/HP Shunt Bypass	480V/HP Start Bypass	600V/HP Shunt Bypass	600V/HP 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 is1.0 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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