



Multi-Purpose Medium Voltage VFD



FULL-SIZE PERFORMANCE ... COMPACT DESIGN

Benshaw MVH2 Series Medium Voltage VFDs utilize H-Bridge multi-level and overlapping wave technology for low harmonic content and a nearly perfect sine wave output. The latest in phase-locked loop technology is used to adjust drive output ... providing an ideal solution for soft start, speed control, energy savings and intelligent control of any MV induction or synchronous motor.

Offering the performance of a full-size standard drive in a small footprint layout, MVH2 Series drives are ideal for retrofit projects or any installation with space constraints.

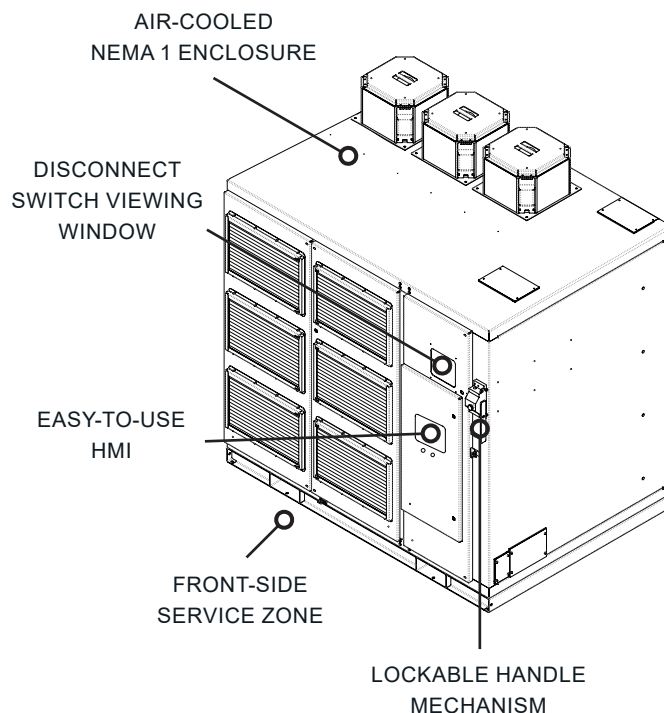
Rapid | Rugged | Global

- UL Listed to 154A @ 4160V
- NEMA 1 forced air, front access, welded enclosure
- Fully integrated, packaged VFD:
 - Load break fused disconnect
 - Inline contactor
 - Built in dry type transformer
- Door-mounted touch screen HMI
- IEEE 519 compliant, 24 pulse design
- V/Hz, open or closed loop, vector control
- No cable length restrictions
- Standalone or integrated into an MCC (optional)
- Synchronous transfer up to 4 motors (optional)

MVH2 Series | Multi-Purpose Medium Voltage VFD

KEY FEATURES

- Fully integrated, packaged drive
- 50 kAIC short circuit fault rating
- 60kV BIL
- 400 A load break, 5 kV rated disconnect switch, mechanically interlocked
- Standalone or integrated into an MCC (future)
- Top or bottom entrance for both incoming and outgoing power
- Voltage source multi-cell inverter
- Modbus RTU standard, DeviceNet, Profibus, Ethernet optional
- Class H dry type transformer (AI windings) with embedded RTDs



COMMON APPLICATIONS

- Pumps
- Blowers
- Fans
- Compressors
- Chillers
- Test stands
- Kiln drives
- Conveyors

PART NUMBER ASSEMBLER

MVH2	-	A	U	6	-	042	-	042	-	0048	A	-	CF	-	I	-	NB	-	FSO	-	N1	N1 = NEMA 1 Enclosure (standard)
																						FSO = Front Service Only / DSO = Double Side Access (e.g. front & rear access)
																						NB = No cell bypass / CB = Cell Bypass / RB = Redundant Cell Bypass
																						I = Inline Contactor / N = No Inline Contactor
																						CF = Fusible Disconnect / ND = No Disconnect
																						A = Air Cooling / W = Water Cooling
																						Rated Unit Amps rms
																						Output Rated Voltage Vrms 023 = 2300V, 042 = 4160V
																						Input Rated Voltage Vrms 023 = 2300V, 042 = 4160V
																						5 = 50Hz Input Frequency / 6 = 60Hz Input Frequency
																						I = IEC / U = UL
																						A = Asynchronous Motor / S = Synchronous
																						Benshaw MV Drive H2 Product Type

MODEL SELECTOR / RATINGS

MODEL NUMBER	VOLTAGE	APPROX MAX HP*	FLA	DIMENSIONS (IN)**			APPROX WEIGHT (lbs)
				H	W	D	
2300V							
MVH2-AU6-023-023-0077A-CF-I-NB-FSO-N1	2300	300	77	91.5	86	60	5200
MVH2-AU6-023-023-0154A-CF-I-NB-FSO-N1	2300	600	154	91.5	86	60	5250
4160V							
MVH2-AU6-042-042-0031A-CF-I-NB-FSO-N1	4160	200	31	91.5	86	60	3820
MVH2-AU6-042-042-0040A-CF-I-NB-FSO-N1	4160	300	40	91.5	86	60	4280
MVH2-AU6-042-042-0048A-CF-I-NB-FSO-N1	4160	350	48	91.5	86	60	4740
MVH2-AU6-042-042-0061A-CF-I-NB-FSO-N1	4160	450	61	91.5	86	60	5660
MVH2-AU6-042-042-0077A-CF-I-NB-FSO-N1	4160	600	77	91.5	86	60	6120
MVH2-AU6-042-042-0096A-CF-I-NB-FSO-N1	4160	700	96	91.5	86	60	6580
MVH2-AU6-042-042-0104A-CF-I-NB-FSO-N1	4160	800	104	91.5	86	60	7500
MVH2-AU6-042-042-0115A-CF-I-NB-FSO-N1	4160	850	115	91.5	86	60	7500
MVH2-AU6-042-042-0130A-CF-I-NB-FSO-N1	4160	1000	130	91.5	86	60	7500
MVH2-AU6-042-042-0154A-CF-I-NB-FSO-N1	4160	1200	154	91.5	86	60	7500

Note: 4160V models UL listed. UL testing of 2300V units TBD.

* Approx. Max HP based on a 4-pole motor. Size according to actual motor FLA.

** Overall dimensions. Height includes fans.

TECHNICAL DATA

FEATURE	SPECIFICATION/RATING	
Main Power Supply	Voltage	2300 or 4160V (+ 5%, -20% with output power derating)
	Frequency	50 or 60Hz (+/- 10%)
	Phase unbalance	Less than 5%
	True power factor	> 0.96
Control Power Supply*	Voltage	230V single phase*
	Frequency	50 or 60Hz
Enclosure	Standard	NEMA 1
Control	Control type	Sinusoidal multilevel PWM
		Fully digital
	Control mode	Open and closed loop V/F and vector control
	Switching mode	Multilevel IGBT
	Frequency mode	0 ... 80Hz
	Overload capacity	150% instantaneous
		120% for 120 seconds, every 15 minutes
	Efficiency	≥ 96%
Performance	Speed control	0.1% closed loop, 0.5% open loop
		Resolution: 1 RPM
Control Inputs	Analog	2 x Programmable isolated input: 4-20mA, 2-10V
		1 x Excitation feedback 4-20mA, 2-10V
	Digital	14 Isolated inputs: 24Vdc

* 230V power supply provided by others.

TECHNICAL DATA, Continued

FEATURE		SPECIFICATION/RATING
Control Outputs	Analog	2 Fixed outputs: 4-20mA / 2-10V
	Relay	2 Programmable outputs: 4-20mA / 2-10V
Communication	Fieldbus communication	22 Isolated outputs with dry contacts
		Standard Modbus RTU
Power Cell Bypass Function (86A and below)	Fieldbus communication	DeviceNet / Profibus / Ethernet IP (optional)
		Allows for continued operation with 1 or 2 failed cells
		Failed cells are bypassed automatically without interruption of equipment process.**
		Failed cells can be replaced quickly due to draw-out construction of power cell.**
Ambient	High productivity and low mean time to repair (MTTR)	High productivity and low mean time to repair (MTTR)
		Temperature
		Humidity
Finishing	Color	Altitude
		ANSI 61 Gray
Comformities Standards	Electromagnetic compatibility	Special paint color optional
		IEEE 519-2014
		IEC 61800-3
Flying Start	Starting into spinning motor	UL/cUL (up to 154A) 4160V only. 2300V UL future.
		Vector control, open & closed loop for superior dynamic speed accuracy & torque control
Motor and System Protections	Motor overload	Overvoltage
	Overcurrent	Current limit
	Phase loss	Over temperature
	Ground fault	Cabinet door interlock (optional)
Ratings	Short circuit withstand	50kA @ 4160V
	BIL	60kV
Standard and Approvals	IEC 60038	IEC 61000
	IEC 60050-151, -551	IEC 61800-3
	IEC 60076	IEC 60757
	EC 60721, relevant chapters	IEC 106
	UL 347A	UL 508A

** Future



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