



## PRODUCT SPECIFICATIONS

**LHX** SERIES

VARIABLE FREQUENCY DRIVE

Active Front End | Low Harmonic

5 HP to 500 HP

PHASE



**LHX** SERIES

VARIABLE FREQUENCY DRIVE

Active Front End | Low Harmonic

5 HP to 500 HP



**LHX**  
SERIES

**Easy Setup Wizards**

- Constant Pressure
- Flow Control
- Tank Level
- Pump Down
- Suction Pump
- HVAC

**Fully Featured Drive**

- Low Harmonic - Active Front End Technology
- Advanced motor protection & PID Control
- V/f Control or Torque Control
- Downloadable parameters
- Intuitive user interface
- Large backlit graphic display

**Superior Design**

- IEEE-519 Compliant
- Rugged all steel enclosure
- NEMA 1
- Certified to the UL508 standard
- Made in the USA

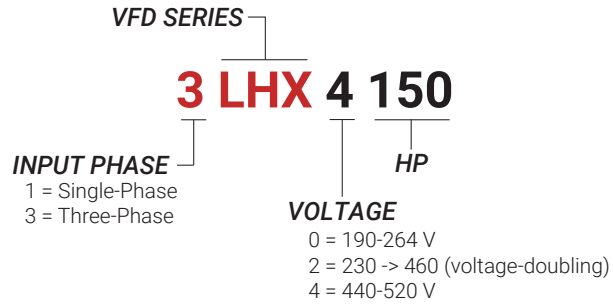
**Industry Best Lead Times**

- Expedite options available

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**Nomenclature**



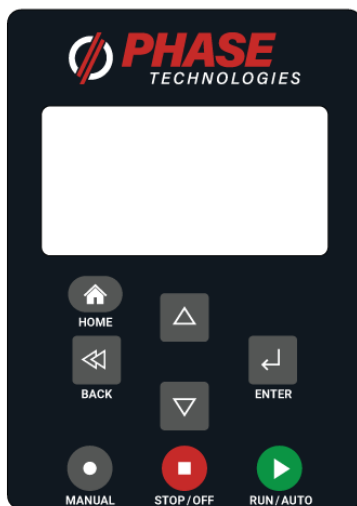
**Technical Specifications**

Physical / Environmental	
Operating Temperature Range	—40 °C – 40 °C (—40 °F – 104 °F) <small>*Heater in enclosure may be required below —40 °C, de-rating required above 40 °C.</small>
Storage Temperature Range	—40 °C – 57 °C (—40 °F – 135 °F)
Enclosure	NEMA Open, NEMA Type 1: Indoor
Altitude	Derate by 1% every 400 ft above 3300 ft elevation
Input Power	
Input Phase	single-phase or three-phase
Input Voltage	230 V   460 V
Input Voltage Range	190 V — 264 V   440 V — 520 V
Input Frequency	50/60 Hz
Output Power	
Output Phase	three-phase
Nominal Output Voltage	230 V   460 V
Output Voltage Range	100 V – 270V   200 V — 530 V
Output Frequency	5 Hz – 120 Hz
Horsepower	5 HP – 500 HP
Output Power	1.5 - 409 kW
Switching Frequency	2 kHz – 5 kHz
Output	V/f Control or Torque Control
Electrical	
Short Circuit Withstand Rating	65 kA RMS symmetrical Amps
Efficiency	> 98%
Startup Ramp Time	1 – 120 s
Shutdown Ramp Time	1 – 120 s or Coast to Stop
Overload Capacity	110% for 60 s
Input Filter	LC Filter Standard

**Input/Output Specifications**

Analog Inputs	
Quantity	(3) Programmable
Current Reference	4 – 20 mA, (2) Inputs
Voltage Reference	0 – 10 VDC, (1) Input
Terminal Block Size	26 — 12 AWG
Digital Inputs	
Quantity	(4) Programmable, Expandable
Ratings	< 5 V, galvanically isolated
Terminal Block Size	26 — 12 AWG
Analog Outputs	
Quantity	(2) Programmable
Current Reference	4 – 20 mA, (1) Output
Voltage Reference	0 – 10 VDC, (1) Output
Terminal Block Size	26 — 12 AWG
Relay Outputs	
Quantity	(4) Programmable, Expandable
Rating	Relay 1 : 30 VDC or 277 VAC, 10 A Relay 2 : 30 VDC or 277 VAC, 10 A Relay 3 : 30 VDC, 2 A or 125 VAC, 0.5 A Relay 4 : 30 VDC, 2 A or 125 VAC, 0.5 A
Terminal Block Size	26 — 12 AWG
Modbus	
Communication	Modbus RTU or Modbus IP
Connection Type	2-wire, 4-Wire, Ethernet
BACnet	
Communication	MS/TP or BACnet IP
Connection Type	Ethernet
Features	
Certification	ETL listed to UL 61800—5—1 and CSA C22.2 No. 274—17
User Interface	Push button membrane keypad with backlit graphic display

**User Interface**



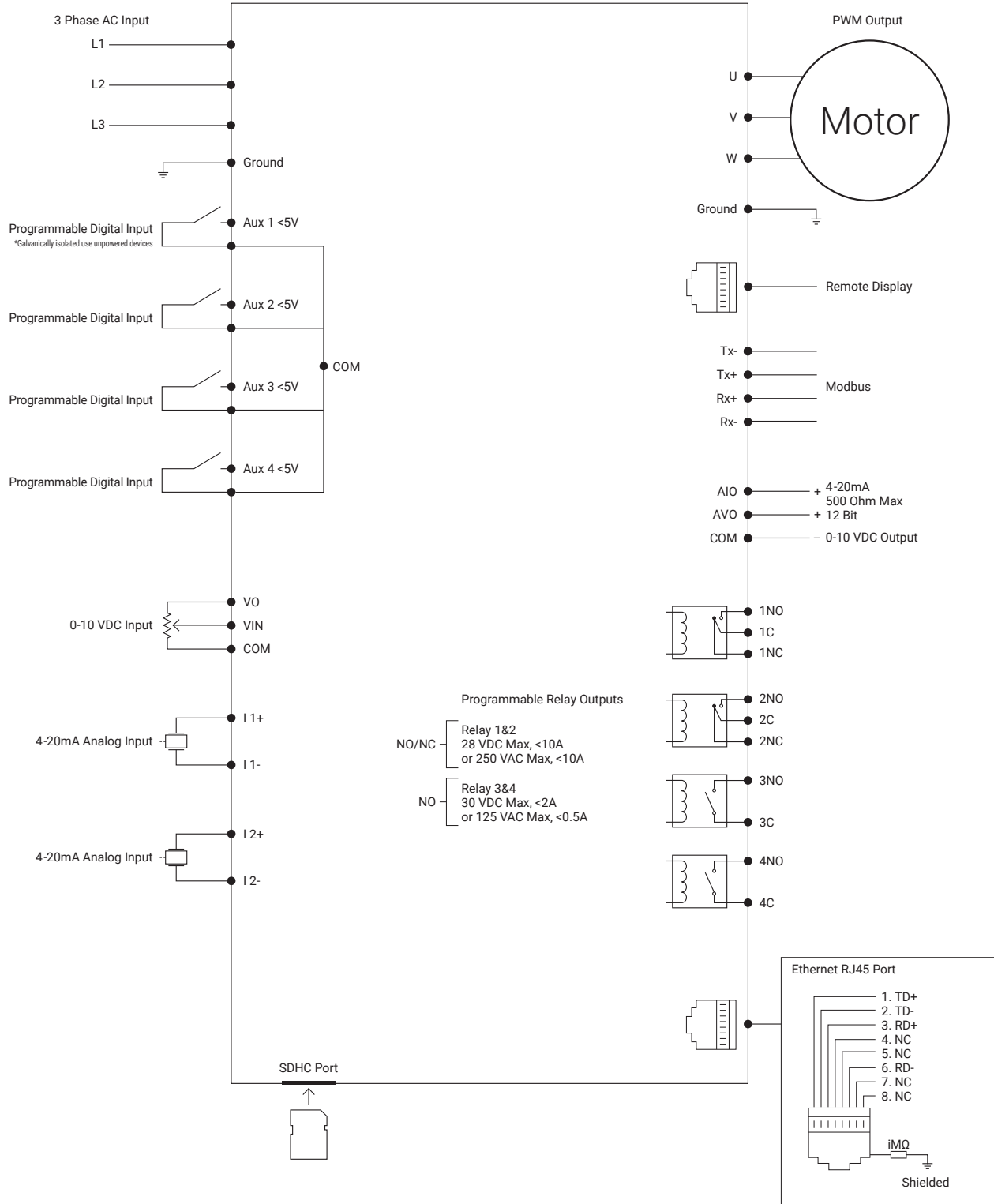
SDHC card reader for import/export of parameter set



Eight button keypad and digital display standard on all LHX models

Wiring Diagram

**LHX**  
SERIES  
Wiring Diagram



**1LHX - Models**

Part Number	HP	Rated Input Current	Rated Output Current	Dimensions (H x W x D)	Weight
<b>1LHX – 208 V/230 V Input</b> Single—Phase   <b>208 V/230 V Output</b> Three—Phase *Derate by one size for 208 V input.					
1LHX005	5 HP	26 A	18 A	33.25 x 7 x 13 in.	-
1LHX007	7.5 HP	37 A	25 A	33.25 x 7 x 13 in.	-
1LHX010	10 HP	48 A	31 A	33.25 x 7 x 13 in.	-
1LHX015	15 HP	72 A	46 A	33.25 x 7 x 13 in.	-
1LHX020	20 HP	97 A	62 A	33.25 x 7 x 13 in.	-

Part Number	HP	Rated Input Current	Rated Output Current	Dimensions (H x W x D)	Weight
<b>1LHX – 208 V/230 V Input</b> Single—Phase   <b>460 V Output</b> Three—Phase *Derate by one size for 208 V input.					
1LHX205	5 HP	26 A	9 A	33.25 x 7 x 13 in.	-
1LHX207	7.5 HP	37 A	13 A	33.25 x 7 x 13 in.	-
1LHX210	10 HP	50 A	18 A	33.25 x 7 x 13 in.	-
1LHX215	15 HP	67 A	24 A	33.25 x 7 x 13 in.	-
1LHX220	20 HP	97 A	31 A	33.25 x 7 x 13 in.	-
1LHX225	25 HP	115 A	38 A	33.25 x 7 x 13 in.	-
1LHX230	30 HP	139 A	46 A	53.5 x 13.5 x 17.5 in.	-
1LHX240	40 HP	196 A	61 A	53.5 x 13.5 x 17.5 in.	-
1LHX250	50 HP	226 A	77 A	60 x 21.5 x 18 in.	-
1LHX260	60 HP	282 A	91 A	60 x 21.5 x 18 in.	-

**1LHX - Models - continued**

Part Number	HP	Rated Input Current	Rated Output Current	Dimensions (H x W x D)	Weight
<b>1LHX — 460 V Input</b> Single—Phase   <b>460 V Output</b> Three—Phase					
1LHX405	5 HP	13 A	9 A	33.25 x 7 x 13 in.	-
1LHX407	7.5 HP	19 A	13 A	33.25 x 7 x 13 in.	-
1LHX410	10 HP	26 A	18 A	33.25 x 7 x 13 in.	-
1LHX415	15 HP	36 A	25 A	33.25 x 7 x 13 in.	-
1LHX420	20 HP	48 A	31 A	33.25 x 7 x 13 in.	-
1LHX425	25 HP	60 A	38 A	33.25 x 7 x 13 in.	-
1LHX430	30 HP	72 A	46 A	33.25 x 7 x 13 in.	-
1LHX440	40 HP	98 A	61 A	53.5 x 13.5 x 17.5 in.	-
1LHX450	50 HP	121 A	77 A	53.5 x 13.5 x 17.5 in.	-
1LHX460	60 HP	143 A	91 A	53.5 x 13.5 x 17.5 in.	-
1LHX475	75 HP	170 A	107 A	53.5 x 13.5 x 17.5 in.	-
1LHX4100	100 HP	226 A	142 A	33.25 x 7 x 13 in.	-
1LHX4125	125 HP	273 A	172 A	33.25 x 7 x 13 in.	-
1LHX4150	150 HP	315 A	198 A	33.25 x 7 x 13 in.	-
1LHX4200	200 HP	398 A	250 A	69 x 26 x 21.75 in.	-
1LHX4250	250 HP	483 A	304 A	69 x 26 x 21.75 in.	-

**3LHX - Models**

Part Number	HP	Rated Input Current	Rated Output Current	Dimensions (H x W x D)	Weight
<b>3LHX – 208 V/230 V Input</b> Single—Phase   <b>208 V/230 V Output</b> Three—Phase *Derate by one size for 208 V input.					
3LHX005	5 HP	18 A	18 A	33.25 x 7 x 13 in.	-
3LHX007	7.5 HP	25 A	25 A	33.25 x 7 x 13 in.	-
3LHX010	10 HP	31 A	31 A	33.25 x 7 x 13 in.	-
3LHX015	15 HP	46 A	46 A	33.25 x 7 x 13 in.	-
3LHX020	20 HP	61 A	61 A	33.25 x 7 x 13 in.	-
3LHX025	25 HP	75 A	75 A	33.25 x 7 x 13 in.	-
3LHX030	30 HP	91 A	91 A	33.25 x 7 x 13 in.	-

Part Number	HP	Rated Input Current	Rated Output Current	Dimensions (H x W x D)	Weight
<b>3LHX – 208 V/230 V Input</b> Single—Phase   <b>460 V Output</b> Three—Phase *Derate by one size for 208 V input.					
3LHX205	5 HP	18 A	9 A	33.25 x 7 x 13 in.	-
3LHX207	7.5 HP	25 A	13 A	33.25 x 7 x 13 in.	-
3LHX210	10 HP	30 A	18 A	33.25 x 7 x 13 in.	-
3LHX215	15 HP	46 A	25 A	33.25 x 7 x 13 in.	-
3LHX220	20 HP	60 A	31 A	33.25 x 7 x 13 in.	-
3LHX225	25 HP	77 A	38 A	33.25 x 7 x 13 in.	-
3LHX230	30 HP	91 A	46 A	53.5 x 13.5 x 17.5 in.	-
3LHX240	40 HP	121 A	61 A	53.5 x 13.5 x 17.5 in.	-
3LHX250	50 HP	154 A	77 A	53.5 x 13.5 x 17.5 in.	-
3LHX260	60 HP	182 A	91 A	60 x 21.5 x 18 in.	-
3LHX275	75 HP	214 A	107 A	60 x 21.5 x 18 in.	-
3LHX2100	100 HP	284 A	142 A	60 x 21.5 x 18 in.	-



**3LHX - Models - continued**

Part Number	HP	Rated Input Current	Rated Output Current	Dimensions (H x W x D)	Weight
<b>3LHX – 460 V Input</b> Single—Phase   <b>460 V Output</b> Three—Phase					
3LHX405	5 HP	9 A	9 A	33.25 x 7 x 13 in.	-
3LHX407	7.5 HP	13 A	13 A	33.25 x 7 x 13 in.	-
3LHX410	10 HP	18 A	18 A	33.25 x 7 x 13 in.	-
3LHX415	15 HP	25 A	25 A	33.25 x 7 x 13 in.	-
3LHX420	20 HP	31 A	31 A	33.25 x 7 x 13 in.	-
3LHX425	25 HP	38 A	38 A	33.25 x 7 x 13 in.	-
3LHX430	30 HP	46 A	46 A	33.25 x 7 x 13 in.	-
3LHX440	40 HP	61 A	61 A	33.25 x 7 x 13 in.	-
3LHX450	50 HP	77 A	77 A	33.25 x 7 x 13 in.	-
3LHX460	60 HP	91 A	91 A	53.5 x 13.5 x 17.5 in.	-
3LHX475	75 HP	107 A	107 A	53.5 x 13.5 x 17.5 in.	-
3LHX4100	100 HP	142 A	142 A	53.5 x 13.5 x 17.5 in.	-
3LHX4125	125 HP	172 A	172 A	53.5 x 13.5 x 17.5 in.	-
3LHX4150	150 HP	198 A	198 A	53.5 x 13.5 x 17.5 in.	-
3LHX4200	200 HP	250 A	250 A	60 x 21.5 x 18 in.	-
3LHX4250	250 HP	304 A	304 A	60 x 21.5 x 18 in.	-
3LHX4300	300 HP	362 A	362 A	60 x 21.5 x 18 in.	-
3LHX4350	350 HP	415 A	415 A	69 x 26 x 21.75 in.	-
3LHX4400	400 HP	478 A	478 A	69 x 26 x 21.75 in.	-
3LHX4450	450 HP	515 A	515 A	69 x 26 x 21.75 in.	-
3LHX4500	500 HP	590 A	590 A	69 x 26 x 21.75 in.	-

## Recommended Breaker Sizes

Model Number	Recommended Fuse Rating Class J	Recommended Circuit Breaker Rating
<b>1LHX – 230 V Input</b> Single—Phase   <b>230 V Input</b> Three—Phase		
1LHX005	40 A, 600 V	40 A
1LHX007, 1LHX010	60 A, 600 V	60 A
1LHX015	100 A, 600 V	100 A
1LHX020	125 A, 600 V	125 A
<b>1LHX – 230 V Input</b> Single—Phase   <b>460 V Input</b> Three—Phase		
1LHX205	40 A, 600 V	40 A
1LHX207	60 A, 600 V	60 A
1LHX210	70 A, 600 V	70 A
1LHX215	100 A, 600 V	100 A
1LHX220	125 A, 600 V	125 A
1LHX225	150 A, 600 V	150 A
1LHX230	175 A, 600 V	175 A
1LHX240	250 A, 600 V	250 A
1LHX250	300 A, 600 V	350 A
1LHX260	400 A, 600 V	400 A
<b>1LHX – 460 V Input</b> Single—Phase   <b>460 V Input</b> Three—Phase		
1LHX405	20 A, 600 V	20 A
1LHX407	30 A, 600 V	30 A
1LHX410	40 A, 600 V	40 A
1LHX415, 1LHX420	60 A, 600 V	60 A
1LHX425	80 A, 600 V	80 A
1LHX430	100 A, 600 V	100 A
1LHX440	125 A, 600 V	125 A
1LHX450	175 A, 600 V	175 A
1LHX460	200 A, 600 V	200 A
1LHX475	250 A, 600 V	250 A
1LHX4100	300 A, 600 V	300 A
1LHX4125	300 A, 600 V	300 A
1LHX4150	350 A, 600 V	350 A
1LHX4200	500 A, 600 V	500 A
1LHX4250	500 A, 600 V	500 A

Model Number	Recommended Fuse Rating Class J	Recommended Circuit Breaker Rating
<b>3LHX – 230 V Input</b> Single—Phase   <b>230 V Input</b> Three—Phase		
3LHX005, 3LHX007	30 A, 600 V	30 A
3LHX010	40 A, 600 V	40 A
3LHX015	60 A, 600 V	60 A
3LHX020	80 A, 600 V	80 A
3LHX025	100 A, 600 V	100 A
3LHX030	125 A, 600 V	125 A
<b>3LHX – 230 V Input</b> Single—Phase   <b>460 V Input</b> Three—Phase		
3LHX205, 3LHX207	30 A, 600 V	30 A
3LHX210	40 A, 600 V	40 A
3LHX215	60 A, 600 V	60 A
3LHX220	80 A, 600 V	80 A
3LHX225	100 A, 600 V	100 A
3LHX230	125 A, 600 V	125 A
3LHX240	175 A, 600 V	175 A
<b>3LHX – 460 V Input</b> Single—Phase   <b>460 V Input</b> Three—Phase		
3LHX405, 3LHX407	20 A, 600 V	20 A
3LHX410, 3LHX415	30 A, 600 V	30 A
3LHX420	40 A, 600 V	40 A
3LHX425	50 A, 600 V	50 A
3LHX430	60 A, 600 V	60 A
3LHX440	80 A, 600 V	80 A
3LHX450	100 A, 600 V	100 A
3LHX460	125 A, 600 V	125 A
3LHX475	150 A, 600 V	150 A
3LHX4100	200 A, 600 V	200 A
3LHX4125, 3LHX4150	250 A, 600 V	250 A
3LHX4200	350 A, 600 V	350 A
3LHX4250	400 A, 600 V	400 A
3LHX4300	500 A, 600 V	500 A
3LHX4350	600 A, 600 V	600 A
3LHX4400	600 A, 600 V	600 A
3LHX4450	700 A, 600 V	700 A
3LHX4500	800 A, 600 V	800 A

Heat Exchange

Model Number	CFM	BTU / hr
<b>1LHX – 230 V Input</b> Single—Phase   <b>230 V Input</b> Three—Phase		
1LHX005	125 - 250	459
1LHX007	125 - 250	638
1LHX010	125 - 250	791
1LHX015	125 - 250	1,174
1LHX020	125 - 250	1,582
<b>1LHX – 230 V Input</b> Single—Phase   <b>460 V Input</b> Three—Phase		
1LHX205	125 - 250	459
1LHX207	125 - 250	663
1LHX210	125 - 250	919
1LHX215	125 - 250	1,225
1LHX220	125 - 250	1,582
1LHX225	125 - 250	2,041
1LHX230	450	2,347
1LHX240	450	3,113
1LHX250	720	3,929
1LHX260	720	4,945
<b>1LHX – 460 V Input</b> Single—Phase   <b>460 V Input</b> Three—Phase		
1LHX405	125 - 250	459
1LHX407	125 - 250	663
1LHX410	125 - 250	919
1LHX415	125 - 250	1,276
1LHX420	125 - 250	1,582
1LHX425	125 - 250	2,041
1LHX430	125 - 250	2,347
1LHX440	450	3,113
1LHX450	450	3,929
1LHX460	450	4,643
1LHX475	450	5,460
1LHX4100	720	7,246
1LHX4125	720	9,346
1LHX4150	720	10,759
1LHX4200	720	13,584
1LHX4250	720	16,519
Model Number	CFM	BTU / hr
<b>3LHX – 230 V Input</b> Single—Phase   <b>230 V Input</b> Three—Phase		
3LHX005	125 - 250	459

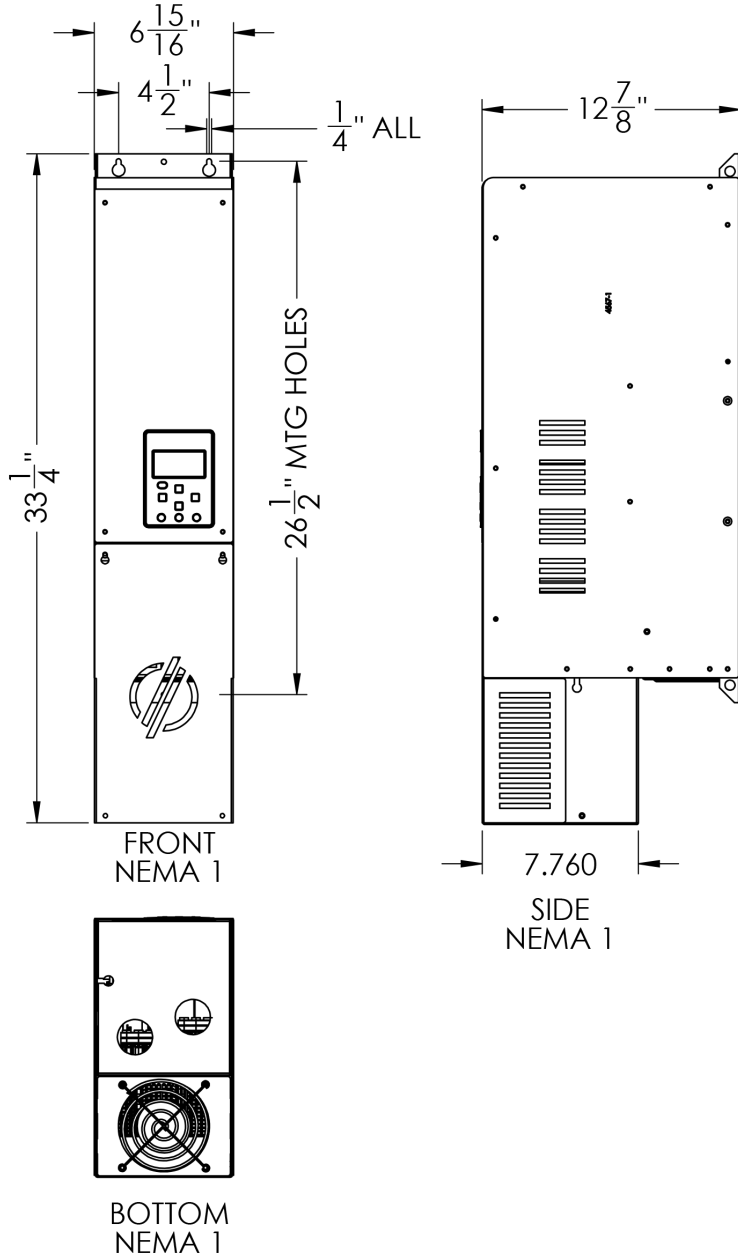
3LHX007	125 - 250	638
3LHX010	125 - 250	791
Model Number	CFM	BTU / hr
<b>3LHX – 230 V Input</b> Three—Phase   <b>230 V Input</b> Three—Phase		
3LHX015	125 - 250	1,174
3LHX020	125 - 250	1,556
3LHX025	125 - 250	1,914
3LHX030	125 - 250	2,322
<b>3LHX – 230 V Input</b> Three—Phase   <b>460 V Input</b> Three—Phase		
3LHX205, 3LHX207	125 - 250	459
3LHX210	125 - 250	663
3LHX215	125 - 250	919
3LHX220	125 - 250	1,276
3LHX225	125 - 250	1,582
3LHX230	125 - 250	1,939
3LHX240	125 - 250	2,347
3LHX240	125 - 250	3,113
<b>3LHX – 460 V Input</b> Three—Phase   <b>460 V Input</b> Three—Phase		
3LHX405	125 - 250	459
3LHX407	125 - 250	663
3LHX410	125 - 250	919
3LHX415	125 - 250	1,276
3LHX420	125 - 250	1,582
3LHX430	125 - 250	2,347
3LHX440	125 - 250	3,113
3LHX450	125 - 250	3,929
3LHX460	450	4,644
3LHX475	450	5,460
3LHX4100	450	7,246
3LHX4125	450	8,777
3LHX4150	450	10,104
3LHX4200	720	12,758
3LHX4250	720	15,513
3LHX4300	720	18,473
3LHX4350	720	22,550
3LHX4400	950	25,974
3LHX4450	950	27,984
3LHX4500	950	32,059

Line Drawings

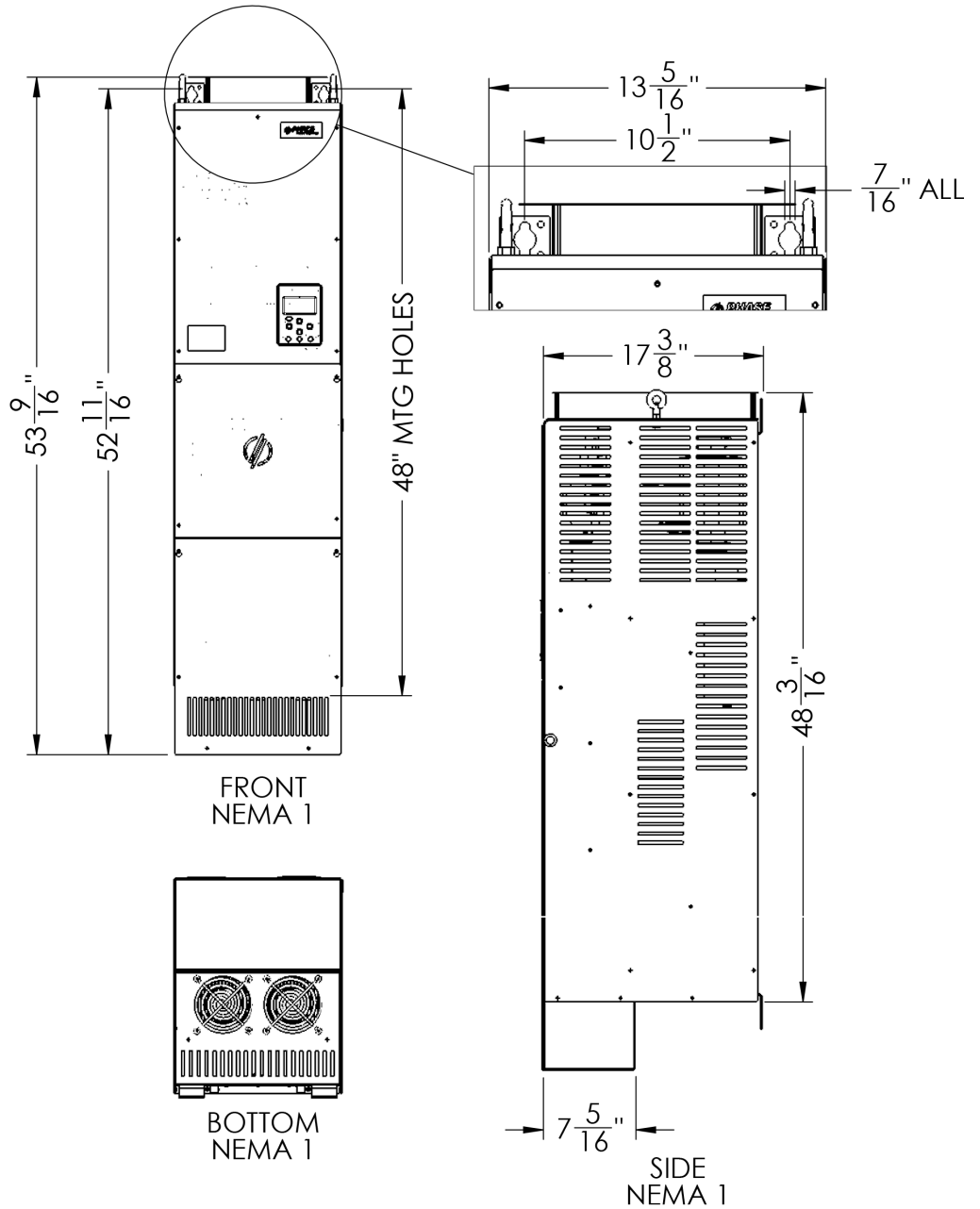


**LHX-6**

Model Number	
1LHX005	3LHX005
1LHX007	3LHX007
1LHX010	3LHX010
1LHX015	3LHX015
1LHX020	3LHX020
1LHX205	3LHX025
1LHX207	3LHX030
1LHX210	3LHX205
1LHX215	3LHX207
1LHX220	3LHX210
1LHX225	3LHX215
1LHX405	3LHX220
1LHX407	3LHX225
1LHX410	3LHX405
1LHX415	3LHX407
1LHX420	3LHX410
1LHX425	3LHX415
1LHX430	3LHX420
	3LHX430
	3LHX440
	3LHX450



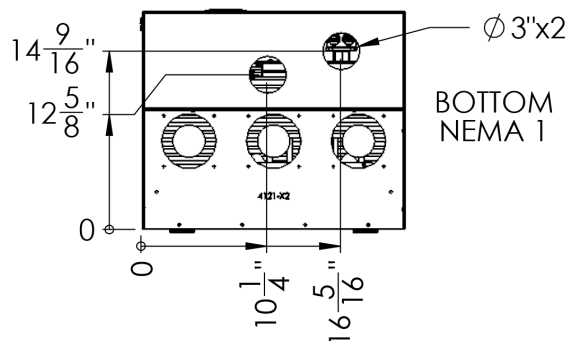
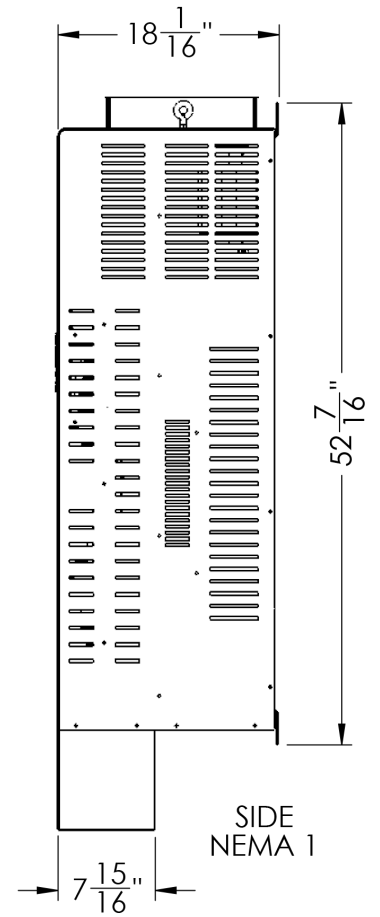
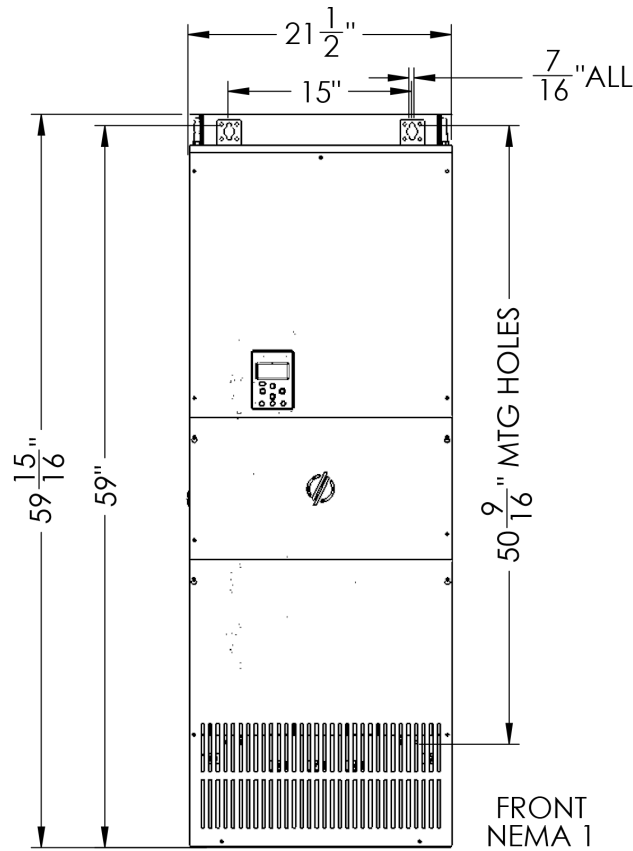
Line Drawings



**LHX4150**

Model Number
1LHX230
1LHX240
1LHX440
1LHX450
1LHX460
1LHX475
3LHX230
3LHX240
3LHX250
3LHX460
3LHX475
3LHX4100
3LHX4125
3LHX4150

Line Drawings



**LHX4300**

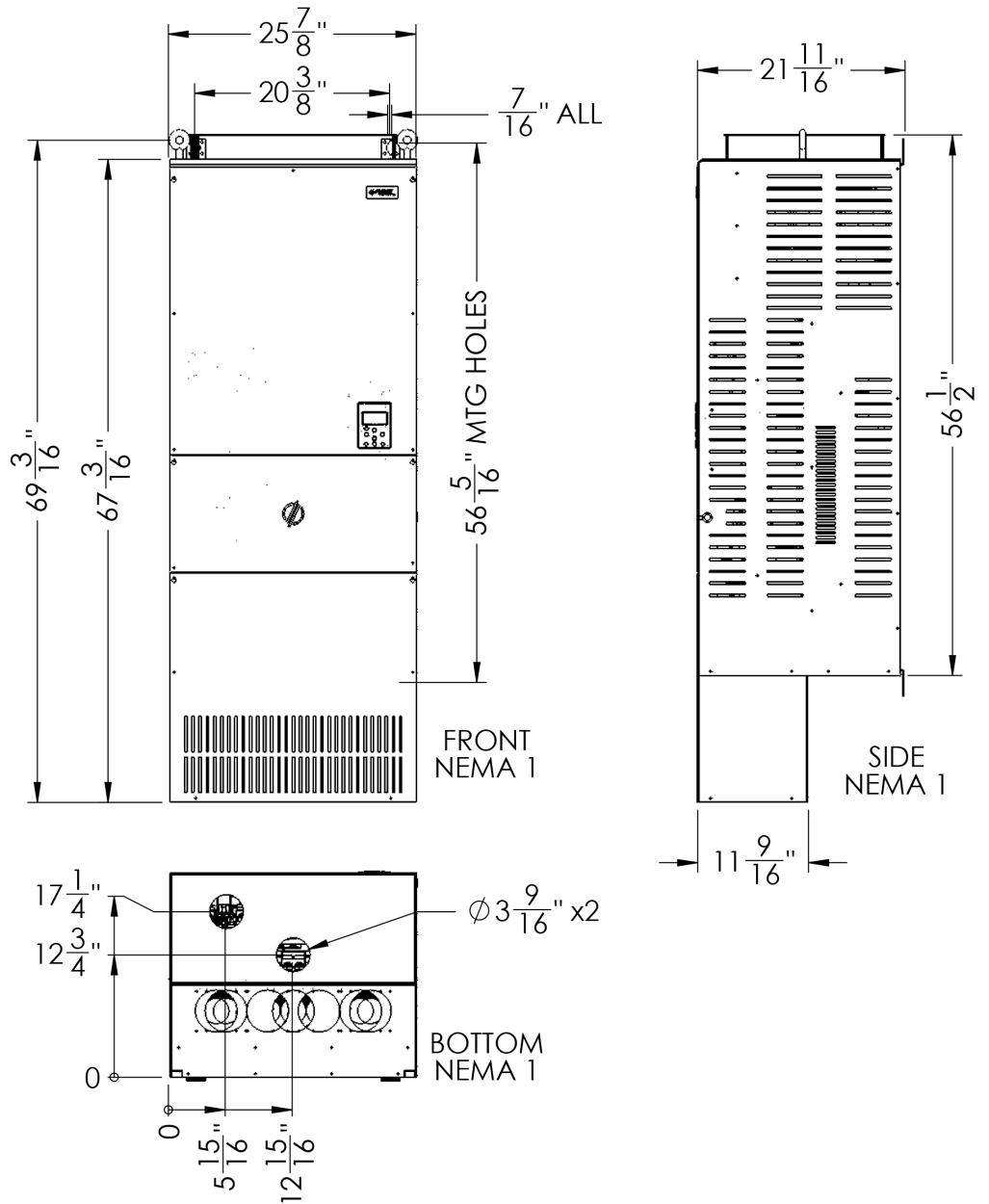
Model Number
1LHX250
1LHX260
1LHX4100
1LHX4125
1LHX4150
3LHX260
3LHX275
3LHX2100
3LHX4200
3LHX4250
3LHX4300

Line Drawings



**LHX4500**

Model Number
1LHX4200
1LHX4250
3LHX4350
3LHX4400
3LHX4450
3LHX4500



**Notes**

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