Altivar™ 660 Drive Systems

The Schneider Electric Altivar™ 660 Drive Systems provides a robust, packaged, adjustable-speed solution for commercial, industrial, and municipal applications. All ratings are UL 508A listed, with selectable control and power configurations. These drives combine the reliability and ease-of-use of the Altivar drives family with proven, validated, and tested drive system designs.

1st Wave of Launch 1-125hp

- Pre-engineered, ready to use solutions in highly efficient designs
- Modular and compact to maximize space utilization
- Flexibility for application requirements
- UL Type 1, 12 and 3R rated enclosures

- 1 – 125 hp utilizing the ATV630
- Built in pump curves
- Embedded ethernet and web server
- Dynamic QR codes
- Real time clock

Schneider Electric™

ATV660 Drive Systems

Applications

Applications in WWW

ATV 6XX / ATV 9XX	Application					
Water	▪ Desalination ▪ Water Treatment Plant ▪ Distribution Network	Water		Pumps	Dosing Pump	Decanter
Wastewater	▪ Wastewater Treatment Plant ▪ Collection Network	Blowers	Aeration	Sludge Machines	Pumps	Dosing Pump	Decanter

Applications in O&G

ATV 6XX / ATV 9XX	Application					
Upstream	▪ Oil & Gas Production & Gathering ▪ Oil & Gas Separation Draw works ▪ Gas Treatment ▪ Gas Export ▪ Subsea	Crane	Drilling Rigs	Artificial Lifts	Pumps	Compressors
Midstream	▪ Oil & Gas Transportation & Distribution ▪ Oil & Gas Storage ▪ Gas Liquefaction (LNG/CNG) ▪ Gas to Liquid (GTL)				Pumps	Compressors
Downstream	▪ Petroleum Refining ▪ Petrochemical Plants ▪ Air Separation Plants ▪ Chemical Industry	Extruders	Mixers	Blowers	Pumps	Compressors

Applications in MMM

ATV 6XX / ATV 9XX		Application							
Mining	▪ Extraction ▪ Underground ▪ Processing ▪ Transportation & Logistics	Flotation Separation Thickening	Long Conveyor	Crusher, Screen, Grinder, Mill	Loading/Unloading	Conveying	Pump/Fan/Compressor		
Cement	▪ Cement ▪ Aggregates	Fan Blower	Crane						
Metal	▪ Raw Material Preparation (Coke/Sinter/Pellet) ▪ Iron Making Area ▪ Rolling ▪ Finishing	Steel Converter Tilt							

Applications in F&B

ATV 6XX / ATV 9XX		Application							
Liquid Food	▪ Dairy ▪ Juice	Air Drying	Cyclone	Mech, Vapor Recompression	Pumping Pipe Distribution	Pumps	Air Blower Fan		
Agri-Business	▪ Sugar ▪ Oil ▪ Grain	Mixers	Conveying	Mill & Crushers	Centrifugal Pump				

ATV660 Drive Systems (1-125 hp)

- 1–125 hp Normal Duty at 460V, 1–60 hp Normal Duty at 230V
- All four frames are 16 in wide
- All wall mount frames are 19.5 in deep
- Two additional frame enclosures available for ETO options
- UL Type 1, 12 & 3R rated enclosures
- 100,000 SCCR short circuit rating
- Energy management (integrated power measurement)
- Remote graphic keypad
- Standard 3% equivalent impedance
- Circuit breaker disconnect
- White component mounting plate
- Service entrance - 3R

75-125hp

40-60hp

20-30hp

1-15hp

ATV660 Drive Systems (1-125 hp)

Available options:

- Bypass-utilizing Zelio Smart Relay (up to 250hp)
- Harmonic filter
- Service switch (bypass)
- DV/DT motor filter
- 50 Deg C (3R)
- Communication cards
- Control and indicator options
- 5% equivalent impedance option
- Many more to meet customer requirements

Configuration To Order

Catalog number example: ATV660D22T4N2ANWAANAGK

ATV660 D22 T4 N 2 A N W A A N A G K

Product line (Utility)
660 ATV660 Drive System
680 Low Harmonic

Product line (Industry)
960 ATV960 Drive System
980 Regen

Voltage
U3 230V
T4 460V

2 UL *(default)*
6 cUL

N Normal Duty *(default)*
H Heavy Duty

Power Circuit
W W/O bypass *(default)*
Y Bypass

Light Options
N None
A Red pwr on, Yell trip gr AFC run, Yell auto
B Red pwr on, Yell trip gr AFC run

Misc Options
N None
A Ethernet port on front door (PC/iPad)
B Line contactor
C Drive I/O extension
D Drive extended relay module (3 NO)
E 0-10V auto speed reference
F 1 NO auxiliary auto mode contact
G Type 1 SPD 40 k
H Type 2 SPD 80 k
J Not assigned
K Additional 150VA control power transformer
L Push-to-test pilot lights
M Not assigned
P Permanent wire markers (sleeve type)
Q Trip reset button
R Not assigned
S 50 deg C (3R only, 125hp & below)
T Service Switch
U Top entry cubical (150hp & above)
V Assembled in US (60hp & below)
W Not assigned
X DV/DT filter

Normal Duty Values

Code	HP at 460V
U07	1
U15	2
U22	3
U40	5
U55	7.5
U75	10
D11	15
D15	20
D18	25
D22	30
D30	40
D37	50
D45	60
D55	75
D75	100
D90	125
C11	150
C13	200
C16	250
C20	300
C25	400
C31	500
C40	600
C50	700
C63	900
C80	1100

Heavy Duty Values

Code	HP at 460V
U15	1
U22	2
U30	3
U55	5
U75	7.5
D11	10
D15	15
D18	20
D22	25
D30	30
D37	40
D45	50
D55	60
D75	75
D90	100
C11	125
C13	150
C16	200
C20	250
C25	300
C31	400
C40	500
C50	600
C63	700
C80	900

Enclosure
G Type 1 *(default)*
A Type 12
H Type 3R (>125hp)

Harmonic Mitigation
N None *(default)*
A 5% line impedance
M Harmonic filter

Control Options
N Prewired for HOA
A HOA,Speed Pot *(default)*
B HOA,Speed Pot, Start-Stop

Comms Options
N None
A Profibus DP
B CANopen daisy chain
C Devicenet
D CANopen sub-D9
E CANopen open style
F Profinet

Catalog Number Example: (Configuration To Order)

ATV660D22T4N2ANWAANAGK

ATV660	D22	T4	N	2	A	N	W	A	A	N	A,G,K
Altivar 660 Process Drive	22kW	460V 3 phase	Normal Duty Rating	UL Listed	UL Type 12	No Harmonic Mitigation	Without Bypass	H-O-A Speed Pot	Red Power On Yellow Tripped Green AFC Run Yellow Auto	No Comm Card	Ethernet Port on Front Door Type 1 SPD 40k Additional 150Va Control Power

Process drives without bypass are available up to 900hp HD / 1100hp ND at 460V or 50hp HD / 60hp ND at 230V. The following standard features for process drives without bypass, when no options are ordered:

- Circuit breaker disconnect
- UL listed per UL508A
- 100,000 SCCR short-circuit rating
- Disconnect handle with lockout/ tagout provisions
- Door mounted keypad holder and display
- One form C tripped relay
- Two form A sequence relays
- White component mounting plate
- Six programmable digital inputs
- Standard 3% equivalent impedance
- Standard color RAL735
- Removable conduit entry plate on floor-mounted enclosures
- Class 10 overload protection
- Controller programming
  - – Acceleration (ACC): 10s
  - – Deceleration (DEC): 10s
  - – Low Speed (LSP): 3Hz

Engineered to Order Options / TAG

Code	Option Description
C10	Allows the controller to follow a user supplied 3–15 PSI input
E10	Provides a smoke purge operating mode controlled by a user-supplied 120 Vac signal wired to terminal block TB1. Smoke purge operation is full speed bypass (when provided) or High Speed in the drive controller. This operation is designed run the motor from any operator control setting except emergency stop or open safety interlocks.
H10	Seismic - Future
L10	Provides 1 additional N.C. contact for drive fault indication wired to TB1
M10	Provides 1 additional N.O. contact for bypass run indication wired to TB1
R10	Provides an automatic transfer (time adjustable 0.1–10 s) to bypass in the event that the drive controller faults. A selector switch is provided inside the enclosure to enable or disable this function. Longer transfer time requirements are available by replacing the plug-in adjustable timer.
S10	Provides a dedicated non-resettable elapsed time meter to record the motor run time; runs whenever the motor is running
T10	Provides door mounted maintained off emergency stop red mushroom pushbutton with turn-to-reset feature
U10	Provides 50 VA/120 V to terminal block TB1 for motor space heater whenever the motor is not running
V10	Provides 50 VA/120 V to terminal block TB1 for seal water solenoid whenever the motor is running
W10	Provides an automatic shutdown of the drive controller when the user supplied N.C. contact from the check valve limit switch does not open within 5 seconds after the motor starts. The user limit switch contact connects to terminal block TB1. Circuit provides reset function with an illuminated (blue) push-button.
410	Provides radio frequency interference suppression with ferrite cores which are factory supplied on the power wires ahead of the power converter
R	Barriered Bypass - RVAT
S	Barriered Bypass – Soft Start
E201	Analog percent speed meter scaled 0 to 120% base speed
E202	Analog percent current scaled 0 to 100% of rated output current
E203	Digital ammeter (amperes) scaled 0 to 2 times rated output amperes
E204	Digital speed meter (frequency) scaled 0 to 72 Hz output frequency
E205	Digital percent speed meter scaled 0 to 120% base speed
E206	Digital percent current scaled 0 to 100% of rated output current
E219	Provides a relay circuit operating in the fail safe mode where a remote initiating contact opens the relay, de-energizes and after a specified time shuts the drive controller down in the AFC mode (hand or auto) and/or in the bypass mode (hand or auto)

Engineered to Order Options / TAG

Code	Option Description
E221	Provides relay, which will energize a remote seal water solenoid limited to 50 VA during drive controller operation. Additionally, the remote initiating contact will open the relay, de-energizing and after a specified time shuts the drive controller down in the AFC mode (hand or auto) and/or in the bypass mode (hand or auto).
E222	Provides 24 V or 120 V control power to a customer supplied moisture detection relay device, either electronic or electro-mechanical. Factory provides pre-wired socket or mounting space only.
E223A	Relay option: Provides 24 V or 120 V control power to a moisture detection relay device, either electronic or electro-mechanical. The moisture detection relay is mounted and wired by the factory.
E223B	Relay and Pilot Light indication option: Provides 24 V or 120 V control power to a customer supplied moisture detection relay device, either electronic or electro-mechanical. Includes a pilot light for discrete input(s). The customer supplied moisture detection relay is mounted and wired by the factory.
224	Substitute Type K operators; provides Class 9001 Type K 30 mm heavy duty multi-function operators in lieu of standard 22 mm pilot devices
225	Provides control relays mounted and unwired for customer use. Up to (3) are available
226	Substitute pilot light lens color(s); provides the flexibility to configure lens cap colors to contract equipment designations
227	Blown fuse indicators on control fuses. Provides blown circuit fuse indicators on control circuit fuses in lieu of standard fuses
228	Provides dedicated terminals using an external motor over temperature input (N.C. contact) factory wired and programmed
229	RTD inputs (motor protection alarm)b. Provides capability for accepting RTD inputs using an RTD limit alarm, factory mounted and wired; limited to three (3) RTD inputs
230A	Schneider Electric Sepam™ Series 20 motor protective relay
230B	Schneider Electric Sepam Series 41 motor protective relay
230C	GE Multilin® 269+ motor management relay
230D	GE Multilin 469 motor management relay
231A	PM820 power module
231B	PM850 power module
231C	PM870 power module
232A	CM3250 circuit monitor
232B	CM3350 circuit monitor

Engineered to Order Options / TAG

Code	Option Description
232C	CM4000T circuit monitor
232D	CM4250 circuit monitor
234	Provides (10) spare terminal blocks 'unwired' for customer use using the Class 9080 Type G series terminals
235	End damper control circuit: provides a damper control circuit to coordinate starting of the drive controller or the bypass with the position of the damper. Requires connection to customer damper limit switch
236	Provides a shunt trip modified molded case switch or circuit breaker where a push pull maintained energizes the audible alarm horn with silencer
238	Audible alarm horn with silencer: provides an audible alarm horn, timer to annunciate a user defined conditions with a silencer push-button, factory assembled and wired for customer use
239A	Monitor input full load amps
239B	Monitor output full load amps
240A	Alarm with pilot light: Provides relay circuit and pilot light indicator alarm for high level alarm limit switch via contact closure. Includes master reset push-button and (1) Form 'C' contact for customer use.
240B	Command to run and alarm with pilot light indication: Provides relay circuit, timer and pilot light indicator sequenced for high level alarm limit switch via contact closure, energizing the drive controller and/or bypass to run full speed. Includes master reset push-button and (1) Form 'C' contact for customer use.
241	Provides relay circuit and pilot light indicator sequenced for low level alarm limit switch via N.O./N.C.contact closure, causing the drive controller to stop. Includes master reset push-button and (1) Form 'C' contact for customer use.
242	Provides interlocking and timer functions of enclosure ventilation fans to shutdown during drive controller idle conditions
243	Provides relay circuitry with pilot light indicator sequenced from a pressure switch input, causing the drive controller to stop; includes master reset push-button
244	Provides relay circuit, timer with pilot light sequenced from a pressure switch input when low discharge condition; includes master reset push-button and (1)
245	Provides relay circuitry, timer with pilot light sequenced from a pressure switch input when not enough seal water is supplied; includes master reset push-button and (1) Form 'C' contact for customer use
246	Provides dedicated terminals using an external motor over temperature input (Form 'C' contact) and a pilot light indicator factory wired and programmed
247	Provides a phase failure relay (Tele RM4T series) mounted and wired to indicate phase reversal, phase loss and imbalance operating conditions
248	Provides a dedicated 30 mm push-to-test button for indication of operable pilot lights
249	Substitutes TeSys Type NEMA® rated relays rated 600 V, 10A

Engineered to Order Options / TAG

Code	Option Description
303	Converts all standard wall and floor mounted enclosures up one enclosure size
304	Uses Barriered enclosure for non-bypass drives controllers. Bypass space is configured with circuit breaker disconnect and handle only
305A	Space heater only; provides a Hoffman type enclosure strip heater and thermostat to maintain internal low temperature ambient ratings
305B	Space heater with storage operation provision; provides a Hoffman type enclosure strip heater and thermostat to maintain internal low temperature ambient ratings. Includes 120 V remote source input terminals for operation during storage conditions.
401	Provides dynamic braking resistor top mounted on the enclosure. Resistors are 10% duty cycle constant torque (CT) applications. Overload protection for externally mounted dynamic braking resistor is mounted inside the drive controller enclosure
403	Provides NEMA rated contactors for isolation and bypass configuration in lieu of the IEC rated contactors
404	Provides supplementary surge protection using a Class 1310 TVSS XWF Series Transient Voltage Surge Suppressor hard-wired and factory mounted; 100,000 peak volts of surge protection
405	Provides supplementary surge protection using a Class 1310 TVSS XWF Series Transient Voltage Surge Suppressor hard-wired and factory mounted; 100,000 peak volts of surge protection.
406	Provides short circuit and overload protection for (2) motors connected to the output of the drive controller. Includes thermal overload modules for each motor
407	Provides a contactor interlocked for the selection of one motor for load share via a selector switch or rotation timer scheme
409	Provides a line contactor between the circuit breaker disconnect (or line reactor or harmonic filter where provided) and the power converter; when the line contactor is open, serial communications is disabled
413	Provides a secondary surge arrester Class 6671 SDSA3650 mounted and wired

Make the Switch Today

M-Flex
- Commercial
- Industrial
- WWW

ATV Plus
- Commercial
- Industrial
- WWW

E-Flex
- Industrial
- Some WWW

Smaller footprint
Advanced keypad
Option rich

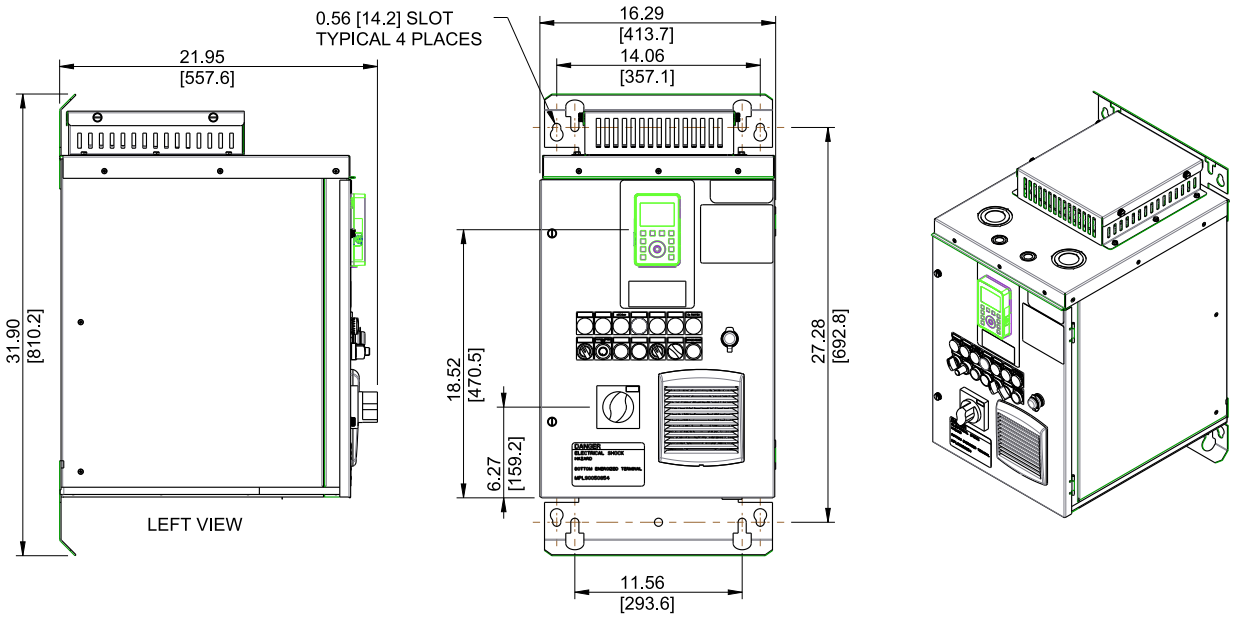
Embedded pump curves
Embedded web server
Dynamic QR codes

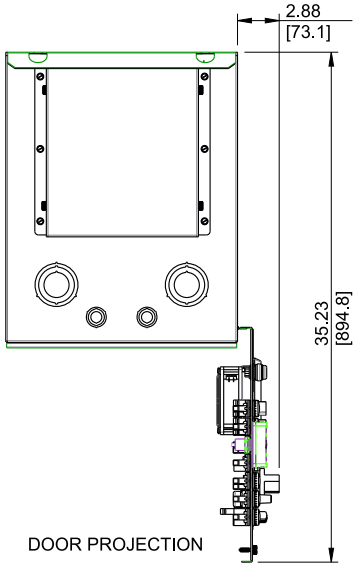
ATV660 Drive Systems

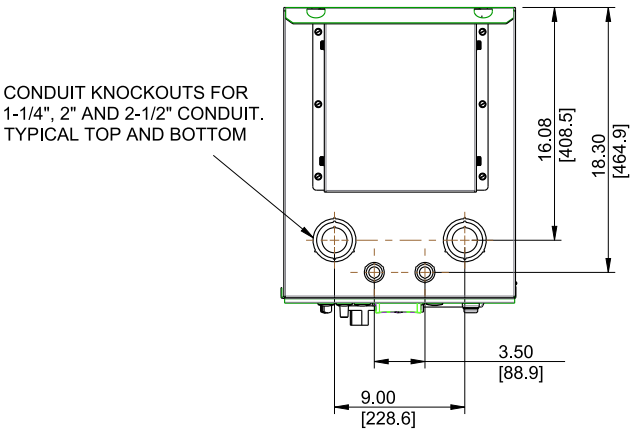
ATV660 Drive Systems (1-1100 hp)

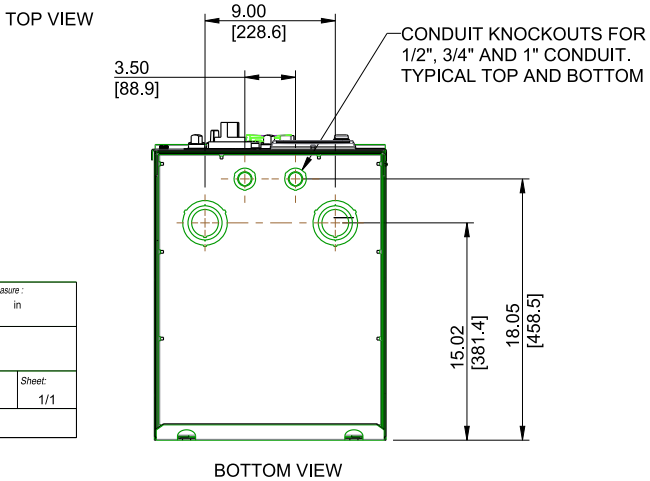
Electrical Specifications	
Input mains voltage	230 Vac ± 10%, 460 Vac ± 10%
Short circuit current rating (AC symmetrical)	100 kA
Control voltage	24 Vdc, 115 Vac + 10%/-15% (control power transformer included)
Displacement power factor	98% through speed range (in AFC mode)
Input frequency	50/60Hz ± 5%
Output voltage	Three-phase output, maximum voltage equal to input voltage
Galvanic isolation	Galvanic isolation between power and control (inputs outputs, & power supplies)
Torque/Over torque	Normal Duty: 110% of nominal motor torque for 60s Heavy Duty: 150% of nominal motor torque for 60s
Current (transient)	Normal Duty: 110% of drive rated current for 60s Heavy Duty: 150% of drive rated current for 60s
Switching frequency	Selectable from .5-8 kHz Factory setting: 2.5 kHz The drive reduces the switching frequency automatically in the event of excessive heat sink temperature
Efficiency	95% (or greater) at full load typical

Environmental Specifications	
Storage temperature	-13 to +149 ºF (-25 to +65 ºC)
Operating temperature	+14 to +104 ºF (-10 to +40 ºC) Type 1/12; +14 to +122 ºF (-10 to +50 ºC) Type 3R
Humidity	95% with no condensation or dripping water, conforming to IEC 60068-2-78
Altitude	3,300 ft (1000 m), without derating, derating of the current by 1% for each additional 330 ft (100 m) up to 9,842 ft. (3000 m) maximum
Enclosure	UL Type 1 : General indoor; UL Type 12: Indoor dust-tight (ventilated); UL Type 3R: Outdoor (ventilated)
Pollution degree	Pollution degree 2 or 3 per NEMA ICS-1 Annex A and IEC 60664-1
Operational test vibration	Conforming to IEC 60721-3-3-3M3 amplitude 1.5 mm peak to peak from 3-13 Hz 1 g from 13-200Hz
Transit shock test	15 g, 11 ms
Codes and standards	UL Listed per UL 508A IEEE519 compliant (passive harmonic filter required); Conforms to applicable NEMA ICS, NFPA, and IEC standards; Manufactured under ISO 9001 standards









1HP[.75KW] - 15HP[11KW] AT 460V NORMAL DUTY*
.5HP[.37KW] - 10HP[7.5KW] AT 460V HEAVY DUTY*
1HP[.75KW] - 7.5HP[5.5KW] AT 230V NORMAL DUTY*
.5HP[.4KW] - 5HP[4KW] AT 230V HEAVY DUTY*

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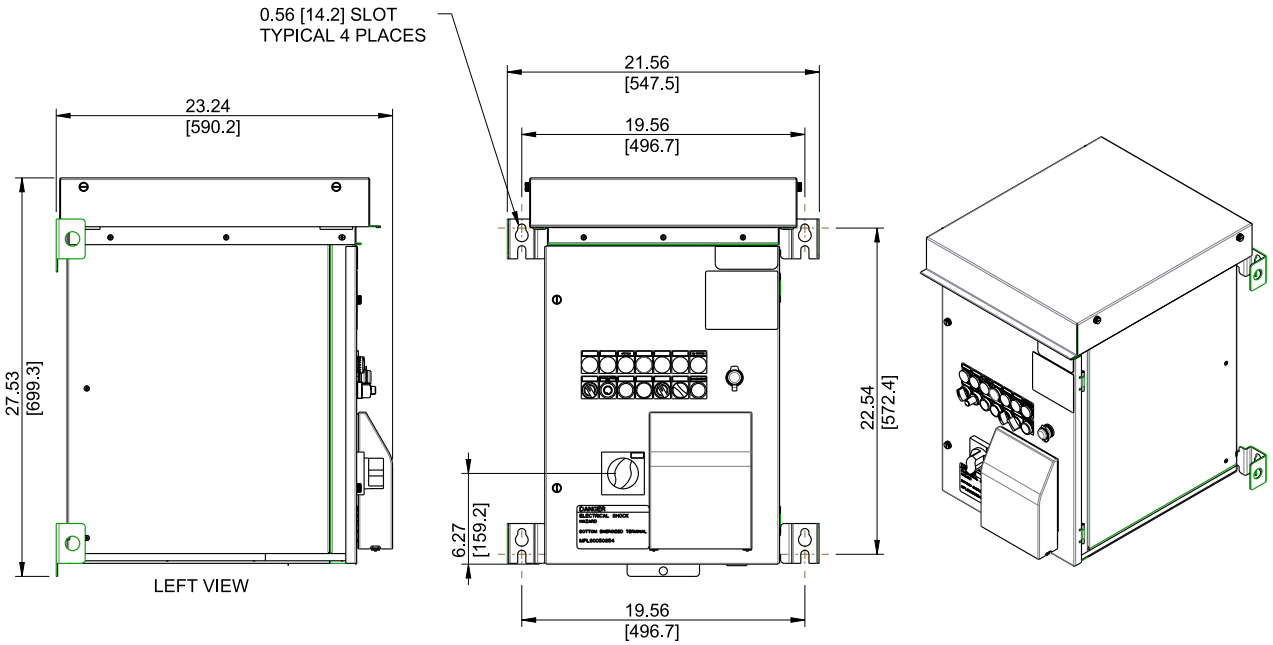

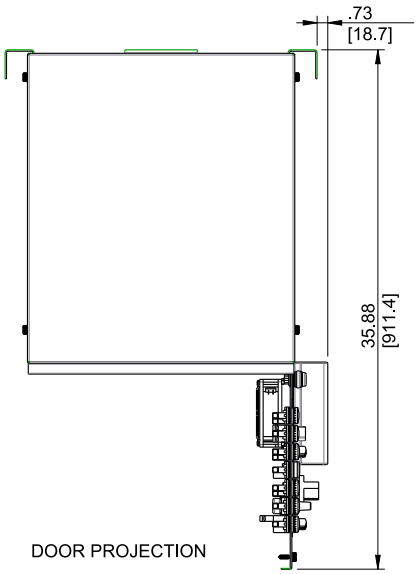

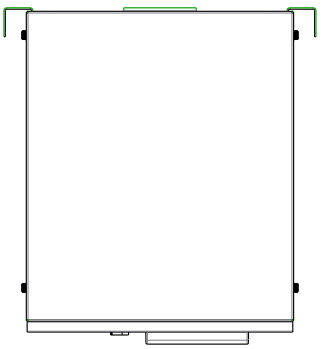

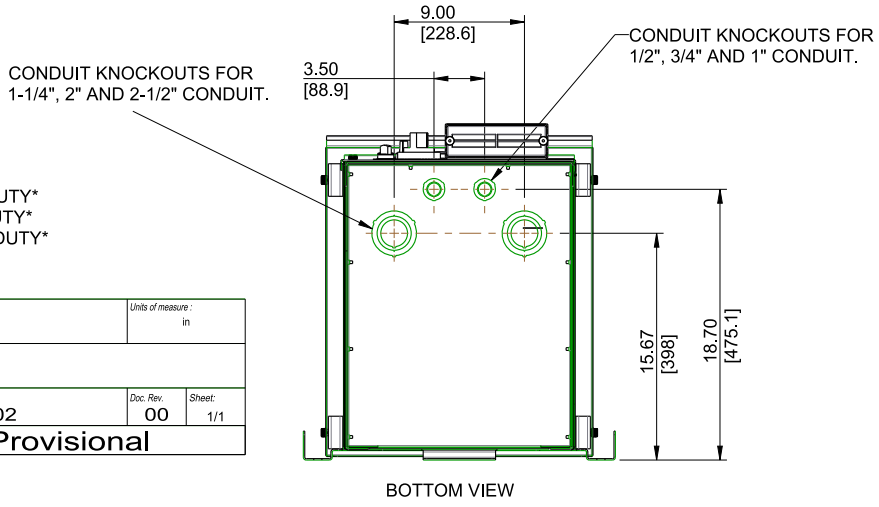

1HP[.75KW] - 15HP[11KW] AT 460V NORMAL DUTY*
.5HP[.37KW] - 10HP[7.5KW] AT 460V HEAVY DUTY*
1HP[.75KW] - 7.5HP[5.5KW] AT 230V NORMAL DUTY*
.5HP[.4KW] - 5HP[4KW] AT 230V HEAVY DUTY*
*STANDARD DRIVE PACKAGE

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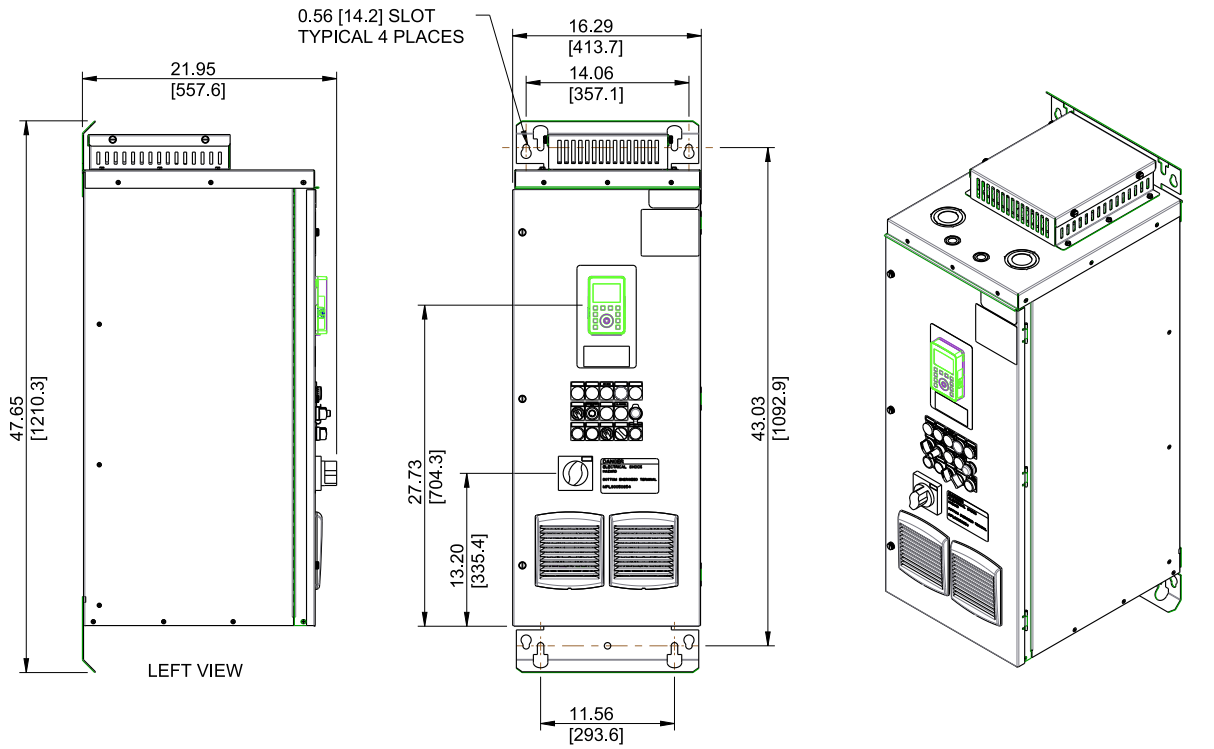

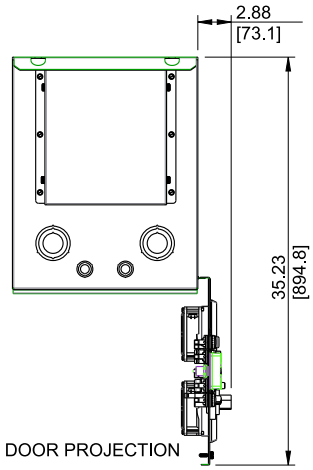

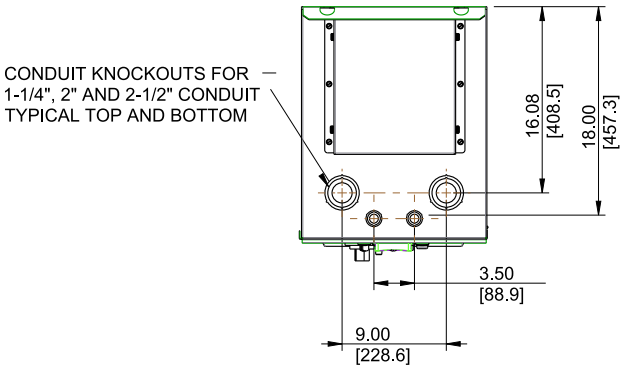

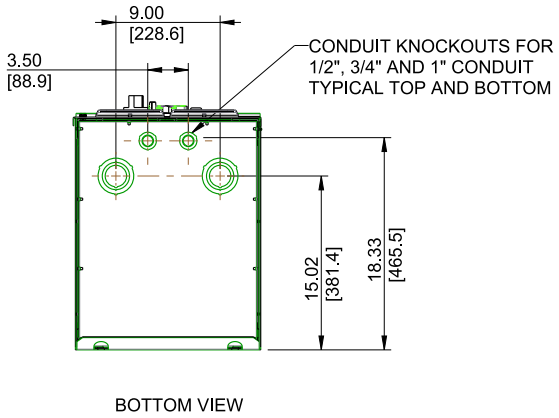

20HP[15KW] - 30HP[22KW] AT 460V NORMAL DUTY*
15HP[11KW] - 25HP[19KW] AT 460V HEAVY DUTY*
10HP[7.5KW] - 15HP[11KW] AT 230V NORMAL DUTY*
7.5HP[5.5KW] - 10HP[7.5KW] AT 230V HEAVY DUTY*
*STANDARD DRIVE PACKAGE

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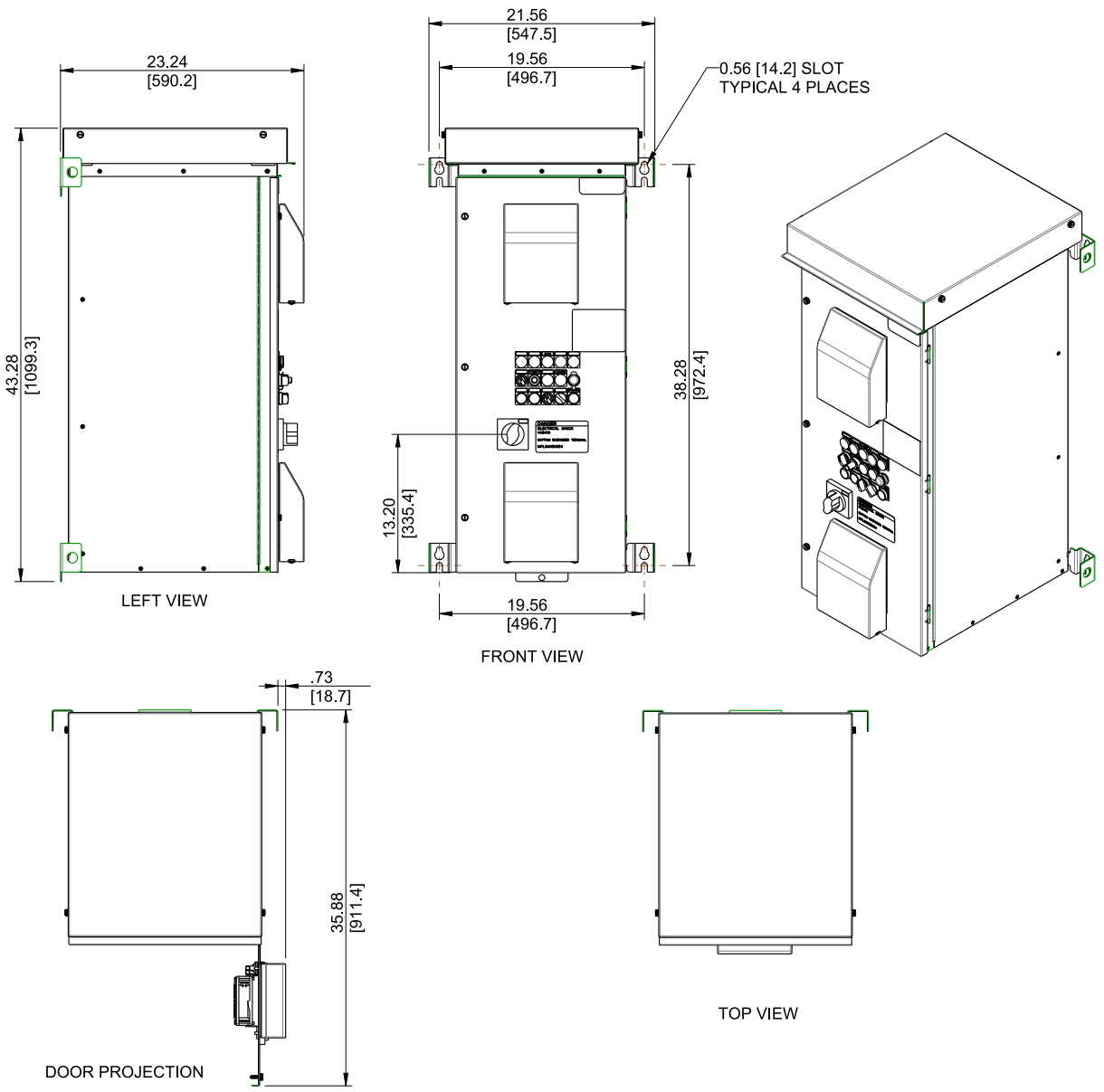

20HP[15KW] - 30HP[22KW] AT 460V NORMAL DUTY*
15HP[11KW] - 25HP[19KW] AT 460V HEAVY DUTY*
10HP[7.5KW] - 15HP[11KW] AT 230V NORMAL DUTY*
7.5HP[5.5KW] - 10HP[7.5KW] AT 230V HEAVY DUTY*
*STANDARD DRIVE PACKAGE

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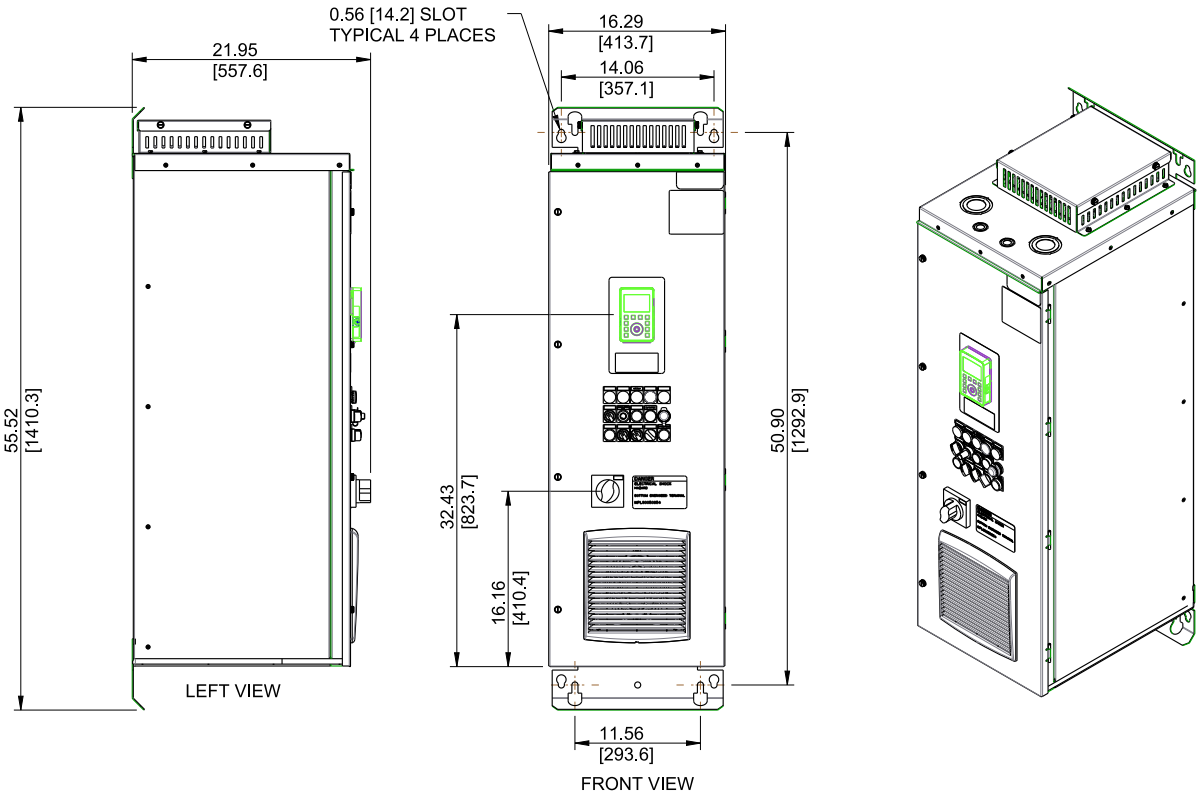

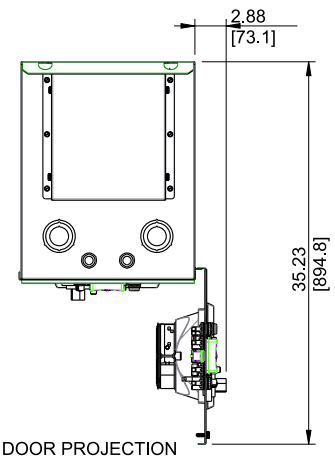

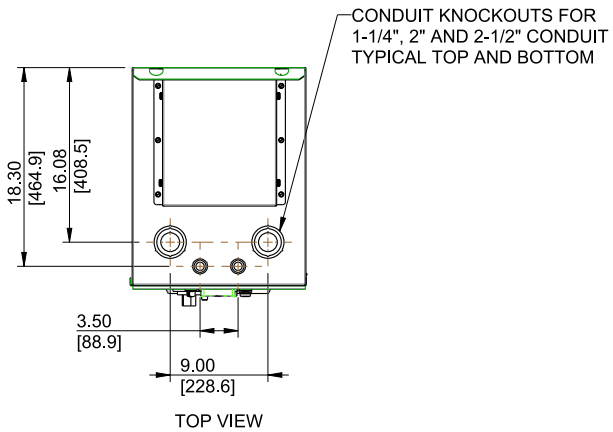

40HP[30KW] - 60HP[45KW] AT 460V NORMAL DUTY*
30HP[22KW] - 50HP[37KW] AT 460V HEAVY DUTY*
20HP[15KW] - 30HP[22KW] AT 230V NORMAL DUTY*
15HP[11KW] - 25HP[19KW] AT 230V HEAVY DUTY*
*STANDARD DRIVE PACKAGE

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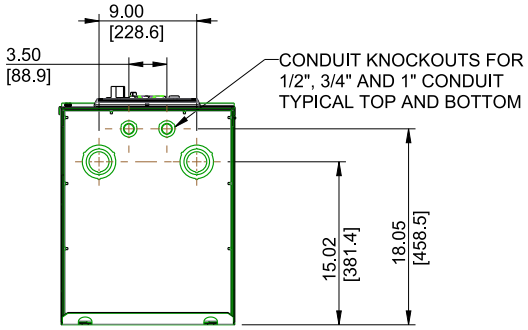
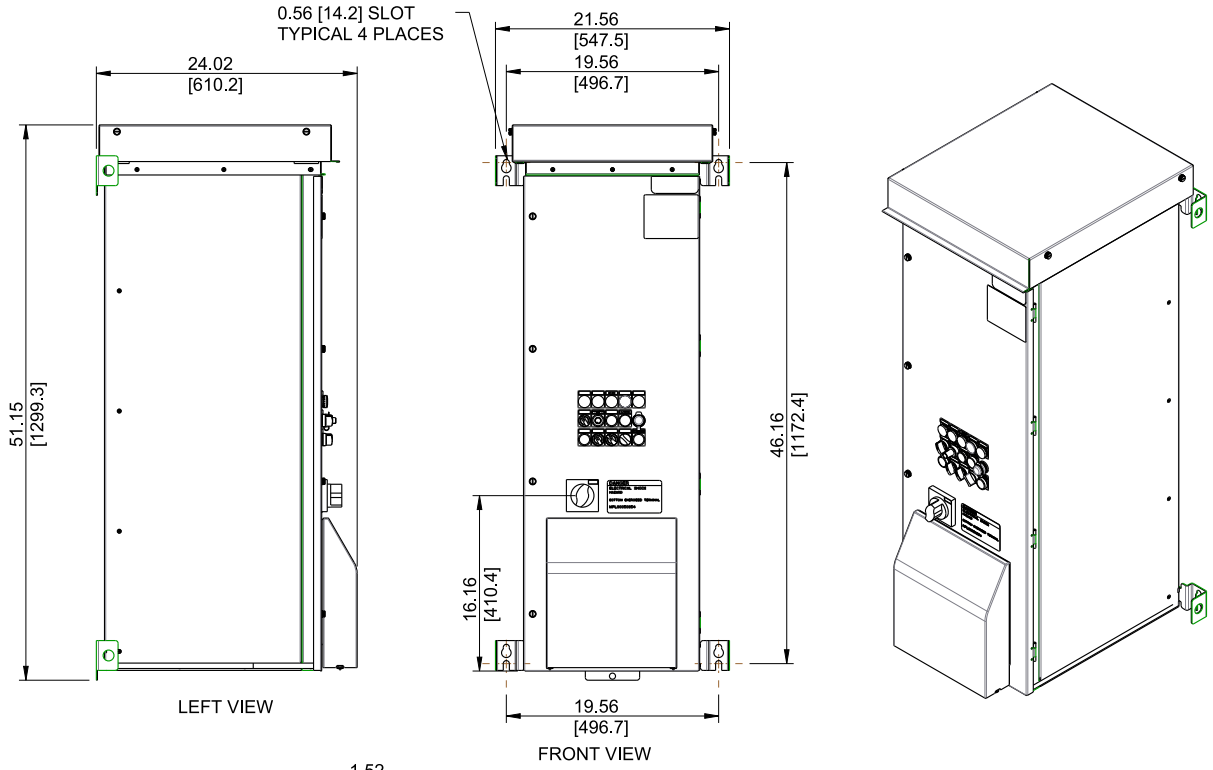
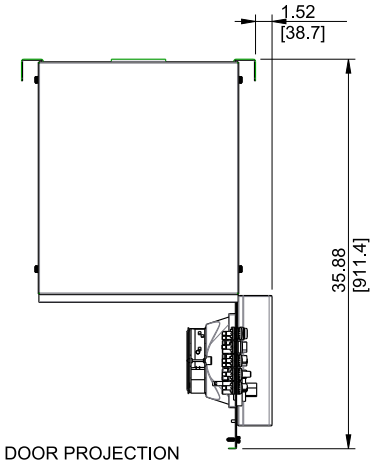
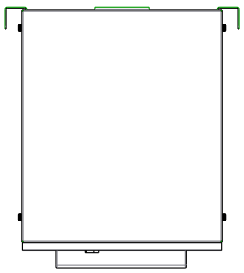
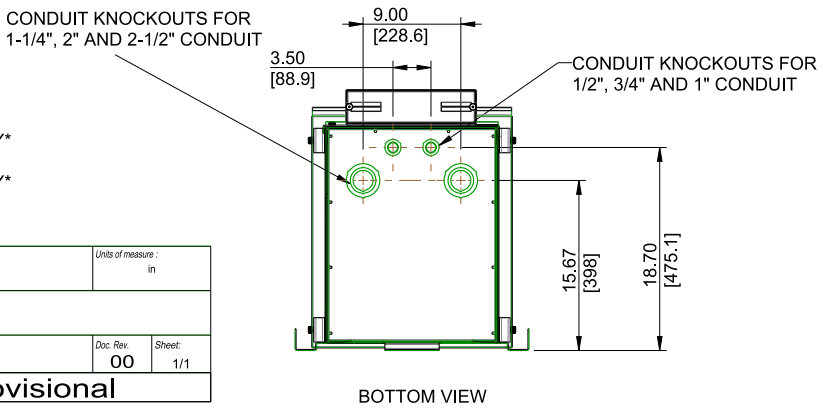




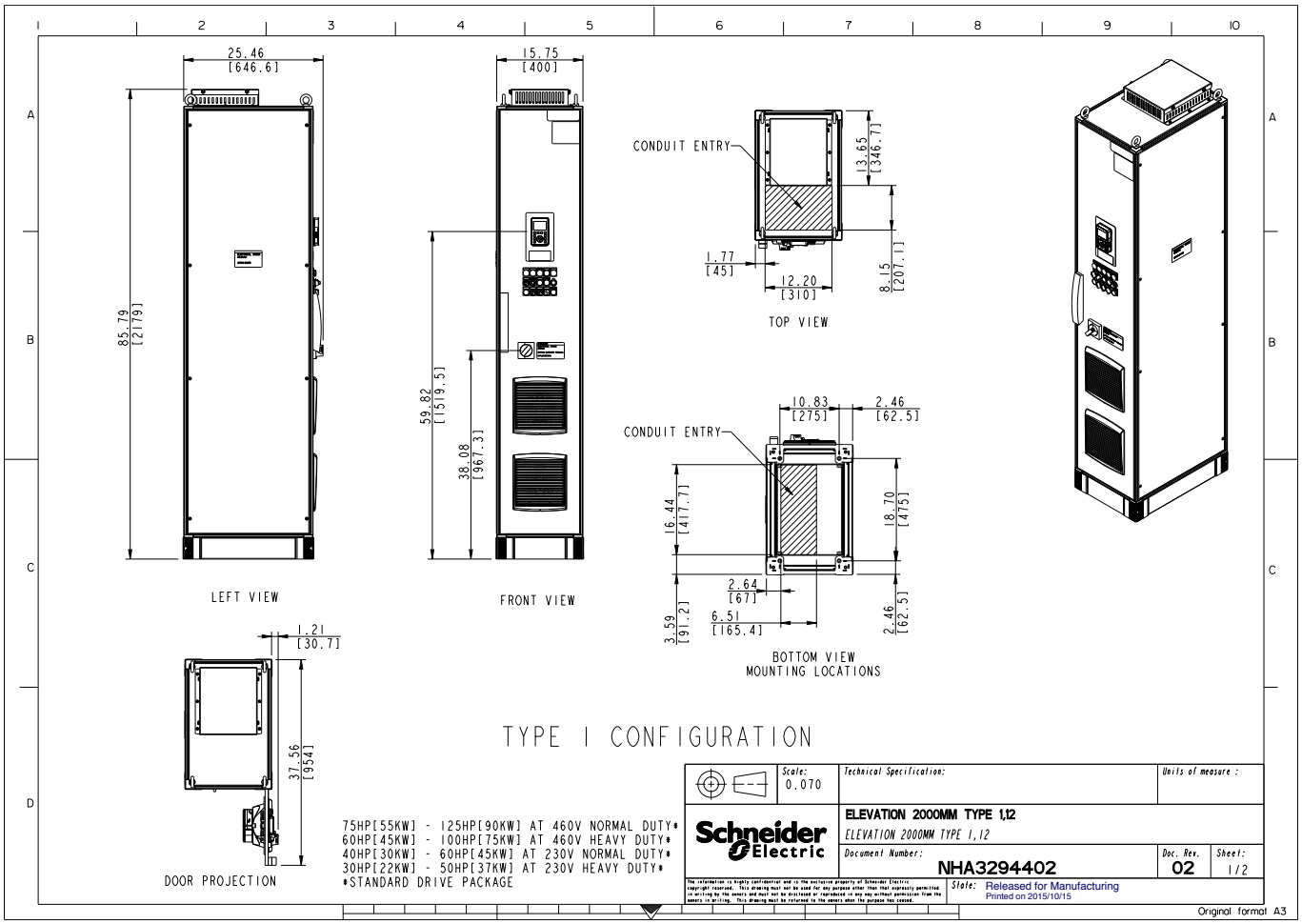






40HP[30KW] - 60HP[45KW] AT 460V NORMAL DUTY*
30HP[22KW] - 50HP[37KW] AT 460V HEAVY DUTY*
20HP[15KW] - 30HP[22KW] AT 230V NORMAL DUTY*
15HP[11KW] - 25HP[19KW] AT 230V HEAVY DUTY*
*STANDARD DRIVE PACKAGE

	Scale: NTS	Technical Specification:	Units of measure : in
Schneider Electric	ELEVATION 1200MM TYPE 3R *ELEVATION 1200MM TYPE 3R*		
	Document Number: NHA3294302	Doc. Rev. 00	Sheet: 1/1
	State: Provisional		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LEFT VIEW
15.75
[400]
59.82
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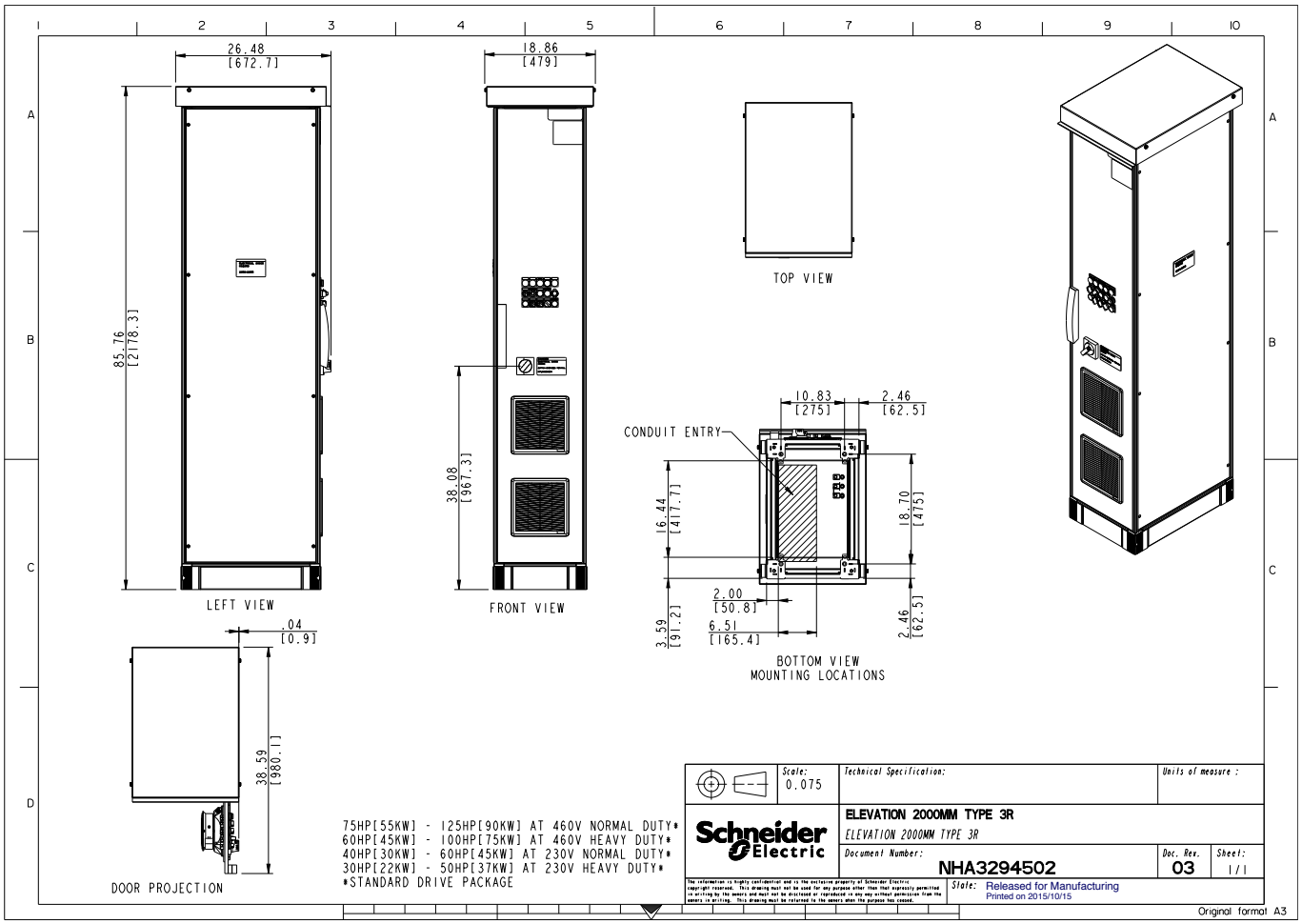
38.08
[967.3]
FRONT VIEW
CONDUIT ENTRY
13.65
[346.7]
1.77
[45]
12.20
[310]
8.15
[207.1]
TOP VIEW
CONDUIT ENTRY
10.83
[275]
2.46
[62.5]
16.44
[417.7]
18.70
[475]
2.64
[67]
3.59
[91.2]
6.51
[165.4]
2.46
[62.5]
BOTTOM VIEW
MOUNTING LOCATIONS
1.21
[30.7]
37.56
[954]
DOOR PROJECTION
TYPE 1 CONFIGURATION
75HP[55KW] - 125HP[90KW] AT 460V NORMAL DUTY*
60HP[45KW] - 100HP[75KW] AT 460V HEAVY DUTY*
40HP[30KW] - 60HP[45KW] AT 230V NORMAL DUTY*
30HP[22KW] - 50HP[37KW] AT 230V HEAVY DUTY*
*STANDARD DRIVE PACKAGE
Scale: 0.070
Technical Specification:
Units of measure :
Schneider Electric
ELEVATION 2000MM TYPE 1,12
ELEVATION 2000MM TYPE 1,12
Document Number: NHA3294402
Doc. Rev. 02
Sheet: 1/2
State: Released for Manufacturing
Printed on 2015/10/15
Original format A3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LEFT VIEW
18.86
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38.08
[967.3]
FRONT VIEW
TOP VIEW
10.83
[275]
2.46
[62.5]
CONDUIT ENTRY
16.44
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18.70
[475]
2.00
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3.59
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2.46
[62.5]
BOTTOM VIEW
MOUNTING LOCATIONS
.04
[0.9]
38.59
[980.1]
DOOR PROJECTION
75HP[55KW] - 125HP[90KW] AT 460V NORMAL DUTY*
60HP[45KW] - 100HP[75KW] AT 460V HEAVY DUTY*
40HP[30KW] - 60HP[45KW] AT 230V NORMAL DUTY*
30HP[22KW] - 50HP[37KW] AT 230V HEAVY DUTY*
*STANDARD DRIVE PACKAGE
Scale: 0.075
Technical Specification:
Units of measure :
Schneider Electric
ELEVATION 2000MM TYPE 3R
ELEVATION 2000MM TYPE 3R
Document Number:
NHA3294502
Doc. Rev.
03
Sheet:
1/1
State: Released for Manufacturing
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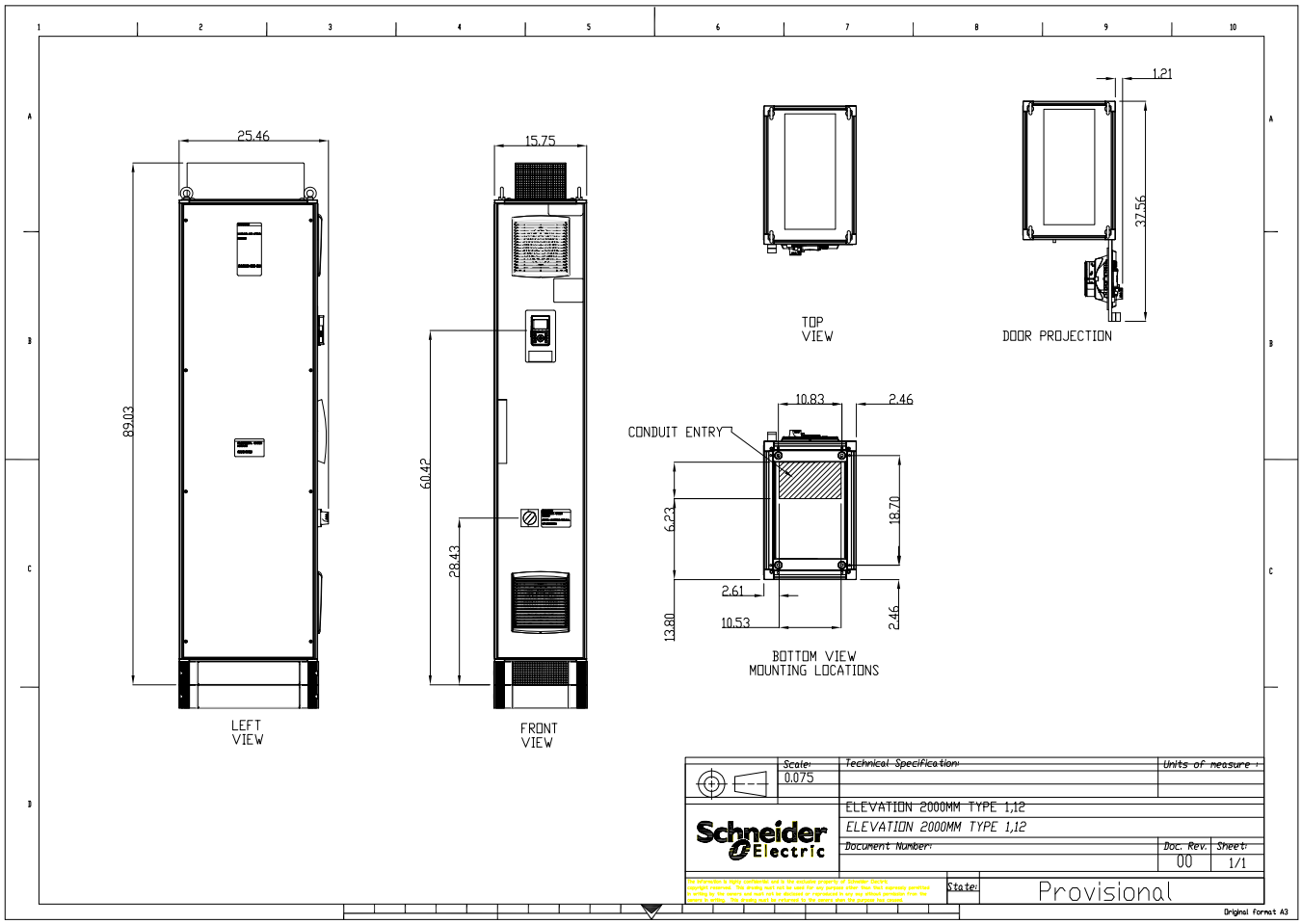
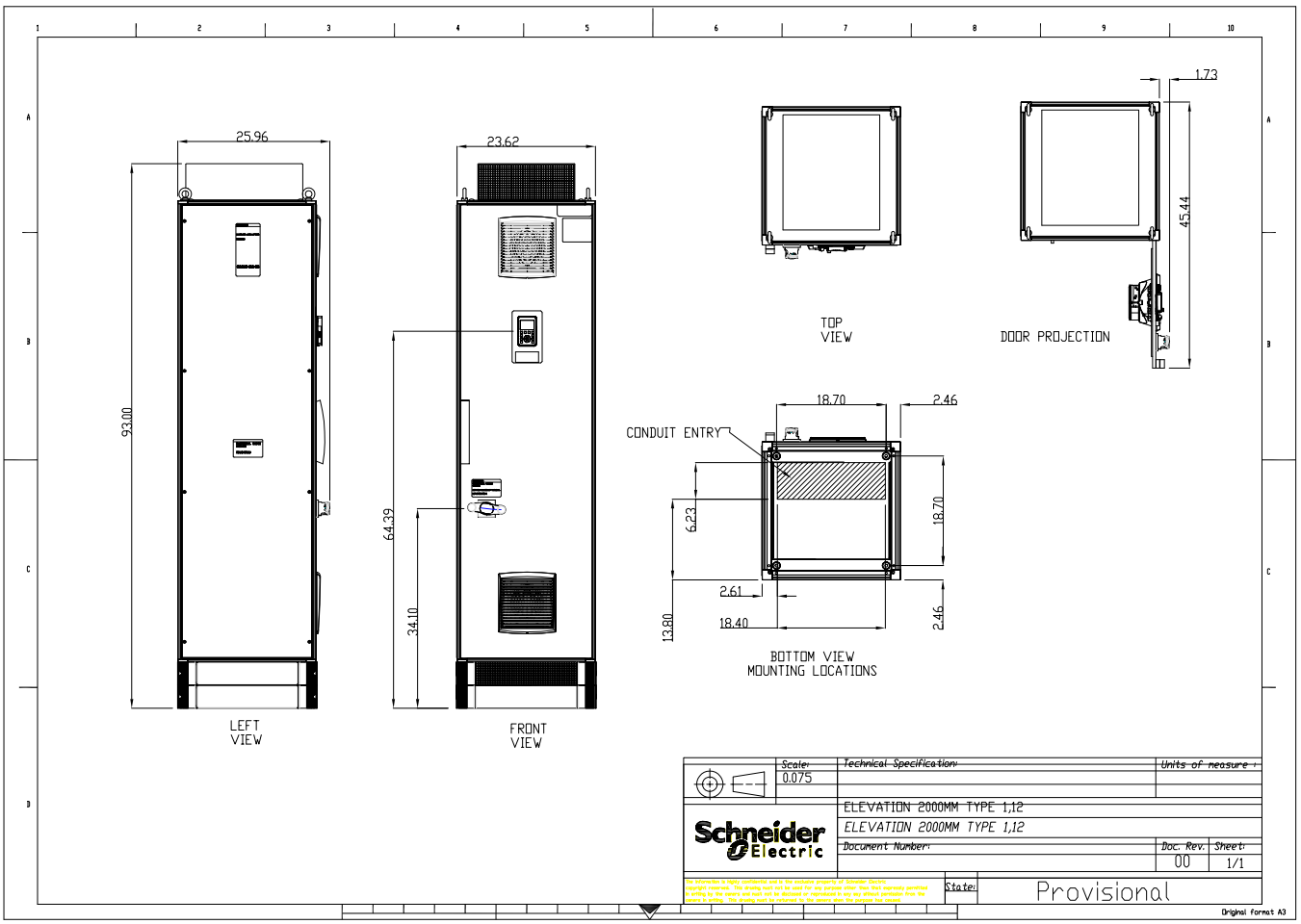
Original format A3

150-250 hp at 460 V



300-500 hp at 460 V



ATV600
MV variable speed drive

Design: Schneider Electric
Photos: Schneider Electric

Life Is On Schneider Electric

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