RAFAT
8850 GEORGE BOLTON PARKWAY, CALEDON, ONTARIO L7E 2Y4

Shop Drawings Transmittal No:	20 05 30-01R0

Project Name:	Construction of Victoria Park Arena and Brampton Sports Hall of Fame	**Project No.**	NRFP2024-232
		DATE:	19 Feb 2025
		Submittal Required Return Date:	05 Mar 2025
Submittal No:	32		

Title:	SD-Variable Frequency Drives

To:	Mark Falkenburger

Checked by:	**Abdullah Hissamuddin**	**To Be Reviewed By the Following Consutlants**	Architecture49 & WSP

Submitted for:	Review and Approval
Consultants Response	

wsp

☐ REVIEWED
☑ REVIEWED AS NOTED
☐ REVISE & RESUBMIT

BY Jerry Nweisser
DIVISION Buildings - Sustainability
DATE 3/18/2025
SUBMITTAL# 21-13
PROJECT CA-WSP-221-05263-00

THE REVIEW OF THIS DRAWING DOES NOT IN ANY WAY RELIEVE THE VENDOR OR CONTRACTOR OF RESPONSIBILITY FOR ITS ACCURACY OR FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.

RAFAT

SUBMITTAL REVIEW
For general compliance with the design concept and contract documents. Subcontractor is solely responsible for jobsite correlation and correctness of all ratings, sizings, type, style, dimensions, finish, quantities and satisfactory fitting to other work and equipment. This review does not change the intent of the contract document.

REVIEWED
RESUBMIT
REJECTED

SHOP DRAWING REVIEW

Project Name: Victoria Park Arena

Project No. CA-WSP-221-05263-00
Date Received: 2025-03-17

Shop Drawing:
Title: Variable Frequency Drives
Revision: 00
Submission No.: 21-13

This review by consultant is for sole purpose of ascertaining conformance with general design concept. This review does not mean that consultant approves detail design inherent in shop drawings, responsibility for which remains with contractor, and such review does not relieve contractor of responsibility for errors or omissions in shop drawings or of contractor's responsibility for meeting all requirements of contract documents. Be responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication process or to techniques of construction and installation, and for coordination of the work of subtrades.

☐ **Reviewed**	**Mechanical Review Required** ☒		**Electrical Review Required** ☒	
☒ **Reviewed as Noted**	**Reviewed by:**	Jerry Nweisser	**Reviewed by:**	Brad Li
☐ **Revise & Resubmit**	**Review Date:**	2025-03-17	**Review Date:**	2025-03-18

Item	Comments
	Elec review comments below:
1	Electrical contractor to double check with pump and VFD manufacturers for the breaker size required to feed the connected VFDs and pump equipment P8/P9 and P10/P11, and allow to adjust the breaker size as required and mark up any updates on as-built drawings set.

End of Review

54 Audia Court, Unit 2
Concord, ON L4K 3N5
(905)-738-1400

Submittal 24-280-008

PROJECT NAME	PROJECT ADDRESS	DATE SUBMITTED
VICTORIA PARK ARENA 24-280	20 Victoria Crescent, Brampton, ON L6T 1E4	Feb 19, 2025

TO	FROM
Abdullah Hissamuddin	PAUL LEDDY
COMPANY	COMPANY
RAFAT GENERAL CONTRACTOR INC.	Consult Mechanical Inc.
EMAIL	EMAIL
abdullah.hissam@rafat.ca	paul.l@consultmechanical.com
ADDRESS	ADDRESS
8850 GEORGE BOLTON PKWY BOLTON, ON L7E 2Y4	54 Audia Court, Unit 2 Concord, ON L4K 3N5

Title

Consult Submittal for VFD's

Description

ADM Engineering VFD Submittal

Package Items

SPEC	SUBSECTION	ITEM	TYPE
	20 05 30		Shop Drawings

Submittal # 85626 **APPROVAL REQUIRED**

Project	22104386-MECH-1- Brampton Victoria Park Arena
Leader	Nevin Wong
Job Site	Brampton Victoria Park Arena
Submission Date	2025-02-19
Sold To	CONSULT MECH
Submitted By	Chukwuebuka Eleagu

Contacts

Role	Customer	Our Rep
Mechanical Contractor	Con-Sult Mechanical Inc.*	Nevin Wong
General Contractor	Rafat General Contracing Inc	
Mechanical Contractor	Con-Sult Mechanical Inc.*	Nevin Wong
Mechanical Contractor	Con-Sult Mechanical Inc.*	Nevin Wong
Designer	WSP MMM Group	Alex Forsea

Deliverables

Track #	289013	289012	
Tag	P-8/9/10/11	P-8/9/10/11	
Description	Harmonic Filter	ABB	
Quantity	2	4	
Production Lead Time	20 - 24 Weeks	20 - 24 Weeks	
Revision #	0	0	

Attention:

1) HTS will provide equipment in accordance with the attached shop drawings.
2) Upon approved submittal and customer release, HTS will release equipment to fabrication per the published lead times. Any storage fees associated with project schedule changes will be the responsibility of the purchaser.
3) HTS can provide freight and logistics to the purchaser as an added benefit of doing business with HTS. When freight is received by the purchaser, any noticeable damage must be recorded. Otherwise, HTS is not responsible for subsequent damage claims.

Approval Stamps

ADM Engineering Ltd.
Applied Drives and Motors
32 Belvia Rd. Toronto, Ontario, M8W 3R3
Tel: 416 259 0585 | Fax: 416 259 3303

Monday, February 3, 2025

Project Name: Brampton Victoria Park Arena

ADM Quote#- 07182418

Submitted to:	**Submitted by:**
HTS Engineering Ltd. 115 Norfinch Drive Toronto, ON, M3N 1W8	ADM Engineering Ltd. 32 Belvia Road Toronto, ON, M8W **3R3**

VFD Schedule

Schedule			Drive Data			
Item	**Qty**	**Tag**	**Product ID**	**HP**	**Amps**	**Volts**
1	2		ACH580-VDR-06A1-6+F267	5	6.1	575 VAC
2	2		ACH580-VDR-017A-6+F267	15	17	575 VAC

Harmonic Filter Schedule

Schedule			Drive Data			
Item	**Qty**	**Tag**	**Product ID**	**HP**	**Amps**	**Volts**
1	2		AUHF-5-600-60-D-E1	5	5	575 VAC
2	2		AUHF-15-600-60-D-E1	15	13	575 VAC

Note: All of the above ABB Variable Frequency Drives are equipped with the following features:

- 5 % Input line Impedance
- Door Interlocked Disconnect Switch
- VFD Input Fuses
- E-Clipse Bypass
- Service Switch
- BACnet MSTP Protocol
- RFI / EMI Filter
- NEMA 2 (NEMA 1 c/w Drip Hood) Enclosure
- Mirus Input Harmonic Filter in a NEMA3R Enclosure for 15HP VFDs
- Three years warranty
- Startup

ADM Engineering Ltd.
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Submittal Schedule Details for

Item	Tag / Equipment ID	Product ID
1		ACH580-VDR-06A1-6+F267

Item Description
Input Voltage: 600 VAC Three Phase **Rated Output Current:** 6.1A **Enclosure:** UL (NEMA) Type 1 **Nominal Horsepower:** 5 HP **Frame Size:** R2 **Input Disconnecting Means:** Disconnect with VFD fuses **Bypass:** E-Clipse Bypass (Vertical) **Input Impedance:** 5% equivalent impedance **Short Circuit Current Rating:** 100 kA with fusing **Communication Protocols:** Johnson Controls N2, Modbus RTU, BACnet (MS/TP) **Other Options:** [+F267]: Service Switch (+F267)

Drive Input Fuse Ratings	
Fuse Class	**Amps (600 V)**
Class CC	30

Wire Size Capacities of Power Terminals		
Input Wiring	**Output Wiring**	**Ground Wiring**
#14…#4 4.6 lbf-ft	#20…#6 1.2 lbf-ft	#14…#4 3 lbf-ft

Dimensions and Weights			
Height ***in (mm)***	**Width** ***in (mm)***	**Depth** ***in (mm)***	**Weight** ***lbs (kg)***
44.1 (1120)	5.4 (137)	10.8 (274)	51 (23)

Heat Dissipation & Airflow Requirements			
Power Losses		**Airflow**	
BTU/Hr	**Watts**	**CFM**	**CM/Hr**
525	154	59	100.3

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Submittal Schedule Details for

Item	Tag / Equipment ID	Product ID
2		ACH580-VDR-017A-6+F267

Item Description
Input Voltage: 600 VAC Three Phase **Rated Output Current:** 17A **Enclosure:** UL (NEMA) Type 1 **Nominal Horsepower:** 15 HP **Frame Size:** R2 **Input Disconnecting Means:** Disconnect with VFD fuses **Bypass:** E-Clipse Bypass (Vertical) **Input Impedance:** 5% equivalent impedance **Short Circuit Current Rating:** 100 kA with fusing **Communication Protocols:** Johnson Controls N2, Modbus RTU, BACnet (MS/TP) **Other Options:** [+F267]: Service Switch (+F267)

Drive Input Fuse Ratings	
Fuse Class	**Amps (600 V)**
Class CC	30

Wire Size Capacities of Power Terminals		
Input Wiring	**Output Wiring**	**Ground Wiring**
#14…#4 4.6 lbf-ft	#20…#6 1.2 lbf-ft	#14…#4 3 lbf-ft

Dimensions and Weights			
Height ***in (mm)***	**Width** ***in (mm)***	**Depth** ***in (mm)***	**Weight** ***lbs (kg)***
44.1 (1120)	5.4 (137)	10.8 (274)	51 (23)

Heat Dissipation & Airflow Requirements			
Power Losses		**Airflow**	
BTU/Hr	**Watts**	**CFM**	**CM/Hr**
1,183	347	25	42.5

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PRODUCT OVERVIEW

ACH580 E-Clipse Bypass

The ACH580 drive sets new standards in both simplicity and reliability, and ensures smooth, energy-efficient operation of your HVAC systems in normal and mission-critical situations.

The ACH580 with ABB E-Clipse bypass is an ACH580 HVAC Drive in an integrated UL (NEMA) Type 1, 12 or 3R enclosure with a bypass motor starter. The ACH580 with ABB E-Clipse bypass provides an input disconnect switch or circuit breaker with door mounted and interlocked operator (padlockable in the OFF position), a bypass starter, electronic motor overload protection, a door mounted control panel with graphical display for local control, provisions for external control connections, and serial communications capability. Configurations with the +F267 option include a drive service switch.

UL (NEMA) Type 1 and 12 E-Clipse units are available from 1 to 100 HP at 208/230V, 1 to 350 HP at 460V, and 2 to 150 HP at 575V. UL (NEMA) Type 1 and 12 units are wall mounted from 1 to 200 HP.

For outdoor applications, UL (NEMA) Type 3R E-Clipse unit are available from 1 to 100 HP at 208/230V, 1 to 350 HP at 460V and 2 to 150 HP at 575V. Construction is sheet steel with a tough powder coat paint finish for corrosion resistance. A thermostatically controlled space heater and forced ventilated air cooling system are standard.

The ACH580 with ABB E-Clipse bypass includes two contactors. One contactor is the bypass contactor, used to connect the motor directly to the incoming power line in the event that the ACH580 is out of service. The other contactor is the ACH580 output contactor that disconnects the ACH580 from the motor when the motor is operating in the Bypass mode. The drive output contactor and the bypass contactor are electrically interlocked to prevent “back feeding”.

The ACH580 with ABB E-Clipse bypass is a microprocessor-controlled “intelligent” system which features programmable Class 10, 20, or 30 overload curves, programmable underload (broken belt) and overload trip or indication. Also included as standard features are single-phase protection in bypass mode, programmable manual or automatic transfer to bypass, fireman’s override, smoke control, damper control, no contactor chatter on brown-out power conditions and serial communications. Should a drive problem occur, fast acting fuses exclusive to the ACH580 drive path disconnect the drive from the line prior to clearing upstream branch circuit protection, maintaining bypass capability.

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Technical specifications

Product compliance (complete list on following page)	
ACH580-VxR/BxR	UL508A
Supply connection	
Input voltage (U_1) ACH580-xx-xxxA-2 ACH580-xx-xxxA-4 ACH580-xx-xxxA-6 Input voltage tolerance Phase	 208/240V 480V 600V +10% / -15% 3-phase
Frequency	48 to 63 Hz
Line Limitations	Max ±3% of nominal phase to phase input voltage
Power Factor (cos φ) at nominal load ACH580-VxR ACH580-BxR	 0.98 0.98
Efficiency at rated power ACH580-VxR ACH580-BxR	 98.0% 98.0%
Power Loss	Approximately 2% of rated power
Motor connection	
Supported motor control	Scalar and vector
Supported motor types	Asynchronous motor
Voltage	3-phase, from 0 to supply voltage
Frequency	0 to 500 Hz
Short Term Overload Capacity Variable Torque	110% for 1 min/10min
Peak Overload Capacity Variable Torque	1.35 for 2 second (2 sec / 10 min)
Switching Frequency	2, 4, 8 or 12 kHz Automatic fold back in case of overload
Acceleration/Deceleration Time	0 to 1800 s
Short Circuit Current Rating (SCCR)	

	240V	480V	600V
-VCR	100kA	100kA	10 kA
-VDR*	100kA	100kA	100 kA
-BCR	100kA	100kA	10 kA
-BDR*	100kA	100kA	100 kA

* External fuses are required for 100 kA rating as specified in the “Technical Data” section of User Manual 3AXD50000289554.

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Technical specifications

Inputs and outputs (drive)	
2 analog inputs	Selection of Current/Voltage input mode is user programmable.
Voltage reference	0 (2) to 10 V, R_{in} > 200 kΩ
Current reference	0 (4) to 20 mA, R_{in} = 100 Ω
Potentiometer reference value	10 V ±1% max. 20 mA
2 analog outputs	AO1 is user programmable for current or voltage. AO2 current
Voltage reference	0 to 10 V, R_{load}: > 100 kΩ
Current reference	0 to 20 mA, R_{load}: < 500 Ω
Applicable potentiometer	1 kΩ to 10 kΩ
Internal auxiliary voltage	24 V DC ±10%, max. 250 mA
Accuracy	+/- 1% full scale range at 25°C (77°F)
Output updating time	2 ms
6 digital inputs	12 to 24 V DC, 10 to 24 V AC, Connectivity of PTC sensors supported by a single digital input. PNP or NPN connection (5 DIs with NPN connection). Programmable
Input Updating Time	2 ms
3 relay outputs	Maximum switching voltage 250 V AC/30 V DC. Maximum continuous current 2 A rms. Programmable, Form C
Contact material	Silver Tin Oxide ($AgSnO_2$)
PTC, PT100 and PT1000	Any of the analog inputs, or digital input 6, are configurable for PTC with up to 6 sensors.
Adjustable filters on analog inputs and outputs	
All control inputs isolated from ground and power	
Operation	
Air temperature	0 to -15 °C (32 to 5 °F). -15 to +50 °C (5 to 122 °F): No frost allowed. Output derated above +40 °C (104 °F)
Installation site altitude	0 to 1000 m (3281 ft) above sea level Output derated above 1000 m (3281 ft)
Relative humidity	5 to 95% No condensation allowed Maximum relative humidity is 60% in the presence of corrosive gasses
Atmospheric pressure	70 to 106 kPa (10.2 to 15.4 PSI) 0.7 to 1.05 atmospheres
Siesmic	Risk category IV Certified (IBC 2018)

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Feature overview

Communication
Protocols as standard (EIA-485): BACnet MS/TP, Modbus RTU, Johnson Controls N2
Available as plug-in options: BACnet/IP, Modbus TCP, PROFIBUS-DP, DeviceNet, EtherNet/IP

Application functions
Start interlock
Delayed start
Run permissive (damper monitoring)
Override operation mode
Real-time clock (scheduling)
PID controllers for motor and process
Motor flying start
Motor preheating
Energy optimizer and calculators
Timer
2 or 3 wire start/stop
Ramp to stop
2 independent adjustable accel/decel ramp

Protection functions
Overvoltage controller
Undervoltage controller
Motor earth-leakage monitoring
Motor short-circuit protection
Motor overtemperature protection
Output and input switch supervision
Motor overload protection (UL508C)
Phase-loss detection (both motor and supply)
Under load supervision (belt loss detection)
Overload supervision
Stall protection
Loss of reference
Panel loss
Ground fault
External events
Overcurrent
Current limit regulator
Transient/Surge protection (MOV and choke)

Panel functions
First start assistant
Primary settings for HVAC applications
Hand-Off-Auto operation mode
HVAC quick set-up
Includes Day, Date and Time
Operator Panel Parameter Backup (read/write)
Full Graphic and Multilingual Display for Operator Control, Parameter Set-Up and Operating Data Display:
- Output Frequency (Hz)
- Speed (RPM)
- Motor Current
- Calculated % Motor Torque
- Calculated Motor Power (kW)
- DC Bus Voltage
- Output Voltage
- Heatsink Temperature
- Elapsed Time Meter (resettable)
- kWh (resettable)
- Input / Output Terminal Monitor
- PID Actual Value (Feedback) & Error Fault Text
- Warning Text
- Three (3) Scalable Process Variable Displays
- User-Definable Engineering Units

Motor control features
Scalar (V/Hz) and vector modes of motor control
V/Hz shapes
- Linear
- Squared

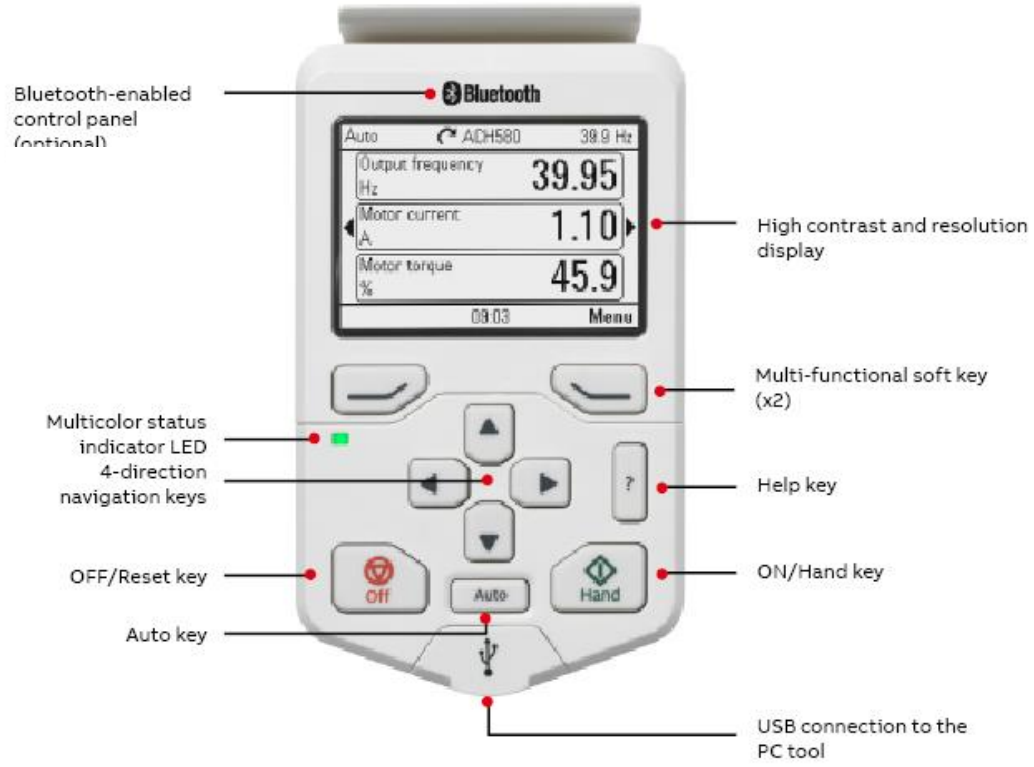
Energy optimization
IR compensation
Slip compensation
Three (3) Critical Frequency Lockout Bands

PID control
One (1) Process PID
Four (4) Integral Independent Programmable PID Setpoint Controllers (Process and External)
External Selection between Two (2) Sets of Process PID Controller Parameters
PID Sleep/Wake-Up

Control panel features

The ACH580 Assistant Control Panel features:

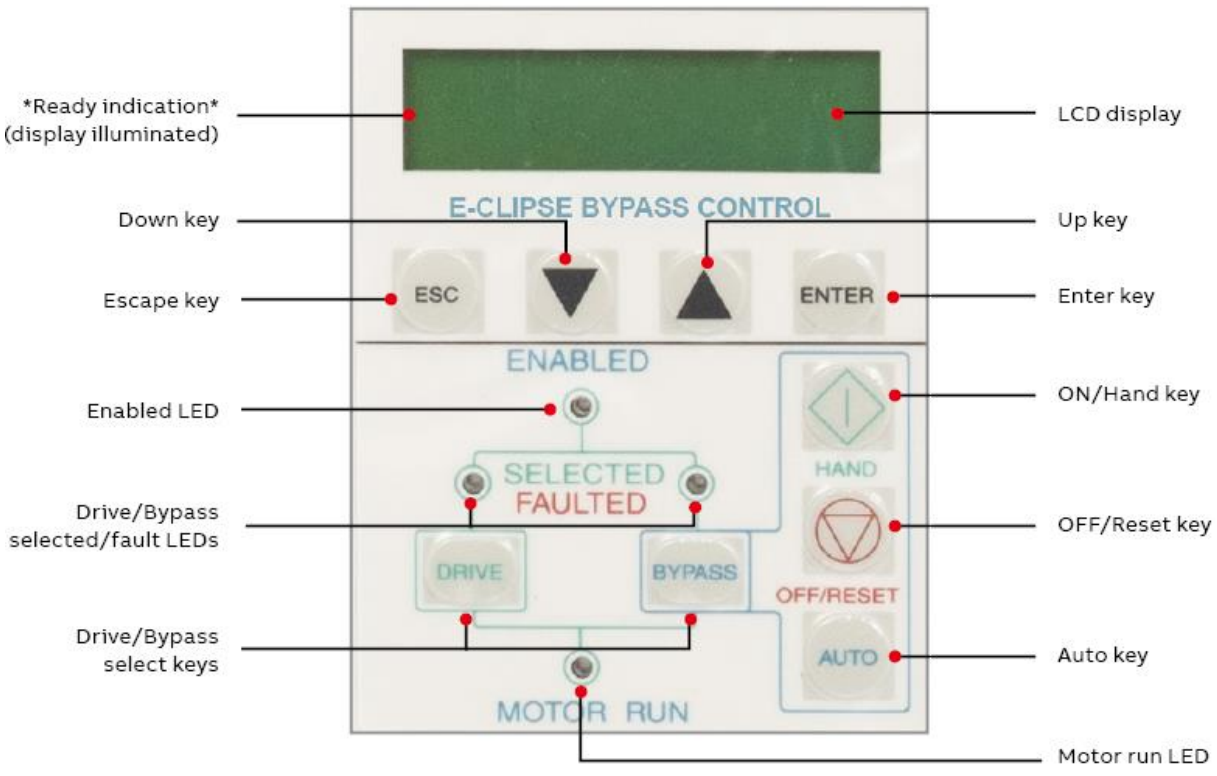
- Intuitive to operate
- Primary Setting menu to ease drive commissioning
- Real-time clock
- Diagnostic and maintenance functions
- Full-graphic display, including chart, graph, and meter options
- 21 editable home views
- USB interface for PC and tool connection as standard
- Parameters are alpha-numeric
- North American version supports 14 languages as standard
- Dedicated “Help” key
- 4 user sets
- Parameter are stored in control panel memory for later transfer to other drives or for backup of a particular system
- Back-up and restore parameters and/or motor data
- Automatic back-up 2 hours after parameter change
- Modified parameter display
- Creates unique short menu
- Shows parameters that differ from the default



E-Clipse control panel features

The ACH580 E-Clipse Control Panel features:

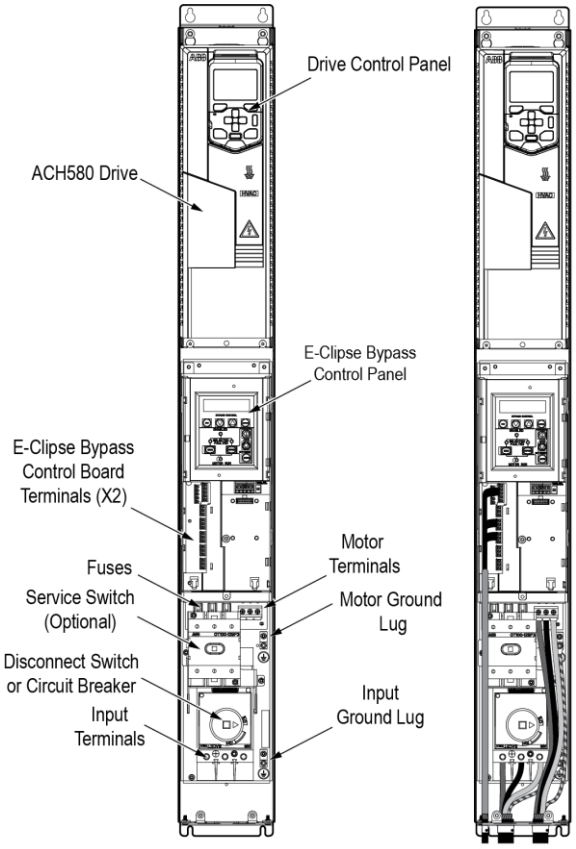
- Dedicated programming and operating controls (keys) are logically grouped on the keypad by their function.
  - H-O-A, Drive/Bypass Selection keys (Control)
  - UP/DOWN arrows, ESC, ENTER keys (Programming)
- LCD display provide:
  - Operating Control Status
  - Bypass Status
  - Fault/Warning annunciation
  - Parameter Lists and Values
  - Power On indication
- Individual LEDs arranged to provide a logical control path visual:
  - System Enabled
  - Separate multi colored Drive and Bypass “SELECTED/FAULTED LEDs in separate paths
  - Motor Run Indicator
  - LEDs that illuminate, change color, and flash to provide visible indication of system status
- Provides System control from one location



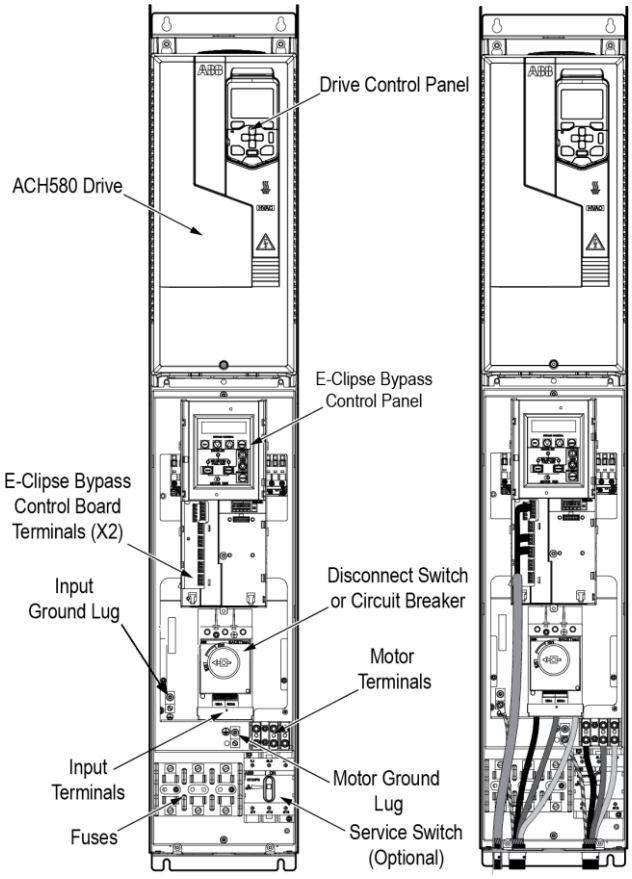
Cable connections

The following illustrations show the ACH580 with ABB E-Clipse bypass cable connection points for the various enclosure styles. The illustrations indicate the location of input and output power connections as well as equipment and motor grounding connection points.

ACH580 drives are configured for wiring access from the bottom only on Vertical ABB E-Clipse bypass units and from the top only on Standard ABB E-Clipse bypass units. At least three separate metallic conduits are required, one for input power, one for output power to the motor and one for control signals.

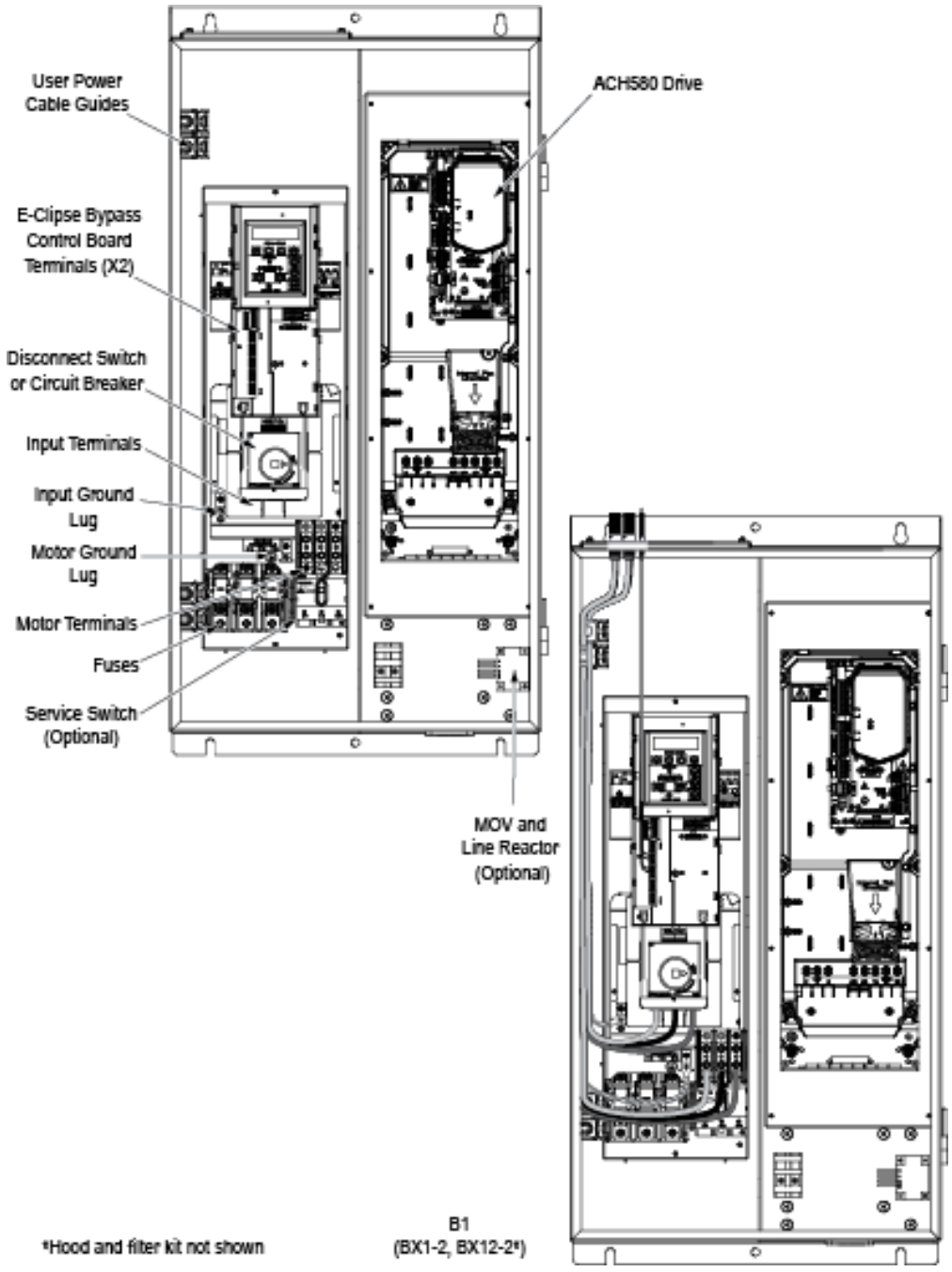


Vx1-1, Vx1-2



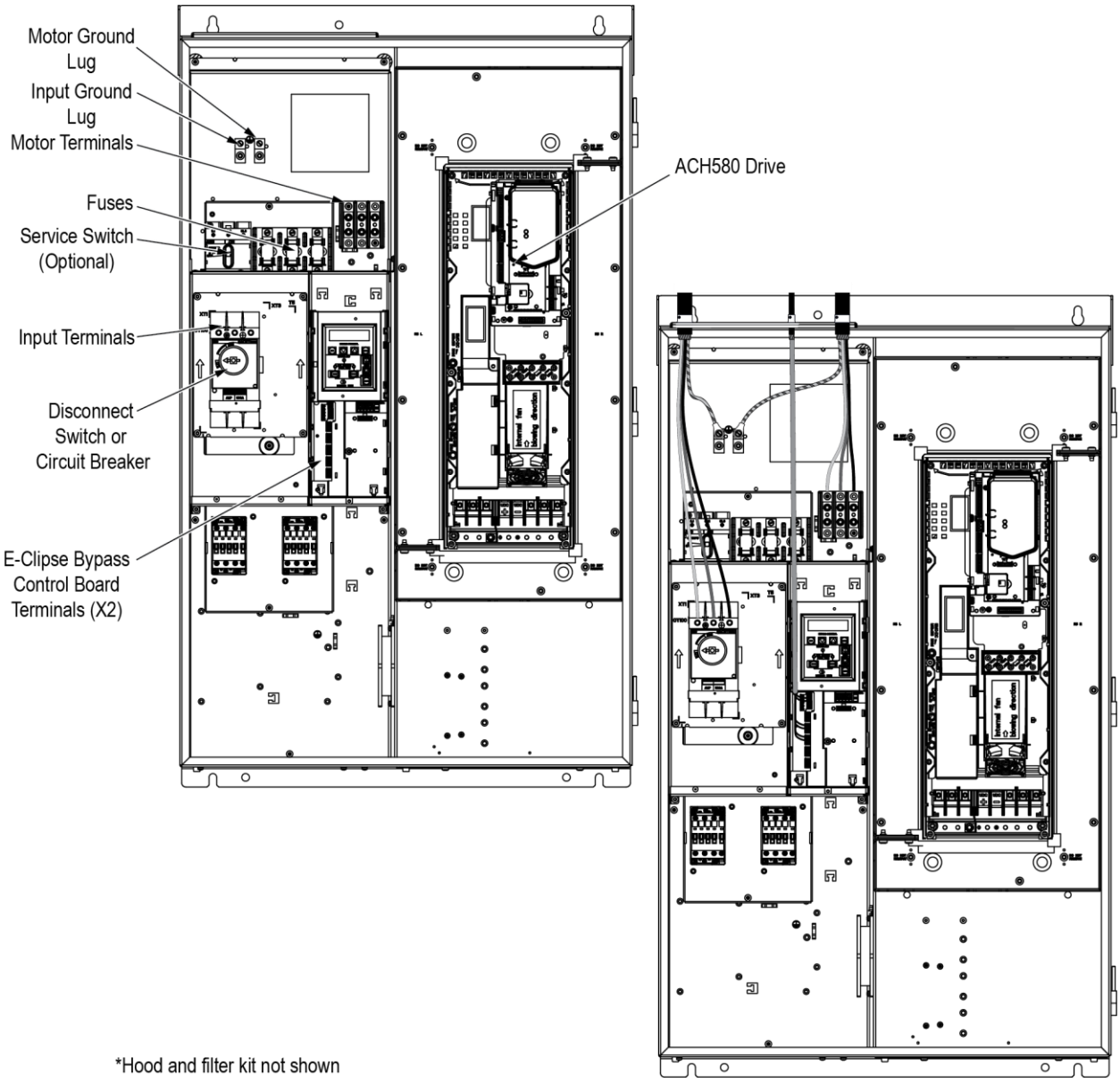
Vx1-3, Vx1-4

Cable connections



Bx1-1, Bx12-1, Bx3R-1

Control connections

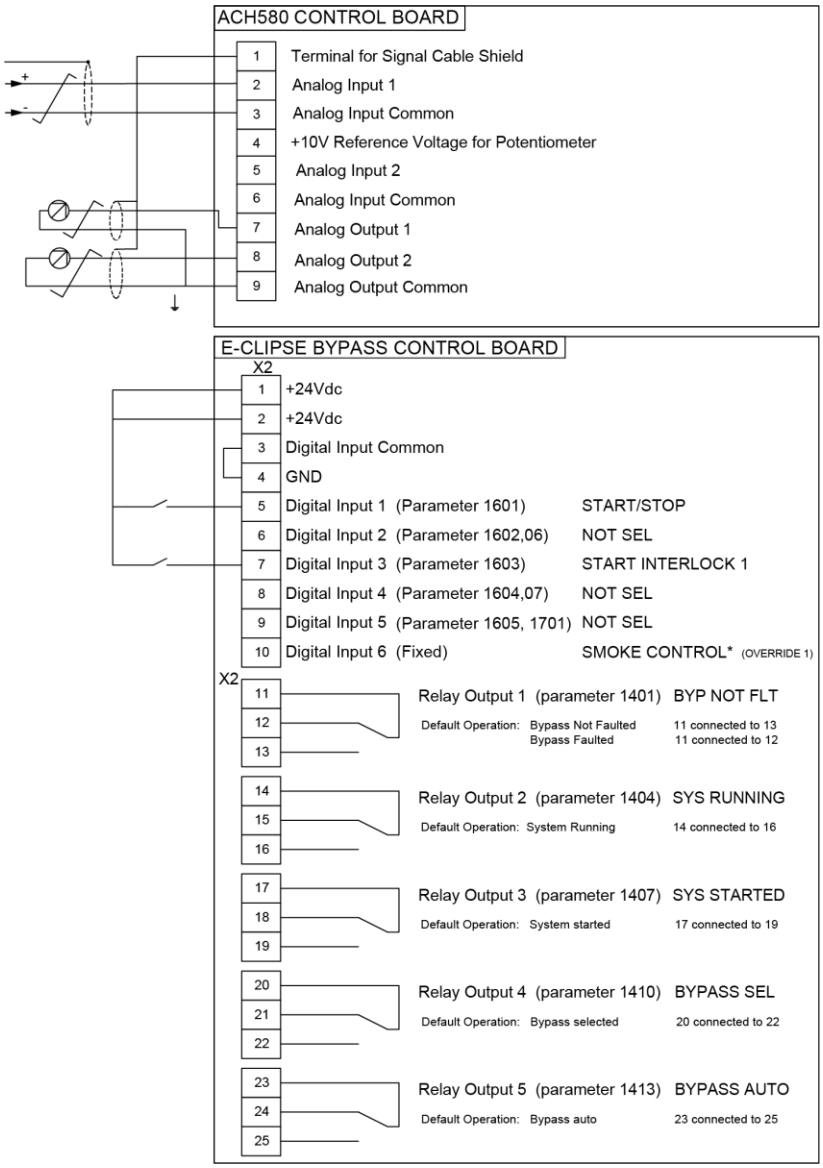


*Hood and filter kit not shown

Bx1-3*, Bx12-3*

Control connections

The control wiring includes connections to an analog speed command signal and a start/stop relay contact for controlling the motor in the AUTO mode. There may also be connections to external run permissive interlock contacts and a connection from the Motor Run contact to an external status indication circuit. For a detailed description of the control circuit functions and alternate Control Connection diagrams, refer to the ACH580 E-Clipse bypass and packaged drive manual.



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Engineering Data Summary

Replacement Fuses

Drive input fuses are recommended to disconnect the drive from power in the event that a component fails in the drive's power circuitry. Recommended drive input fuse specifications are listed in the *Submittal Schedule Details* and in the *Fuse Ratings* Table. Fuse rating information is provided for customer reference.

Item	Catalog Number	Drive Input Fuse Ratings	
		Amps (600V)	Bussmann Type
1	ACH580-VDR-06A1-6+F267	30	Class CC
2	ACH580-VDR-017A-6+F267	30	Class CC

Terminal Sizes / Cable Connection Requirements

Power and motor cable terminal sizes and connection requirements are shown in the *Submittal Schedule Details* and in the *Terminal Sizes / Cable Connection Requirements* Table. The information provided below is for connections to input power and motor cables. These connections may be made to an input circuit breaker or disconnect switch, a motor terminal block, overload relay, and/or directly to bus bars and ground lugs. The table also lists torque that should be applied when tightening terminals and spacing requirements where multiple mounting holes are provided in the bus bar.

Item	Catalog Number	Input Wiring	Output Wiring	Ground Wiring
1	ACH580-VDR-06A1-6+F267	#14…#4 4.6 lbf-ft	#20…#6 1.2 lbf-ft	#14…#4 3 lbf-ft
2	ACH580-VDR-017A-6+F267	#14…#4 4.6 lbf-ft	#20…#6 1.2 lbf-ft	#14…#4 3 lbf-ft

Heat Dissipation Requirements

The cooling air entering the drive must be clean and free from corrosive materials. The *Submittal Schedule Details* and the *Heat Dissipation Requirements* table below give the heat dissipated into the hot air exhausted from the drives. If the drives are installed in a confined space, the heat must be removed from the area by ventilation or air conditioning equipment.

Item	Catalog Number	Watts	BTU/Hr
1	ACH580-VDR-06A1-6+F267	154	525
2	ACH580-VDR-017A-6+F267	347	1,183

Dimensions and Weights

Dimensions and weights of the drives provided are given in the *Submittal Schedule Details* and in the *Dimensions and Weights* Table. The table also lists the applicable dimension drawings that include additional detail. Dimension drawings may be provided in the back of this submittal.

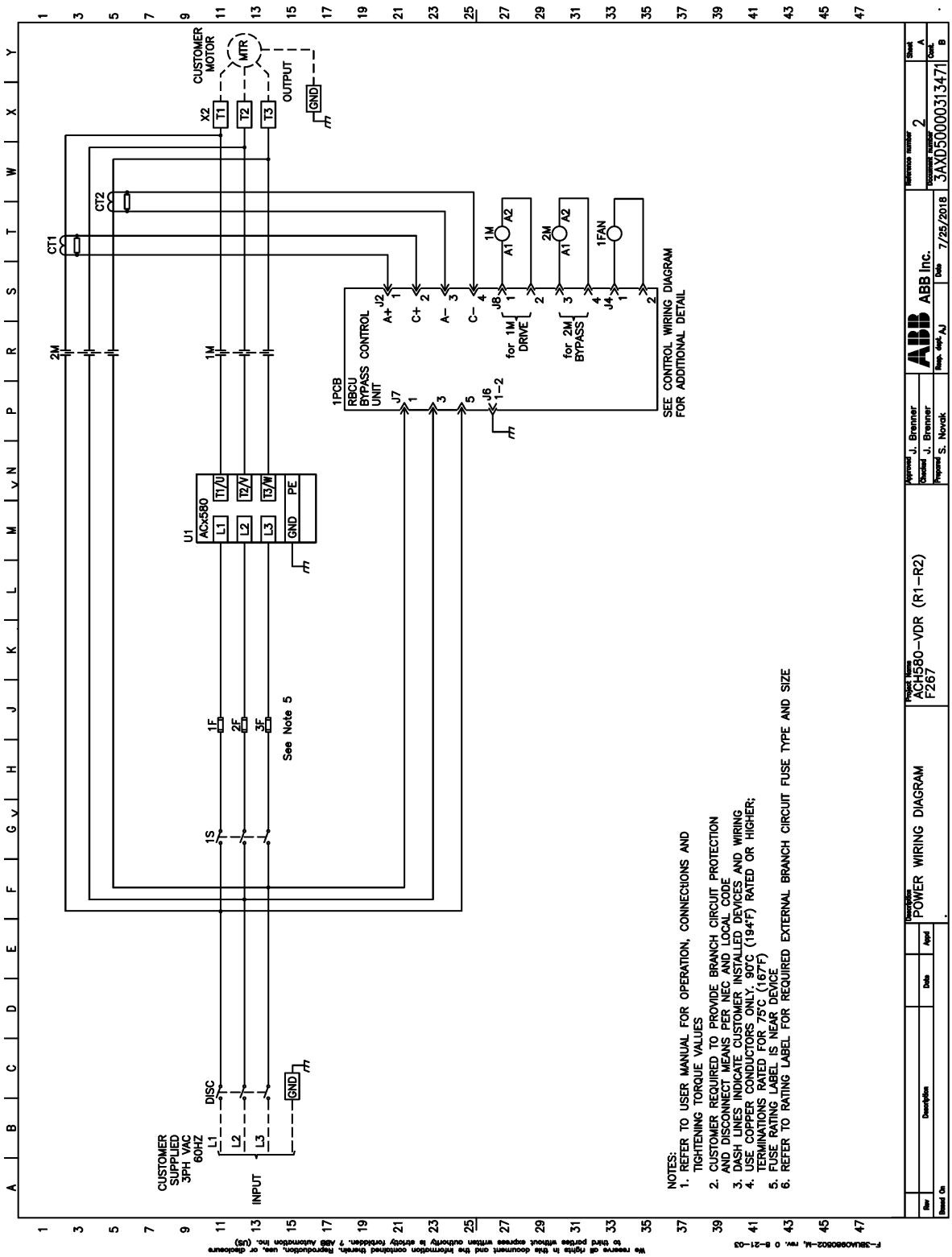
Item	Catalog Number	Height *mm* *(in)*	Width *mm* *(in)*	Depth *mm* *(in)*	Weight *kg* *(lbs)*
1	ACH580-VDR-06A1-6+F267	1120 (44.10)	137 (5.40)	274 (10.79)	23 (51)
2	ACH580-VDR-017A-6+F267	1120 (44.10)	137 (5.40)	274 (10.79)	23 (51)

Product Short Circuit Current Rating

Short circuit ratings shown below are as show on the device rating label.

Item	Catalog Number	Short Circuit Current Rating
1	ACH580-VDR-06A1-6+F267	100 kA with fusing
2	ACH580-VDR-017A-6+F267	100 kA with fusing

Item	Part Number	Customer Designation
1	ACH580-VDR-06A1-6+F267	



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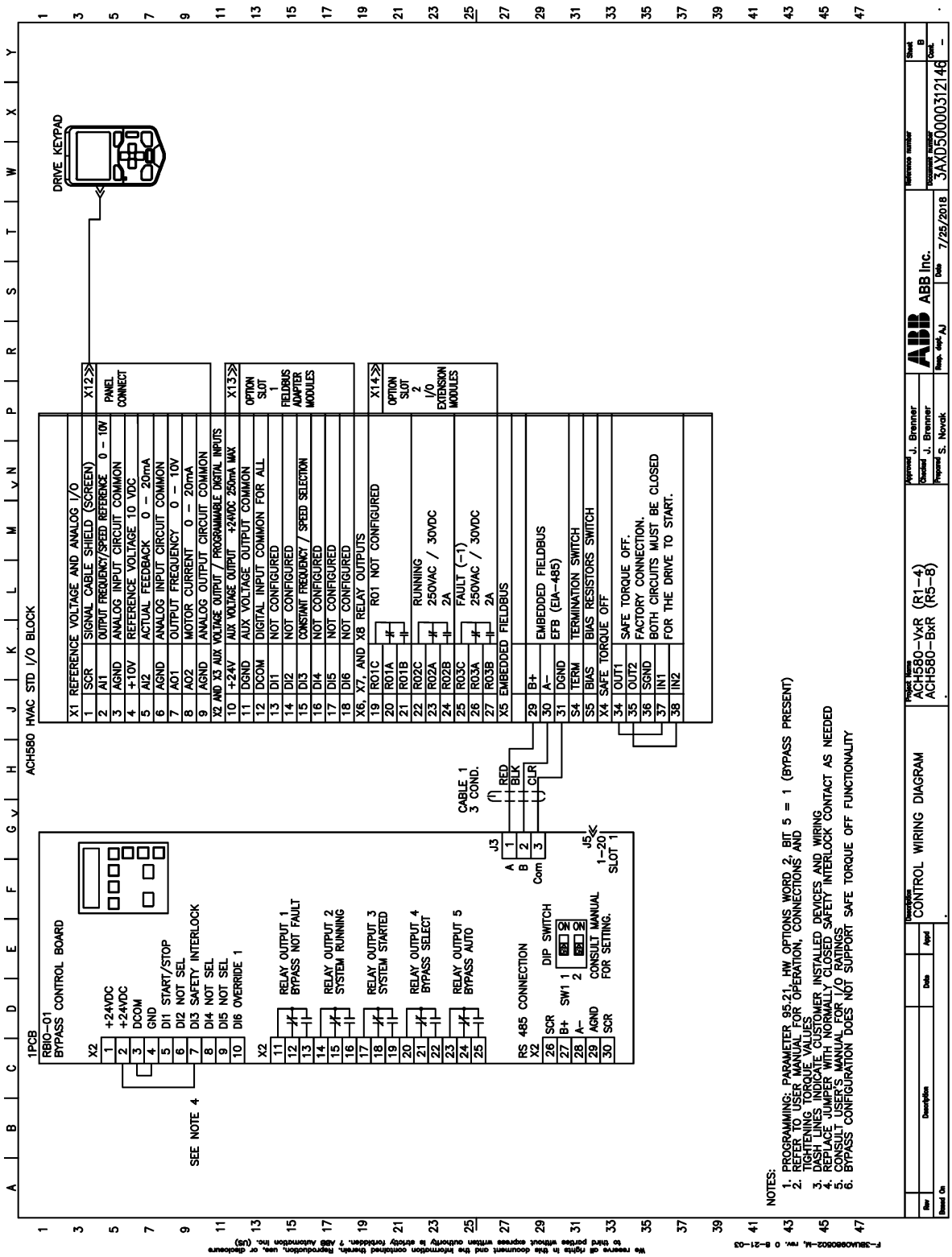
Item	Part Number	Customer Designation
1	ACH580-VDR-06A1-6+F267	



12436097

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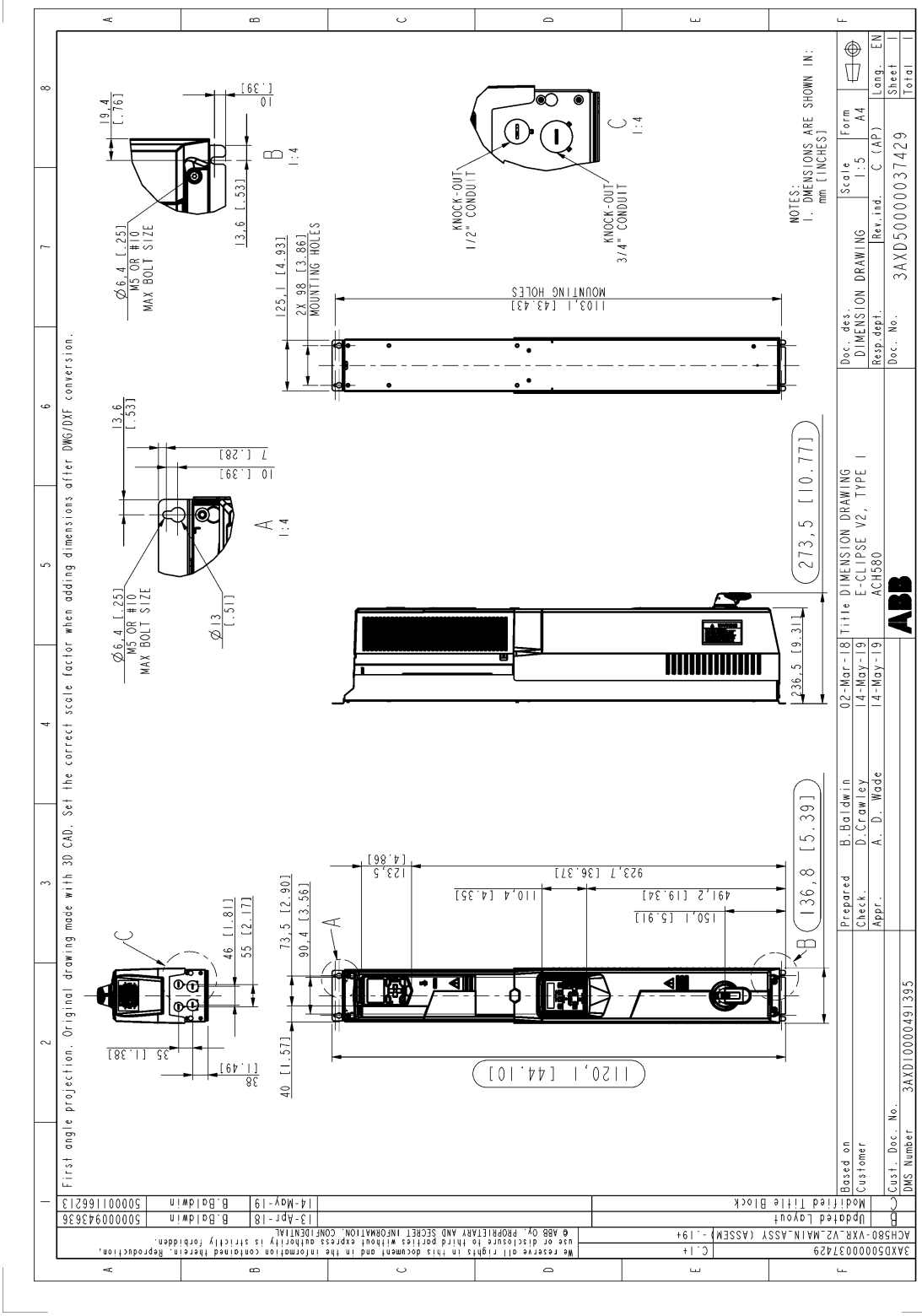
Item	Part Number	Customer Designation
1	ACH580-VDR-06A1-6+F267	



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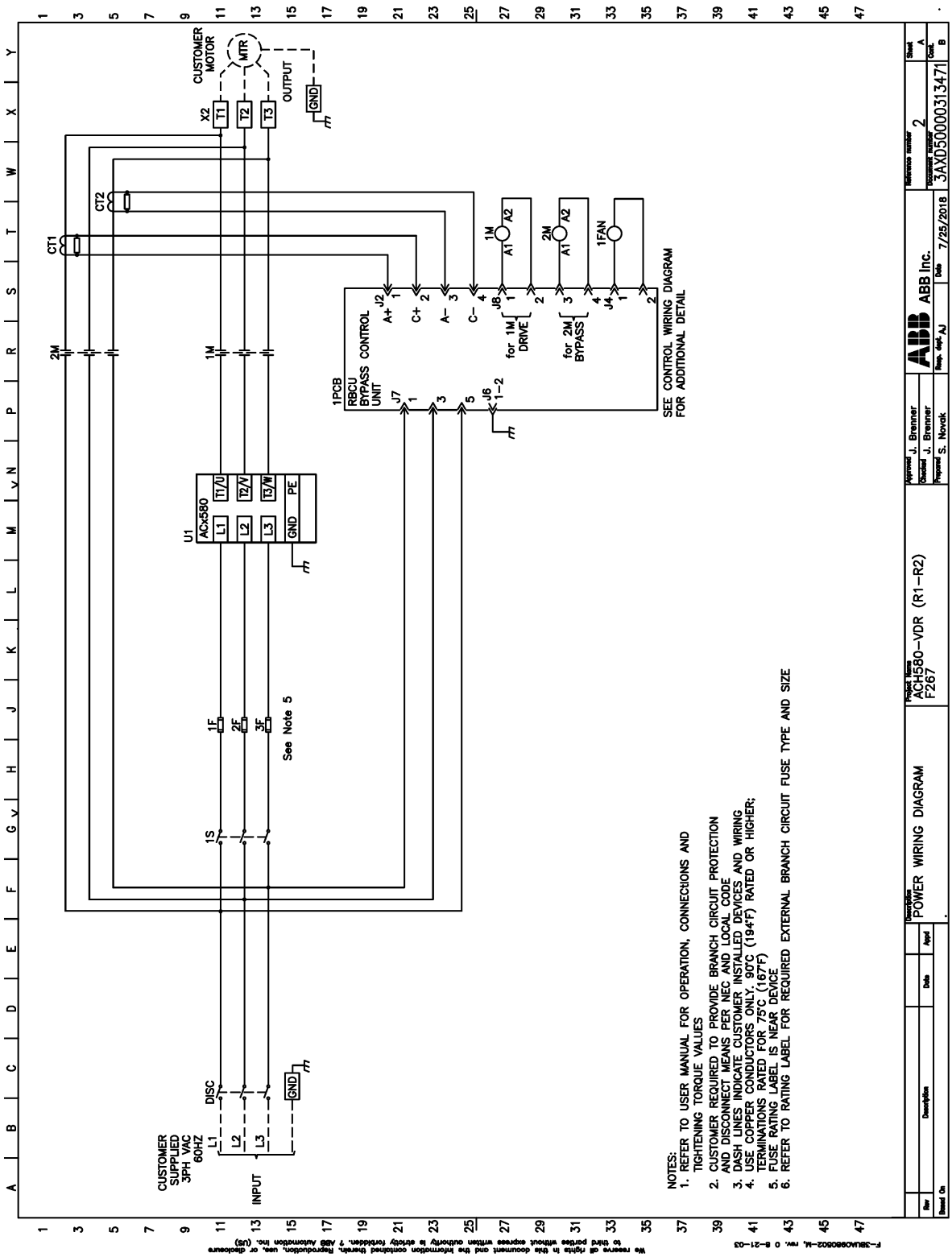
Item	Part Number	Customer Designation
2	ACH580-VDR-017A-6+F267	



12436097

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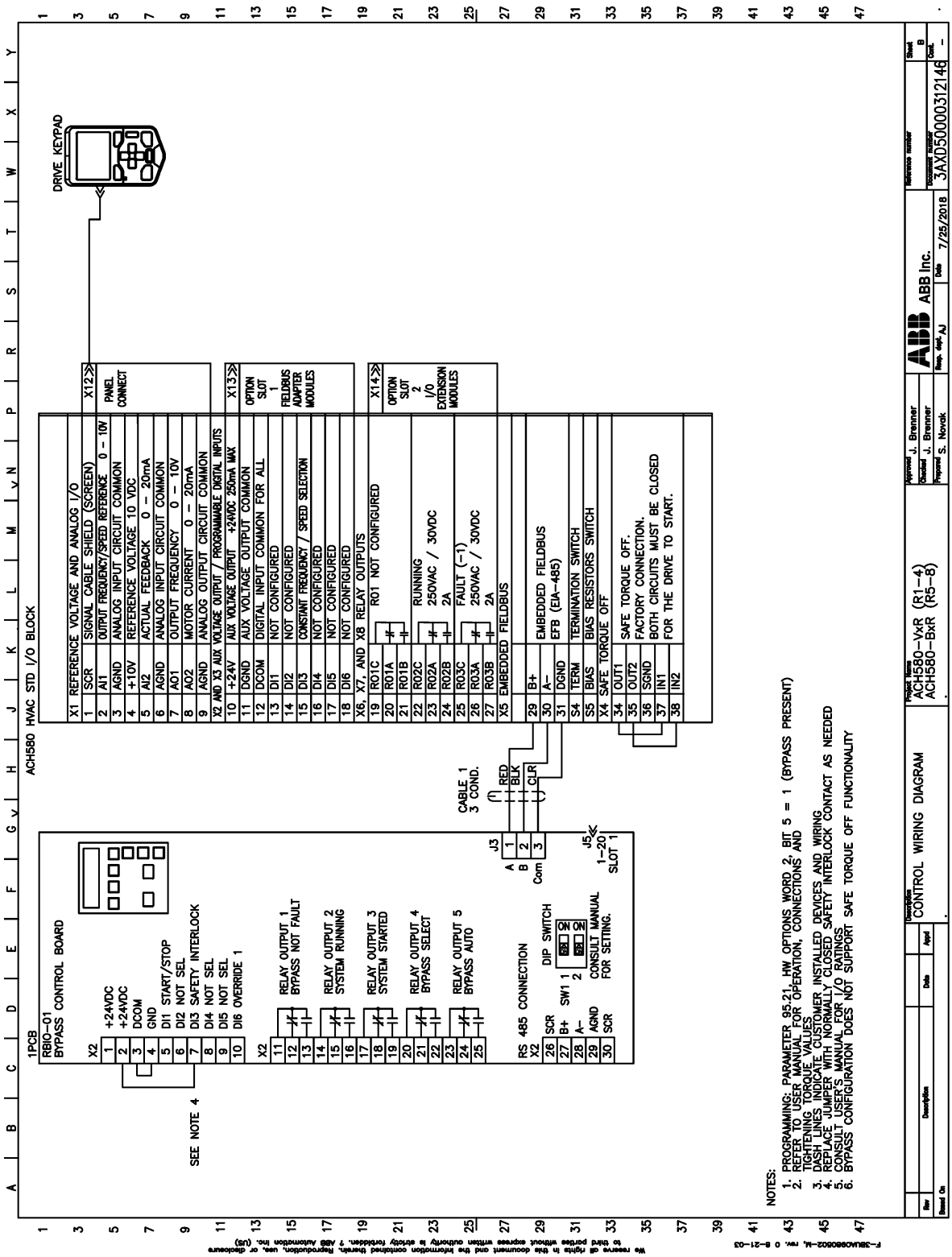
Item	Part Number	Customer Designation
2	ACH580-VDR-017A-6+F267	



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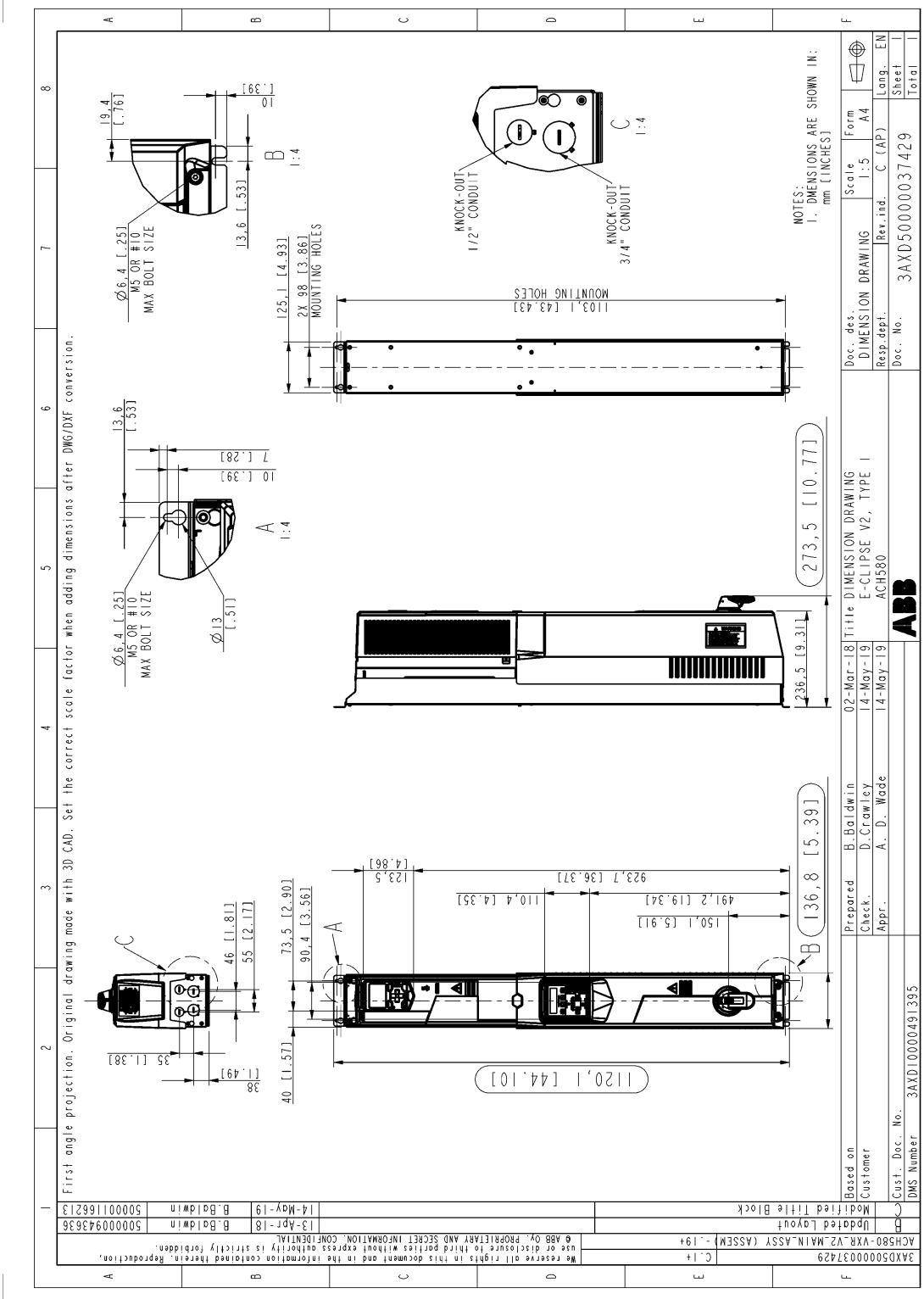
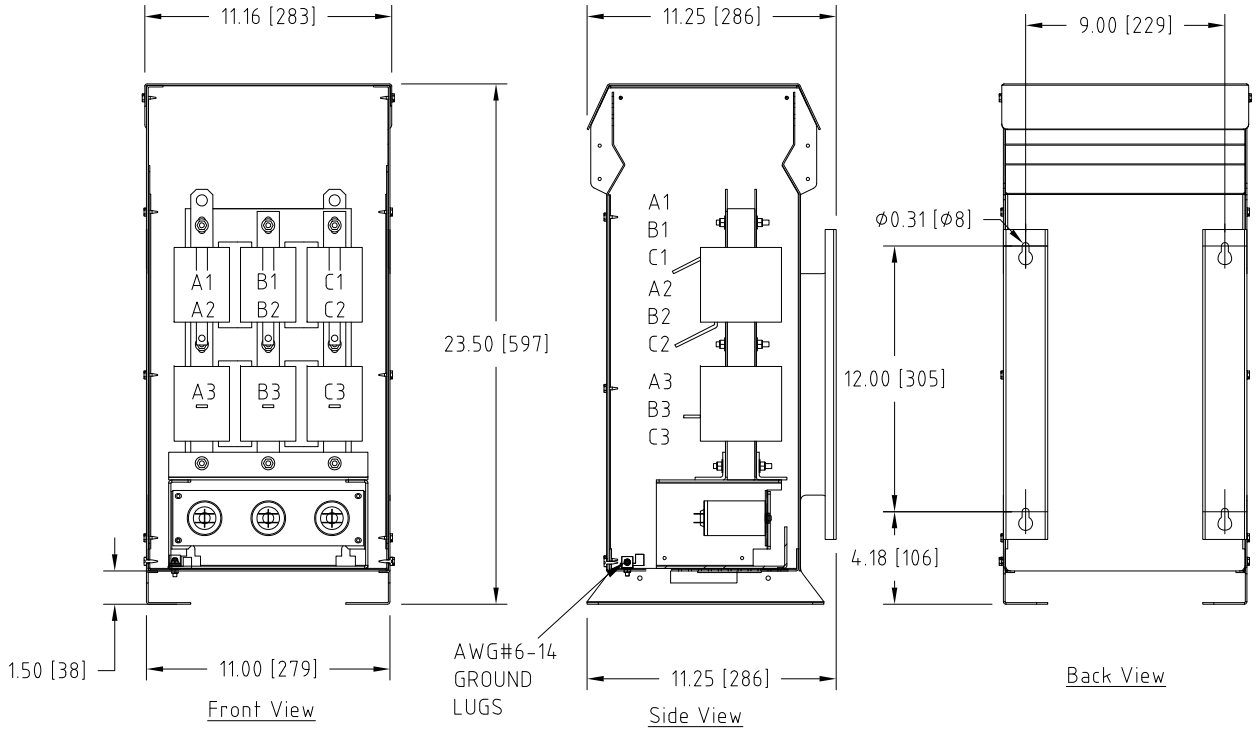
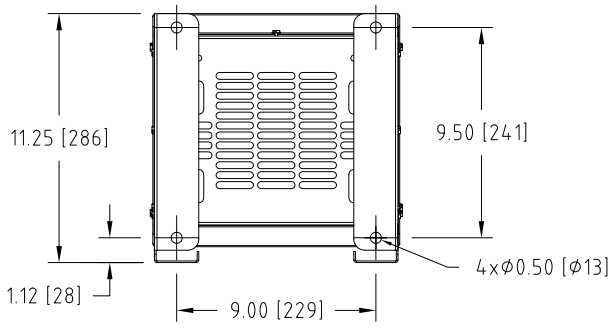
Item	Part Number	Customer Designation
2	ACH580-VDR-017A-6+F267	

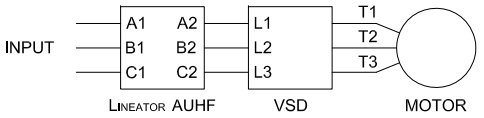


Rev. No.	Revision Note	Date	By	Checked
A1	Brackets Revised	04-FEB-14	AH	YM





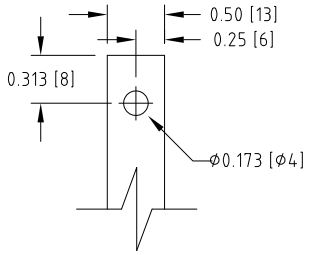
Connection Diagram



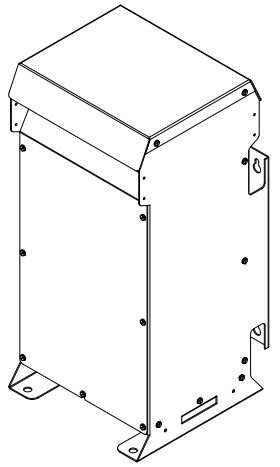
UNIT SPECIFICATIONS			INPUT	OUTPUT	APPROX. WT,
HP (kW)	PHASE	VOLTS	AMPS	kW	lb (kg)
5 (4)	3	600	5	4.5	58 (26)

NOTES:

1. Customer is responsible for installation to meet all national and local electrical codes and other applicable electrical safety authorities.
2. Type 3R Enclosure requires only front access but when floor mounting a minimum of 6" clearance should be provided at rear for proper ventilation.



Input A1,B1,C1 & Output A2,B2,C2
TERMINALS
THICKNESS: 1/8"



Isometric View

MIRUS International Inc.

31 Sun Pac Boulevard, Brampton, ON, Canada L6S 5P6
Tel:(905) 494-1120 Fax: (905) 494-1140 Toll Free: 1-888-TO MIRUS

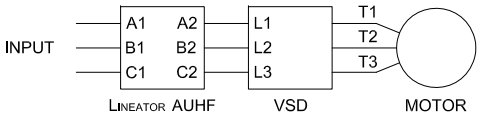
Unless otherwise specified, dimensions are in inches and [mm].	Drawn by	Date	Checked by	Approved by - date	Scale
	WXY	22-OCT-09	YM	YM - 22-OCT-09	NTS

Title: 5HP, 600V, 60Hz
Lineator AUHF (Type 3R)

Filename	Revision	Sheet
AUHF-5-600-60-D-E1-A1	A1	1/1

Rev. No.	Revision Note	Date	By	Checked
A1	Brackets Revised	04-FEB-14	AH	YM
A2	Capacitors Revised	04-MAR-15	AH	YM

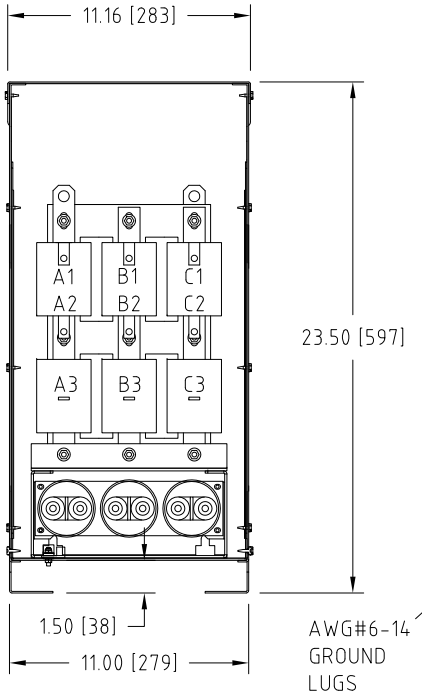
Connection Diagram



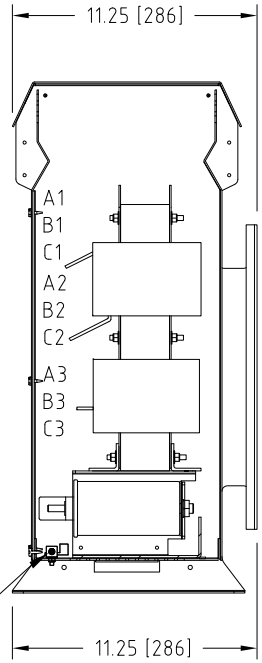
UNIT SPECIFICATIONS			INPUT	OUTPUT	APPROX. WT,
HP (kW)	PHASE	VOLTS	AMPS	kW	lb (kg)
15 (11)	3	600	14	13	86 (39)

NOTES:

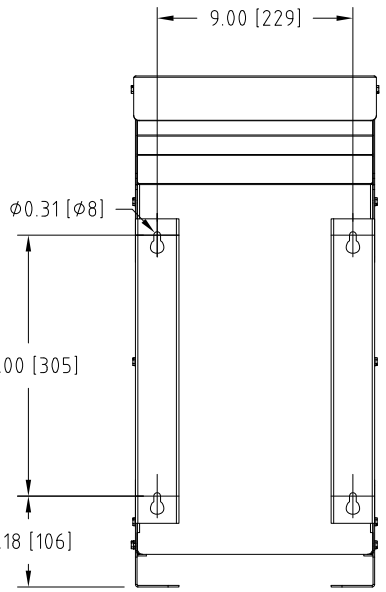
1. Customer is responsible for installation to meet all national and local electrical codes and other applicable electrical safety authorities.
2. Type 3R Enclosure requires only front access but minimum 6" clearance should be provided at rear for proper ventilation..



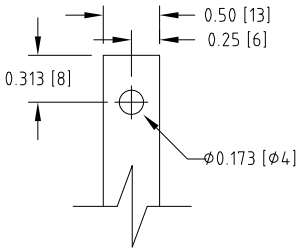
Front View



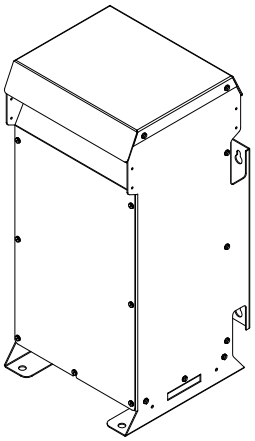
Side View



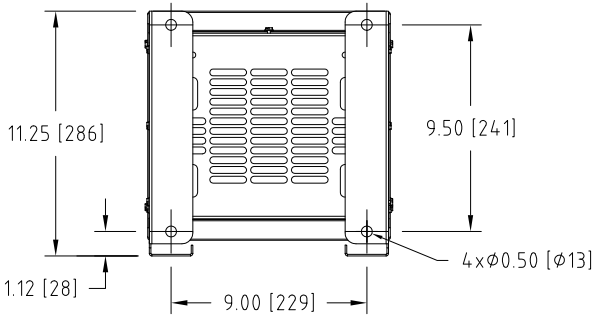
Back View



Input A1,B1,C1 & Output A2,B2,C2
TERMINALS
THICKNESS: 1/8"



Isometric View



Bottom View

MIRUS International Inc.

31 Sun Pac Boulevard, Brampton, ON, Canada L6S 5P6
Tel:(905) 494-1120 Fax: (905) 494-1140 Toll Free: 1-888-TO MIRUS

Unless otherwise specified, dimensions are in inches and [mm].	Drawn by	Date	Checked by	Approved by - date	Scale
	WXY	22-OCT-09	YM	YM - 22-OCT-09	NTS

Title: 15HP, 600V, 60Hz
Lineator AUHF (Type 3R)

Filename	Revision	Sheet
AUHF-15-600-60-D-E1-A2	A2	1/1

R1/R2 ACX580 Shield