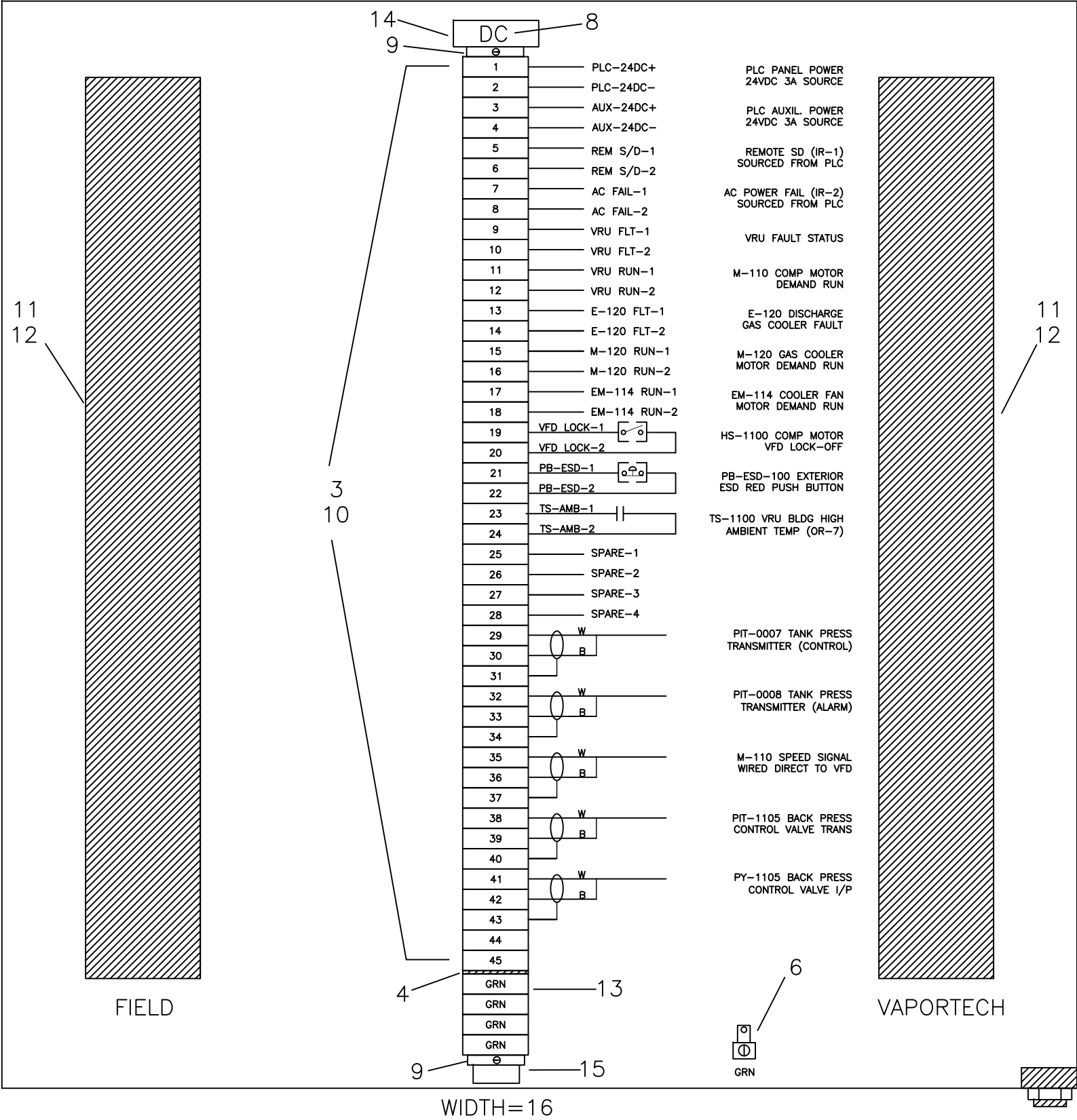


JBC-100 — 7



MATERIAL LIST			
ITEM	QTY	DESCRIPTION	PART #
1	1	FIBERGLASS JUNCTION BOX EEMAC 4 TYPE 4X 18"(H) 16"(W) 8"(D)	HAMMOND PJ18168L
2	1	JUNCTION BOX BACKPAN WHITE	HOFFMAN P1868
3	45	FEED THROUGH TERMINALS	WDU 4 WET1020100000
4	1	TERMINAL END PLATES	WAP 2.5-10 WET1050000000
5	1	DRAIN BREATHER NEMA 4X	HOFFMAN ANMV3
6	1	GROUND LUG 14-2 AWG	BURNDY KAZU
7	1	LAMACOID LABEL 1"x3" BLACK LETTERING ON WHITE, SHALL BE MARKED JBC-100 OUTSIDE JB	CANADIAN CUSTOM ENGRAVERS (CCE)
8	1	LAMACOID LABEL 3/4"x1/2" BLACK LETTERING ON WHITE, SHALL BE MARKED "DC" INSIDE JB	CANADIAN CUSTOM ENGRAVERS (CCE)
9	2	END BRACKET FOR TERMINALS PART # EW-35	EW-35 WET0383560000
10	1	TERMINAL NUMBERS VERTICAL 1-50	165335
11	34"	WHITE PVC WIRE DUCT	PDTF3X3WH6
12	1	WHITE PCV COVER	PDTC3WH6
13	2	WEIDMULLER WPR 2.5 GROUND TERMINAL	1010000000
14	1	SCH-T5 TERMINAL MARKER CARRIER	0292460000
15	17"	DIN RAIL	TS35 WET0383400000



CANADIAN NATURAL RESOURCE
CNRL

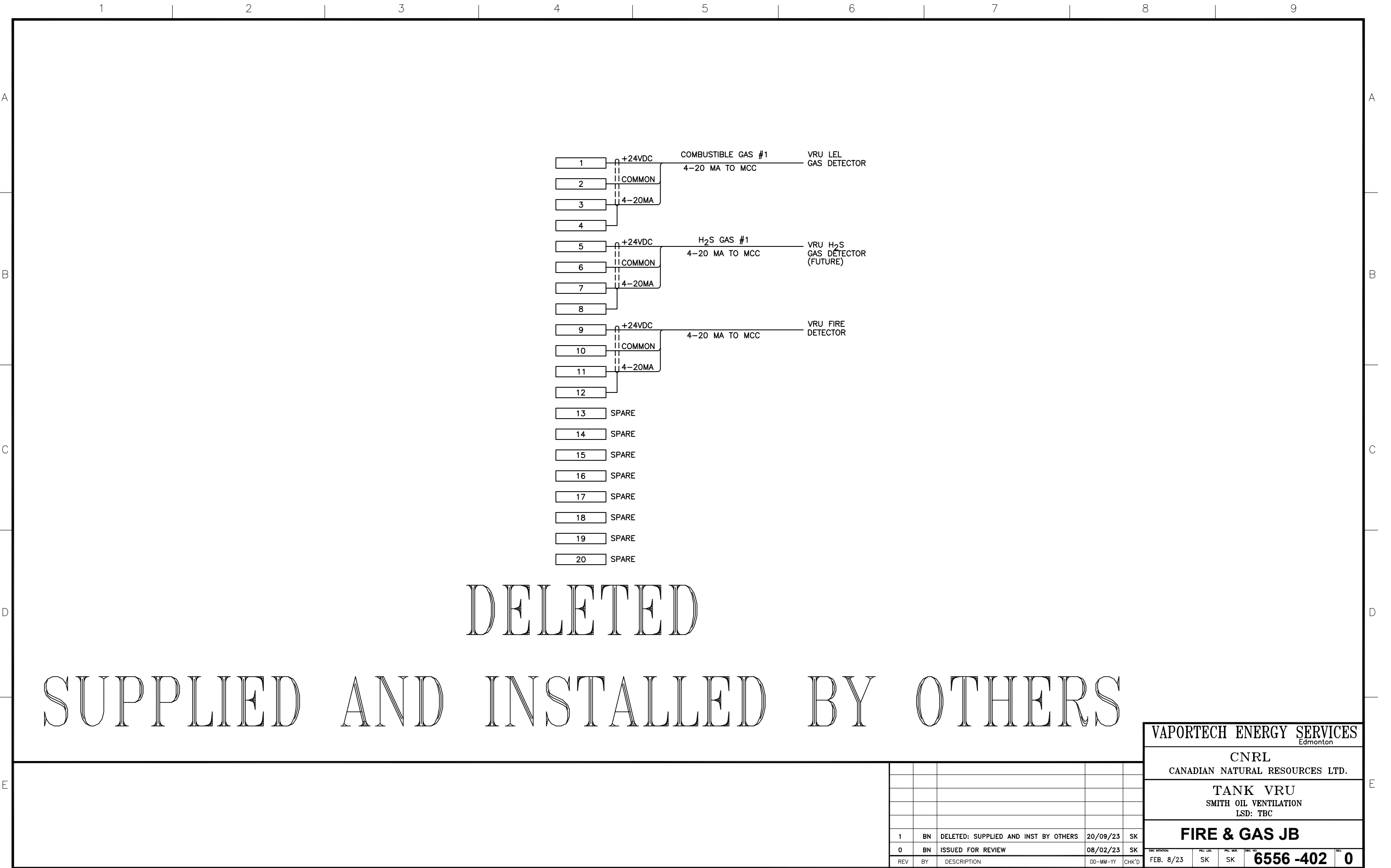
SMITH OIL GAS CONSERVATION
LSD:TBC
VAPOUR RECOVERY UNIT

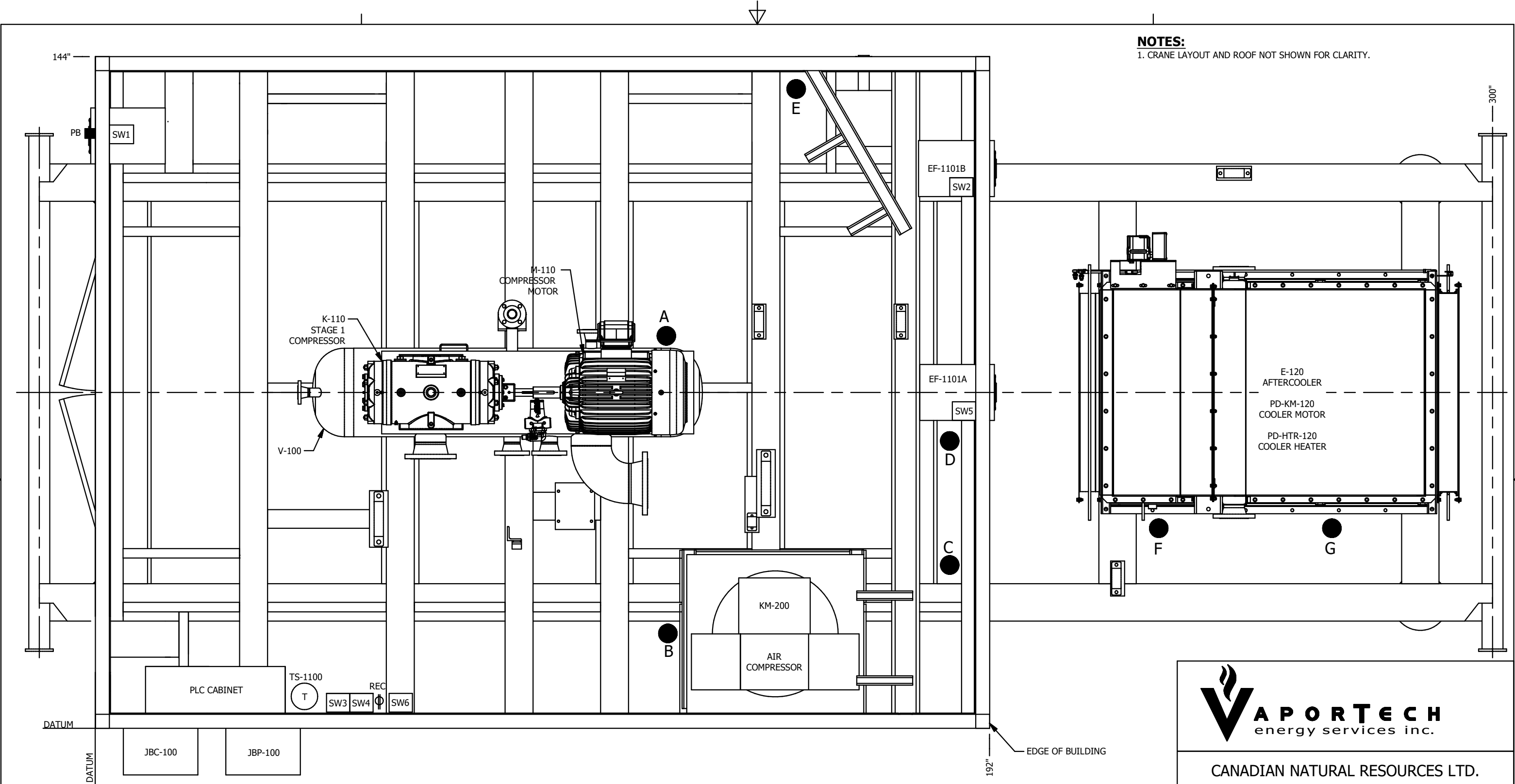
JBC-100

DRAWN BY	MM/DD/YY	DRAWING NO.	REV
BN	08/22/23	6556C-401	3

CLIENT DOCUMENT NO.

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NOTES:
1. CRANE LAYOUT AND ROOF NOT SHOWN FOR CLARITY.



A P O R T E C H
energy services inc.

CANADIAN NATURAL RESOURCES LTD.

SMITH OIL GAS CONSERVATION
VAPOR RECOVERY PACKAGE

3Ph - 460 V CABLE FEEDS / END DEVICES GA

DRAWN BY	MM/DD/YY	DRAWN NO.	REV
EB	07/19/23	6556C-403	2

END DEVICES				3Ph - 460 V 2" CONDUIT SLEEVES				REVISIONS			
SW1	VFD LOCK-OFF	HS-1100		A	COMPRESSOR MOTOR	PD-KM-110	460 VAC, 3 PH, 60 HP				
SW2	EF-1101B LOW EXHAUST FAN	HS-1101B	120 VAC, 1 PH, 1/2 HP	B	INST. AIR COMPRESSOR	PD-KM-200	SUPPLIED INSTR. BY OTHERS				
SW3	INTERIOR LIGHTS	HS-INT. LT.		C	BUILDING HEATER	PD-BH-1102	480 VAC, 3 PH, 7.5 KW				
SW4	EXTERIOR LIGHTS	HS-EXT. LT.		D	JACKET WATER COOLER MOTOR	PD-EM-114	460 VAC, 3 PH, 1/2 HP				
SW5	EF-1101A HIGH EXHAUST FAN	HS-1101A	120 VAC, 1 PH, 1/2 HP	E	BUILDING HEATER	PD-BH-1103	480 VAC, 3 PH, 7.5 KW	2	MOVE SWITCHES & PB	10/13/23	EB BN
SW6	HAND / AUTO HIGH EXHAUST FAN	SW-1101A		F	GAS COOLER MOTOR	PD-KM-120	460 VAC, 3 PH, 5 HP	1	ADDED MOTOR DATA, REVISED & UPDATED DRAWING	09/25/23	EB BN
TS-1100	BUILDING THERMOSTAT	TS-1100		G	GAS COOLER HEATER	PD-HTR-120	480 VAC, 3 PH, 5 KW	0	ISSUED FOR REVIEW	07/19/23	EB JC
PB	PANIC BUTTON	PB-ESD						REV	DESCRIPTION	MM/DD/YY	BY CHKD

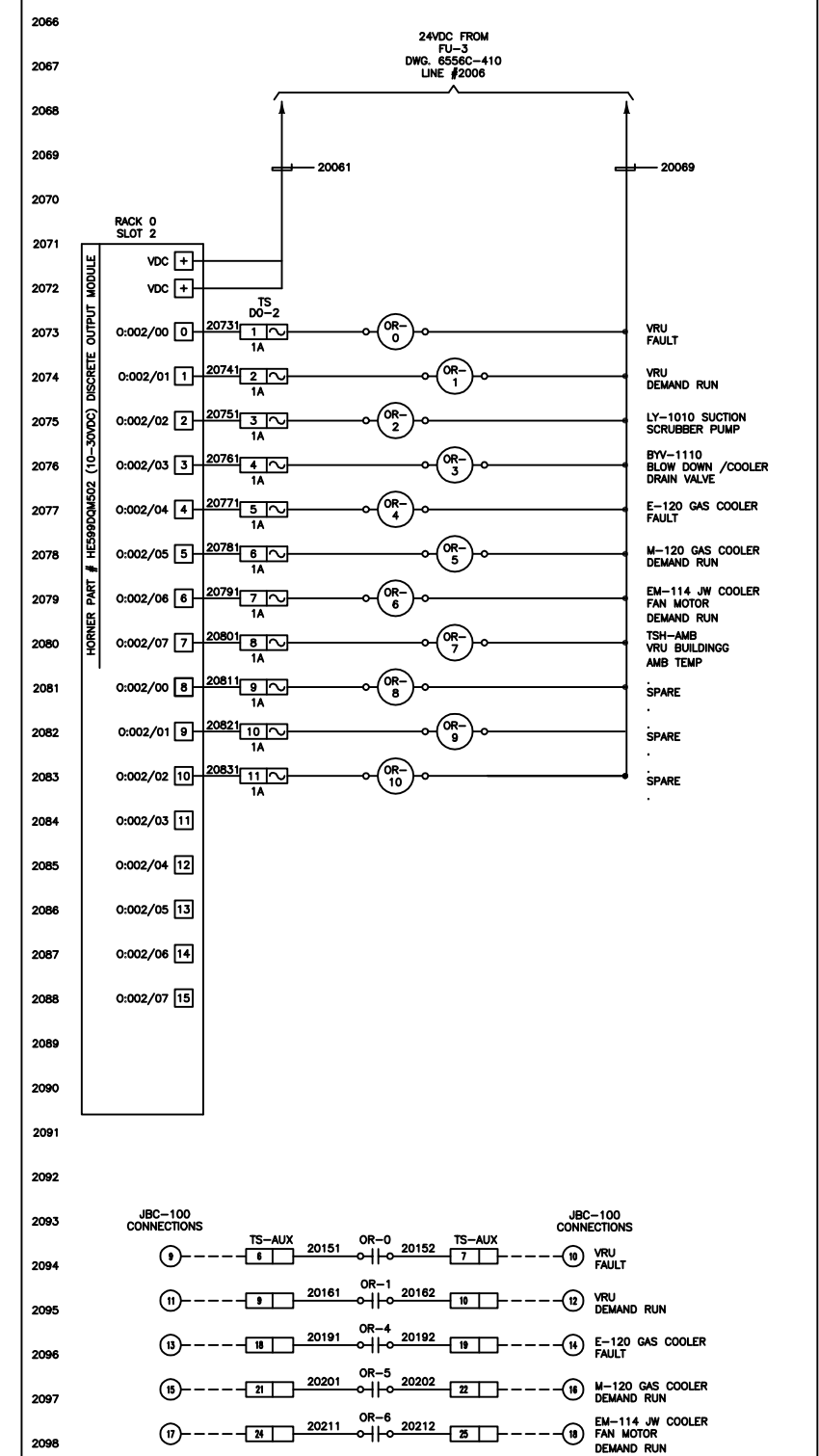
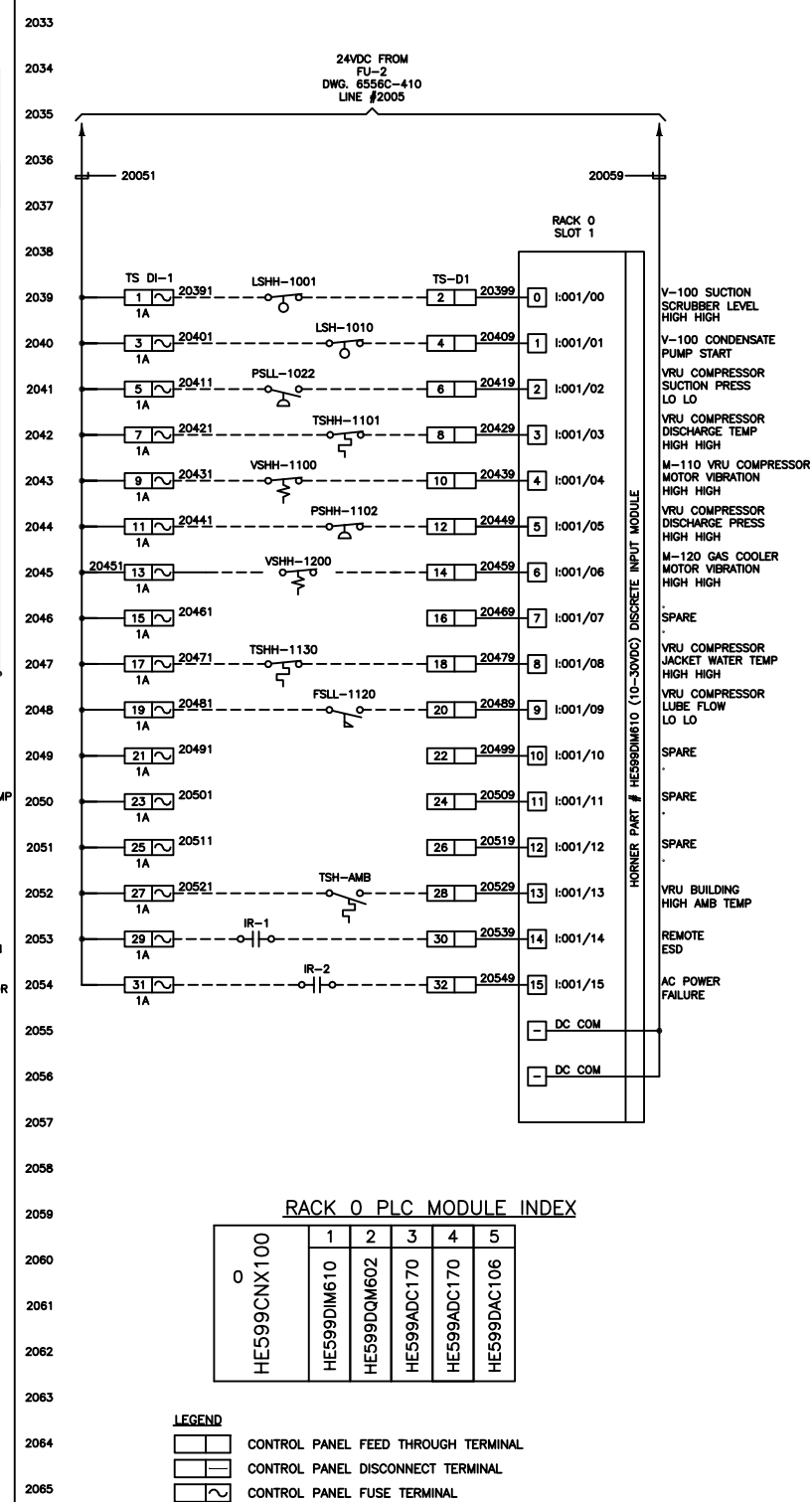
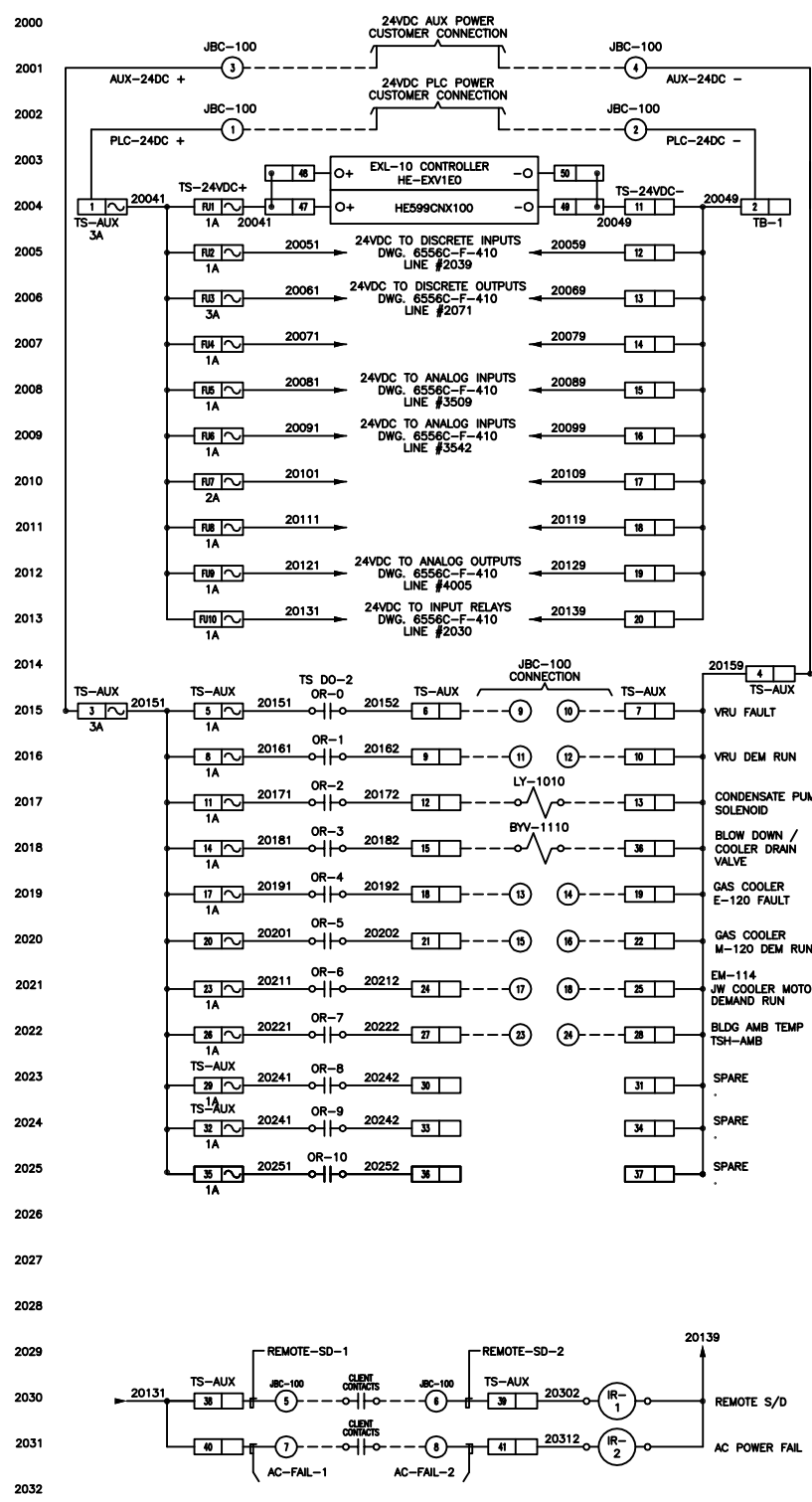
A

B

C

D

E



VAPORTECH ENERGY SERVICES
Edmonton

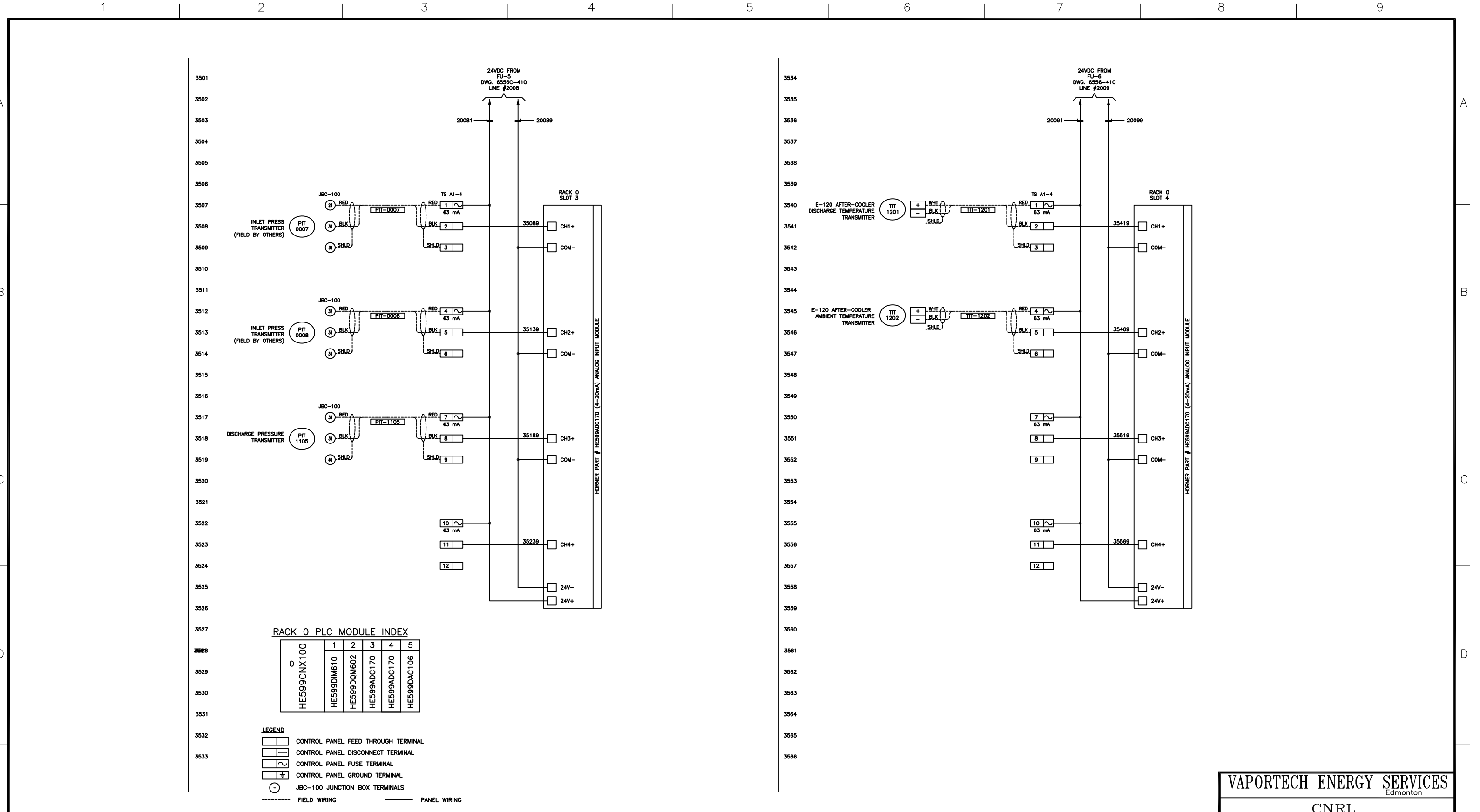
CNRL
CANADIAN NATURAL RESOURCES LTD.

VAPOUR RECOVERY UNIT
SMITH OIL GAS CONSERVATION
LSD: TBC

PLC I/O SCHEMATIC

REV	BY	DESCRIPTION	DATE	CHK'D
1	BN	CHANGE FIELD WIRING TO DASHED LINES	11/10/23	BN
1	BN	ISSUED FOR FABRICATION	18/09/23	BN
0	BN	FOR INFORMATION ONLY	10/07/23	BN

DWG. REVISION: JULY 10/23
PRL. LDR: SK
PRL. MGR: SM
CHK'D: 6556C-410
REV: 2



VAPORTECH ENERGY SERVICES
Edmonton

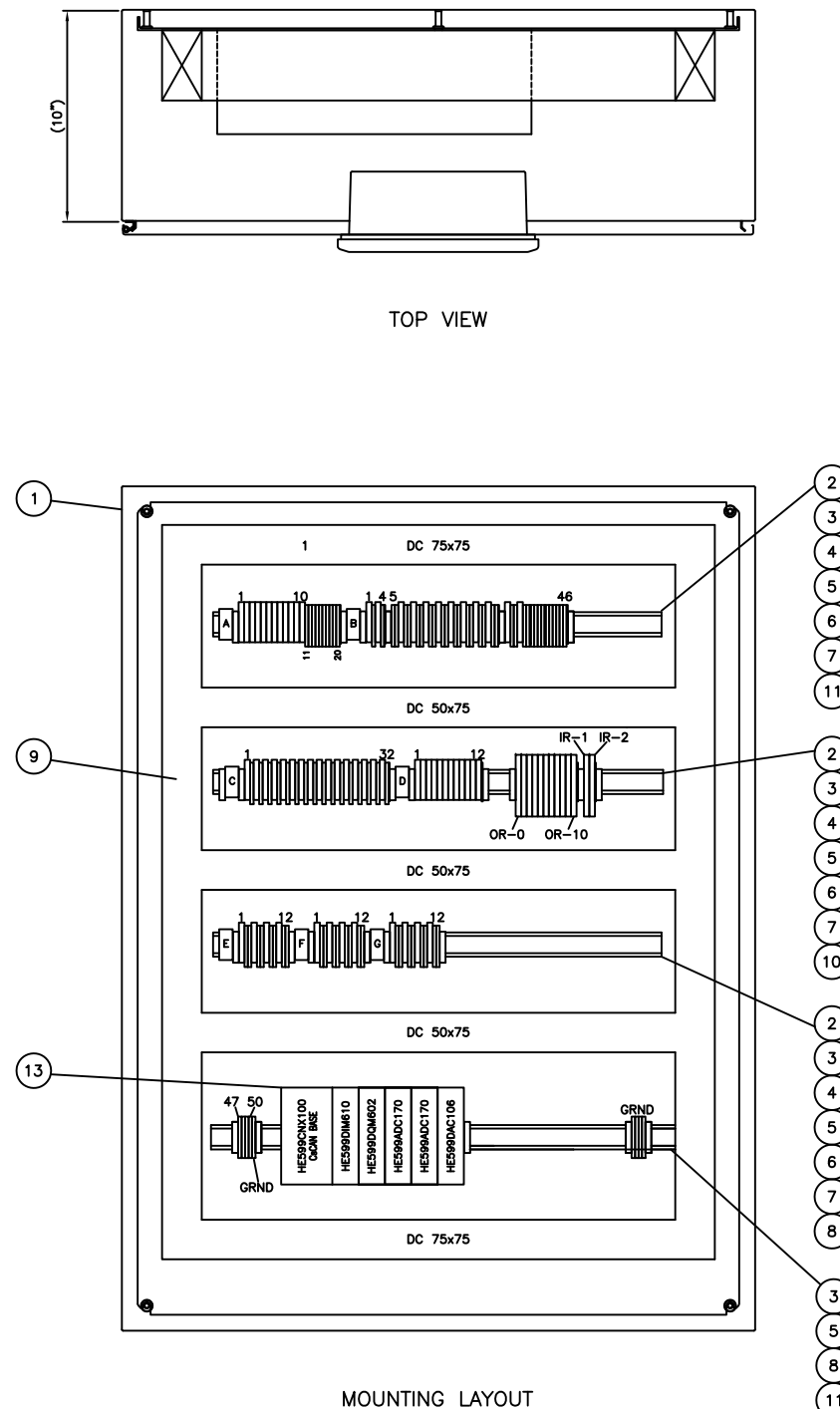
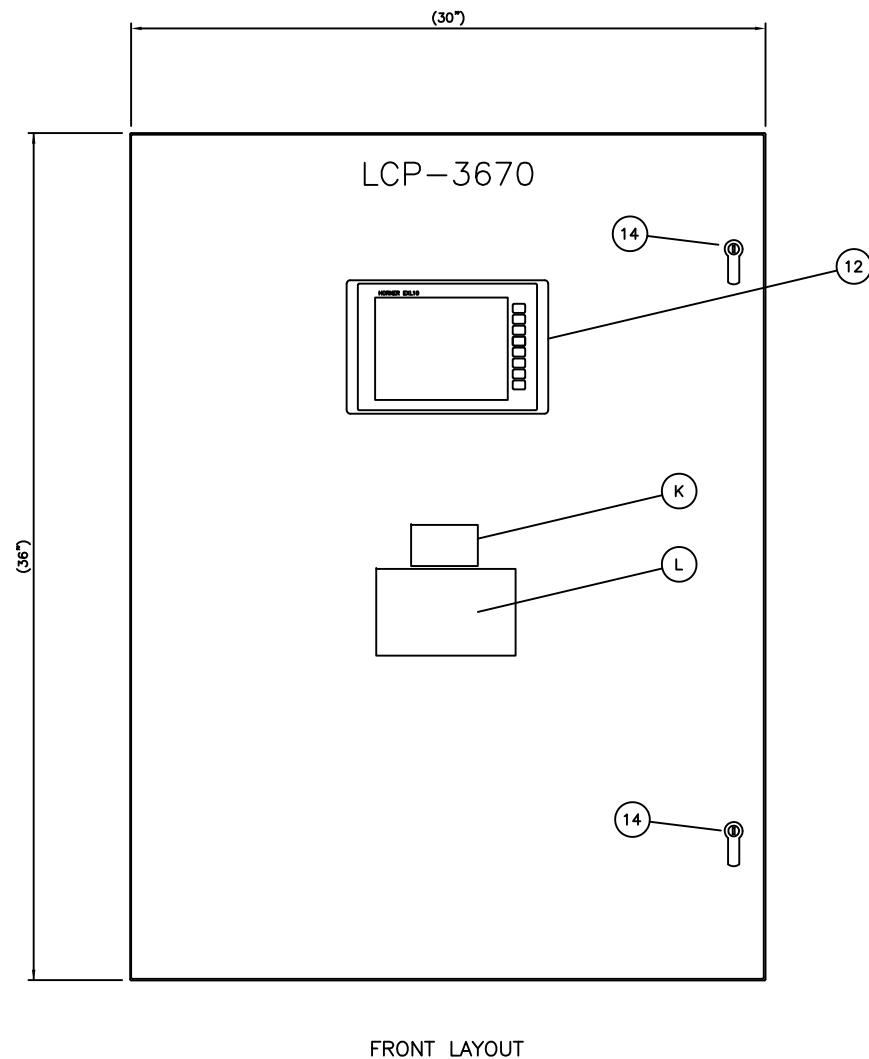
CNRL
CANADIAN NATURAL RESOURCES LTD.

VAPOUR RECOVERY UNIT
SMITH OIL GAS CONSERVATION
LSD: TBD

ANALOG I/P SCHEMATIC

2	BN	CHANGE FIELD WIRING TO DASHED LINES	11/10/23	BN	
1	BN	ISSUED FOR FABRICATION	18/09/23	BN	
0	BN	FOR INFORMATION ONLY	18/08/23	BN	
REV	BY	DESCRIPTION	DD-MM-YY	CHK'D	

DWG. NUMBER:	PRJ. LDR.	PRJ. MGR.	DWG. NO.	REV.
AUG.18/23	SK	SM	6556 -411	2



BILL OF MATERIALS			
ITEM	QTY.	DESCRIPTION	SUPPLIER
1	1	CABINET - NEMA 4, 36x30x10, 14 GA STEEL, GRAY INTERIOR-EXTERIOR, HAMMOND HFM-EN4SD363010GY MOUNTING PANEL - 3630, WHITE, HAMMOND HMN-EP3630 NON-LOCKING HANDLE - HAMMOND HMN-EHLNL	VAPORTECH
2	4	TERMINAL RAIL - WEIDMULLER TS 35 x 7.5 RAIL	VAPORTECH
3	26	END BRACKET - WEIDMULLER EW 35	VAPORTECH
4	10	END PLATE - WEIDMULLER WAP 2.5-10	VAPORTECH
5	100	FEED-THRU TERMINAL - WEIDMULLER WDU 4	VAPORTECH
6	9	TERMINAL MARKER CARRIER SCH-T5	VAPORTECH
7	74	FUSE TERMINAL - 24VDC, c/w FUSE WEIDMULLER ASK1 (FUSE SIZES AS PER SCHEMATICS)	VAPORTECH
8	13	GROUND TERMINAL - WEIDMULLER WPE 2.5	VAPORTECH
9	AS REQD	PVC WIRE DUCT - 50wx75h PVC WIRE DUCT - 75wx75h	VAPORTECH
10	11	INPUT/OUTPUT RELAYS - TRS 24VDC 1CO C1D1	VAPORTECH
11	2	INSULATED JUMPERS FOR WDU 4 /10 POLE	VAPORTECH
12	1	OPERATOR INTERFACE UNIT - HORNOR EXL10 #HE-EXV1E0 10.4" DISPLAY, NO BUILT-IN IO, DUAL ETHERNET AND DUAL CAN SUITABLE FOR CLASS 1 DIV. 2.	VAPORTECH
13	1	PLC SYSTEM, HORNOR SERIES 1 - SMARTRAIL CSCAN BASE HE599CNX100 1 - SMARTRAIL 16 DC INPUT CARD HE599DIM610 1 - SMARTRAIL 16 RELAY OUTPUT CARD HE599DOM602 2 - SMARTRAIL 4 POINT ANALOG INPUT CARD HE599ADC170 1 - SMARTRAIL 4 POINT ANALOG OUTPUT CARD HE599DAC106	VAPORTECH
14	2	NON-LATCHING HANDEL - HOFFMAN CWHNL	VAPORTECH

NAMEPLATE LIST: 19.5 X 44.5 LAMACOID, BLACK LETTERING ON WHITE BACKGROUND.
WEIDMULLER GROUP MARKER #SCH-T5

N/P	ENGRAVING	N/P	ENGRAVING
A	TS 24V+	F	TS AI-4
B	TS AUX	G	TS AO-5
C	TS DI-1		
D	TS DO-2		
E	TS AI-3		

WARNING NAMEPLATE LIST: 73 X 75 LAMACOID, WHITE LETTERING ON RED BACKGROUND.
ADHESIVE BACKING WITH 4 SCREWHOLES FOR PERMINENT MOUNTING

N/P	ENGRAVING	N/P	PANEL LABEL
K	WARNING EXPLOSION HAZARD DO NOT DISCONNECT WHILE CIRCUIT IS LIVE/UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS REPLACEMENT FUSES ARE TO BE SAVED-TILL FD, QPS	L	CONTROL PANEL AREA CLASSIFICATION CERTIFICATION INSPECTED AND CERTIFIED BY QPS

NOTES:

1. TERMINAL RAIL ASSEMBLIES TO BE MOUNTED ON 1" SUPPORTS TO RAISE TERMINALS ABOVE WIRE DUCT.
2. WIRING TO BE TW #16 AWG
STRANDED COPPER WIRE COLOUR CODE:

GROUND	—GREEN	ANALOG POSITIVE	—WHITE
PLC INPUTS	—ORANGE	ANALOG NEGATIVE	—BLACK
PLC OUTPUTS	—YELLOW		
DC POSITIVE	—RED		
DC NEGATIVE	—BLUE		
3. GROUNDING OF PLC EQUIPMENT TO BE PER MANUFACTURERS SPECIFICATION.
4. ADHESIVE BACKED WIRING HARNESSSES SHALL NOT BE USED. WIRE DUCT ONLY.
5. ALL EQUIPMENT SHALL BE CSA APPROVED FOR CLASS 1, DIVISION 2.
6. PANEL FABRICATOR TO PROVIDE 10 SPARE FUSES OF EACH SIZE AND TYPE INSTALLED.
7. ALL BUSSED TERMINALS SHALL BE CONSTRUCTED USING SHORTING COMBS AS REQUIRED.
8. ALL WEIDMULLER COMPONENTS TO BE OF POLYAMIDE CONSTRUCTION WHERE APPLICABLE.
9. AS AN ASSEMBLED UNIT, INSTALLATION IN A CLASS 1, ZONE 2 LOCATION GR. IIC, TC3 AREA IS SUBJECT TO INSPECTION BY LOCAL QPS AUTHORITIES AND SHALL BE TAGGED AS SUCH.

TERMINAL CONFIGURATIONS

DISCRETE INPUTS (16 SETS REQUIRED)	DISCRETE OUTPUTS (16 SETS REQUIRED)	ANALOG OUTPUTS (1 SET REQUIRED)	ANALOG INPUTS (2 SETS REQUIRED)
ASK 1 (1A GDA FUSE)	ASK 1 (1A GDA FUSE)	ASK 1 (63mA GDA FUSE)	ASK 1 (63mA GDA FUSE)
WDU 4	WDU 4	WDU 4	WDU 4
		WDF 25	

DATA SHEET

Three Phase Induction Motor - Squirrel Cage



Customer : Kim Kool Inc.

Product line : IEEE 841 W22

Product code : 11431316
Catalog # : 00518ST3QIE184T-W22

Frame	: 182/4T	Locked rotor time	: 50s (cold) 28s (hot)
Output	: 5 HP (3.7 kW)	Temperature rise	: 80 K
Poles	: 4	Duty cycle	: Cont.(S1)
Frequency	: 60 Hz	Ambient temperature	: -20°C to +40°C
Rated voltage	: 460 V	Altitude	: 1000 m.a.s.l.
Rated current	: 6.49 A	Protection degree	: IP55
L. R. Amperes	: 50.0 A	Cooling method	: IC411 - TEFC
LRC	: 7.7x(Code J)	Mounting	: F-1
No load current	: 2.90 A	Rotation ¹	: Both (CW and CCW)
Rated speed	: 1750 rpm	Noise level ²	: 56.0 dB(A)
Slip	: 2.78 %	Starting method	: Direct On Line
Rated torque	: 15.0 ft.lb	Approx. weight ³	: 118 lb
Locked rotor torque	: 229 %		
Breakdown torque	: 300 %		
Insulation class	: F		
Service factor	: 1.25		
Moment of inertia (J)	: 0.4003 sq.ft.lb		
Design	: B		

Output	25%	50%	75%	100%	Foundation loads	
Efficiency (%)	88.2	88.5	89.5	89.5	Max. traction	: 242 lb
Power Factor	0.38	0.62	0.74	0.80	Max. compression	: 360 lb

		Drive end	Non drive end
Bearing type	:	6207 C3	6206 C3
Sealing	:	Inpro/Seal	Inpro/Seal
Lubrication interval	:	20000 h	20000 h
Lubricant amount	:	7 g	5 g
Lubricant type	:	Mobil Polyrex EM	

Notes

EM-120 GAS COOLER MOTOR

This revision replaces and cancel the previous one, which must be eliminated.

- (1) Looking the motor from the shaft end.
- (2) Measured at 1m and with tolerance of +3dB(A).
- (3) Approximate weight subject to changes after manufacturing process.
- (4) At 100% of full load.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in NEMA MG-1.

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 1 / 5		
Checked by				
Date	23/02/2023			
			Revision	

TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : Kim Kool Inc.

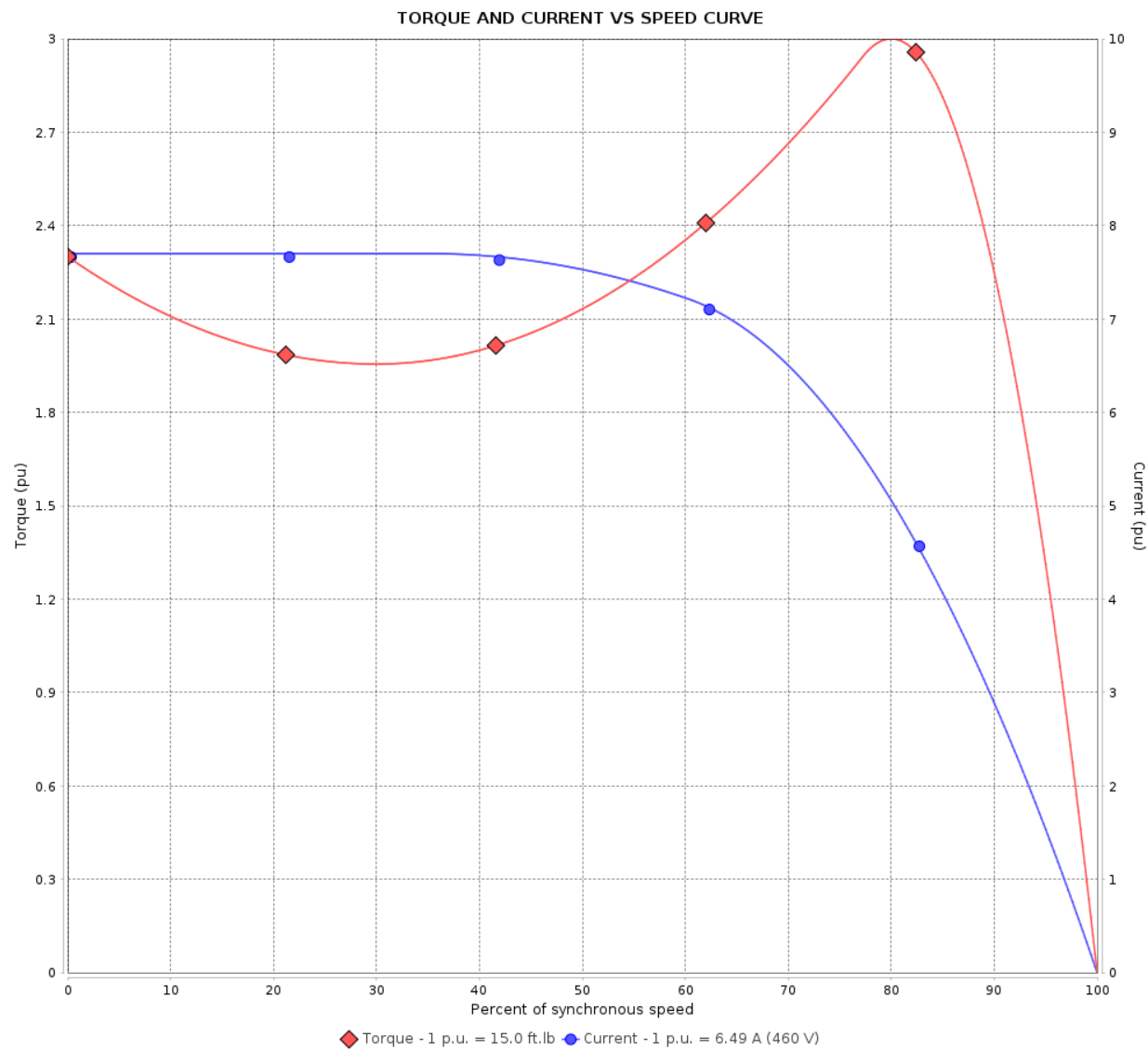
Product line : IEEE 841 W22

Product code :

11431316

Catalog # :

00518ST3QIE184T-W22



Performance : 460 V 60 Hz 4P

Rated current : 6.49 A
LRC : 7.7
Rated torque : 15.0 ft.lb
Locked rotor torque : 229 %
Breakdown torque : 300 %
Rated speed : 1750 rpm

Moment of inertia (J) : 0.4003 sq.ft.lb
Duty cycle : Cont.(S1)
Insulation class : F
Service factor : 1.25
Temperature rise : 80 K
Design : B

Locked rotor time : 50s (cold) 28s (hot)

Rev.	Changes Summary		Performed	Checked	Date
Performed by			Page 2 / 5		Revision
Checked by					
Date	23/02/2023				

LOAD PERFORMANCE CURVE

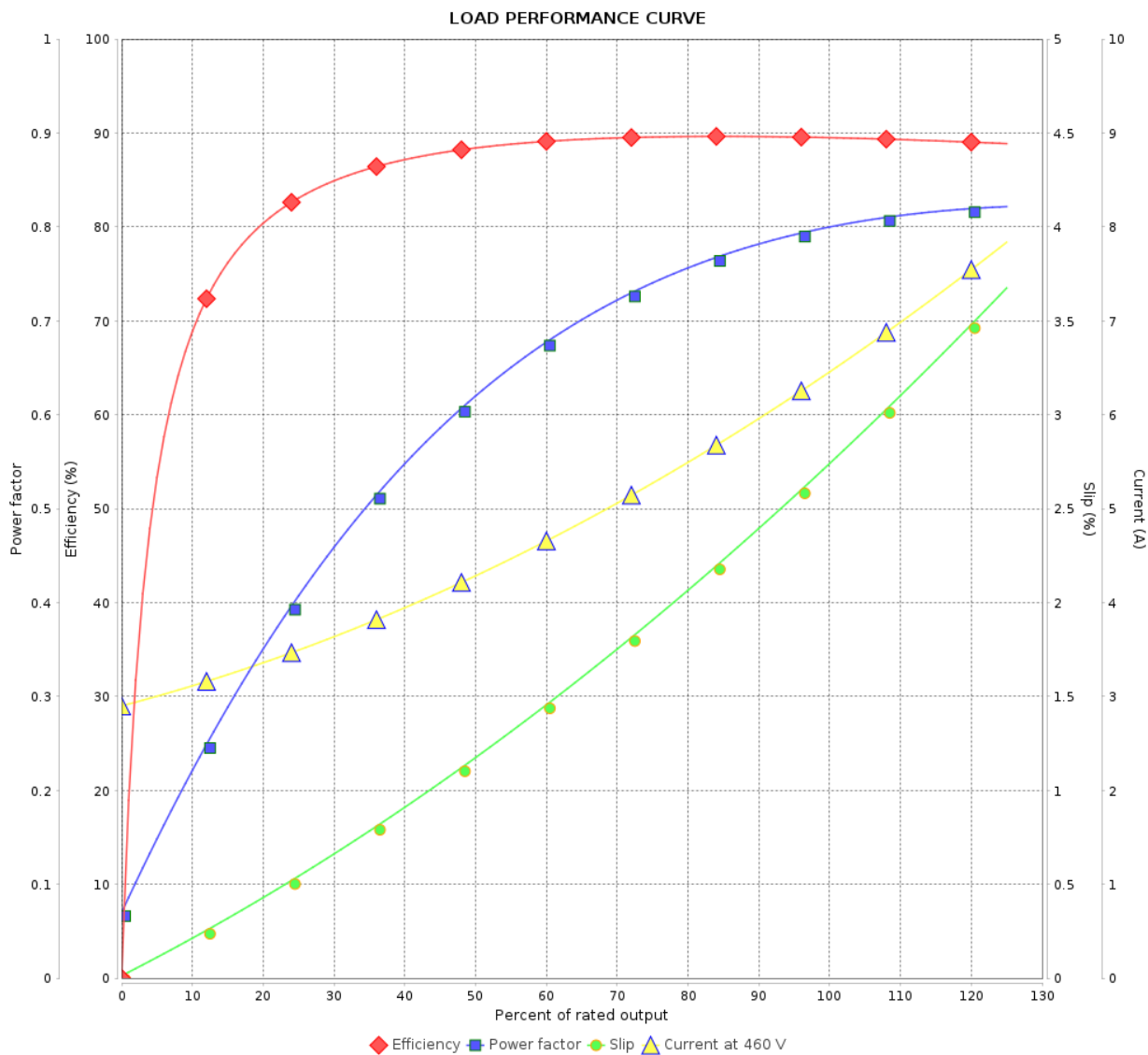
Three Phase Induction Motor - Squirrel Cage



Customer : Kim Kool Inc.

Product line : IEEE 841 W22

Product code : 11431316
Catalog # : 00518ST3QIE184T-W22



Performance : 460 V 60 Hz 4P

Rated current : 6.49 A
LRC : 7.7
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Breakdown torque : 300 %
Rated speed : 1750 rpm

Moment of inertia (J) : 0.4003 sq.ft.lb
Duty cycle : Cont.(S1)
Insulation class : F
Service factor : 1.25
Temperature rise : 80 K
Design : B

Rev.	Changes Summary		Performed	Checked	Date
Performed by				Page 3 / 5	Revision
Checked by					
Date	23/02/2023				

THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : Kim Kool Inc.

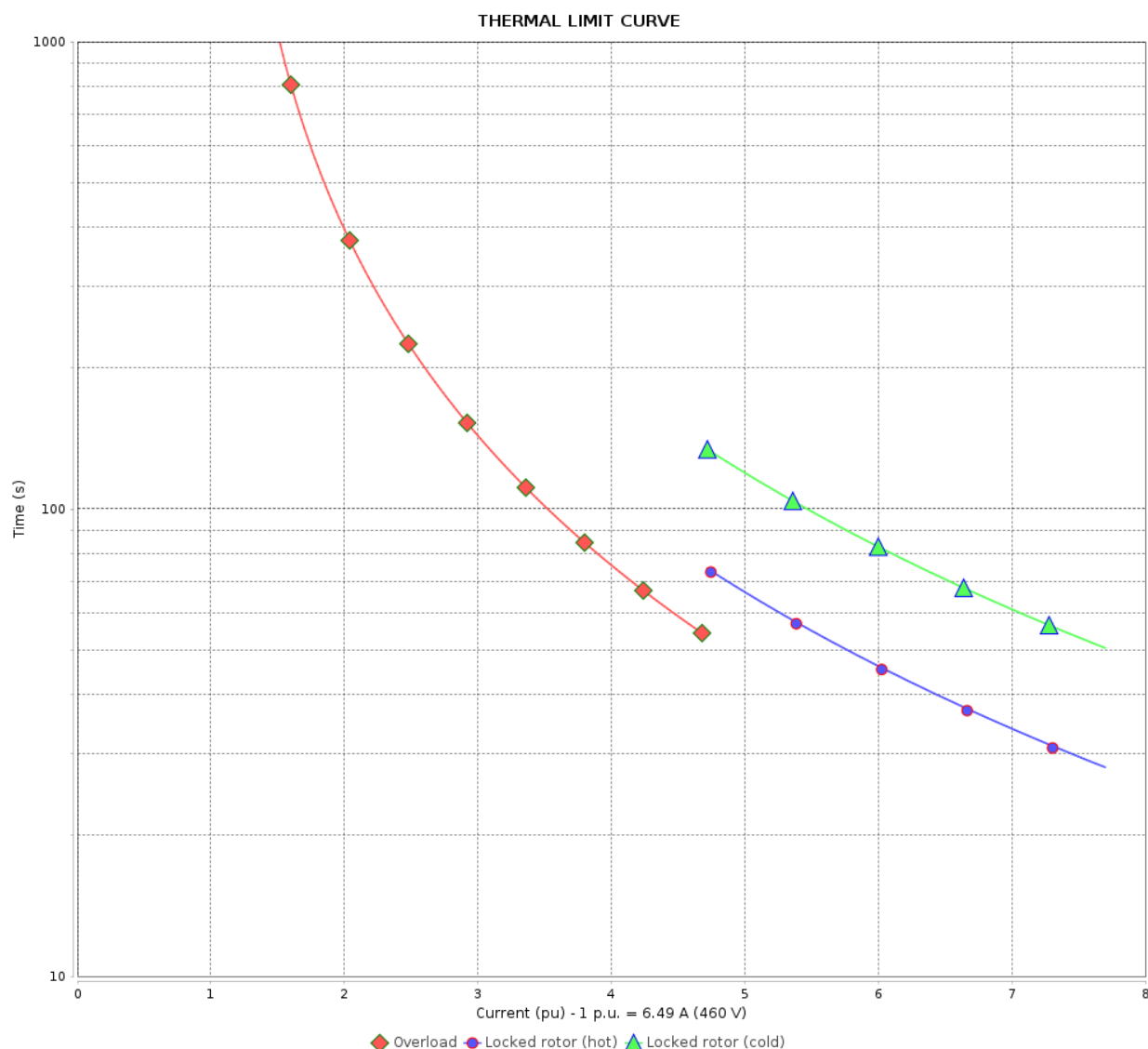
Product line : IEEE 841 W22

Product code :

11431316

Catalog # :

00518ST3QIE184T-W22



Performance : 460 V 60 Hz 4P

Rated current : 6.49 A
 LRC : 7.7
 Rated torque : 15.0 ft.lb
 Locked rotor torque : 229 %
 Breakdown torque : 300 %
 Rated speed : 1750 rpm

Moment of inertia (J) : 0.4003 sq.ft.lb
 Duty cycle : Cont.(S1)
 Insulation class : F
 Service factor : 1.25
 Temperature rise : 80 K
 Design : B

Heating constant

Cooling constant

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page Revision		
Checked by				
Date	23/02/2023			

VFD OPERATION CURVE

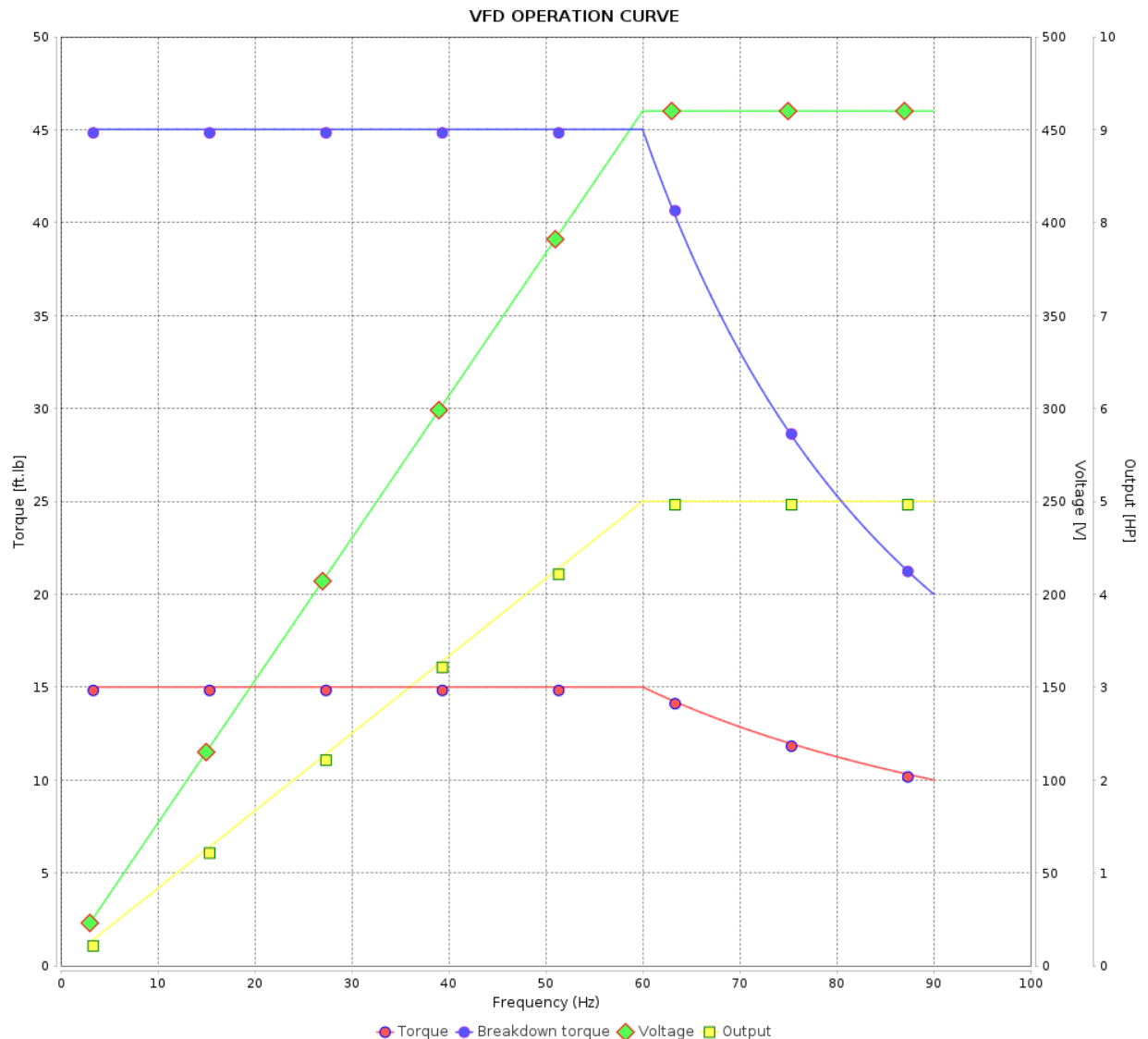
Three Phase Induction Motor - Squirrel Cage



Customer : Kim Kool Inc.

Product line : IEEE 841 W22

Product code : 11431316
Catalog # : 00518ST3QIE184T-W22

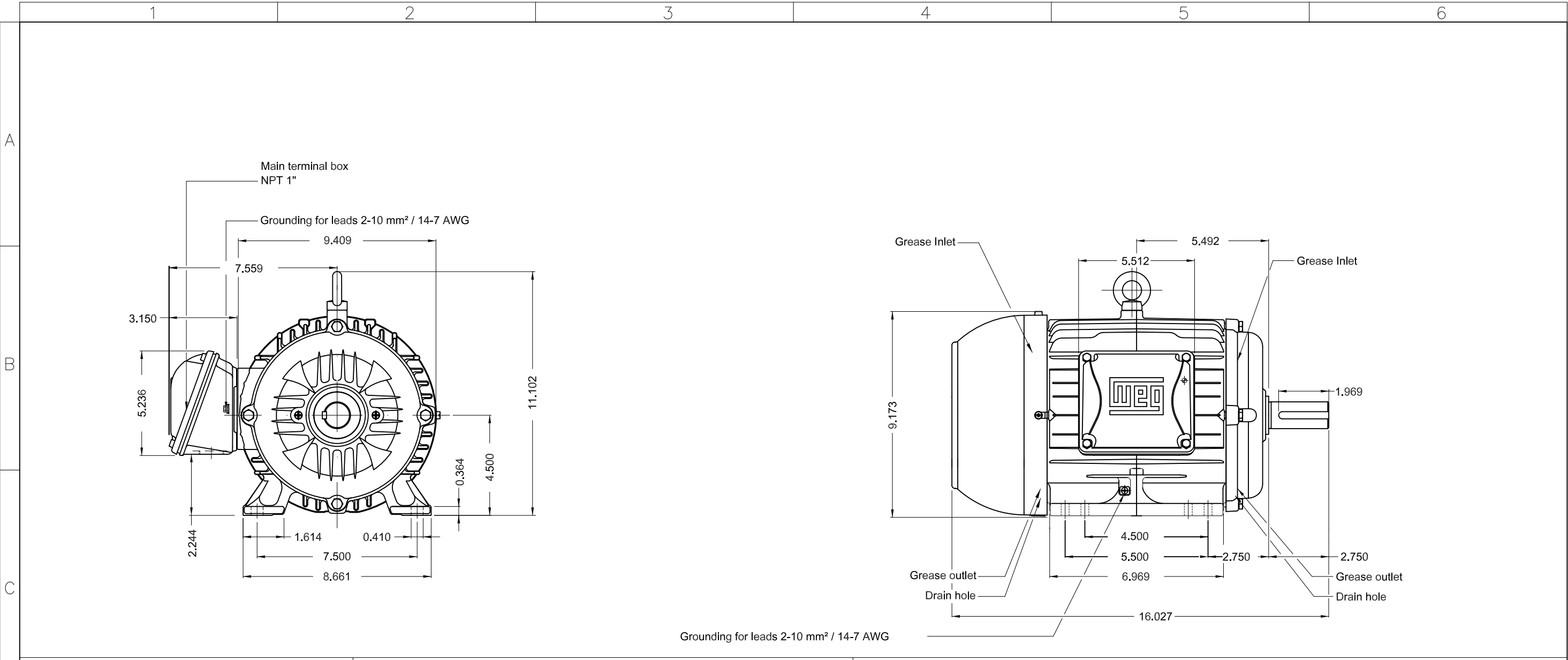


Performance : 460 V 60 Hz 4P

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Duty cycle : Cont.(S1)
Insulation class : F
Service factor : 1.25
Temperature rise : 80 K
Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 5 / 5 Revision		
Checked by				
Date	23/02/2023			



D					EM-120 GAS COOLER MOTOR																	
					5 HP 04 Poles 60 Hz										A							
E	Grease outlet according to IEEE841 Color RAL 5009 Painting plan 202E Mounting B3R(D)	DE Shaft End									HYBRISUSER						00					
					ECM		LOC		SUMMARY OF MODIFICATIONS				EXECUTED		CHECKED		RELEASED		DATE		VER	
					EXECUTED		HYBRISUSER				THREE PH. MOTOR IEEE 841 W22 NEMA PREM. EFF. FRAME 182/4T IP55 TEFC				PREVIEW WDD 00							
					CHECKED																	
					RELEASED																	
REL. DATE				WMO		Jaragua do Sul				Product Engineering		SHEET		1 / 1								



MODEL 00518ST3QIE184T-W22

Inverter Duty Motor
Severe Duty

IEE
841-2009



Class I, Div 2, Gr A, B, C and D - T3
Class I, Zone 2, IIC - T3
Class II, Div 2, Gr F and G - T5
For use on PWM: Gr. A, B, C, D, F and G,
VT 1000:1, CT 20:1, 1.00SF - T4A



FOR SAFE AREA
Mod.TE1BFOXON
CC029A

PH3 60Hz Fr. 182/4T 1000m.a.s.l. IP55 TEFC 111lb

V 460

A 6.49

HP 5.0

kW 3.7

SF 1.25

SFA 8.11

RPM 1750

PF 0.80

AMB 40°C

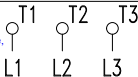
INS cl. F DT80K

NEMA NOM EFF 89.5%

DUTY CONT.

DES B Code J

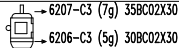
GUARANT. EFF 87.5%



Manufacturer's nameplate,
Vaportech to add tagging
as noted below:

**EM-120 GAS
COOLER MOTOR**

460V



MOBIL POLYREX EM (20000h)



KM-110 COMPRESSOR MOTOR

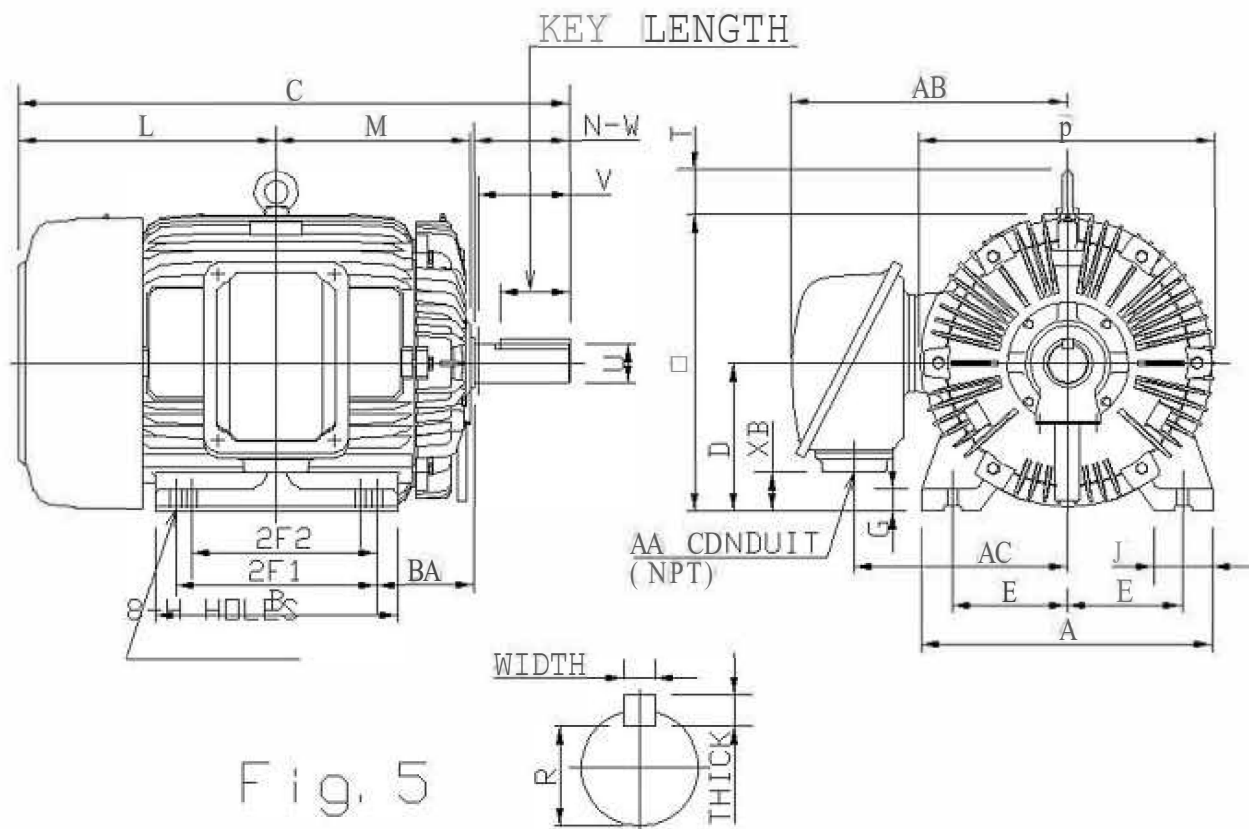
TECO®Westinghouse

M O T O R S (C A N A D A) I N C .

Date: January 31, 2023

Dimensional Drawing

Catalogue	Type	HP	RPM	Voltage	Hz	Frame Size
PDH0604	AEHH8N	60	1800	230 / 460	60	364T



Mounting					A	B	C	CL1	CL2	D	G
E	2F1	2F2	H	BA							
7	11.25		0.67	5.88	17.7	13.75	32.57			9	1.3

J	K	L	M	O	p	T
3.55		15.19	11.29	18.02	18.03	2.76

Terminal Housing			
AA	AB	AC	XB
3	18.33	13.78	2.39

Shaft Extension			Key			Keyseat
N-W	U	V	Width	Thick	Length	R
5.88	2.375	5.75	0.625	0.625	4.28	2.021

Bearings		Weight Lbs	Drive Method	Dimensions
DE	NDE			
6313	6213	777	Direct Coupling/ Belt Drive	Inches

	
	Date: February 1, 2023

Technical Data Sheet

Motor Type: AEHH8N	Catalogue No: PDH0604
--------------------	-----------------------

Nameplate Information

HP	Pole	RPM	Frame	Voltage	Hz	Phase
60	4	1775	364T	230 / 460	60	3
Enclosure	Ins. Class	Service Factor	Time Rating	NEMA Design	Rated Amb.	Rated Altitude
TEFC	F	1.15	Continuous	C	-40 to 40 °C	<1000 m

Typical Performance

Efficiency (%)				Power Factor (%)		
Full Load		3/4 Load	1/2 Load	Full Load	3/4 Load	1/2 Load
Nom.	Min.					
95	94.1	95	94.5	86.5	83	75.5
Torque				Current (A)		
Full Load (lb-ft)	Locked Rotor (% FLT)	Pull Up (% FLT)	Break Down (% FLT)	No Load	Full Load	Locked Rotor
177.5	200	155	240	37.6 / 18.8	136.8 / 68.4	870 / 435
NEMA KVA Code	Inertia (WR ²)			Safe Stall Time (s)		Noise Level Sound Press. dB(A)
	Rotor (lb-ft ²)	NEMA Load (lb-ft ²)	Max. Allowable (lb-ft ²)	Cold	Hot	
G	12.23	275	486.27	17	12	79

VFD Duty Information

MAX HP	Current (A)	Speed Range			VFD		S.F.
		CT	VT	CHP	Carrier Hz	Type	
60	68.37	6-60Hz	3-60Hz	60-90Hz	3-6kHz	VPWM or CPWM	1

Hazardous Locations Information

Additional Certifications

CSA Certified	Other Certification
Class I, Div 2, Groups B, C & D Class I, Zone 2, Groups IIB+H2, IIB & IIA	
Temp Code (Sinewave / VFD)	T3 / T3

Additional Information

Bearings		Approx. Weight
DE	NDE	lbs
6313	6213	777