Creator Explorer MDP Catalog Number: M5022MA

Specifications:

Main Breaker:

- CB1 480V / 100A / 3 Phase

Branch Circuits:

- CB2 480V / 60A / 3 Phase
- CB3 480V / 25A / 3 Phase
- CB4 480V / 25A / 3 Phase
- CB5 480V / 25A / 3 Phase

Enclosure Dimensions: (H)x(W)x(D)

- 42'' x ''26 x 9''

Compliance & Certifications:

c UL us LISTED

OSHPD SEISMIC COMPLIANT APPROVED

RoHS COMPLIANT

Advantages and Features

This Bevco Engineering Main Disconnect Panel provides a single point power connection that significantly reduces installation time and valuable mounting space. The panel implements several safety features that offer protection to the operators, patients, and imaging equipment. The UL/cUL design covers North America, National Electrical Code, and Canadian Electrical code. Thoroughly tested designs manufactured with proven components eliminates the design guess work. The Main Disconnect Panel is equipped with true Automatic Restart and reduces the operational downtime following power loss, eliminating the need for facility or electrical personnel intervention. The MDP design includes: UPS connections, Power Monitoring Interface, remote and local Emergency Power Off buttons. UL, cUL, OSHPD, and RoHS labeled. Surface or semi-flush mounting.

Advancing the industry since 1985 - Over 45,000 worldwide installations - Strategically designed by industry leaders - State of the art manufacturing Proven and trusted components - Custom panel applications - UL, cUL, CE, RoHS, and Seismic compliance - Direct supply chain to replacement parts - OSHA Lock Out/Tag Out Features - ISO9001 Compliant - Single-point connection allows for quick and seamless installation

BEVCO IMAGING SUITE CONTROLS
W222N5739 Miller Way Sussex, WI 53089
www.bevcoisc.com | Tel: (262) 820-2400 | Fax: (262) 820-2599

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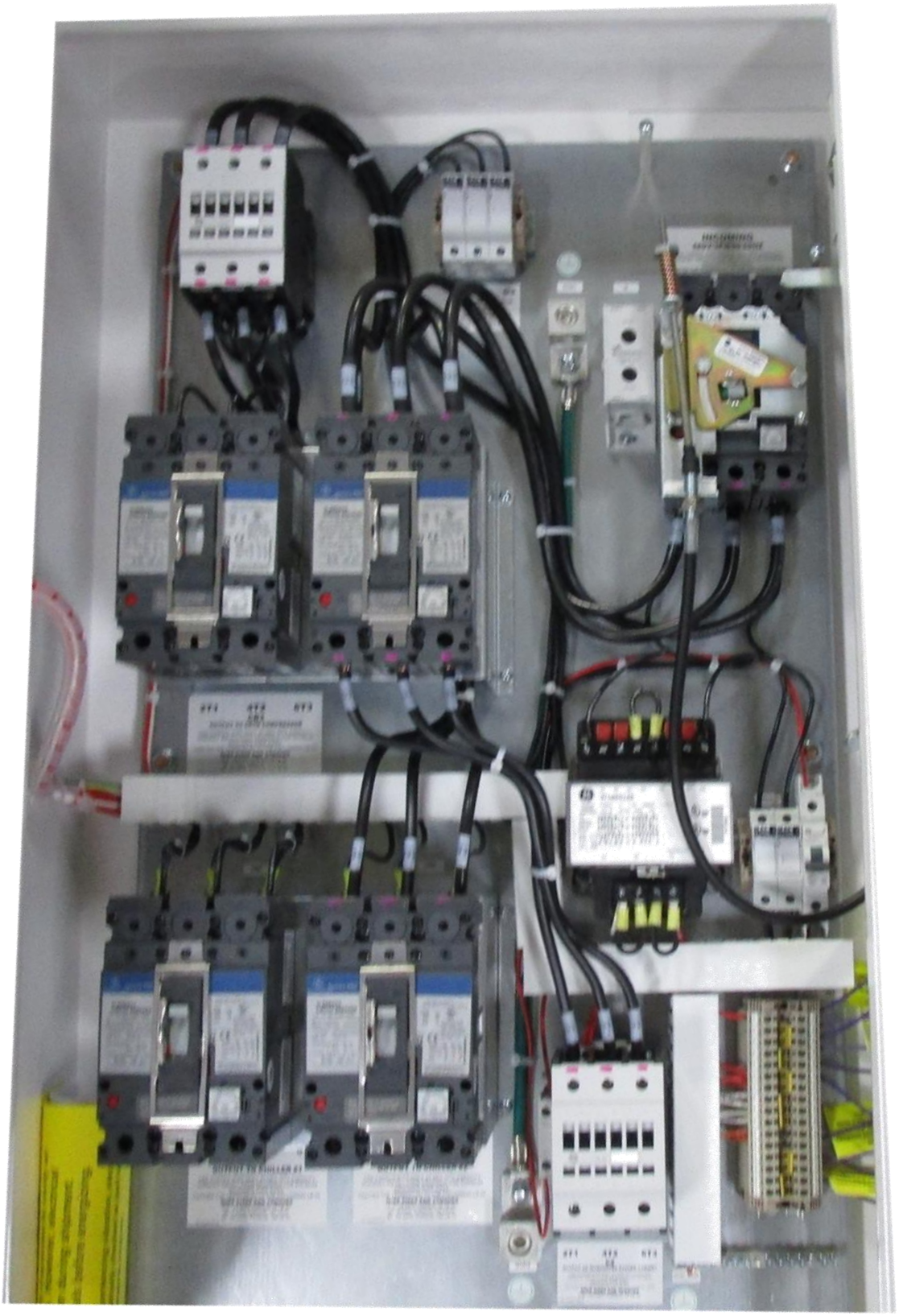
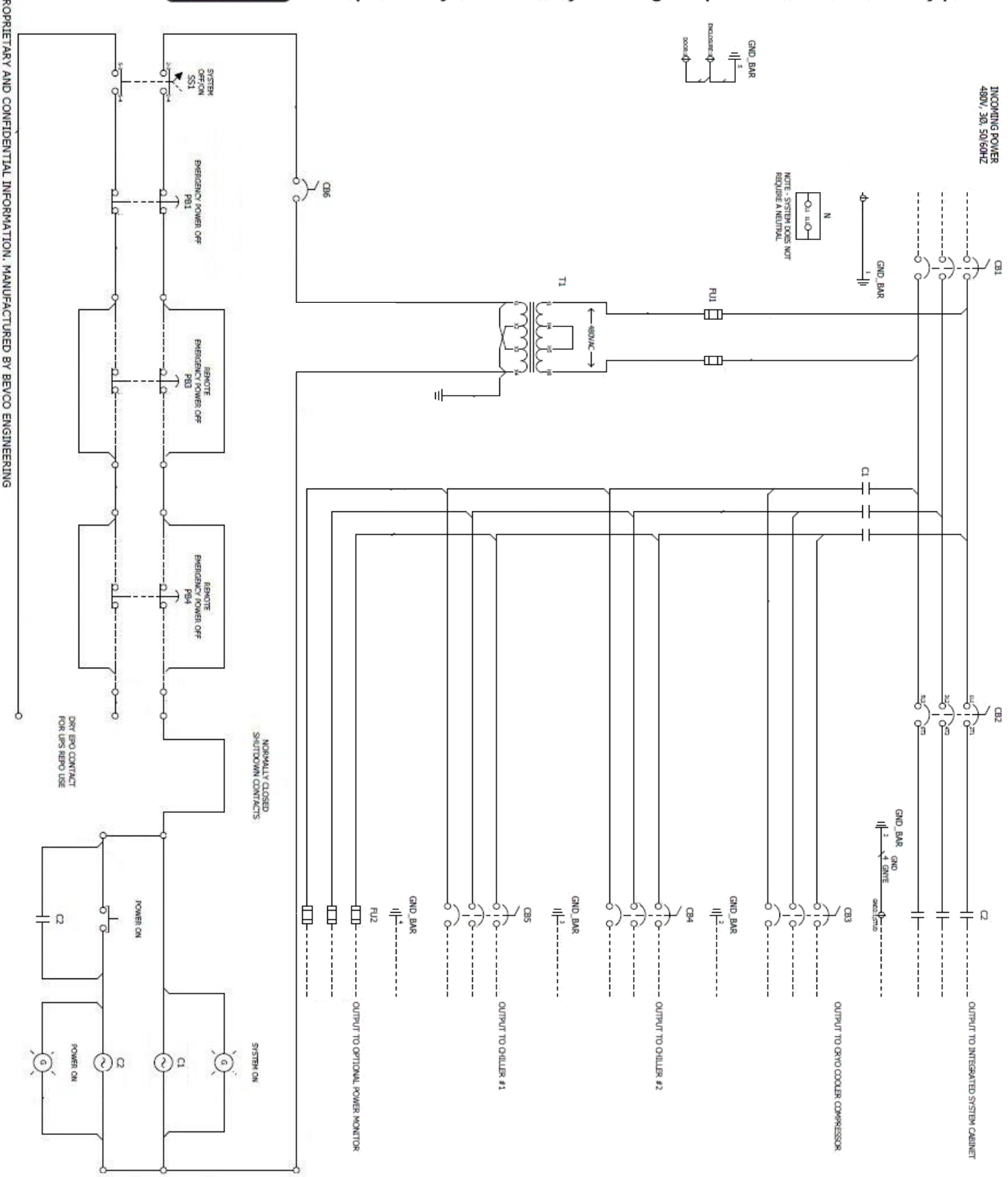
PANEL IMAGES

PANEL IMAGES (CONTINUED)



SCHEMATIC

DANGER Improperly torqued connections will damage the system.
This panel may automatically re-energize upon restoration of facility power



WARNING! The UPS REPO connection is an isolated dry contact.
It should be isolated from the 24VAC control power at all times.
Failure to install the UPS REPO properly, per the schematic will damage the UPS.

CIRCUIT BREAKER INSTANTANEOUS TRIP SETTINGS

CB1 INSTANTANEOUS TRIP SETTING						
MIN	2	3	4	5	6	**MAX**
3X	3.8X	4.8X	5.9X	7.8X	10X	**12.8X**
297	376	475	593	775	998	**1280**

CB2 INSTANTANEOUS TRIP SETTING						
MIN	2	3	**4**	5	6	MAX
3X	3.7X	4.7X	**5.9X**	7.7X	10X	13X
178	224	284	**355**	464	604	777

CB3 INSTANTANEOUS TRIP SETTING						
MIN	2	3	**4**	5	6	MAX
2.9X	3.7X	4.7X	**5.9X**	7.7X	10.1X	13.3X
73	93	117	**147**	193	253	332

CB4 INSTANTANEOUS TRIP SETTING						
MIN	2	3	**4**	5	6	MAX
2.9X	3.7X	4.7X	**5.9X**	7.7X	10.1X	13.3X
73	93	117	**147**	193	253	332

CB5 INSTANTANEOUS TRIP SETTING						
MIN	2	3	**4**	5	6	MAX
2.9X	3.7X	4.7X	**5.9X**	7.7X	10.1X	13.3X
73	93	117	**147**	193	253	332

COMPONENTS SUPPLIED WITH EACH PANEL

1. The M50022MA Main Disconnect Panel
2. This installation Operations & Service Manual (English Only)
3. (2) Sets of Remote Emergency Power Off push buttons with 2 NC contacts on each EPO, are preassembled with stainless steel wall plates, nameplates, and protective shrouds.
4. Drawings and Electrical Schematics Drawings and Electrical Schematics Drawings and Electrical Schematics
5. French Danger Warning Label to be applied to the panel exterior where applicable.

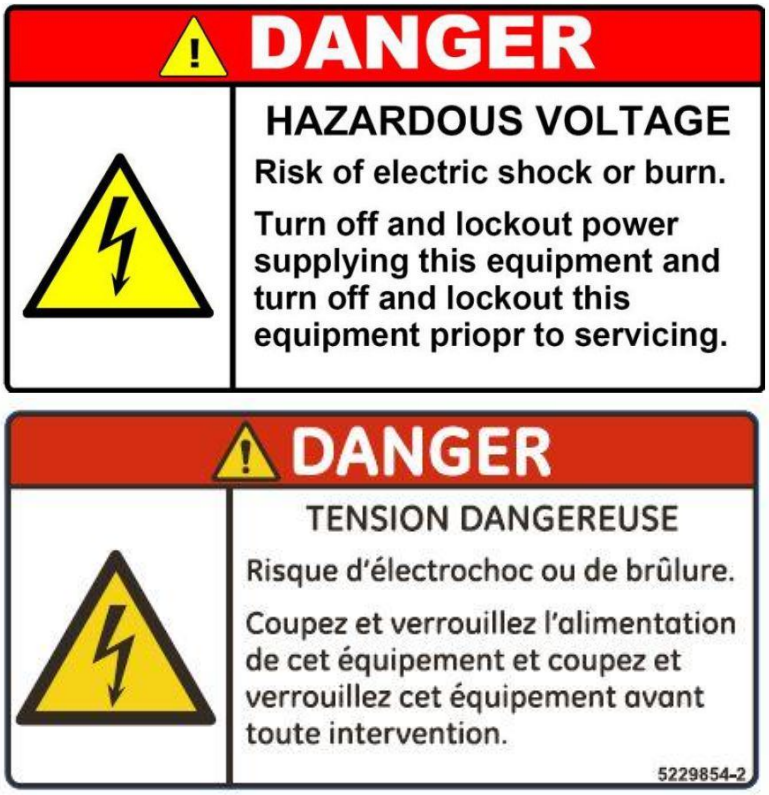
DESCRIPTION OF OPERATION

This Bevco Engineering Main Disconnect Panel serves as the main power between the facility power source and the GE MR System and subsystem components. The MDP saves time, installation labor, and valuable mounting space by consolidating the main circuit breaker, branch circuit breakers, control power source, disconnect contactor, indicator lights, and oversized
grounding lugs into a compact factory manufactured and tested panel.

- The panel has a 480V, 100A main circuit breaker with individual branch breakers for the PDU Cabinet (CB2), Cryo Cooler Compressor (CB3), and Chillers (CB4 and CB5). Designed with capabilities to implement optional features such as the UPS EPO contacts and Power Monitor Interface.
- Two illuminated, green lights on the panel cover indicates the normal operation status of the panel.
- When the Main Circuit Breaker or Operator Handle is set to the OFF position all power to the panel components will be removed. Restoring power by closing the main circuit breaker enables the automatic restart control for the compressor and chiller circuit breakers. PDU power is restored upon pressing the PDU POWER ON push button located on the panel cover.
- If an EMERGENCY POWER OFF button is pressed at any time it must be reset by rotating it clockwise.
- If an Emergency Power Off (EPO) button is pressed or the MDPs System ON/OFF switch is set to the OFF-position power will be removed from the load side of contactors C1 and C2. This effectively will de-energize the PDU Cabinet (CB2), Cryo Cooler Compressor (CB3), Chillers (CB4 and CB5), and the optional Power Monitor. Warning: The Main Circuit Breaker and the 24VAC Control Circuit transformer will remain energized when the ON/OFF selector switch is in the OFF position or an EPO button is pressed.
- Restarting the system after the System ON/OFF switch was set to OFF -or- an EPO operation: First, the ON/OFF selector switch must be set to the ON position and all of the EPOs set to the normal operating position, then the system PDU ON button must be pressed.
- Power will automatically be restored to CRYO COOLER COMPRESSOR, CHILLER #1 and #2 branch circuit breakers once the main circuit breaker is re-energized, provided the System ON/OFF switch is set to the ON position and all of the Emergency Power Off buttons have been reset to the normal operating positions. The INTEGRATED SYSTEM CABINET requires a manual reset by pressing the cover mounted ISC POWER ON button.
- The control circuits are low voltage 24VAC and are fully powered from within the panel.
- User NO/NC dry auxiliary contacts are provided for interface with monitoring system to indicate normal power for the chillers and compressors.
- User NC dry auxiliary contact is provided for interface with monitoring system to indicate normal power for the PDU.

DANGER

IMPORTANT: If building power is removed from the panel while the system is energized, the M50022MA will automatically re-energize when building power is restored without any human intervention, however the (INTEGRATED SYSTEM CABINET) ISC POWER ON button must be pressed.



SAFETY AND MAINTENANCE

- Trouble shooting and servicing should only be attempted by a qualified electrician.
- Always wear proper personal arc flash protection and observe the lock out/tag out requirements of your employer and the facility you are working at.
- De-energize and lockout the main disconnect before servicing this panel. Troubleshooting and servicing should be performed by a qualified electrician.
- A Structural engineer shall define the proper fixing and anchoring hardware for the installation to the wall of the MDP. Type and model of anchoring and the necessary tightening torque shall be recorded in a document left in the MDP log book. A paint or lack mark shall be applied on screw head, to facilitate further visual inspection.
- Prior to service or testing ensure that the circuit breakers (CB1, CB2, CB3, CB4, CB5) settings are properly set according to tables located on the electrical schematic found on the inside of the enclosure door. The dial settings are preset at the factory.
- Prior to service or testing ensure that no one is working on or near the equipment this panel energizes.

INSTALLATION GUIDELINES AND PROCEDURES

Guidelines

- Setting the SYSTEM ON/OFF selector switch to the OFF position or pressing any of the EMERGENCY POWER OFF buttons will de-energize the systems branch circuits immediately.
- Only qualified technicians familiar with electrical power distribution equipment and the proper safety practices should attempt working on the equipment inside this panel.
- The enclosure must be mounted at a height that does not allow the top of the main circuit breaker handle to exceed 6 feet, 7 inches when in the ON position. (Per National Electric Code (NEC # 404.8)
- Incoming power is connected to the main circuit breaker located at the upper right of the Main Disconnect Panel. Refer to the electrical schematic for the incoming conductor size range and tightening torques
- There are no conduit knockouts provided in the panel. The installer must punch the conduit holes in the enclosure walls in the desired locations. The conduits may enter on the top of the enclosure.
  NOTE: When drilling or punching the conduit entry holes, protect the internal components from falling metal chips and remove all debris following installation
- All conductors must be sized per the wiring shown on the GEHC installation drawings or in the imaging product installation manual

Procedures

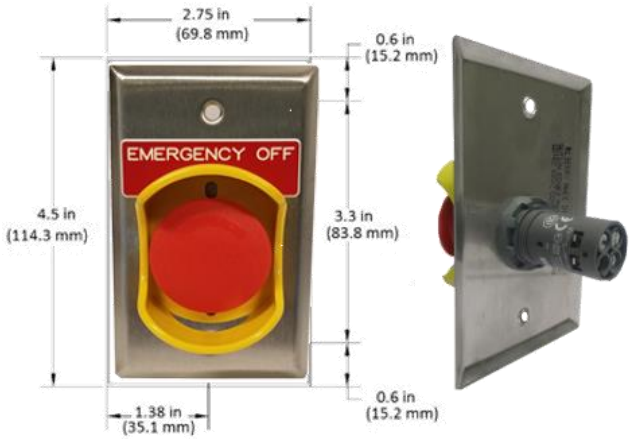
1. Connect the incoming power to the Line side of the Main CB, CB1, Max Conductor 3/0
2. Connect the PDU Cabinet directly to the load side of Contactor C2, Conductor range #10-1/0
3. Connect the Cryo Cooler Compressor to the load side of CB3, Conductor range #12-3/0
4. Connect the Chiller #2 to the load side of CB4, Conductor range #12-3/0
5. Connect the Chiller #1 to the load side of CB5, Conductor range #12-3/0
6. Take note of the optional features that require field wiring. (See Optional Features Installation below)

Optional Features Installation Procedures

1. The optional System Shut Down feature can be installed by removing the bypass jumper between TB1-6 and TB1-7 and landing corresponding wires from a normally closed control contact that opens on the specified event.
2. If only one EPO is installed ONLY the violet bypass jumper wire with yellow tag should be removed from the TB1-4 and TB1-5 terminals and replaced with the normally closed EPO pushbutton provided.
3. If a second Remote EPO is installed the violet bypass jumper wire with yellow tag should be removed from the TB1-5 and TB1-6 terminals and replaced with the second EPO provided.
4. The optional UPS EPO dry contacts are a normally closed circuit wired in series and connected on TB1-10 and TB1-14
5. Optional 480V, 1A Power Monitor Interface is landed on the load side of FU2, Conductor Range (single wire) #18-#4 AWG -or- (dual wire) #18-#10 AWG

REMOTE EMERGENCY OFF BUTTONS - EPOs

EPO-NCNC-F: This part number comes with 2 normally closed contact terminals attached to the back of the emergency off push button. Two are included with each Main Disconnect Panel.
Dimensions: (NOTE: This emergency off push button must be mounted in an extra deep switch box with mud ring. The contact block on the back of the EPO extends 1.37 Inches/35mm into the switch box and terminates from the side.



ELECTRICAL SPECIFICATIONS

UL design, NEC ratings of this panel require the application of wire at the 75°C ampacity ratings of NEC table 310.15(B)(16). Wire rated at higher temperature ratings, such as 90°C, may be used but ONLY applied at the 75°C ampacity ratings of NEC Table 310.15(B) (16).

Catalog Number	Incoming Voltage & Frequency	Incoming Power Configuration	Main Circuit Breaker Rating	Regulatory Markings
M50022MA	480VAC 50/60Hz	3Ø + Ground	100Amps	UL, cUL, OSHPD, RoHS
Short Circuit Current Rating is 25,000 Amperes RMS Symmetrical @ 480V				

SEISMIC SPECIFICATIONS

This Main Disconnect Panel has been certified by an independent California structural engineer in conformance with the shake testing requirements of ICC-AC 156. The California OSHPD number is OSP-0457-10.

The seismic performance characteristics are as follows:
$S_{DS}(g) \leq 2.56$; $z/h \leq 1.0$; $I_p \leq 1.5$

Certificate of Compliance
Seismic Certification Label California Building Code

OSHPD Special Seismic Certification Preapproval: OSP-0457-10
Product Name: *Main Disconnect Panel*
Product Type: *Control Panel*
Supports and Attachments: *Rigid wall mounted*
Seismic Performance Characteristics: $S_{DS}(g) \leq 2.56$; $z/h \leq 1.0$; $I_p \leq 1.5$
Manufacturer's Identification Number: *XR480-100-BS (Example cat #)*

BEVCO IMAGING SUITE CONTROLS
Bevco Engineering Company, Inc
www.bevcoengineering.com
Ph. 262.820.2400

ENVIORMENTAL SPECIFICATIONS

FOR INDOOR USE ONLY
Temperature 59-90°F (15-32°C)
Humidity 30-75%, NON-CONDENSING

ELECTRICAL DIAGRAM

The Electrical Wiring Diagram is adhered to the inside of the enclosure door for convenient reference to the circuitry. A complete set of the panel drawings are also attached to the back of this manual when shipped with the disconnect panel.

TROUBLE SHOOTING

Symptom	Possible Solutions
No power to the branch circuits	• Verify that the main circuit breaker operator handle located on the panel door is in the ON position and then press the PDU ON button • Verify that none of the EPOs are pressed, all of the EPOs are in the normal operating state by rotating each EPO knob clockwise to the contacts closed position, and then press the PDU ON button • Verify that fuses FU2 are installed according to the fuse replacement chart and test for continuity on each fuse. • Verify that the ON/OFF selector switch located on the panel door is in the ON position and then press the PDU ON button. • Verify that the internal control circuit power circuit breaker (CB6) is in the ON position • Verify that line and load side power is present at all 3 phases of circuit breakers CB1 and CB2, and contactors C1 and C2 • Verify that power is present at all 3 phases on the load side of CB3, CB4, CB5, and FU2 • Verify that 480VAC is present on the incoming terminals of the Control Circuit Power Supply (PS1) and that 24VAC is present on outgoing terminals • If the optional Remote EPO(s) are used, verify field wiring for the termination(s) as follows. If only one Remote EPO is installed the violet bypass jumper wire with yellow tag should be removed from the TB1-4 and TB1-5 terminals and replaced with the normally closed Remote EPO pushbutton provided. If a second Remote EPO is installed the violet bypass jumper wire with yellow tag should be removed from terminals TB1-5 and TB1-6 and replaced with the second EPO provided. • If the optional System Shut Down is used, verify that the jumper wire between TB1-6 and TB1-7 is removed and wired properly through a normally closed contact.

REPLACEMENT COMPONENTS

Component Field Replacement Unit	Description	Part Number
CB1	Main circuit breaker FRU	5829566
CB2	ISC branch circuit breaker FRU	5829567
CB3, CB4, CB5	Cryo Cooler and Chiller branch circuit breaker FRU	5829904
CB6	Control Circuit single pole circuit breaker FRU	5829697
C1, C2	Load contactor(s) FRU	5829906
T1	Control Transformer FRU	5829699
FU1, FU2	Replacement Fuse(s) FRU	5829908
PB1	Door mount Emergency Stop FRU	5809469
LT1	Cryo Compressor indicator light FRU	5829702
PBLT1	ISC pushbutton indicator light FRU	5829909
SS1	System Start push button FRU	5829907
E02	Remote Emergency Power Off Pushbutton FRU	5831878

FUSE REPLACEMENT

Fuses rated at the same ampere are available from many suppliers and manufacturers, however the fault characteristics, performance, and compliance factors may vary by manufacturer. Fuse replacement should only be completed using the one of the specified fuses identified in the diagram below.

FUSE REPLACEMENT CHART

FOR CONTINUED PROTECTION AGAINST RISK OF FIRE,
REPLACE FUSES WITH SAME TYPE AND RATING BELOW.

FUSE	SIZE	CLASS	LITTLE FUSE	MERSEN	BUSSMANN
FU1	1.6A	CC	KLDR01.6	ATQR1-1/6	FNQ-R-1-1/6
FU2	1A	CC	KLDR1	ATQR1	FNQ-R-1

PARTS, TECHNICAL SUPPORT, & SERVICE

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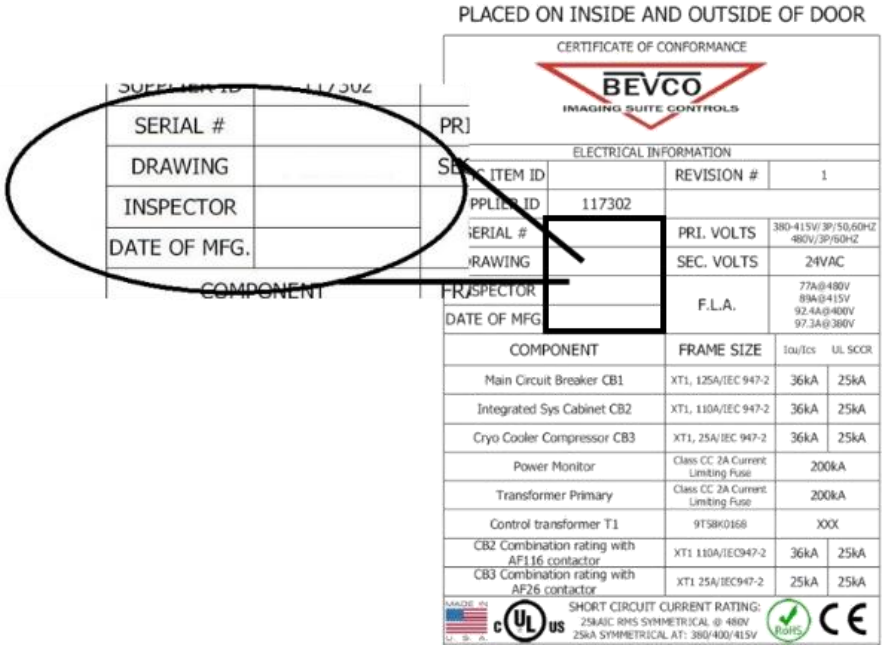
PLACED ON INSIDE AND OUTSIDE OF DOOR



SERIAL #	
DRAWING	
INSPECTOR	
DATE OF MFG.	
COMPONENT	

CERTIFICATE OF CONFORMANCE

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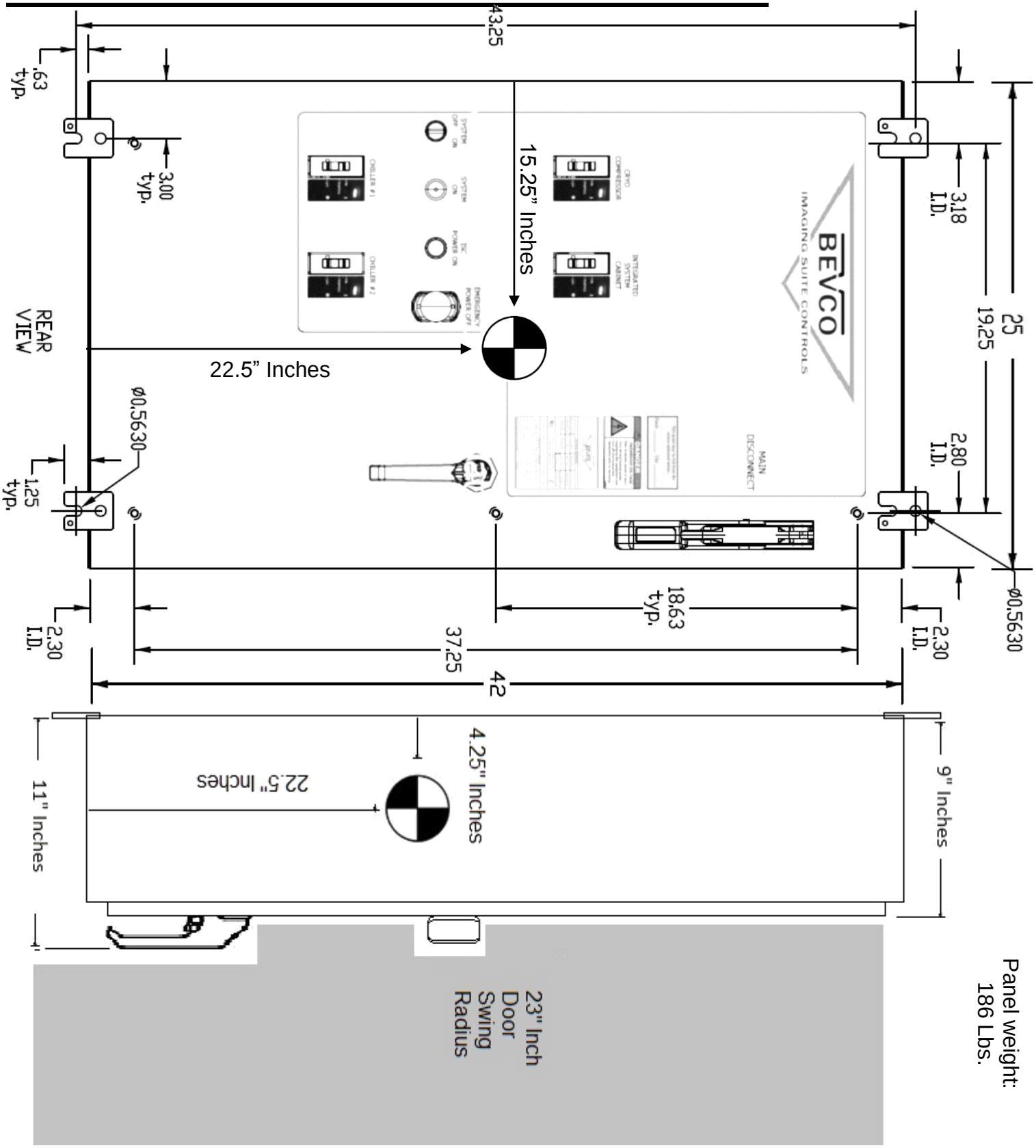
ELECTRICAL INFORMATION

ITEM ID		REVISION #	1
SUPPLIER ID	117302		
SERIAL #		PRI. VOLTS	380-415V/3P/50,60HZ 480V/3P/60HZ
DRAWING		SEC. VOLTS	24VAC
INSPECTOR		F.L.A.	77A@480V 89A@415V 92.4A@400V 97.3A@380V
DATE OF MFG			

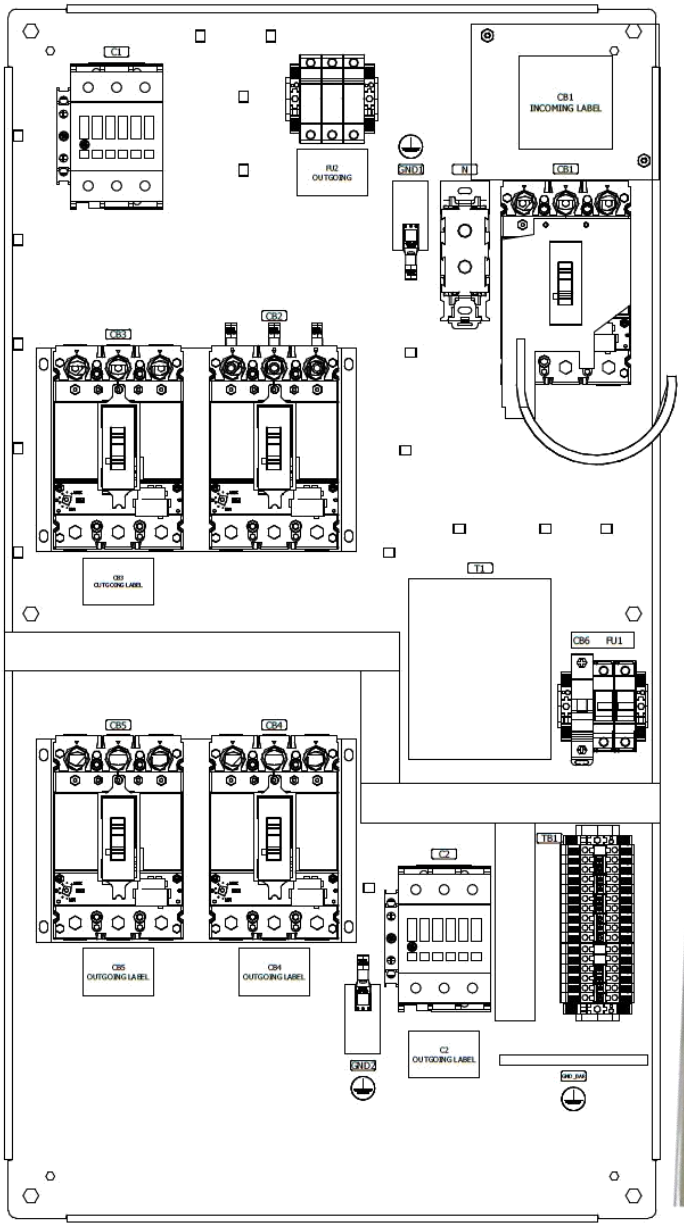
COMPONENT	FRAME SIZE	Icu/Ics	UL SCCR
Main Circuit Breaker CB1	XT1, 125A/IEC 947-2	36kA	25kA
Integrated Sys Cabinet CB2	XT1, 110A/IEC 947-2	36kA	25kA
Cryo Cooler Compressor CB3	XT1, 25A/IEC 947-2	36kA	25kA
Power Monitor	Class CC 2A Current Limiting Fuse	200kA	
Transformer Primary	Class CC 2A Current Limiting Fuse	200kA	
Control transformer T1	9T58K0168	XXX	
CB2 Combination rating with AF116 contactor	XT1 110A/IEC947-2	36kA	25kA
CB3 Combination rating with AF26 contactor	XT1 25A/IEC947-2	25kA	25kA

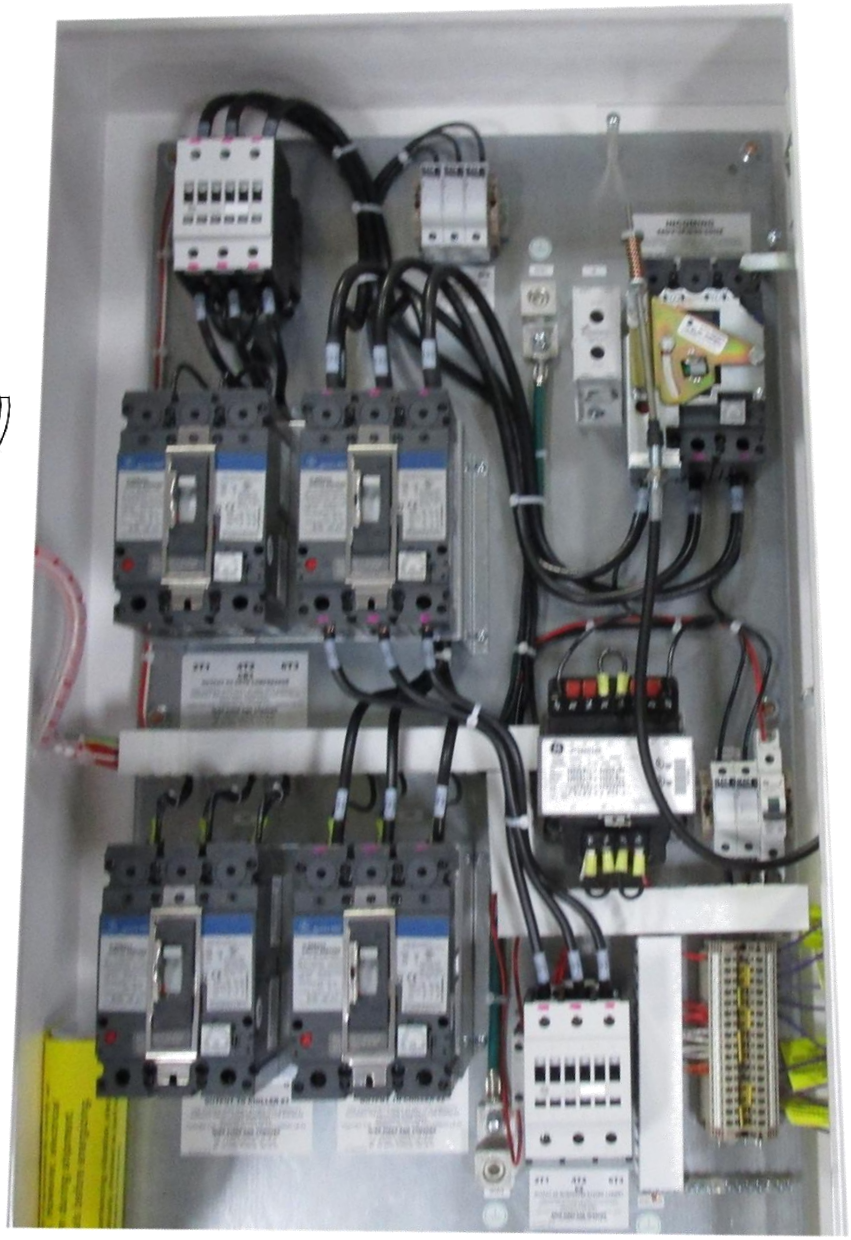
MADE IN U.S.A. c UL us SHORT CIRCUIT CURRENT RATING: 25kAIC RMS SYMMETRICAL @ 480V 25kA SYMMETRICAL AT: 380/400/415V RoHS CE

PANEL DIMENSIONS AND CENTER OF GRAVITY



PANEL LAYOUT (CONTINUED)





Revision History

Revision	Date	Description	Author
1.0	01/10/2019	Initial Draft	James Taylor
2.0	09/11/2019	AC Control Circuit	James Taylor
2.1	12/12/2019	Update COG and Label	James Taylor
2.2	1/10/2020	Update replacement parts to GE FRU collector kit part numbers	James Taylor
2.3	2/27/2020	Update Images	James Taylor

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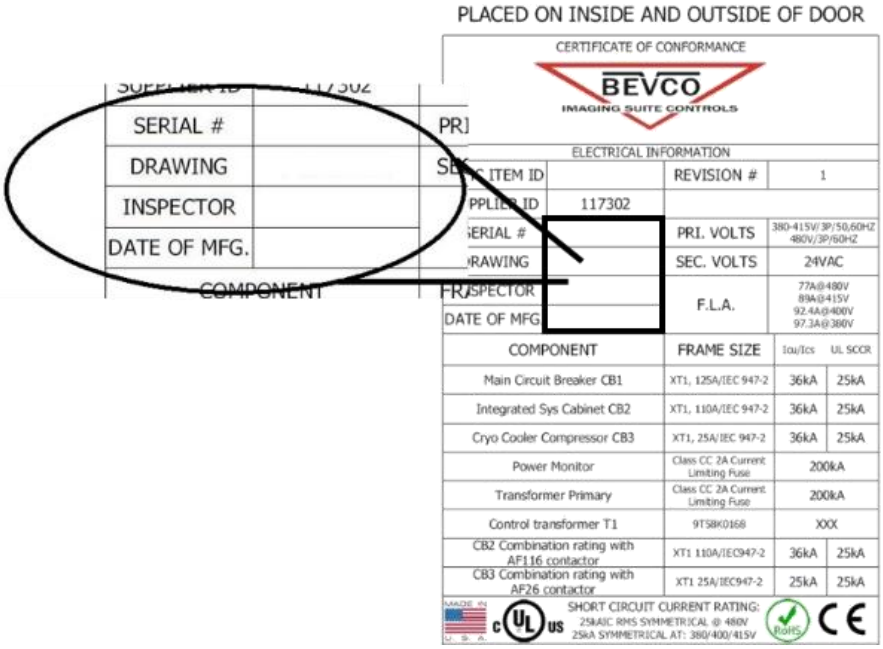

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INSPECTOR		F.L.A.	77A@480V 89A@415V 92.4A@400V 97.3A@380V
DATE OF MFG			

COMPONENT	FRAME SIZE	Icu/Ics	UL SCCR
Main Circuit Breaker CB1	XT1, 125A/IEC 947-2	36kA	25kA
Integrated Sys Cabinet CB2	XT1, 110A/IEC 947-2	36kA	25kA
Cryo Cooler Compressor CB3	XT1, 25A/IEC 947-2	36kA	25kA
Power Monitor	Class CC 2A Current Limiting Fuse	200kA	
Transformer Primary	Class CC 2A Current Limiting Fuse	200kA	
Control transformer T1	9TS8K0168	XXX	
CB2 Combination rating with AF116 contactor	XT1 110A/IEC947-2	36kA	25kA
CB3 Combination rating with AF26 contactor	XT1 25A/IEC947-2	25kA	25kA

MADE IN U.S.A. c UL us SHORT CIRCUIT CURRENT RATING: 25kAIC RMS SYMMETRICAL @ 480V 25kA SYMMETRICAL AT: 380/400/415V RoHS CE