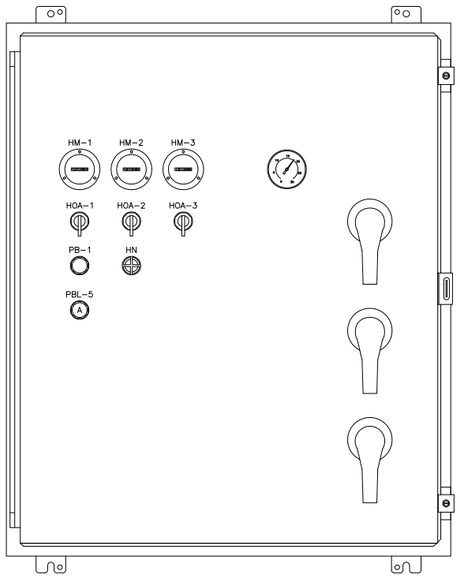
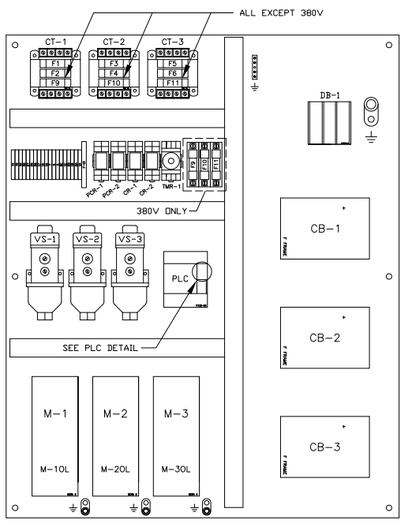
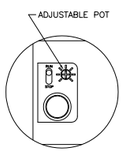
NOTES:

1. MAIN DISCONNECT PROVIDED BY OTHER.
2. FIELD WIRING TO BE COPPER RATED FOR 75°C MINIMUM.
3. — — — INDICATES FIELD WIRING OUTSIDE OF CABINET.
4. ADJUSTABLE MINIMUM RUN TIMER IS PROVIDED IN THE PLC PROGRAM. SEE PLC DETAIL FOR ADJUSTING POT AND CHART FOR CORRECT SETTINGS.
5. 20-25HP 208-230V AND 30-50HP PANEL LAYOUTS NOT SHOWN.
6. THE AMPACITY OF CONDUCTORS SUPPLYING THE CONTROL PANEL TO BE ROUNDED UP TO THE NEXT SIZE LARGER STANDARD WIRE GAUGE.
7. MOP VALUES TO BE ROUNDED DOWN TO THE NEAREST STANDARD RATING OF THE OVERCURRENT PROTECTION DEVICE.
8. SHORT CIRCUIT CURRENT RATING (SCCR): 5 kA





PLC DETAIL



MINIMUM RUN TIMER SETTINGS

SYSTEM HP	SETTING
3–15	2.5
20–30	5
50	10

208 - 460 V
3 Ø
50 / 60 Hz

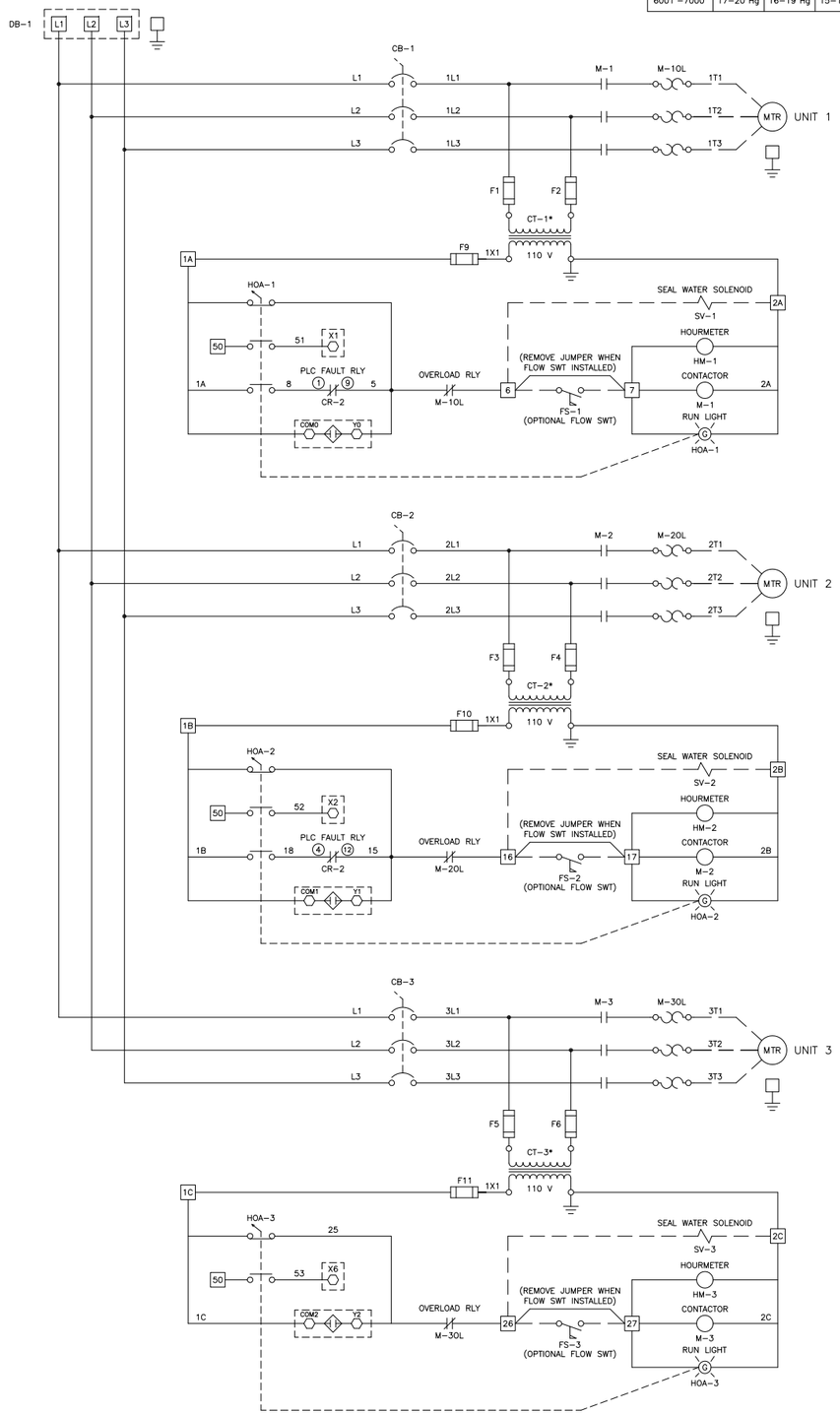
SCCR: 5 kA

*TRANSFORMER SIZING CHART

SYSTEM HP	208 V	230 V	380V/50Hz	460 V
3–25 HP	100 VA	100 VA	100 VA	100 VA
30 HP	250 VA	250 VA	100 VA	100 VA
50 HP	250 VA	250 VA	--	250 VA

VACUUM SWITCH SETTINGS

ALTITUDE	VS-1	VS-2	VS-3	RELIEF VALVE SETTING
0–3000'	20–23"Hg	18–21"Hg	16–19"Hg	25"Hg
3001'–4000'	19–22"Hg	17–20"Hg	15–18"Hg	24"Hg
4001'–5000'	18–21"Hg	16–19"Hg	15–18"Hg	23"Hg
5001'–6000'	17–20"Hg	16–19"Hg	15–18"Hg	22"Hg
6001'–7000'	17–20"Hg	16–19"Hg	15–18"Hg	21"Hg

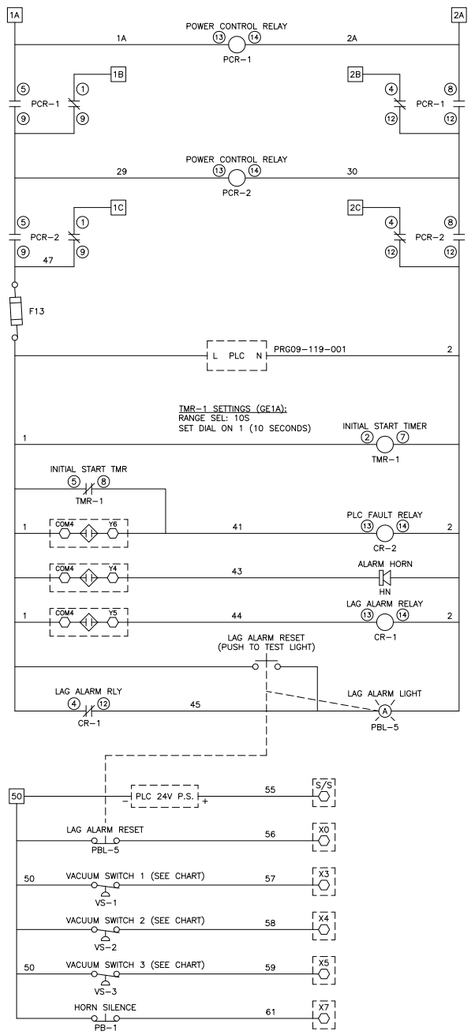


AUXILIARY CONTACTS

CONTACTS CLOSED DURING NORMAL OPERATION

NOTE:
AUXILIARY CONTACTS 70–71 ARE "CLASS 1 CONTROL CIRCUITS, USE CLASS 1 CONDUCTORS"

ALL OTHERS ARE "CLASS 2 CONTROL CIRCUITS, USE CLASS 2 CONDUCTORS"



FUSE SELECTION CHART (MAX FUSE SIZES SHOWN)

SYSTEM HP	FUSE	208 V	230 V	380 V	460 V
3–25 HP	F1/F2/F3 F4/F5/F6	1.6 AMPS	1.4 AMPS	0.8 AMP	0.6 AMP
	F9/F10/F11	1.25 AMPS	1.25 AMPS	1.25 AMPS	1.25 AMPS
30 HP	F1/F2/F3 F4/F5/F6	3.5 AMPS	3.5 AMPS	0.8 AMP	0.6 AMP
	F9/F10/F11	3.5 AMPS	3.5 AMPS	1.25 AMPS	1.25 AMPS
50 HP	F1/F2/F3 F4/F5/F6	3.5 AMPS	3.5 AMPS	--	1.6 AMP
	F9/F10/F11	3.5 AMPS	3.5 AMPS	--	3.5 AMPS
ALL	F13	0.7 AMP	0.7 AMP	0.7 AMP	0.7 AMP

F1/F2/F3/F4/F5/F6 ARE LITTELFUSE KLDR 600V TYPE
F9/F10/F11 ARE LITTELFUSE FLM 250V TYPE
F13 IS LITTELFUSE 2AG 250V TYPE

OPERATION:

DURING NORMAL OPERATION, THE HOA SWITCHES SHOULD BE IN THE AUTO POSITION. THE PLC WILL SIGNAL THE LEAD PUMP TO START WHEN VS–1 CLOSES WITH FALLING VACUUM LEVEL. AFTER VS–1 OPENS AND THE ADJUSTABLE MINIMUM RUN TIMER (SEE NOTE 4) HAS EXPIRED, THE PUMP THAT IS RUNNING WILL TURN OFF. WHEN VS–1 CLOSES AGAIN, THE PLC WILL SEQUENCE THE LEAD ROLE TO THE NEXT PUMP AND IT WILL START. IF LEAD PUMP RUNS FOR MORE THAN 17 MINUTES AND CANNOT REACH THE VS–1 CUT–OFF SETTING, THE PLC WILL TURN OFF THE PUMP THAT IS RUNNING AND SEQUENCE TO THE NEXT PUMP. IF DURING OPERATION VS–2 CLOSES, THE SECOND PUMP WILL COME ON. IF DURING OPERATION VS–3 CLOSES, THE THIRD PUMP WILL COME ON AND THE PLC WILL TURN ON THE "LAG ALARM".

HAND OPERATION:
(EMERGENCY/TROUBLE SHOOTING MODE ONLY)

PUMPS WITH THE HOA SWITCH IN THE HAND POSITION WILL START AND RUN CONTINUOUSLY.

PLC FAULT:

IF A PLC FAULT OCCURS AND HOA SWITCHES ARE IN THE AUTO POSITION, PUMPS 1 & 2 WILL START AND RUN CONTINUOUSLY; A LAG ALARM WILL ALSO OCCUR. TURN ENOUGH PUMPS TO HAND POSITION TO SATISFY DEMAND. PUMPS CAN OPERATE IN THIS CONDITION UNTIL PLC FAULT IS REPAIRED.

OFF DELAY:

THE PLC WILL RUN EACH PUMP AN ADDITIONAL 10 SECONDS AFTER IT MEETS THE REQUIREMENTS TO BE TURNED OFF. THIS ALLOWS TIME, SHOULD ANY OTHER PUMPS BE COMING ONLINE, TO BUILD VACUUM; HELPING LIMIT ANY MOMENTARILY SHARP FALLS IN VACUUM LEVEL AND NUISANCE TRIGGERING OF THE LAG ALARM. ALL THREE PUMPS RUNNING BRIEFLY AT THE SAME TIME WILL NOT RESULT IN A LAG ALARM; ONLY CLOSING OF VS–3 WILL TRIGGER THE ALARM.

MINIMUM CIRCUIT AMPACITY (MCA)

SYSTEM HP	208 V	230 V	380/400 V	460 V
3 HP	37.0 AMPS	32.9 AMPS	20.9 AMPS	16.5 AMPS
5 HP	56.2 AMPS	51.1 AMPS	32.6 AMPS	25.6 AMPS
7.5 HP	82.2 AMPS	73.2 AMPS	46.5 AMPS	36.7 AMPS
10 HP	102.0 AMPS	92.7 AMPS	59.5 AMPS	46.4 AMPS
15 HP	156.6 AMPS	138.2 AMPS	88.8 AMPS	69.2 AMPS
20 HP	199.2 AMPS	177.2 AMPS	111.5 AMPS	88.7 AMPS
25 HP	245.0 AMPS	222.7 AMPS	144.0 AMPS	111.4 AMPS
30 HP	290.6 AMPS	261.7 AMPS	166.8 AMPS	130.9 AMPS
50 HP	469.4 AMPS	426.6 AMPS	--	212.2 AMPS

MAXIMUM OVERCURRENT PROTECTION (MOP)

SYSTEM HP	208 V	230 V	380/400 V	460 V
3 HP	45.0 AMPS	40.8 AMPS	25.9 AMPS	20.4 AMPS
5 HP	70.9 AMPS	64.6 AMPS	41.2 AMPS	32.3 AMPS
7.5 HP	102.8 AMPS	93.5 AMPS	59.5 AMPS	46.7 AMPS
10 HP	130.9 AMPS	119.0 AMPS	76.5 AMPS	59.5 AMPS
15 HP	196.3 AMPS	178.5 AMPS	114.7 AMPS	89.2 AMPS
20 HP	252.4 AMPS	229.5 AMPS	144.5 AMPS	114.7 AMPS
25 HP	317.9 AMPS	289.0 AMPS	187.0 AMPS	144.5 AMPS
30 HP	374.0 AMPS	340.0 AMPS	216.7 AMPS	170.0 AMPS
50 HP	607.7 AMPS	552.5 AMPS	--	276.2 AMPS

TRIPLEX SYSTEM FULL LOAD AMPERES

SYSTEM HP	208 V	230 V	380V/50Hz	460 V
3 HP	33.9 AMPS	29.6 AMPS	17.9 AMPS	14.8 AMPS
5 HP	51.3 AMPS	44.6 AMPS	26.9 AMPS	22.3 AMPS
7.5 HP	75.6 AMPS	65.9 AMPS	39.8 AMPS	32.8 AMPS
10 HP	93.9 AMPS	81.8 AMPS	49.7 AMPS	40.9 AMPS
15 HP	144.3 AMPS	125.6 AMPS	75.8 AMPS	62.8 AMPS
20 HP	183.6 AMPS	159.8 AMPS	96.5 AMPS	79.9 AMPS
25 HP	225.0 AMPS	198.2 AMPS	119.6 AMPS	99.1 AMPS
30 HP	258.7 AMPS	231.3 AMPS	143.6 AMPS	114.7 AMPS
50 HP	409.6 AMPS	372.3 AMPS	--	186.7 AMPS

INDIVIDUAL MOTOR FULL LOAD AMPERES

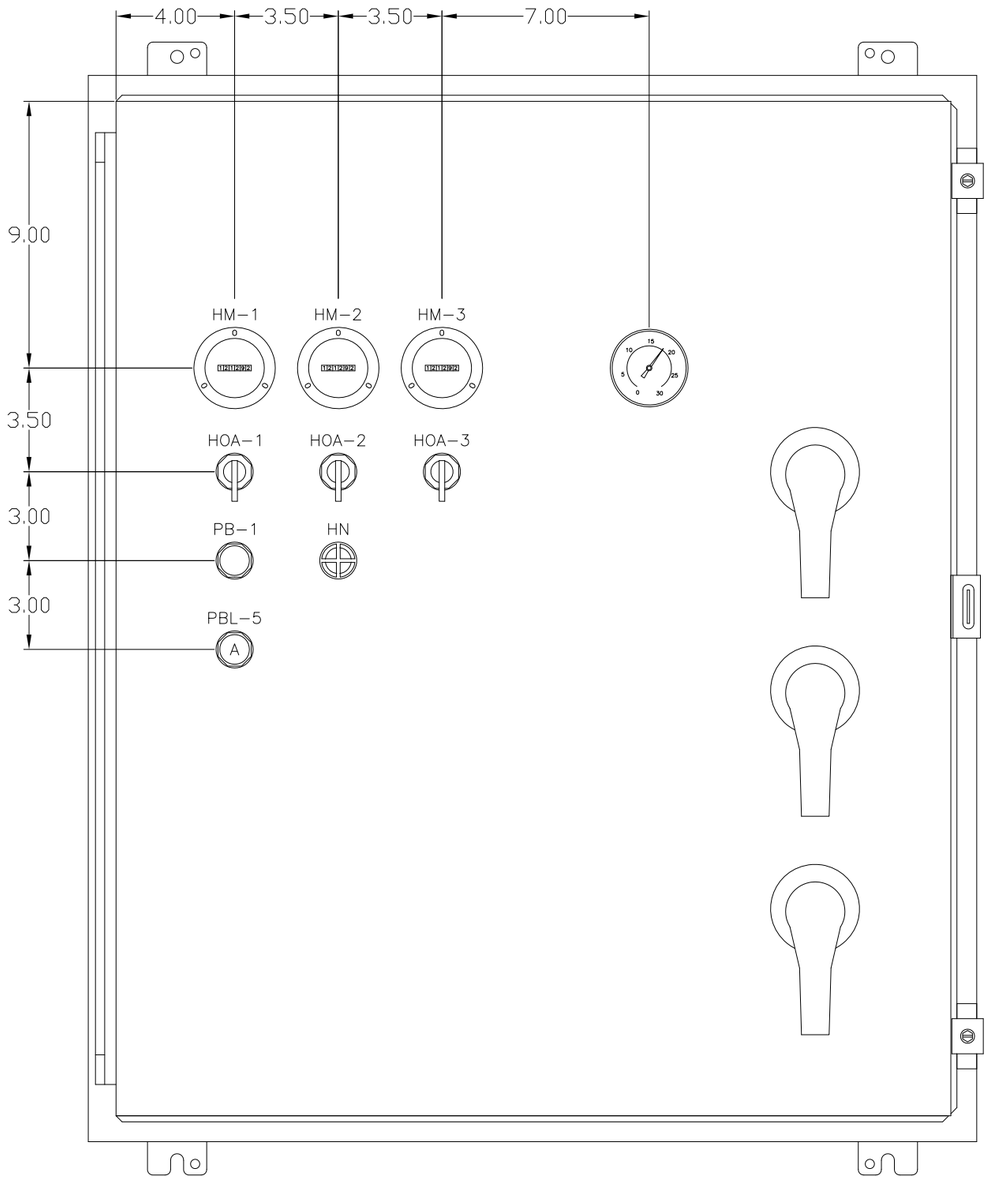
SYSTEM HP	208 V	230 V	380V/50Hz	460 V
3 HP	10.8 AMPS	9.4 AMPS	5.7 AMPS	4.7 AMPS
5 HP	16.6 AMPS	14.4 AMPS	8.7 AMPS	7.2 AMPS
7.5 HP	24.7 AMPS	21.5 AMPS	13.0 AMPS	10.7 AMPS
10 HP	30.8 AMPS	26.8 AMPS	16.3 AMPS	13.4 AMPS
15 HP	47.6 AMPS	41.4 AMPS	25.0 AMPS	20.7 AMPS
20 HP	60.7 AMPS	52.8 AMPS	31.9 AMPS	26.4 AMPS
25 HP	74.5 AMPS	65.6 AMPS	39.6 AMPS	32.8 AMPS
30 HP	85.0 AMPS	76.0 AMPS	47.6 AMPS	38.0 AMPS
50 HP	135.3 AMPS	123.0 AMPS	--	62.0 AMPS

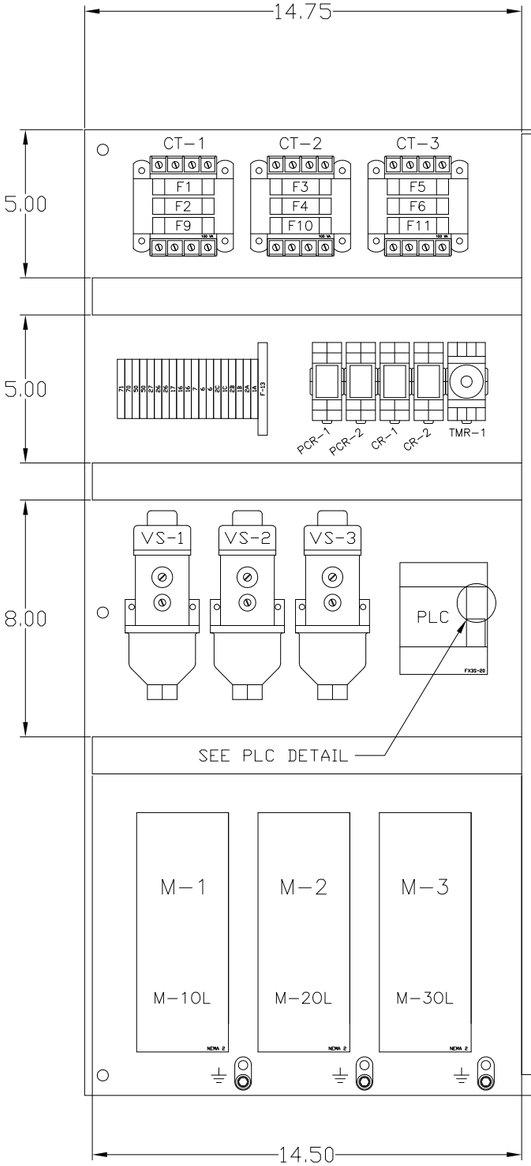
BEACONMEDÆS

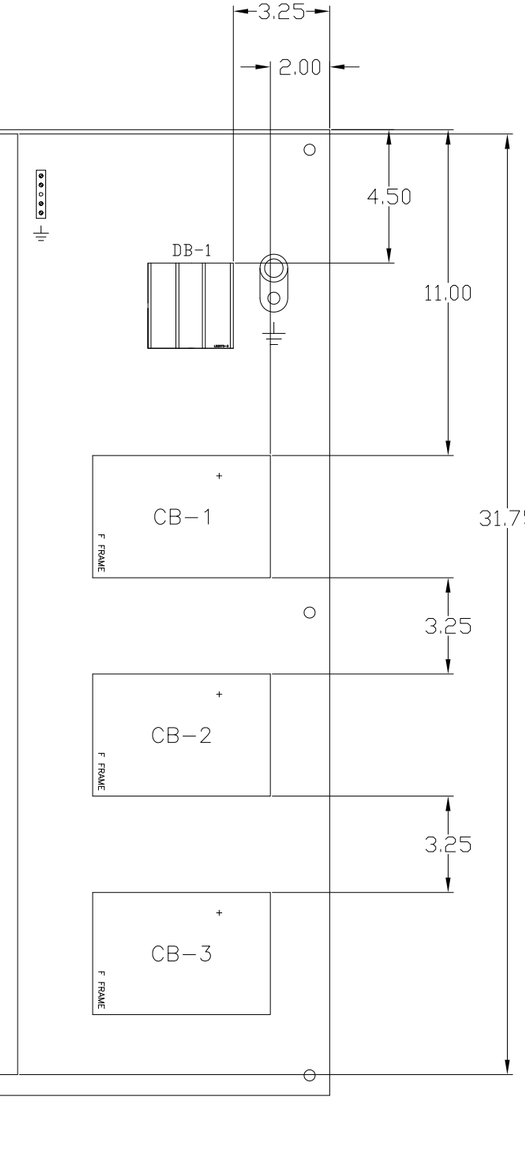
TITLE:
TRIPLEX LIQUID RING VACUUM
3–50 HP 208–460/3ø/50–60Hz

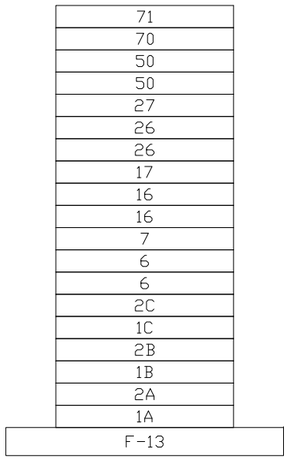
DRAWN BY: T. HORNBUCKLE	DATE: 6/18/01	This drawing and the information contained thereon remain the property of BeaconMedaes and may not be used for other than the purpose for which it is loaned without the expressed written permission from BeaconMedaes Engineering.
CHECKED BY:	DATE:	
REVISED BY: DAG	DATE: 09/23/15	
SCALE: NTS D	DRAWING NO. DIA 02 418	REV. R

3-15 HP 208/230/460 V
20-25 HP 460 V









SHEET 1 OF 2

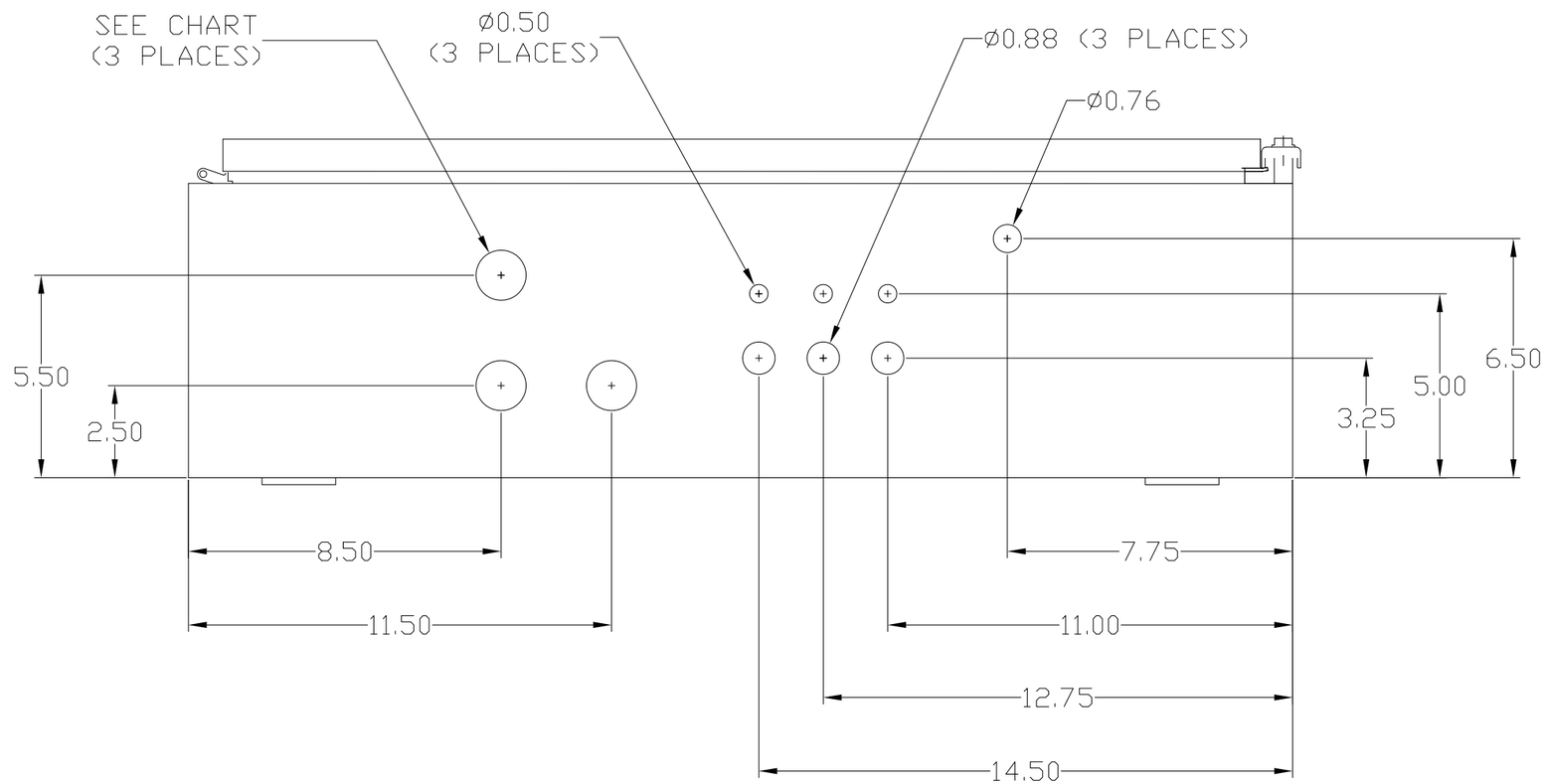
CONTROL PANEL LAYOUT

LAST REVISION: 03/27/15

DRAWING NO.

DIA 02 418

3-15 HP 208/230/460 V
20-25 HP 460 V



MOTOR WIRING HOLE SIZES (IN INCHES)

SYSTEM HP	208 V	230 V	460 V
3–5 HP	0.88	0.88	0.88
7.5–10 HP	1.09	1.09	0.88
15 HP	1.36	1.36	0.88
20 HP	--	--	0.88
25 HP	--	--	1.09

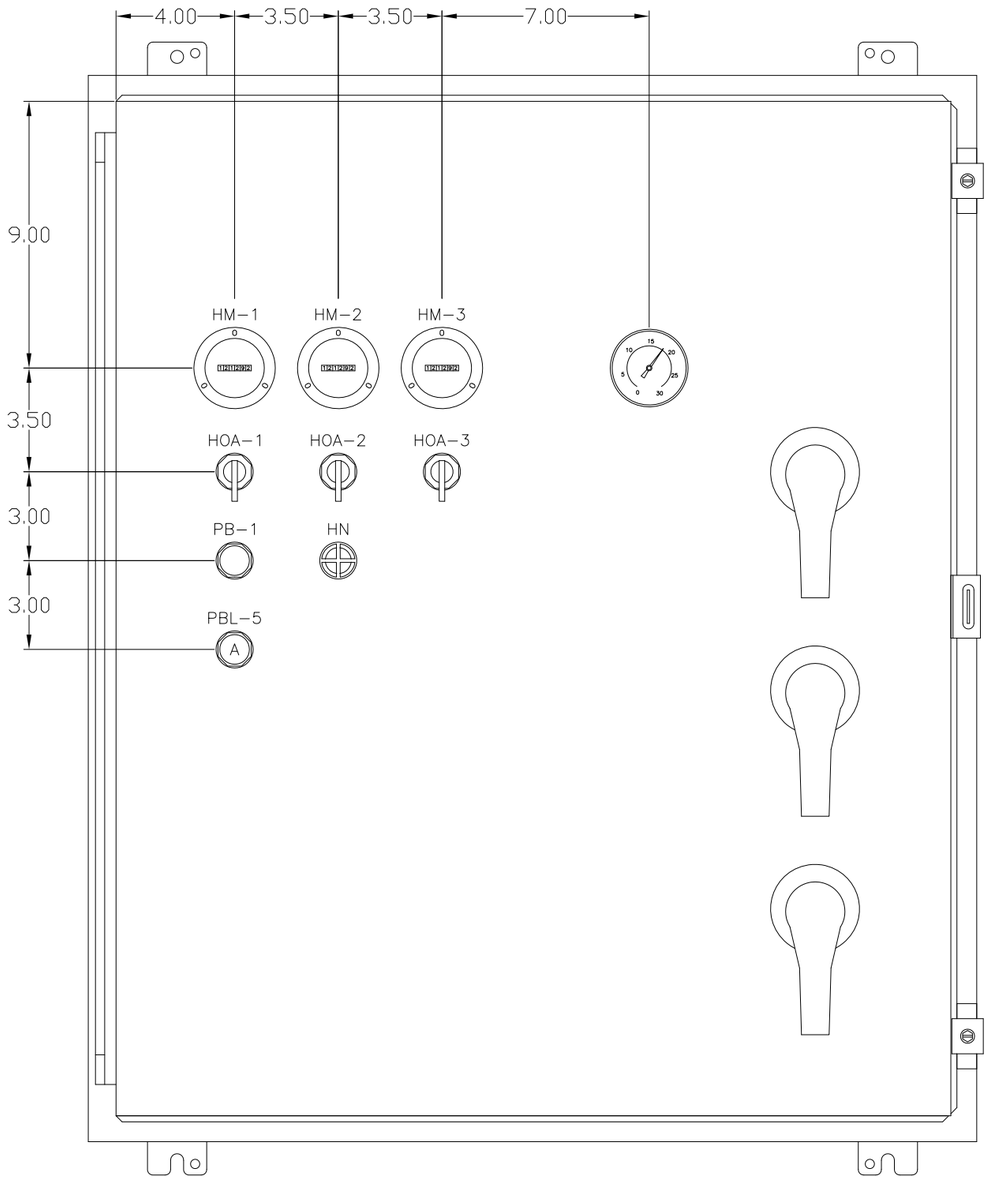
NOTE: PLUG ø0.50 HOLES IF FLOW SWITCHES NOT BEING USED

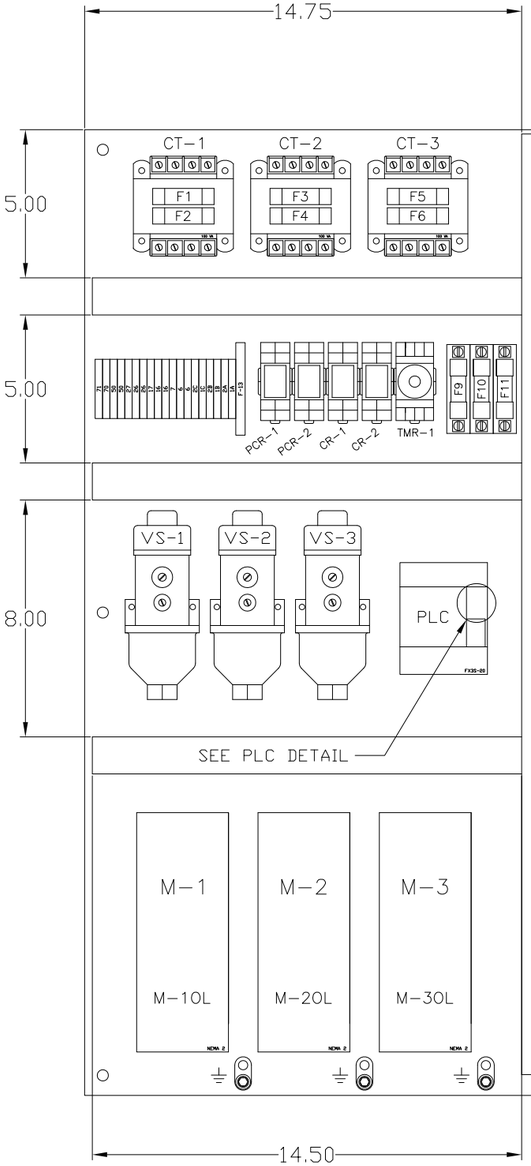
CONTROL PANEL LAYOUT

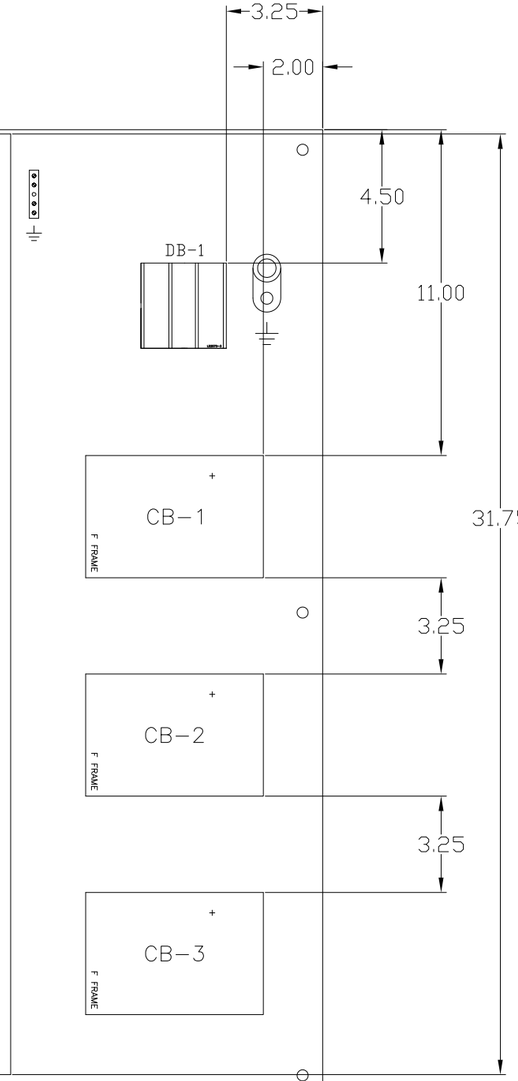
DRAWING NO.
DIA 02 418

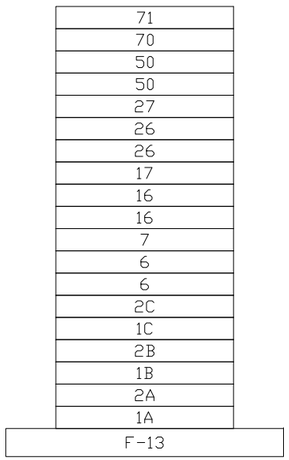
LAST REVISION: 03/27/15

3-25 HP 380 V









SHEET 1 OF 2

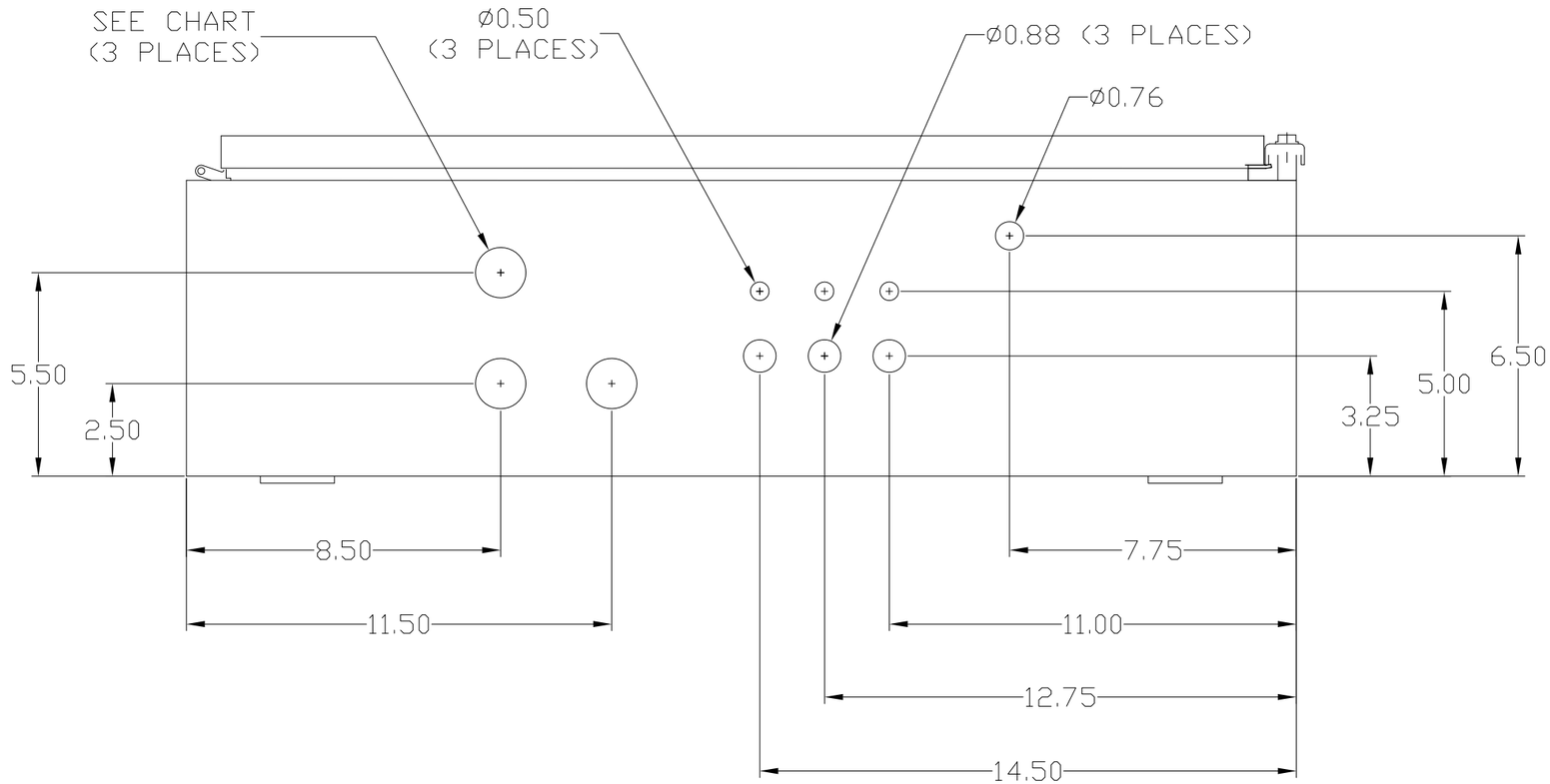
CONTROL PANEL LAYOUT

LAST REVISION: 03/27/15

DRAWING NO.

DIA 02 418

3-25 HP 380 V



MOTOR WIRING HOLE SIZES (IN INCHES)

SYSTEM HP	380V/50Hz
3–15 HP	0.88
20–25 HP	1.09

NOTE: PLUG ø0.50 HOLES IF FLOW SWITCHES NOT BEING USED

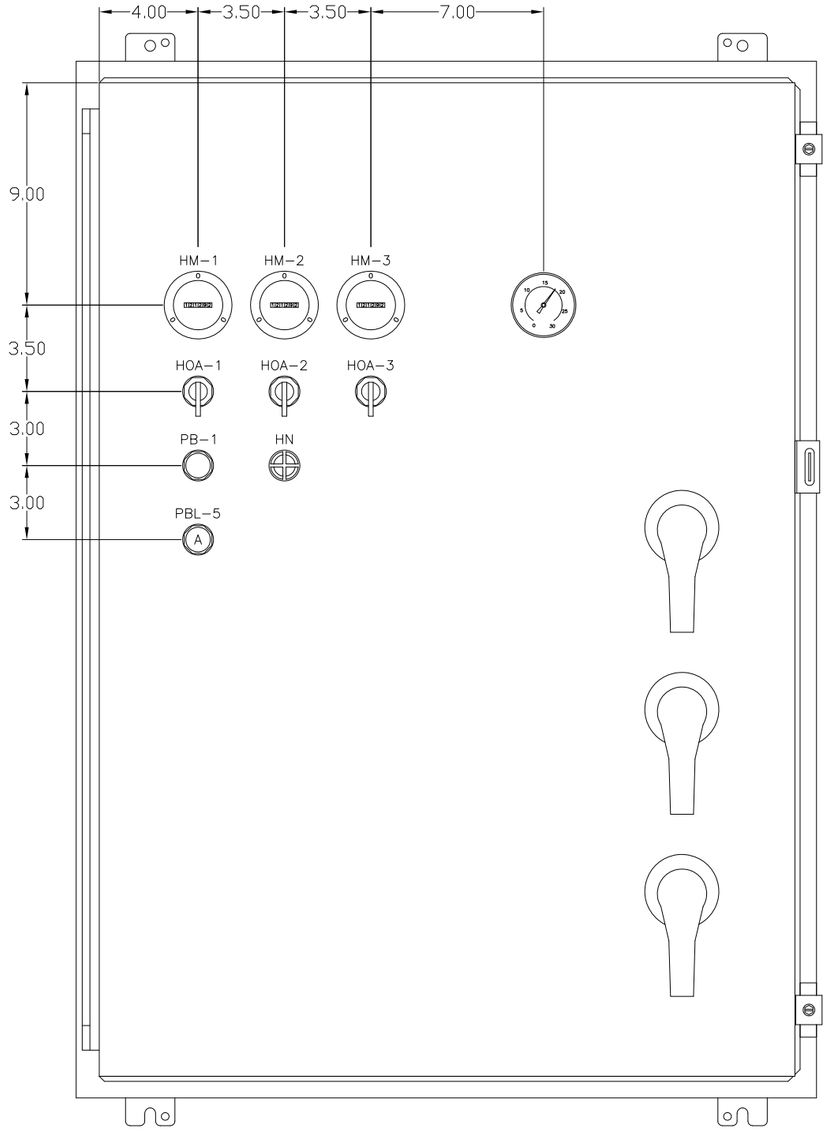
CONTROL PANEL LAYOUT

DRAWING NO.

DIA 02 418

LAST REVISION: 03/27/15

20-25 HP 208-230 V
30 HP 230/460 V
50 HP 460 V



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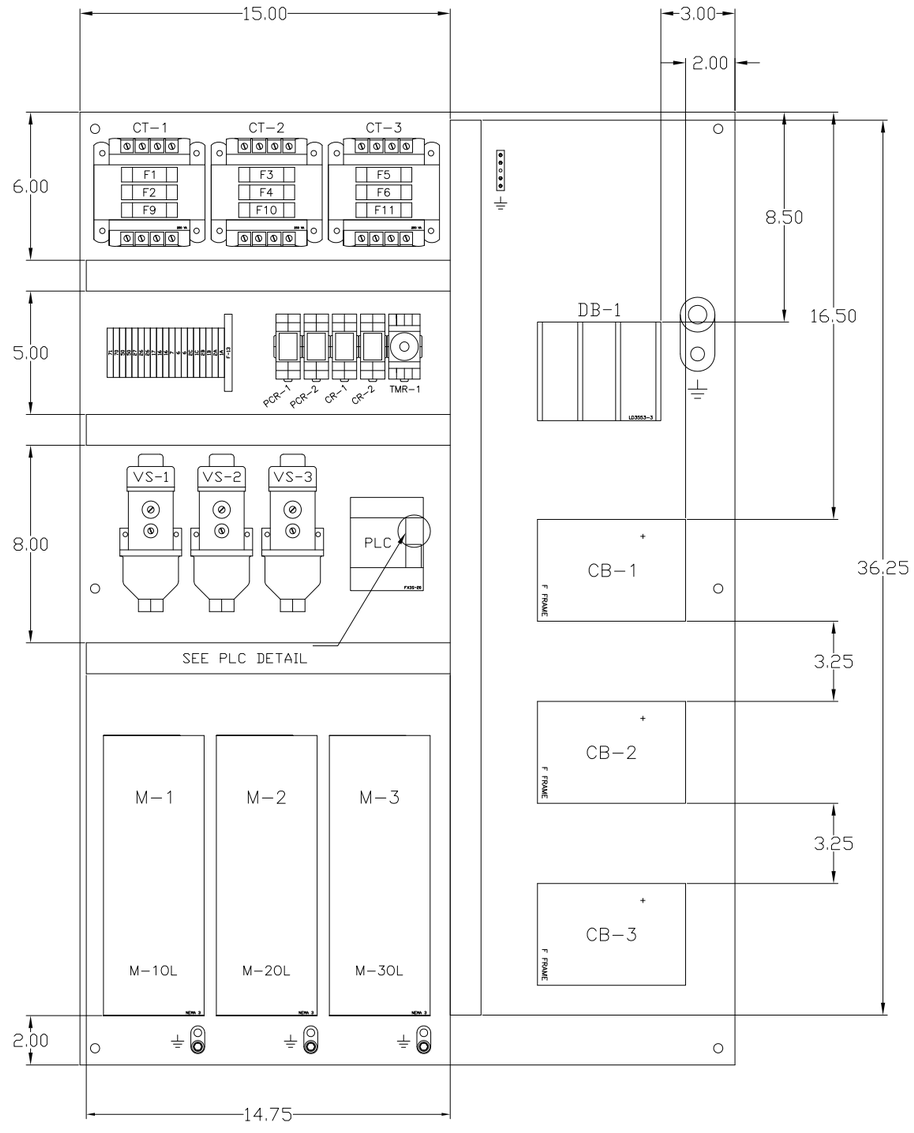


SHEET 1 OF 2

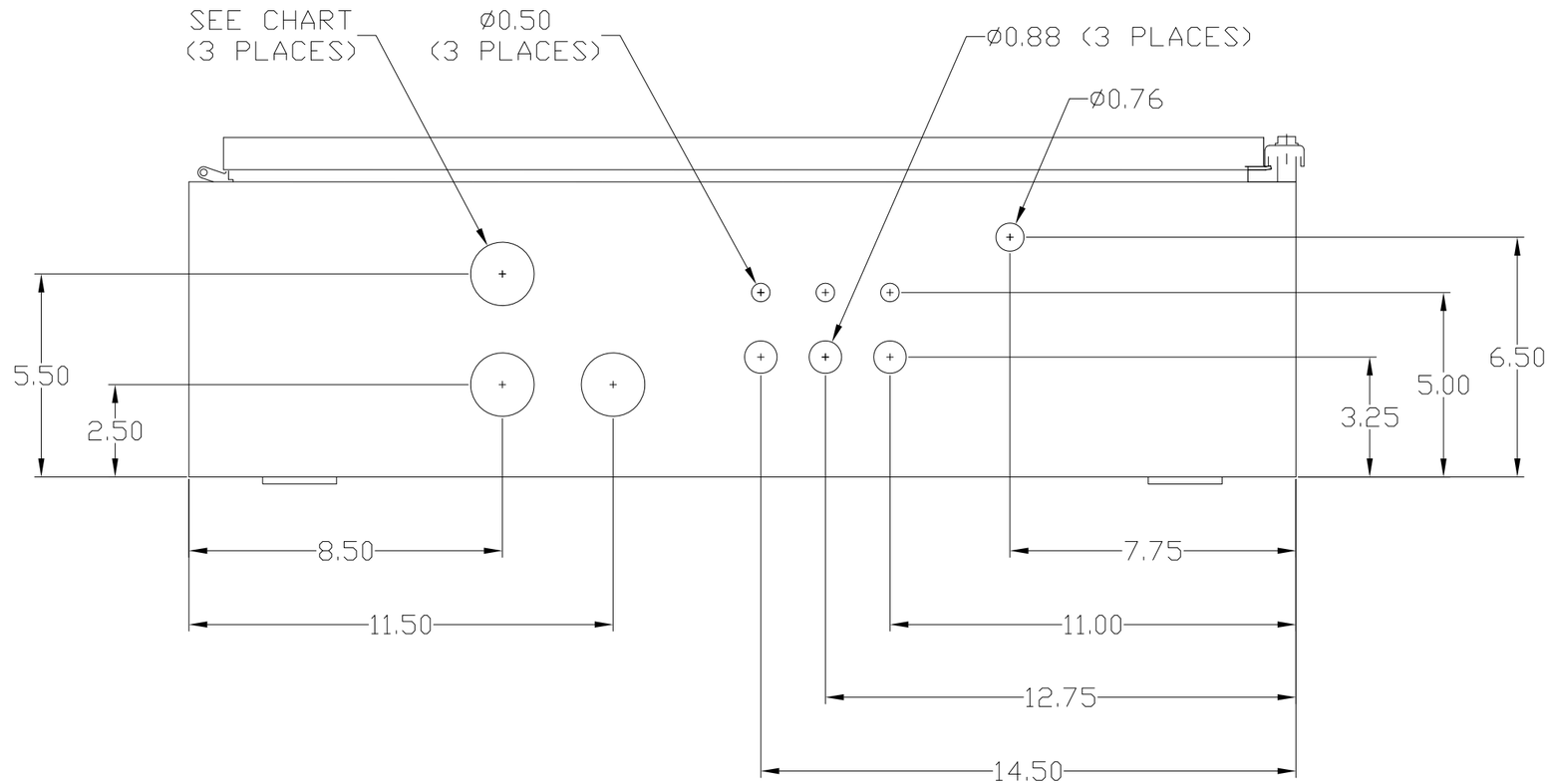
CONTROL PANEL LAYOUT

LAST REVISION: 03/27/15

DRAWING NO.

DIA 02 418

20-25 HP 208-230 V
30 HP 230/460 V
50 HP 460 V



MOTOR WIRING HOLE SIZES (IN INCHES)

SYSTEM HP	208 V	230 V	460 V
20 HP	1.36	1.36	--
25 HP	1.72	1.72	--
30 HP	--	1.72	1.09
50 HP	--	--	1.36

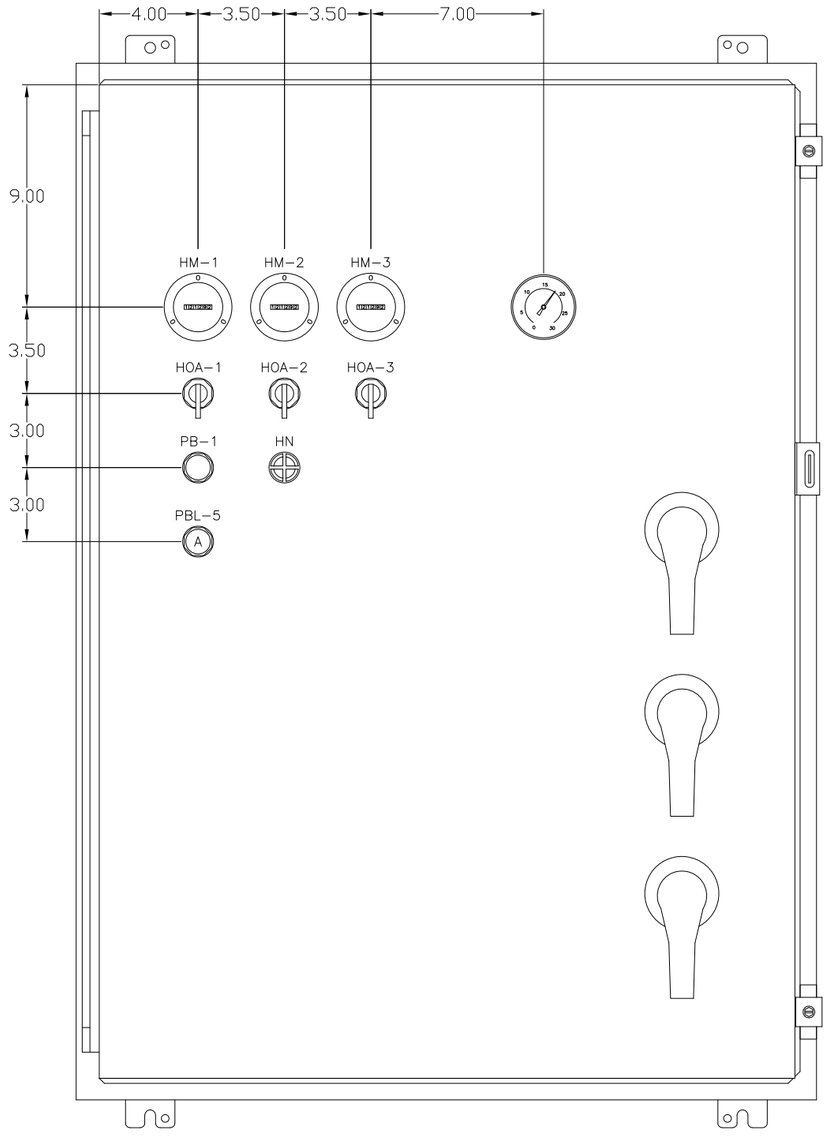
NOTE: PLUG ø0.50 HOLES IF FLOW SWITCHES NOT BEING USED

CONTROL PANEL LAYOUT

DRAWING NO.
DIA 02 418

LAST REVISION: 03/27/15

30 HP 380 V



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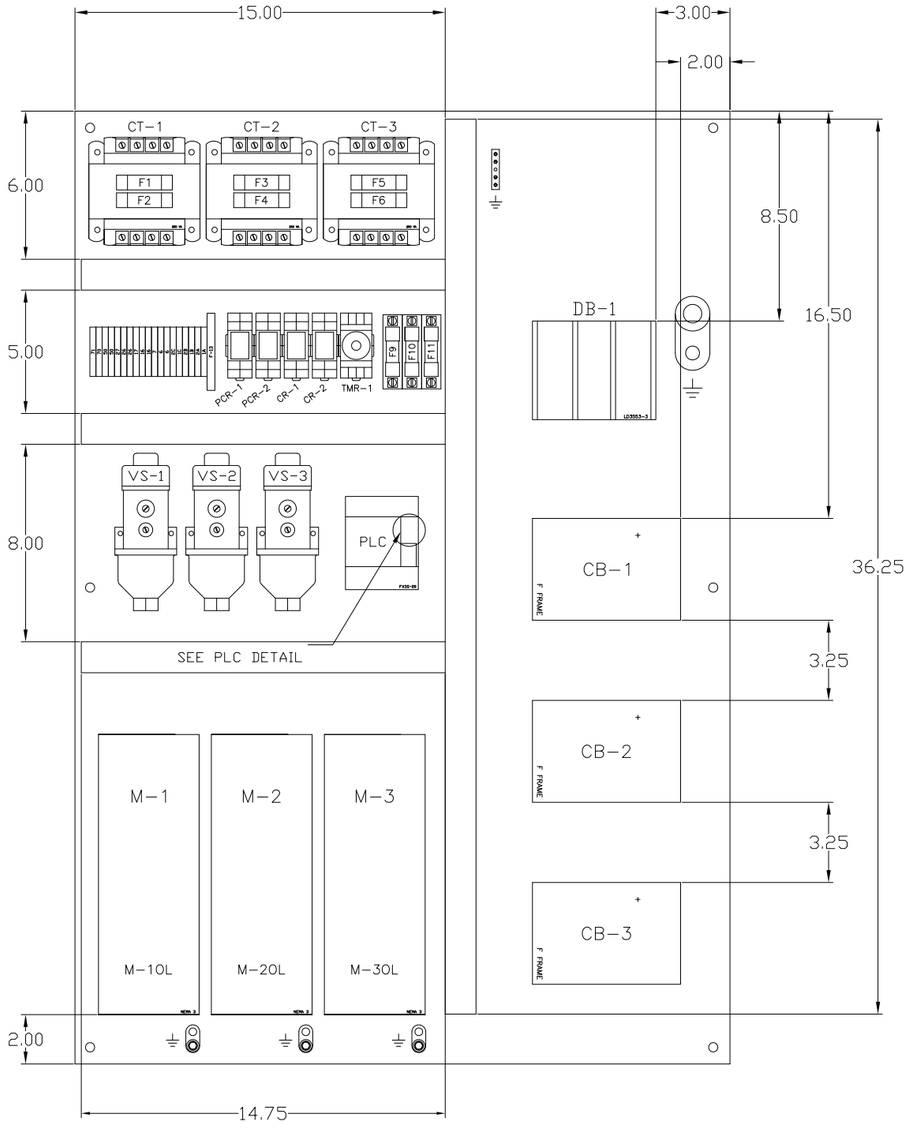


SHEET 1 OF 2

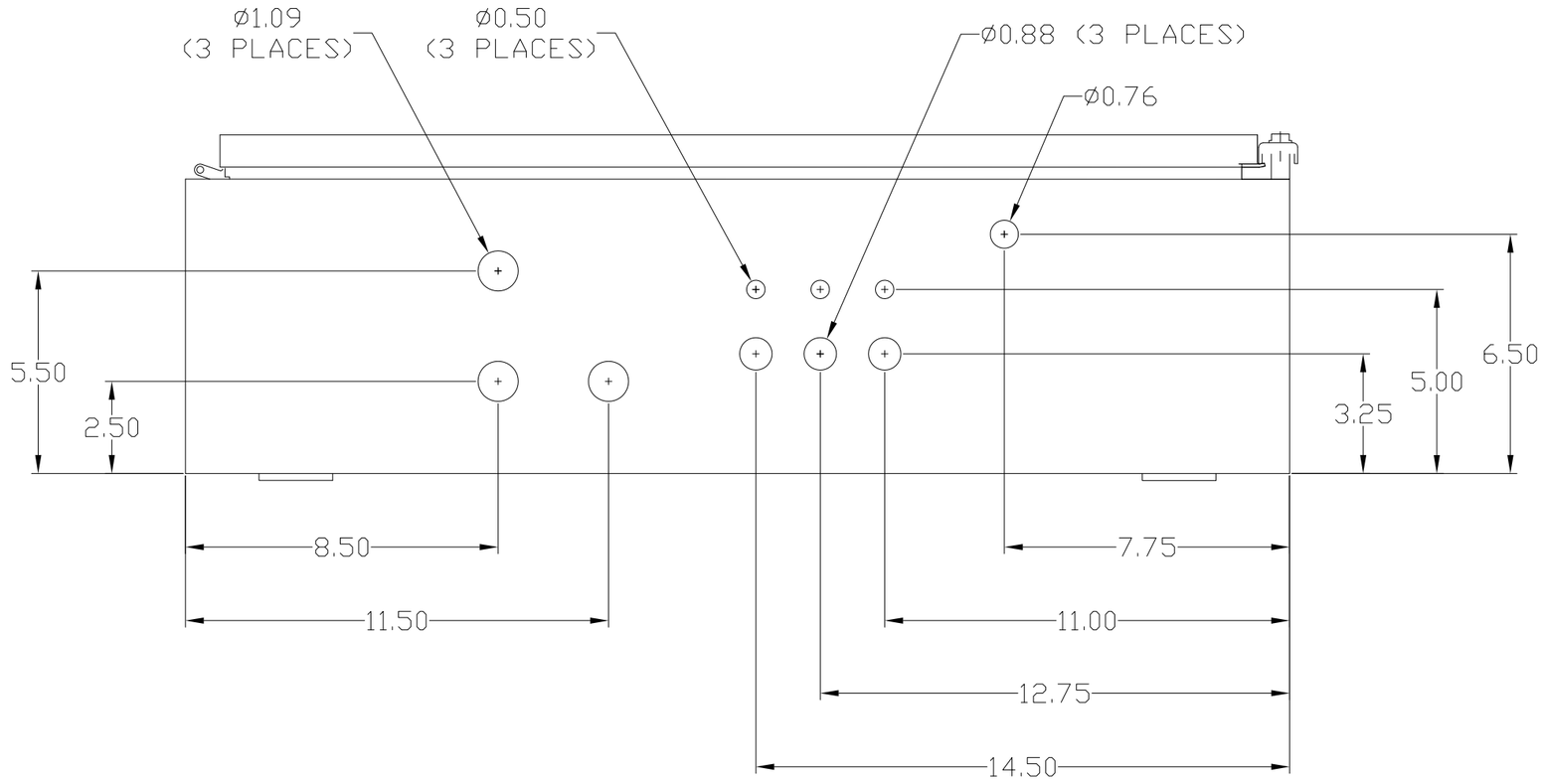
CONTROL PANEL LAYOUT

LAST REVISION: 03/27/15

DRAWING NO.

DIA 02 418

30 HP 380 V



NOTE: PLUG ø0.50 HOLES IF FLOW SWITCHES NOT BEING USED

SHEET 2 OF 2

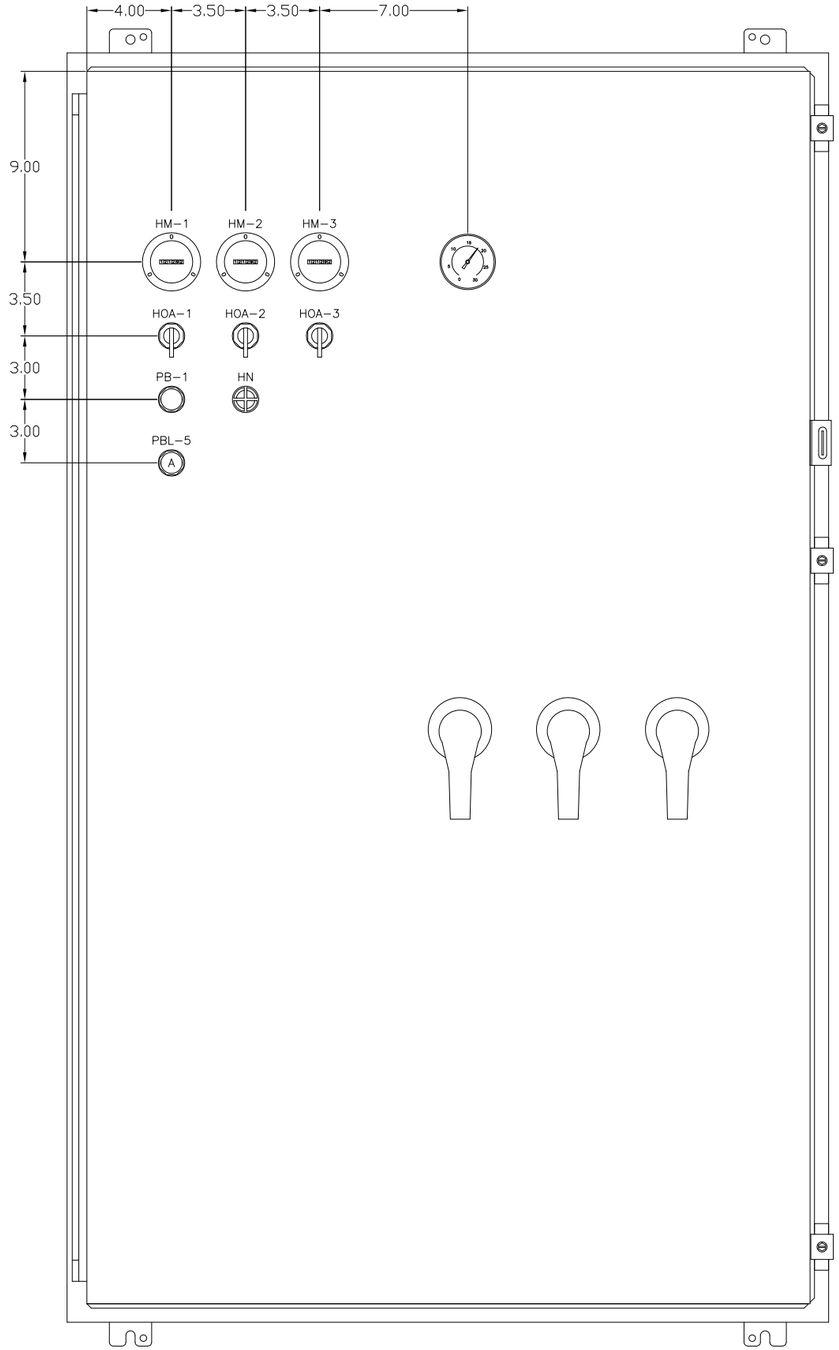
CONTROL PANEL LAYOUT

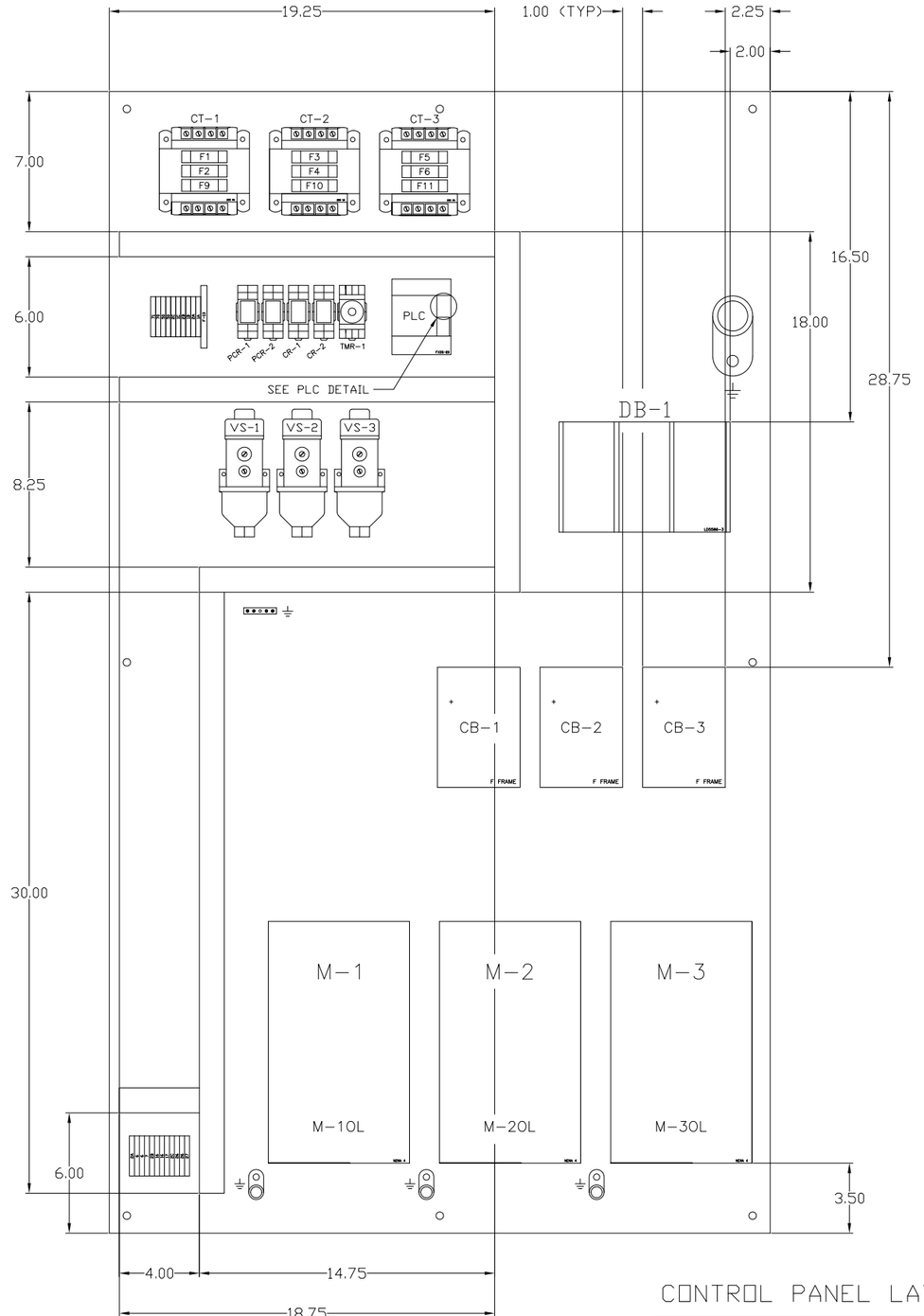
DRAWING NO.

DIA 02 418

LAST REVISION: 03/27/15

30 HP 208 V
50 HP 208-230 V





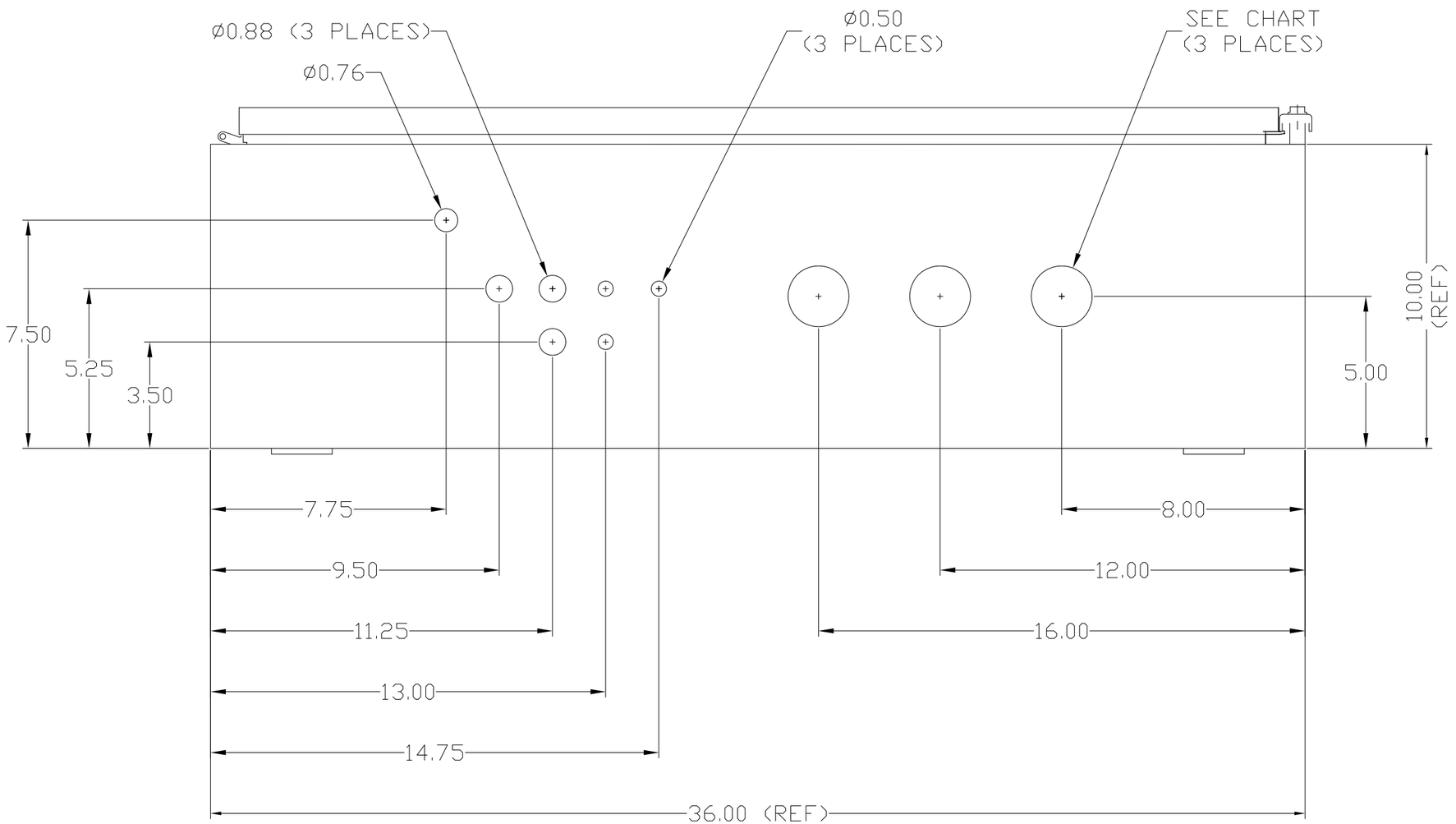
CONTROL PANEL LAYOUT

DRAWING NO.

DIA 02 418

LAST REVISION: 09/22/15

30 HP 208 V
50 HP 208-230 V



MOTOR WIRING HOLE SIZES (IN INCHES)

SYSTEM HP	208 V	230 V
30 HP	1.72	--
50 HP	2.00	2.00

NOTE: PLUG ø0.50 HOLES IF FLOW SWITCHES NOT BEING USED

CONTROL PANEL LAYOUT

DRAWING NO.
DIA 02 418

LAST REVISION: 09/22/15