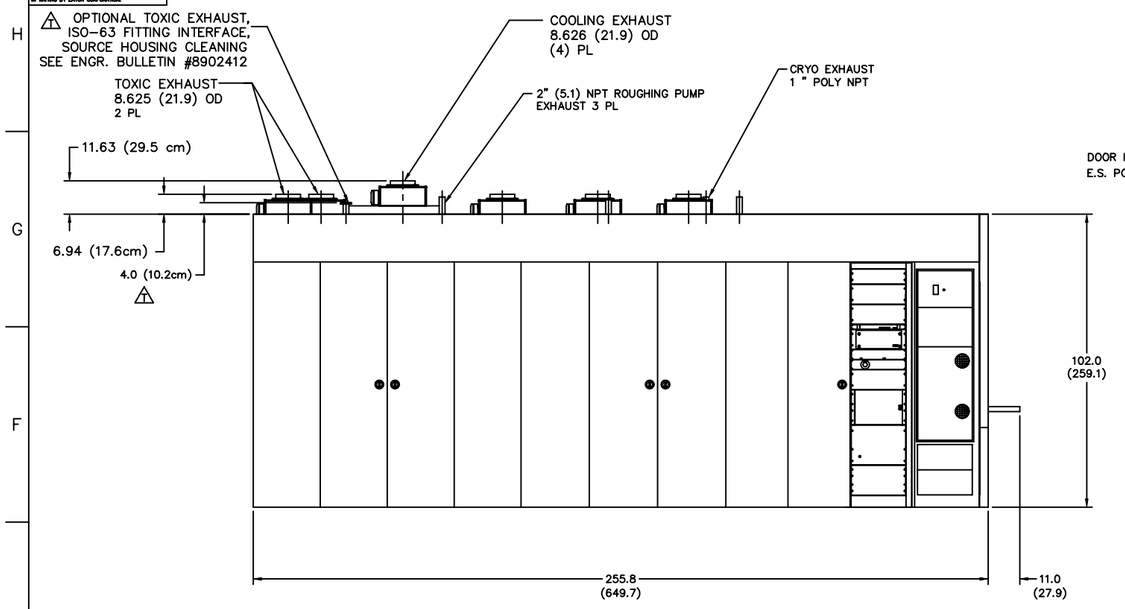
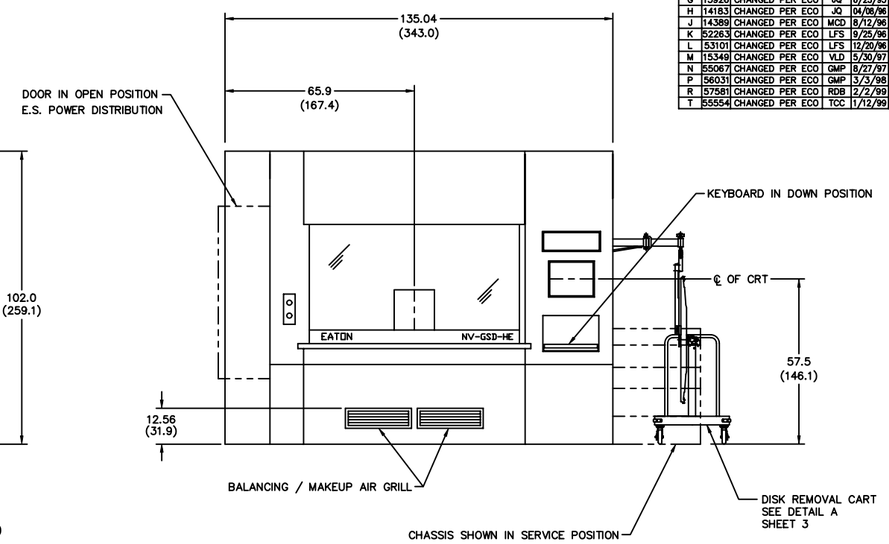
Table of Contents — Installation Drawings

Installation Dwg NVGSD-HE - 8500234

REVISIONS

REV	ECO	DESCRIPTION	DRAFT	DATE	APPROVED
A		ISSUE	APL	11/23/93	BL
B		REL. R11688	APL	2/3/94	BL
C	13218	CHANGED PER ECO	APL	2/23/94	
D	13351	CHANGED PER ECO	PJC	4/7/94	RB
E	13527	CHANGED PER ECO	JPM	1/12/95	
F	13497	CHANGED PER ECO	LJC	3/14/95	
G	13926	CHANGED PER ECO	JQ	6/23/95	CD
H	14183	CHANGED PER ECO	JQ	04/08/96	
J	14389	CHANGED PER ECO	MCD	8/12/96	DED
K	52263	CHANGED PER ECO	LFS	9/25/96	DED
L	53101	CHANGED PER ECO	LFS	12/20/96	RHB
M	15349	CHANGED PER ECO	VLD	5/30/97	P.L.
N	55067	CHANGED PER ECO	GMP	8/27/97	P.L.
P	56031	CHANGED PER ECO	GMP	3/3/98	
R	57581	CHANGED PER ECO	RDB	2/2/99	MRB
T	55554	CHANGED PER ECO	TCC	1/12/99	





FACILITIES REQUIREMENTS

THE CUSTOMER SHALL PROVIDE THE FOLLOWING FACILITIES, SERVICE CONNECTIONS, AND EQUIPMENT:

FEEDS

ELECTRICAL

THE CUSTOMER MUST PROVIDE THE MATERIALS FOR, AND COMPLETE THE INSTALLATION OF ALL ELECTRICAL POWER CONNECTIONS TO THE INPUT TERMINALS IN THE IMPLANTER'S MAIN POWER DISTRIBUTION BOX AND TRIPLE LOOP CHILLER, ACCORDING TO THE REQUIREMENTS OF THE GOVERNING, LOCAL ELECTRICAL CODE. THE INPUT PHASE AND GROUND CONDUCTORS MUST BE AT LEAST AS LARGE AS THOSE SHOWN IN THE FOLLOWING TABLE. LARGER CONDUCTORS MAY BE REQUIRED BASED ON LOCAL ELECTRICAL CODES.

	PHASE CONDUCTOR (AWG – mm^2)	GROUND CONDUCTOR (AWG – mm^2)	MAXIMUM LOAD (KVA)	POWER FACTOR	INPUT VOLTAGE/ FREQUENCY
IMPLANTER	#3/0 – 83	#1 – 43	82	0.85	480/60 OR 400/50
TRIPLE LOOP CHILLER	#4 – 21	#6 – 13	42	0.85	480/60 OR 400/50

SEE SHEET 3 FOR DETAIL INFORMATION CONCERNING THIS TABLE

WATER

FACILITY WATER

WATER SHALL BE SUPPLIED TO THE TRIPLE-LOOP CHILLER AT 100 PSIG (690 kPa), MAX; 50 GPM (190 LPM), MIN FLOW RATE; 77°F(25°C), MAX; AND WITH A PRESSURE DROP OF 30 PSIG(207 kPa), MAX .

CHILLER AND IMPLANTER H20 SYSTEM SHOULD BE FILLED WITH D/I WATER. AUTO REFILL CONNECTION(SEE DETAIL "B",SHT 3) SHOULD BE CONNECTED TO A FILTERED CLEAN WATER SOURCE.

NOTES:

1. 5 GALLONS (19 L) OF DOWFROST CORROSION INHIBITER, 9200297, IS SHIPPED WITH EACH MACHINE AND IS TO BE ADDED TO THE DISK CHILLER RESERVOIR AT SYSTEM START START-UP. SHOULD THE DISC CHILLER BE DRAINED AND REFILLED, DOWFROST MUST BE ADDED TO PREVENT SYSTEM CORROSION PER 8606211.
2. CUSTOMER SUPPLIED HARD PLUMBING WITH DIELECTRIC BREAK IS RECOMMENDED FOR ALL WATER LINES.

COMPRESSED AIR

IMPLANTER

IMPLANTER REQUIRES 90–100 PSIG (700–800 kPa), SUPPLIED TO INPUT SHOWN(SHT 2, ZONE 6–H), FOR OPERATION OF PNEUMATIC VALVES.
FLOW RATE: 0.5 CFM.

FEEDS (con't)

SULFUR HEXAFLUORIDE (SF–6) GAS FOR RESONATORS

SF–6 SHALL BE SUPPLIED TO THE INPUT SHOWN (SHT 2, ZONE 6–H) AT:
PRESSURE (MAXIMUM) 20 PSIG (230 kPa)
VOLUME (TOTAL) 49 STD ft^3 @ 15 PSI (1390 STD L.)
CONNECTIONS 1/2" NPT
EST. YEARLY USAGE: 49 STD ft^3(1390 STD L.)

DRY NITROGEN

NITROGEN SHALL BE SUPPLIED TO INPUTS SHOWN (SHT 2, ZONE 6–H) AT:

LOCATION		PRESSURE PSIG	PRESSURE kPa	PEAK FLOW SCFM	PEAK FLOW L/MIN
MACHINE	MACHINE(NP)	60	500	8.5	241
	HP N_2(OPT)	45	375	1	28
GAS BOX		30–60	300–500	.02	.5

ALL CONNECTIONS ARE 1/2" NPT

FOR OPTIONAL BOTTOM FED FACILITY GASSES, REFER TO DWG NO. 1197860

EXHAUST LINES

TOXIC AND COOLING AIR EXHAUSTS

	TYPE	SIZE	QUANTITY	FLOW CFM	FLOW LPM	EXHAUST SUCTION in H20	EXHAUST SUCTION mm H20
	TOXIC	8.00"	2	500	14k	1.0–1.5	25–38
	COOLING	(8.63"O.D.)	4	500	14k		
⚠	TOXIC	2.50"	1*	65	1.8k		

NOTES:

⚠ * THE 2.5" TOXIC EXHAUST IS REQUIRED ONLY ON MACHINES OUTFITTED WITH THE "SOURCE HOUSING CLEANING EXHAUST" OPTION.

1. AN INTEGRAL PRESSURE SENSOR IS PROVIDED TO PROTECT AGAINST FAILURE IN THE GAS BOX AND SOURCE AREA EXHAUST LINES.
   IF AN EXTERNAL EXHAUST FLOW INTERLOCK IS REQUIRED, A NORMALLY OPEN RELAY CONTACT MUST BE WIRED TO THE MACHINE INTERLOCK
2. COOLING EXHAUSTS ARE POTENTIALLY TOXIC DURING SOME MAINTENANCE TASKS OR IN THE EVENT OF A WORST CASE EQUIPMENT FAILURE.
3. TOXIC EXHAUST MUST BE CONNECTED TO A SCRUBBER OR OTHER EXHAUST TREATMENT SUITABLE FOR DOPANT MATERIALS.
4. AN INTEGRAL SMOKE DETECTOR IS PROVIDED IN EACH 8" EXHAUST LINE
5. EATON RECOMMENDS STAINLESS STEEL EXHAUST LINES.

VACUUM PUMP EXHAUSTS

ALL ROUGHING PUMPS MUST BE VENTED TO THE FACILITY'S TOXIC EXHAUST SYSTEM. DO NOT CONNECT THE ROUGHING PUMP EXHAUST LINES TO ANY OTHER MACHINE EXHAUST LINES.

NOTES:

1. ROUGHING PUMP EXHAUST LINES MUST HAVE TRAPS WHICH PREVENT OIL FROM FLOWING BACK INTO THE MACHINE EXHAUST. IT MUST BE POSSIBLE TO DRAIN OIL FROM THESE TRAPS WITHOUT SHUTTING DOWN THE EXHAUST SYSTEM.
2. EATON RECOMMENDS STAINLESS STEEL EXHAUST LINES.

EXHAUST LINES (con't)

HEAT LOADS(EXHAUST)

AT THE MAXIMUM STEADY LOAD(82kVa), THE TOTAL FACILITY HEAT LOAD WILL BE 98 kW. THIS LOAD SHALL BE APPROX. COMPRISED OF THE FOLLOWING:

IMPLANTER:
TO AMBIENT AIR–8kW
TO EXHAUST AIR–12kW
TO COOLING WATER–70kW

AFFINITY TRIPLE–LOOP CHILLER:
TO AMBIENT AIR–8kW.

NOTE:
THE AFFINITY TRIPLE–LOOP CHILLER REQUIRES A MINIMUM CLEARANCE OF 6 IN(15.2 CM) ALL SIDES, FOR PROPER VENTILATION.

CRYO EXHAUST

FLOW, 20CFM (9.5 LITERS/SEC); EXHAUST SUCTION, 1.0–1.5 IN OF WATER (25–38.1 mmH_2O)
ALL CRYO PUMP EXHAUST LINES MUST BE VENTED TO THE FACILITY'S TOXIC EXHAUST SYSTEM. DO NOT CONNECT THE CRYO PUMP EXHAUST LINES TO ANY OTHER MACHINE EXHAUST LINES.

NOTES

1. EATON RECOMMENDS STAINLESS STEEL EXHAUST LINES.

RADIATION SHIELDING

REQUIREMENTS FOR RADIATION SHIELDING UNDER THE IMPLANTER ENCLOSURE ARE DEPENDANT ON THE TYPE OF SUPPORT FLOORING USED. CONTACT EATON FACTORY FOR DETAILS.

FLOOR DRAIN

OPTIONAL FOR DRAINING OF WATER RESERVOIR AND PUMP FLOW:
APPROXIMATELY 1.0 GPM (3.8 LPM)

AMBIENT TEMPERATURE

60–80°F (15–27°C)
APPROXIMATE HEAT LOAD TO ROOM: 16 kW

RELATIVE HUMIDITY

50% ±10

ARGON (CUSTOMER SUPPLIED)

PRESSURE (MAX) 100 PSI (20 SCCM)

TOXIC GAS ALARM

IT IS RECOMMENDED THAT THE CUSTOMER PROVIDE A TOXIC GAS ALARM SIGNAL TO BE WIRED TO THE MACHINE INTERLOCKS. SEE SHEET 2 FOR TUBING CONNECTIONS. AN ADDITIONAL MONITORING POINT SHOULD BE ADDED IN THE OPERATOR INTERFACE AREA.

INSTALLATION EQUIPMENT(CUSTOMER SUPPLIED)

FORK TRUCK WITH A 6000 LB(2727 Kg) LIFTING CAPACITY AND 6 FT(183 cm) LONG FORK EXTENSIONS.

LEAK CHECKER CAPABLE OF 10E–9 STANDARD ATM–CC/SEC SENSITIVITY TO HELIUM.

XENON GAS (LECTURE BOTTLE) REQUIRED FOR INITIAL FEM CALIBRATION

SOFTWARE: AutoCAD 12

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION	NOTE

DRAWN AL LABER 11/23/93
CHECK
ENG MECH K. VERRIER 2/7/95
ENG ELEC
PROJ ENG
0940000
0910000
0900000 NVGSD-HE
NEXT ASSY SYSTEM
APPLICATION APPROVED
MATERIAL
FINISH

DO NOT SCALE THIS DRAWING
DIMENSIONS ARE IN INCHES (CENTIMETERS)
UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE .X=±.060 .X/=±1/32 .XX=±.020 X°=±30' .XXX=±.005
ALL MACH SURFACES ▽ CONCENTRICITY .005TIR
DEBURR AND BREAK ALL SHARP EDGES

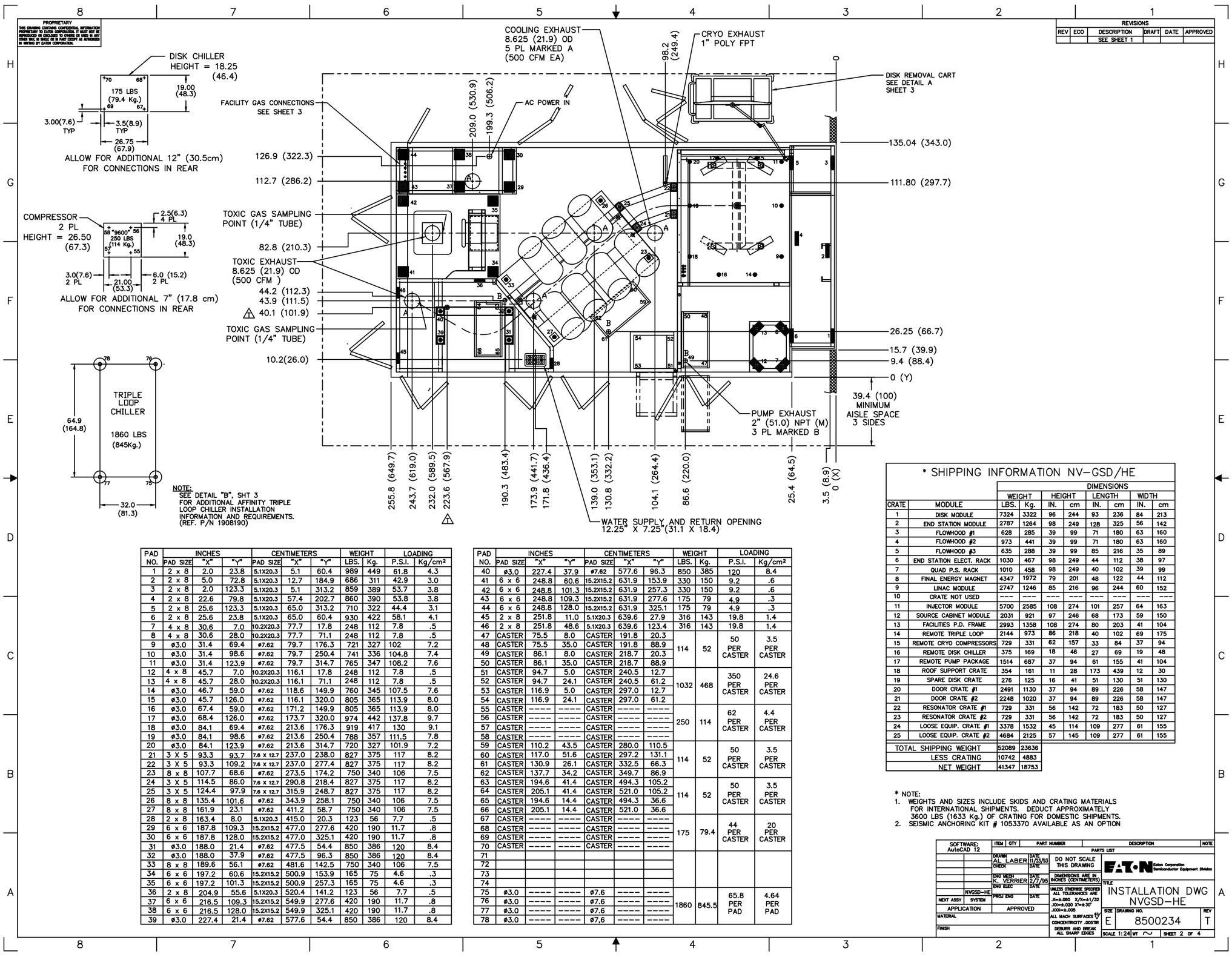
Eaton Corporation Semiconductor Equipment Division

TITLE: INSTALLATION DWG NVGSD-HE

SIZE E | DRAWING NO. 8500234 | REV T

SCALE 1:24 WT ~ SHEET 1 OF 4

Installation Dwg NVGSD-HE - 8500234



PAD NO.	INCHES PAD SIZE	"X"	"Y"	CENTIMETERS PAD SIZE	"X"	"Y"	WEIGHT LBS.	Kg.	LOADING P.S.I.	Kg/cm²
1	2 x 8	2.0	23.8	5.1X20.3	5.1	60.4	989	449	61.8	4.3
2	2 x 8	5.0	72.8	5.1X20.3	12.7	184.9	686	311	42.9	3.0
3	2 x 8	2.0	123.3	5.1X20.3	5.1	313.2	859	389	53.7	3.8
4	2 x 8	22.6	79.8	5.1X20.3	57.4	202.7	860	390	53.8	3.8
5	2 x 8	25.6	123.3	5.1X20.3	65.0	313.2	710	322	44.4	3.1
6	2 x 8	25.6	23.8	5.1X20.3	65.0	60.4	930	422	58.1	4.1
7	4 x 8	30.6	7.0	10.2X20.3	77.7	17.8	248	112	7.8	.5
8	4 x 8	30.6	28.0	10.2X20.3	77.7	71.1	248	112	7.8	.5
9	ø3.0	31.4	69.4	ø7.62	79.7	176.3	721	327	102	7.2
10	ø3.0	31.4	98.6	ø7.62	79.7	250.4	741	336	104.8	7.4
11	ø3.0	31.4	123.9	ø7.62	79.7	314.7	765	347	108.2	7.6
12	4 x 8	45.7	7.0	10.2X20.3	116.1	17.8	248	112	7.8	.5
13	4 x 8	45.7	28.0	10.2X20.3	116.1	71.1	248	112	7.8	.5
14	ø3.0	46.7	59.0	ø7.62	118.6	149.9	760	345	107.5	7.6
15	ø3.0	45.7	126.0	ø7.62	116.1	320.0	805	365	113.9	8.0
16	ø3.0	67.4	59.0	ø7.62	171.2	149.9	805	365	113.9	8.0
17	ø3.0	68.4	126.0	ø7.62	173.7	320.0	974	442	137.8	9.7
18	ø3.0	84.1	69.4	ø7.62	213.6	176.3	919	417	130	9.1
19	ø3.0	84.1	98.6	ø7.62	213.6	250.4	788	357	111.5	7.8
20	ø3.0	84.1	123.9	ø7.62	213.6	314.7	720	327	101.9	7.2
21	3 X 5	93.3	93.7	7.6 x 12.7	237.0	238.0	827	375	117	8.2
22	3 X 5	93.3	109.2	7.6 x 12.7	237.0	277.4	827	375	117	8.2
23	8 x 8	107.7	68.6	ø7.62	273.5	174.2	750	340	106	7.5
24	3 X 5	114.5	86.0	7.6 x 12.7	290.8	218.4	827	375	117	8.2
25	3 X 5	124.4	97.9	7.6 x 12.7	315.9	248.7	827	375	117	8.2
26	8 x 8	135.4	101.6	ø7.62	343.9	258.1	750	340	106	7.5
27	8 x 8	161.9	23.1	ø7.62	411.2	58.7	750	340	106	7.5
28	2 x 8	163.4	8.0	5.1X20.3	415.0	20.3	123	56	7.7	.5
29	6 x 6	187.8	109.3	15.2X15.2	477.0	277.6	420	190	11.7	.8
30	6 x 6	187.8	128.0	15.2X15.2	477.0	325.1	420	190	11.7	.8
31	ø3.0	188.0	21.4	ø7.62	477.5	54.4	850	386	120	8.4
32	ø3.0	188.0	37.9	ø7.62	477.5	96.3	850	386	120	8.4
33	8 x 8	189.6	56.1	ø7.62	481.6	142.5	750	340	106	7.5
34	6 x 6	197.2	60.6	15.2X15.2	500.9	153.9	165	75	4.6	.3
35	6 x 6	197.2	101.3	15.2X15.2	500.9	257.3	165	75	4.6	.3
36	2 x 8	204.9	55.6	5.1X20.3	520.4	141.2	123	56	7.7	.5
37	6 x 6	216.5	109.3	15.2X15.2	549.9	277.6	420	190	11.7	.8
38	6 x 6	216.5	128.0	15.2X15.2	549.9	325.1	420	190	11.7	.8
39	ø3.0	227.4	21.4	ø7.62	577.6	54.4	850	386	120	8.4

PAD NO.	INCHES PAD SIZE	"X"	"Y"	CENTIMETERS PAD SIZE	"X"	"Y"	WEIGHT LBS.	Kg.	LOADING P.S.I.	Kg/cm²
40	ø3.0	227.4	37.9	ø7.62	577.6	96.3	850	385	120	8.4
41	6 x 6	248.8	60.6	15.2X15.2	631.9	153.9	330	150	9.2	.6
42	6 x 6	248.8	101.3	15.2X15.2	631.9	257.3	330	150	9.2	.6
43	6 x 6	248.8	109.3	15.2X15.2	631.9	277.6	175	79	4.9	.3
44	6 x 6	248.8	128.0	15.2X15.2	631.9	325.1	175	79	4.9	.3
45	2 x 8	251.8	11.0	5.1X20.3	639.6	27.9	316	143	19.8	1.4
46	2 x 8	251.8	48.6	5.1X20.3	639.6	123.4	316	143	19.8	1.4
47	CASTER	75.5	8.0	CASTER	191.8	20.3	114	52	50 PER CASTER	3.5 PER CASTER
48	CASTER	75.5	35.0	CASTER	191.8	88.9				
49	CASTER	86.1	8.0	CASTER	218.7	20.3				
50	CASTER	86.1	35.0	CASTER	218.7	88.9				
51	CASTER	94.7	5.0	CASTER	240.5	12.7	1032	468	350 PER CASTER	24.6 PER CASTER
52	CASTER	94.7	24.1	CASTER	240.5	61.2				
53	CASTER	116.9	5.0	CASTER	297.0	12.7				
54	CASTER	116.9	24.1	CASTER	297.0	61.2				
55	CASTER	----	----	CASTER	----	----	250	114	62 PER CASTER	4.4 PER CASTER
56	CASTER	----	----	CASTER	----	----				
57	CASTER	----	----	CASTER	----	----				
58	CASTER	----	----	CASTER	----	----				
59	CASTER	110.2	43.5	CASTER	280.0	110.5	114	52	50 PER CASTER	3.5 PER CASTER
60	CASTER	117.0	51.6	CASTER	297.2	131.1				
61	CASTER	130.9	26.1	CASTER	332.5	66.3				
62	CASTER	137.7	34.2	CASTER	349.7	86.9				
63	CASTER	194.6	41.4	CASTER	494.3	105.2	114	52	50 PER CASTER	3.5 PER CASTER
64	CASTER	205.1	41.4	CASTER	521.0	105.2				
65	CASTER	194.6	14.4	CASTER	494.3	36.6				
66	CASTER	205.1	14.4	CASTER	521.0	36.6				
67	CASTER	----	----	CASTER	----	----	175	79.4	44 PER CASTER	20 PER CASTER
68	CASTER	----	----	CASTER	----	----				
69	CASTER	----	----	CASTER	----	----				
70	CASTER	----	----	CASTER	----	----				
71										
72										
73										
74										
75	ø3.0	----	----	ø7.6	----	----	1860	845.5	65.8 PER PAD	4.64 PER PAD
76	ø3.0	----	----	ø7.6	----	----				
77	ø3.0	----	----	ø7.6	----	----				
78	ø3.0	----	----	ø7,6	----	----				

* SHIPPING INFORMATION NV-GSD/HE

CRATE	MODULE	WEIGHT LBS.	WEIGHT Kg.	HEIGHT IN.	HEIGHT cm	LENGTH IN.	LENGTH cm	WIDTH IN.	WIDTH cm
1	DISK MODULE	7324	3322	96	244	93	236	84	213
2	END STATION MODULE	2787	1264	98	249	128	325	56	142
3	FLOWHOOD #1	628	285	39	99	71	180	63	160
4	FLOWHOOD #2	973	441	39	99	71	180	63	160
5	FLOWHOOD #3	635	288	39	99	85	216	35	89
6	END STATION ELECT. RACK	1030	467	98	249	44	112	38	97
7	QUAD P.S. RACK	1010	458	98	249	40	102	39	99
8	FINAL ENERGY MAGNET	4347	1972	79	201	48	122	44	112
9	LINAC MODULE	2747	1246	85	216	96	244	60	152
10	CRATE NOT USED	---	---	---	---	---	---	---	---
11	INJECTOR MODULE	5700	2585	108	274	101	257	64	163
12	SOURCE CABINET MODULE	2031	921	97	246	68	173	59	150
13	FACILITIES P.D. FRAME	2993	1358	108	274	80	203	41	104
14	REMOTE TRIPLE LOOP	2144	973	86	218	40	102	69	175
15	REMOTE CRYO COMPRESSORS	729	331	62	157	33	84	37	94
16	REMOTE DISK CHILLER	375	169	18	46	27	69	19	48
17	REMOTE PUMP PACKAGE	1514	687	37	94	61	155	41	104
18	ROOF SUPPORT CRATE	354	161	11	28	173	439	12	30
19	SPARE DISK CRATE	276	125	16	41	51	130	51	130
20	DOOR CRATE #1	2491	1130	37	94	89	226	58	147
21	DOOR CRATE #2	2248	1020	37	94	89	226	58	147
22	RESONATOR CRATE #1	729	331	56	142	72	183	50	127
23	RESONATOR CRATE #2	729	331	56	142	72	183	50	127
24	LOOSE EQUIP. CRATE #1	3378	1532	45	114	109	277	61	155
25	LOOSE EQUIP. CRATE #2	4684	2125	57	145	109	277	61	155
TOTAL SHIPPING WEIGHT		52089	23636						
LESS CRATING		10742	4883						
NET WEIGHT		41347	18753						

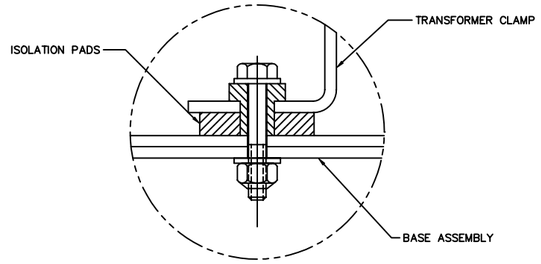
* NOTE:
1. WEIGHTS AND SIZES INCLUDE SKIDS AND CRATING MATERIALS FOR INTERNATIONAL SHIPMENTS. DEDUCT APPROXIMATELY 3600 LBS (1633 Kg.) OF CRATING FOR DOMESTIC SHIPMENTS.
2. SEISMIC ANCHORING KIT # 1053370 AVAILABLE AS AN OPTION

Installation Dwg NVGSD-HE - 8500234

REVISIONS					
REV	ECO	DESCRIPTION	DRAFT	DATE	APPROVED
		SEE SHEET 1			

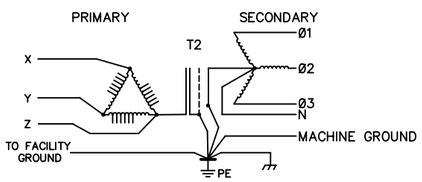
INSTALLATION NOTES:

1. T2 IS THE MAIN POWER ISOLATION TRANSFORMER, NEOPRENE RUBBER VIBRATION ISOLATION PADS AND SLEEVES ISOLATE ITS MOUNTING BRACKETS AND BOLTS FROM THE FRAME ON WHICH IT RESTS. THE FOUR ISOLATION PAD BOLTS ARE TIGHTENED BEFORE SHIPMENT, AND THEY MUST BE LOOSENED AND READJUSTED BEFORE THE TRANSFORMER IS ENERGIZED AT CUSTOMER'S FACILITY.



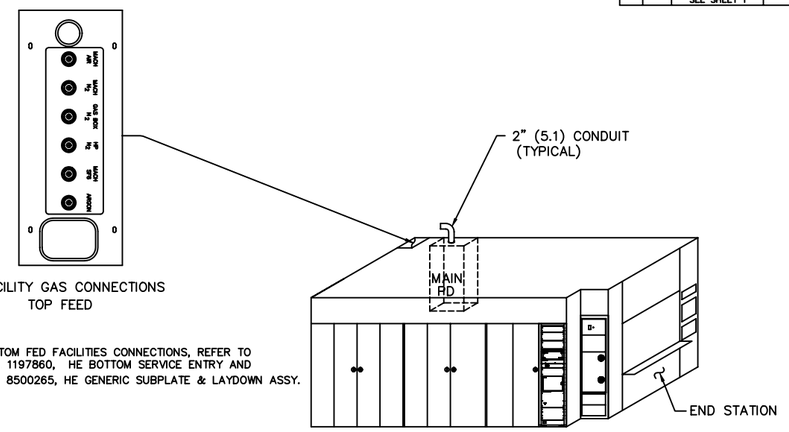
ISOLATION PAD DETAIL

2. THE CUSTOMER SHALL INSTALL AN ELECTRICAL SAFTEY GROUND CONDUCTOR FROM A NEARBY FACILITY GROUND POINT TO THE PRIMARY EARTH (PE) CONNECTION POINT IN THE LOWER SECTION OF THE IMPLANTER'S MAIN POWER DISTRIBUTION (PD) PANEL (REFER TO EATON DRAWING 1194670/1, MAIN PD, OR ITS REPLACEMENT). THE CONNECTION BETWEEN FACILITY GROUNDING POINT AND THE IMPLANTER'S PE TERMINAL MUST BE MADE WITH A CONTINUOUS, UNSPLICED CONDUCTOR, AND THE RESISTANCE BETWEEN THESE POINTS MUST NOT EXCEED 0.100 OHMS.



3. POWER THE IMPLANTER FROM A SINGLE SOURCE. IF LINE POWERED MONITORING INSTRUMENTS, SUCH AS CHART RECORDERS, MUST BE CONNECTED TO THE IMPLANTER, THEY SHOULD BE POWERED FROM THE SERVICE OR OPTION OUTLETS ON THE IMPLANTER. ANYTHING WHICH CANNOT BE POWERED IN THIS FASHION SHOULD BE ISOLATED BY TRANSFORMER OR OPTICAL MEANS.
4. AVOID INCIDENTAL, UNDOCUMENTED GROUNDS THROUGH STRUCTURAL STEEL, WATER PIPES, ETC.
5. THE MAXIMUM LOAD FOR THE IMPLANTER WAS MEASURED RUNNING 1 MeV AT 1 mA OF B+ WITH AN INPUT VOLTAGE OF 480 VOLTS. THE CUSTOMER MAY EXPERIENCE TRANSIENTS ABOVE THIS VALUE SUCH AS DURING ROTARY DRIVE ACCELERATION.
6. A MAIN CIRCUIT BREAKER IS AN INTEGRAL PART OF THE IMPLANTER MAIN POWER DISTRIBUTION BOX. THE CIRCUIT BREAKER IS RATED FOR 150 AMP FOR 480 VOLT APPLICATIONS AND 160 AMP FOR 400/380 VOLT APPLICATIONS. SEE 8418070.

   A 60 AMP MAIN CIRCUIT BREAKER IS AN INTEGRAL PART OF THE TRIPLE LOOP CHILLER ELECTRICAL SYSTEM. CUSTOMER IS RESPONSIBLE FOR WIRING TO TRIPLE LOOP CHILLER.
7. THE IMPLANTER AND TRIPLE LOOP CHILLER CAN BE BUILT TO EITHER VOLTAGE / FREQUENCY COMBINATION SHOWN IN THE ELECTRICAL TABLE ON SHEET 1, HOWEVER, THIS INFORMATION MUST BE SPECIFIED PRIOR TO PURCHASE ORDER PLACEMENT. FOR A VOLTAGE / FREQUENCY COMBINATION NOT LISTED IN THE TABLE ON SHEET 1, CONSULT THE FACTORY FOR DETAILS. IT IS THE CUSTOMERS RESPONSIBILTY TO ENSURE THAT THE INPUT VOLTAGE AND FREQUENCY COMPLIES AS SHOWN IN THE TABLE; ALL MATERIAL AND EXTERNAL CONNECTIONS TO THE IMPLANTER AND TRIPLE LOOP CHILLER INCLUDING, BUT NOT LIMITED TO, EXTERNAL VOLTAGE MATCHING TRANSFORMERS AND UNINTERRUPTABLE POWER SUPPLY (UPS) SYSTEMS SHALL BE THE RESPONSIBILTY OF THE CUSTOMER. THE INPUT VOLTAGE SHALL VARY NO MORE THAN ±10% AND THE INPUT FREQUENCY NO MORE THAN ±5%.

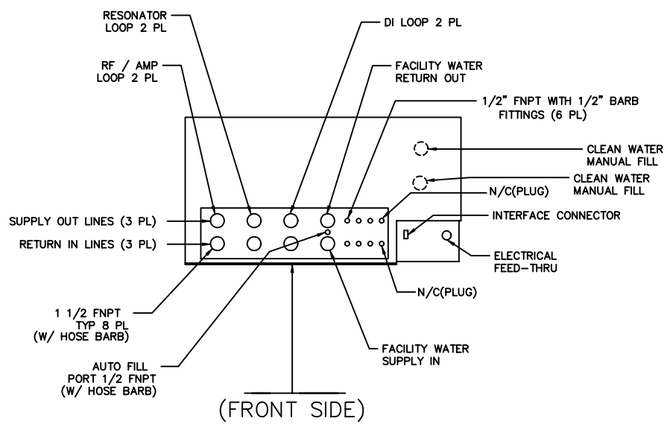


FACILITY GAS CONNECTIONS
TOP FEED

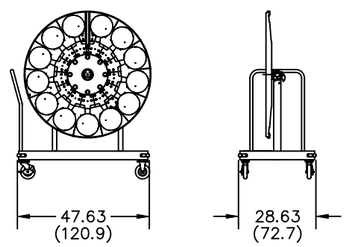
FOR BOTTOM FED FACILITIES CONNECTIONS, REFER TO DWG. NO. 1197860, HE BOTTOM SERVICE ENTRY AND DWG. NO. 8500265, HE GENERIC SUBPLATE & LAYDOWN ASSY.

FACILITY CONNECTIONS *					
	CONNECTION	1/4 SWAGELOK	3/8 SWAGELOK	1/4 VCR	1/2 VCR
1	MACH. AIR	N/A	OPT	N/A	OPT
2	MACH. N_2	N/A	OPT	N/A	OPT
3	GAS BOX N_2	OPT	OPT	OPT	OPT
4	HP N_2 (OPT)	N/A	OPT	N/A	OPT
5	MACH. SF6	N/A	OPT	N/A	OPT
6	ARGON	OPT	OPT	OPT	OPT

* EACH OF THE OPTIONS INDICATED ON THE ABOVE CHART WILL BE PROVIDED WITH THE MACHINE. THE DESIRED FITTINGS CAN BE CONNECTED AT THE TIME OF MACHINE INSTALLATION. CONTACT THE FACTORY FOR ANY DESIRED FITTING NOT SHOWN ON THE CHART.



DETAIL "B"
TRIPLE-LOOP CONNECTIONS
REFER TO DWG 1908190



DETAIL A
DISK REMOVAL CART
& 200mm DISK

SOFTWARE: AutoCAD 12	ITEM	QTY	PART NUMBER	DESCRIPTION	NOTE
	PARTS LIST				
DRAWN AL LABER 11/23/93					
CHECK					
ENG MECH K. VERRIER 2/7/95					
ENG ELEC					
NVGSD-HE					
PROJ ENG					
NEXT ASSY / SYSTEM					
APPLICATION: APPROVED					
MATERIAL					
FINISH					

DO NOT SCALE THIS DRAWING
DIMENSIONS ARE IN INCHES (CENTIMETERS)
UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE .X=±.080 .X/=±1/32 .XX=±.020 X°=±.30' .XXX=±.005
ALL MACH SURFACES
CONCENTRICITY .005TIR
DEBURR AND BREAK ALL SHARP EDGES

Eaton Corporation Semiconductor Equipment Division

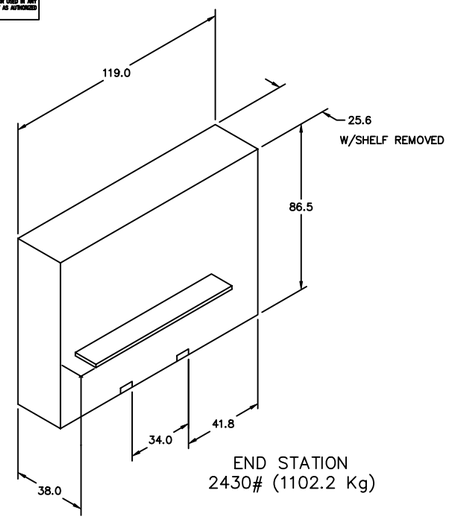
TITLE: INSTALLATION DWG NVGSD-HE

SIZE	DRAWING NO.	REV
E	8500234	T

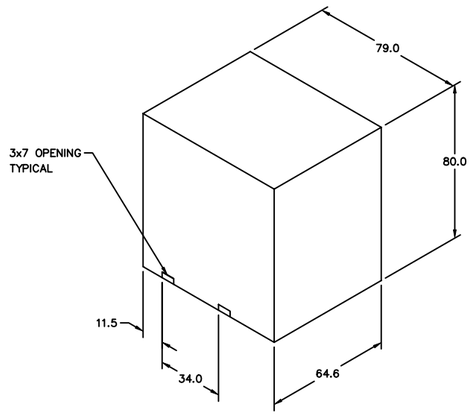
SCALE 1:1 | WT ~ | SHEET 3 OF 4

Installation Dwg NVGSD-HE - 8500234

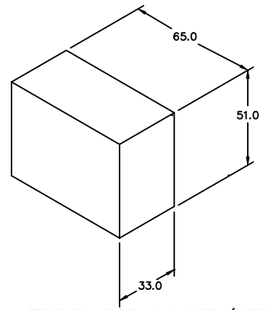
REVISIONS					
REV	ECO	DESCRIPTION	DRAFT	DATE	APPROVED
		SEE SHEET 1			



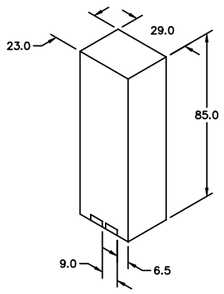
END STATION
2430# (1102.2 Kg)



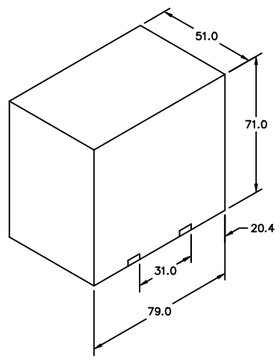
DISK MODULE
6206# (2815.0 Kg)



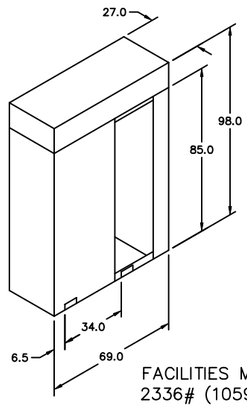
TRIPLE LOOP CHILLER (WET)
1960# (889.1Kg)



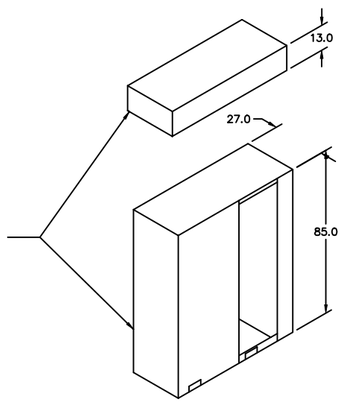
E/S ELEC RACK
730# (331.1 Kg)

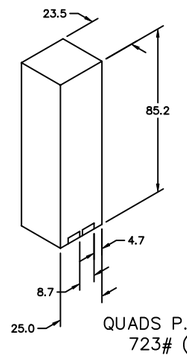


LINAC MODULE
2017# (914.9 Kg)



FACILITIES MODULE
2336# (1059.6 Kg)

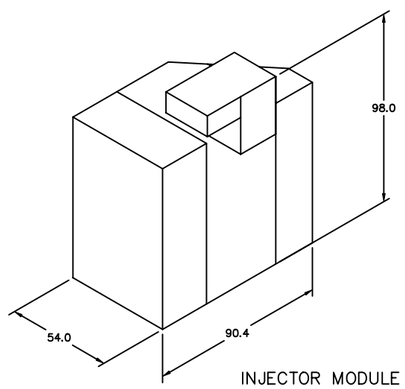




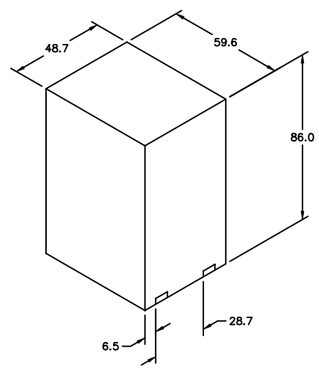
QUADS P.S. RACK
723# (327.9 Kg)

UNCRATED MODULES

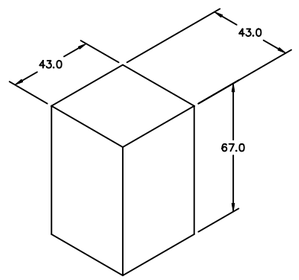
NOTES:
1. WEIGHTS SHOWN ARE APPROXIMATE.
2. MODULES MAY NOT BE TURNED ONTO THEIR SIDE FOR MOVING THROUGH DOORWAYS.
3. MODULES ARE DESIGNED TO BE LIFTED FROM THE BASE. NO PROVISION IS MADE FOR HOISTING FROM THE UPPER FRAMEWORK.
4. ALTHOUGH THE MODULES ARE FREE-STANDING, EXERCISE EXTREME CAUTION DUE TO THE HIGH CENTER OF GRAVITY RELATIVE TO THE BASE DIMENSIONS OF THE MODULES. THE CENTER OF GRAVITY MAY ALSO BE OFFSET HORIZONTALLY FROM THE CENTER OF EACH MODULE.
5. ONLY THE LARGER SIZE MODULES ARE SHOWN. REFER TO THE INSTALLATION DRAWING FOR A LISTING OF ADDITIONAL PARTS.



INJECTOR MODULE
4825# (2188.6 Kg)



SOURCE CABINET MODULE
1494# (677.7 Kg)



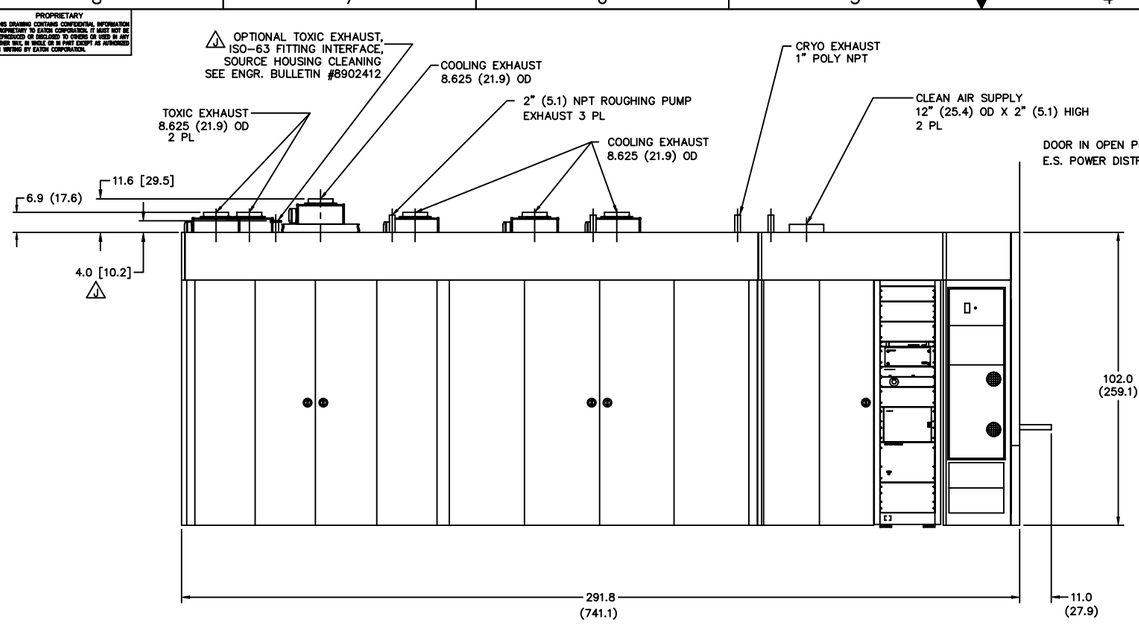
FINAL ENERGY MAGNET
4018# (1822.6 Kg)

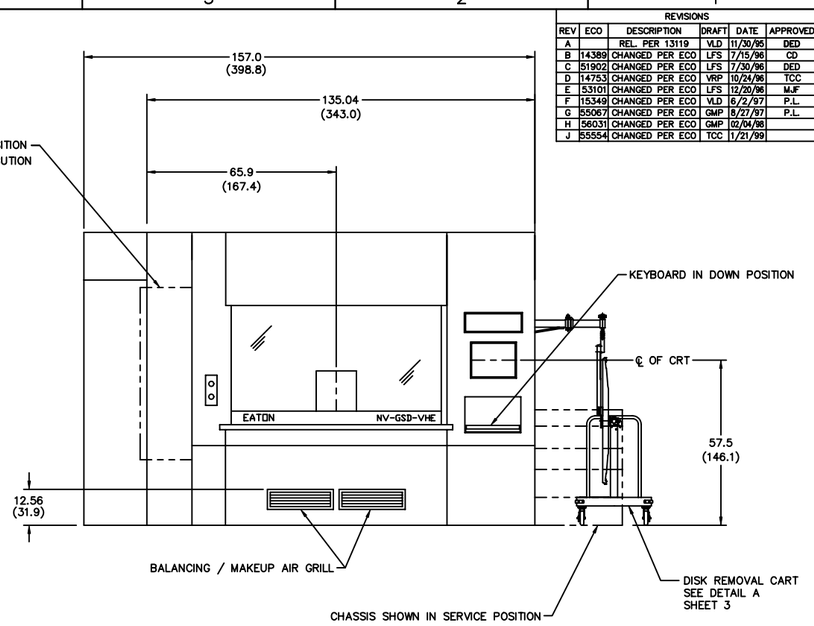
SOFTWARE: AutoCAD 12		ITEM	QTY	PART NUMBER	DESCRIPTION	NOTE
					PARTS LIST	
		DRAWN P.CONTARINO	DATE 9/6/94	DO NOT SCALE THIS DRAWING	EATON Eaton Corporation Semiconductor Equipment Division	
		CHECK	DATE			
		ENG MECH K. VERRIER	DATE 2/7/95	DIMENSIONS ARE IN INCHES (MILLIMETERS)	TITLE INSTALLATION DWG NVGSD-HE	
		ENG ELEC	DATE			
NEXT ASSY	SYSTEM NVGSD-HE	PROJ ENG	DATE	UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE .X=±0.030 X/X=±1/32 .XX=±0.010 X°=±30' .XXX=±0.005		
APPLICATION		APPROVED		ALL MACH SURFACES CONCENTRICITY .005TIR	SIZE E DRAWING NO. 8500234 REV T	
MATERIAL NONE				DEBURR AND BREAK ALL SHARP EDGES	SCALE 1:24 WT ~ SHEET 4 OF 4	
FINISH NONE						

Return to Table of Contents

Return to Module Map

Installation Dwg NVGSD-VHE - 8500259





REVISIONS					
REV	ECO	DESCRIPTION	DRAFT	DATE	APPROVED
A		REL. PER 13119	VLD	11/30/95	DED
B	14389	CHANGED PER ECO	LFS	7/15/96	CD
C	51902	CHANGED PER ECO	LFS	7/30/96	DED
D	14753	CHANGED PER ECO	VRP	10/24/96	TCC
E	53101	CHANGED PER ECO	LFS	12/20/96	MJF
F	15349	CHANGED PER ECO	VLD	6/2/97	P.L.
G	55067	CHANGED PER ECO	GMP	8/27/97	P.L.
H	56031	CHANGED PER ECO	GMP	02/04/98	
J	55554	CHANGED PER ECO	TCC	1/21/99	

FACILITIES REQUIREMENTS

THE CUSTOMER SHALL PROVIDE THE FOLLOWING FACILITIES, SERVICE CONNECTIONS, AND EQUIPMENT:

FEEDS

ELECTRICAL

THE CUSTOMER MUST PROVIDE THE MATERIALS FOR, AND COMPLETE THE INSTALLATION OF ALL ELECTRICAL POWER CONNECTIONS TO THE INPUT TERMINALS IN THE IMPLANTER'S MAIN POWER DISTRIBUTION BOX AND TRIPLE LOOP CHILLER, ACCORDING TO THE REQUIREMENTS OF THE GOVERNING, LOCAL ELECTRICAL CODE. THE INPUT PHASE AND GROUND CONDUCTORS MUST BE AT LEAST AS LARGE AS THOSE SHOWN IN THE FOLLOWING TABLE. LARGER CONDUCTORS MAY BE REQUIRED BASED ON LOCAL ELECTRICAL CODES.

	PHASE CONDUCTOR ($AWG - mm^2$)	GROUND CONDUCTOR ($AWG - mm^2$)	MAXIMUM LOAD (KVA)	POWER FACTOR	INPUT VOLTAGE/ FREQUENCY
IMPLANTER	#3/0 – 83	#1 – 43	105	0.85	480/60 OR 400/50
TRIPLE LOOP CHILLER	#4 – 21	#6 – 13	55	0.85	480/60 OR 400/50

SEE SHEET 3 FOR DETAIL INFORMATION CONCERNING THIS TABLE

WATER

FACILITY WATER

WATER SHALL BE SUPPLIED TO THE TRIPLE-LOOP CHILLER AT 100 PSIG (690 kPa), MAX; 60 GPM (228 LPM), MIN FLOW RATE; 77°F(25°C), MAX; AND WITH A PRESSURE DROP OF 30 PSIG(207 kPa), MAX .

CHILLER AND IMPLANTER H2O SYSTEM SHOULD BE FILLED WITH D/I WATER. AUTO REFILL CONNECTION(SEE DETAIL "B",SHT 3) SHOULD BE CONNECTED TO A FILTERED CLEAN WATER SOURCE.

NOTES:

1. 5 GALLONS (19 L) OF DOWFROST CORROSION INHIBITER, 9200297, IS SHIPPED WITH EACH MACHINE AND IS TO BE ADDED TO THE DISK CHILLER RESERVOIR AT SYSTEM START-UP. SHOULD THE DISK CHILLER BE DRAINED AND REFILLED, DOWFROST MUST BE ADDED TO PREVENT SYSTEM CORROSION PER 8606211.
2. CUSTOMER SUPPLIED HARD PLUMBING WITH DIELECTRIC BREAK IS RECOMMENDED FOR ALL WATER LINES.

COMPRESSED AIR

IMPLANTER

IMPLANTER REQUIRES 90-100 PSIG (700-800 kPa), SUPPLIED TO INPUT SHOWN(SHT 2, ZONE 6-H), FOR OPERATION OF PNEUMATIC VALVES. FLOW RATE: 0.5 CFM

FEEDS (con't)

SULFUR HEXAFLUORIDE (SF-6) GAS FOR RESONATORS

SF-6 SHALL BE SUPPLIED TO THE INPUT SHOWN (SHT 2, ZONE 6-H) AT:
PRESSURE (MAXIMUM) 20 PSIG (230 kPa)
VOLUME (TOTAL) 69 STD FT^3 @ 15 PSI (1954 STD LITERS)
CONNECTIONS 1/2" NPT
EST. YEARLY USAGE 69 STD Ft^3 (1954 STD LITERS)

DRY NITROGEN

NITROGEN SHALL BE SUPPLIED TO INPUTS SHOWN (SHT 2, ZONE 6-H) AT:

LOCATION		PRESSURE PSIG	PRESSURE kPa	PEAK FLOW SCFM	PEAK FLOW L/MIN
MACHINE	MACHINE(NP)	60	500	8.5	241
	HP N_2(OPT)	45	375	1	28
GAS BOX		30-60	300-500	.02	.5

ALL CONNECTIONS ARE 1/2" NPT

FOR OPTIONAL BOTTOM FED FACILITY GASSES, REFER TO DWG NO. 1197860

EXHAUST LINES

TOXIC AND COOLING AIR EXHAUSTS

TYPE	SIZE	QUANTITY	FLOW CFM	FLOW LPM	EXHAUST SUCTION In H2O	EXHAUST SUCTION mm H2O
TOXIC	8.00"	2	500	14k	1.0-1.5	25-38
COOLING	(8.63"O.D.)	4	500	14k		
TOXIC	2.50"	1*	65	1.8k		

NOTES

⚠1 * THE 2.5" TOXIC EXHAUST IS ONLY REQUIRED ON MACHINES OUTFITTED WITH THE "SOURCE HOUSING CLEANING EXHAUST" OPTION.

1. AN INTEGRAL PRESSURE SENSOR IS PROVIDED TO PROTECT AGAINST FAILURE IN THE GAS BOX AND SOURCE AREA EXHAUST LINES. IF AN EXTERNAL EXHAUST FLOW INTERLOCK IS REQUIRED, A NORMALLY OPEN RELAY CONTACT MUST BE WIRED TO THE MACHINE INTERLOCKS.
2. COOLING EXHAUSTS ARE POTENTIALLY TOXIC DURING SOME MAINTENANCE TASKS OR IN THE EVENT OF A WORST CASE EQUIPMENT FAILURE.
3. TOXIC EXHAUST MUST BE CONNECTED TO A SCRUBBER OR OTHER EXHAUST TREATMENT SUITABLE FOR DOPANT MATERIALS.
4. AN INTEGRAL SMOKE DETECTOR IS PROVIDED IN EACH 8" EXHAUST LINE.
5. EATON RECOMMENDS STAINLESS STEEL EXHAUST LINES.

VACUUM PUMP EXHAUSTS

ALL ROUGHING PUMPS MUST BE VENTED TO THE FACILITY'S TOXIC EXHAUST SYSTEM. DO NOT CONNECT THE ROUGHING PUMP EXHAUST LINES TO ANY OTHER MACHINE EXHAUST LINES.

NOTES:

1. ROUGHING PUMP EXHAUST LINES MUST HAVE TRAPS WHICH PREVENT OIL FROM FLOWING BACK INTO THE MACHINE EXHAUST. IT MUST BE POSSIBLE TO DRAIN OIL FROM THESE TRAPS WITHOUT SHUTTING DOWN THE EXHAUST SYSTEM.
2. EATON RECOMMENDS STAINLESS STEEL EXHAUST LINES.

EXHAUST LINES (con't)

HEAT LOADS(EXHAUST)

AT THE MAXIMUM STEADY LOAD(105kVa), THE TOTAL FACILITY HEAT LOAD WILL BE 125 kW. THIS LOAD SHALL BE APPROX. COMPRISED OF THE FOLLOWING:

IMPLANTER:
TO AMBIENT AIR-8.5kW
TO EXHAUST AIR-13kW
TO COOLING WATER-95kW

TRIPLE-LOOP CHILLER:
TO AMBIENT AIR-8.5kW.

NOTE:
THE TRIPLE-LOOP CHILLER REQUIRES A MINIMUM CLEARANCE OF 6 IN(15.2 CM) AT THE REAR AND LEFT SIDE, FOR PROPER VENTILATION.

CRYO EXHAUST

FLOW: 20 CFM (9.5 LITERS/SEC)
EXHAUST SUCTION: 1-1.5 IN. H20 (25-38.1 mm H20)
ALL CRYO PUMPS MUST BE VENTED TO THE FACILITY'S TOXIC EXHAUST SYSTEM. DO NOT CONNECT THE CRYO PUMP EXHAUST LINES TO ANY OTHER MACHINE EXHAUST LINES.

NOTE:

1. EATON RECOMMENDS STAINLESS STEEL EXHAUST LINES.

RADIATION SHIELDING

REQUIREMENTS FOR RADIATION SHIELDING UNDER THE IMPLANTER ENCLOSURE ARE DEPENDENT ON THE TYPE OF SUPPORT FLOORING USED. CONTACT EATON FACTORY FOR DETAILS.

FLOWHOOD MAKEUP AIR (MUA)

FOR BULKHEAD MOUNTED MACHINES APPROXIMATELY 440 CFM (12 m^3/MIN) OF MUA SHOULD BE DUCTED TO 12 IN (30.5 CM) DIAMETER GATES ON TOP OF FLOWHOOD (220 CFM EACH)

FLOOR DRAIN

OPTIONAL FOR DRAINING OF WATER RESERVOIR AND PUMP FLOW: APPROXIMATELY 1.0 GPM (3.8 LPM)

AMBIENT TEMPERATURE

60-80°F (15-27°C)
APPROXIMATE HEAT LOAD TO ROOM: 17 kW

RELATIVE HUMIDITY

50% ±10

ARGON (CUSTOMER SUPPLIED)

PRESSURE (MAX): 100 PSI (20 SCCM)

TOXIC GAS ALARM

IT IS RECOMMENDED THAT THE CUSTOMER PROVIDE A TOXIC GAS ALARM SIGNAL TO BE WIRED TO THE MACHINE INTERLOCKS. SEE SHEET 2 FOR TUBING CONNECTIONS. AN ADDITIONAL MONITORING POINT SHOULD BE ADDED IN THE OPERATOR INTERFACE AREA.

INSTALLATION EQUIPMENT(CUSTOMER SUPPLIED)

FORK TRUCK WITH A 6000 LB(2727 Kg) LIFTING CAPACITY AND 6 FT(183 cm) LONG FORK EXTENSIONS.
LEAK CHECKER CAPABLE OF 10E-9 STANDARD ATM-CC/SEC SENSITIVITY TO HELIUM.
XENON GAS (LECTURE BOTTLE) REQUIRED FOR INITIAL FEM CALIBRATION

SOFTWARE: AutoCAD 12	ITEM	QTY	PART NUMBER	DESCRIPTION	NOTE
			PARTS LIST		

DRAWN V.DEKERMENDJIAN 09/11/95
CHECK D.DELUCA 12/7/95
ENG MECH
ENG ELEC
PROJ ENG DDELUCA 9/11/95
0960000 VHE
0950000 VHE
NEXT ASSY | SYSTEM
APPLICATION | APPROVED
MATERIAL
FINISH

DO NOT SCALE THIS DRAWING
DIMENSIONS ARE IN INCHES (CENTIMETERS)
UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE: X=±.060 X/X=±1/32 .XX=±.020 X°=±.30° .XXX=±.005
ALL MACH SURFACES 63 CONCENTRICITY .005TIR
DEBURR AND BREAK ALL SHARP EDGES

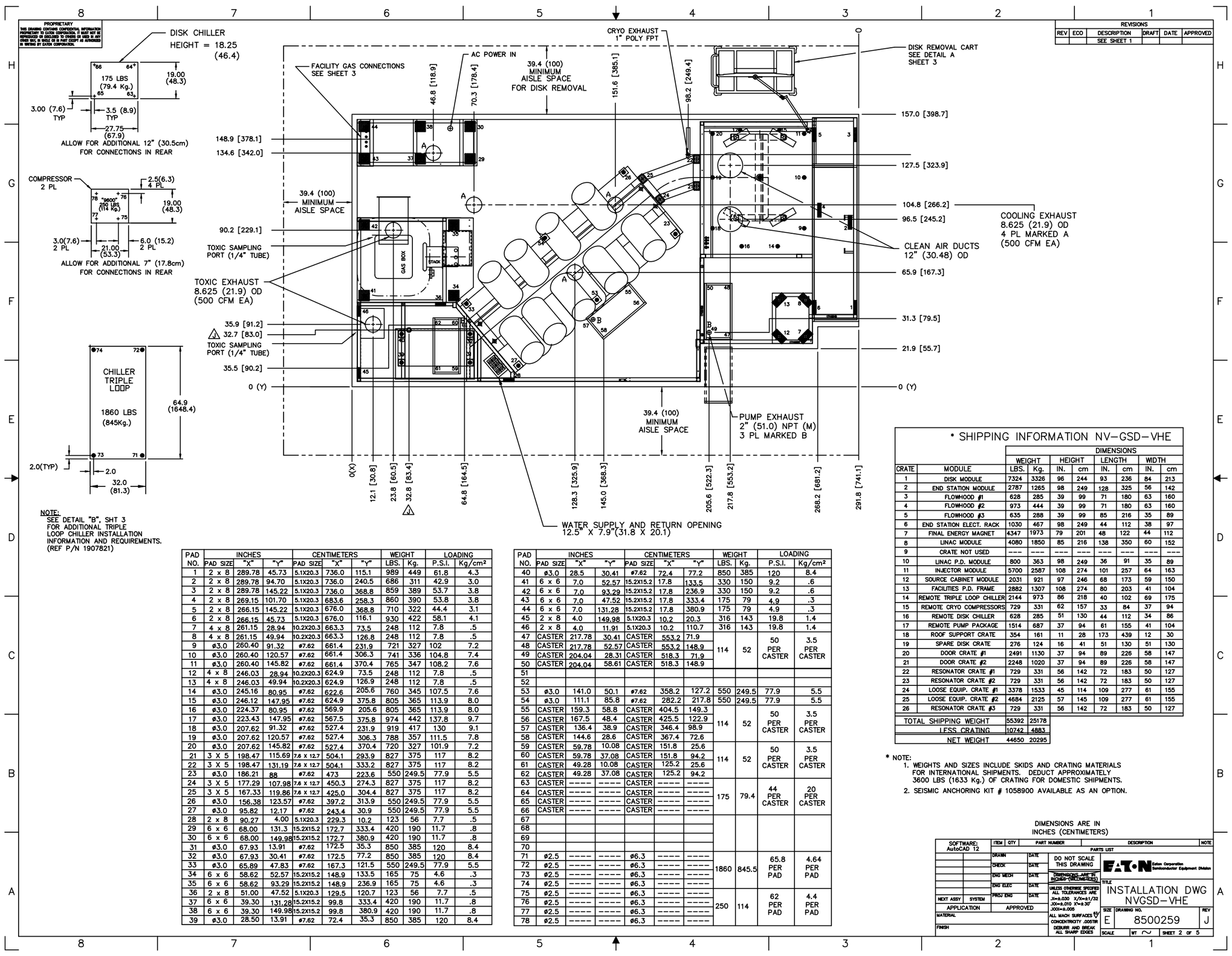
EATON Corporation Semiconductor Equipment Division

TITLE: INSTALLATION DWG NVGSD-VHE

SIZE E | DRAWING NO. 8500259 | REV J
SCALE WT ~ | SHEET 1 OF 5

Return to CD-ROM Table of Contents

Installation Dwg NVGSD-VHE - 8500259



PAD NO.	INCHES PAD SIZE	"X"	"Y"	CENTIMETERS PAD SIZE	"X"	"Y"	WEIGHT LBS.	Kg.	LOADING P.S.I.	Kg/cm²
1	2 x 8	289.78	45.73	5.1X20.3	736.0	115.1	989	449	61.8	4.3
2	2 x 8	289.78	94.70	5.1X20.3	736.0	240.5	686	311	42.9	3.0
3	2 x 8	289.78	145.22	5.1X20.3	736.0	368.8	859	389	53.7	3.8
4	2 x 8	269.15	101.70	5.1X20.3	683.6	258.3	860	390	53.8	3.8
5	2 x 8	266.15	145.22	5.1X20.3	676.0	368.8	710	322	44.4	3.1
6	2 x 8	266.15	45.73	5.1X20.3	676.0	116.1	930	422	58.1	4.1
7	4 x 8	261.15	28.94	10.2X20.3	663.3	73.5	248	112	7.8	.5
8	4 x 8	261.15	49.94	10.2X20.3	663.3	126.8	248	112	7.8	.5
9	ø3.0	260.40	91.32	ø7.62	661.4	231.9	721	327	102	7.2
10	ø3.0	260.40	120.57	ø7.62	661.4	306.3	741	336	104.8	7.4
11	ø3.0	260.40	145.82	ø7.62	661.4	370.4	765	347	108.2	7.6
12	4 x 8	246.03	28.94	10.2X20.3	624.9	73.5	248	112	7.8	.5
13	4 x 8	246.03	49.94	10.2X20.3	624.9	126.9	248	112	7.8	.5
14	ø3.0	245.16	80.95	ø7.62	622.6	205.6	760	345	107.5	7.6
15	ø3.0	246.12	147.95	ø7.62	624.9	375.8	805	365	113.9	8.0
16	ø3.0	224.37	80.95	ø7.62	569.9	205.6	805	365	113.9	8.0
17	ø3.0	223.43	147.95	ø7.62	567.5	375.8	974	442	137.8	9.7
18	ø3.0	207.62	91.32	ø7.62	527.4	231.9	919	417	130	9.1
19	ø3.0	207.62	120.57	ø7.62	527.4	306.3	788	357	111.5	7.8
20	ø3.0	207.62	145.82	ø7.62	527.4	370.4	720	327	101.9	7.2
21	3 X 5	198.47	115.69	7.6 x 12.7	504.1	293.9	827	375	117	8.2
22	3 X 5	198.47	131.19	7.6 x 12.7	504.1	333.2	827	375	117	8.2
23	ø3.0	186.21	88	ø7.62	473	223.6	550	249.5	77.9	5.5
24	3 X 5	177.29	107.98	7.6 x 12.7	450.3	274.3	827	375	117	8.2
25	3 X 5	167.33	119.86	7.6 x 12.7	425.0	304.4	827	375	117	8.2
26	ø3.0	156.38	123.57	ø7.62	397.2	313.9	550	249.5	77.9	5.5
27	ø3.0	95.82	12.17	ø7.62	243.4	30.9	550	249.5	77.9	5.5
28	2 x 8	90.27	4.00	5.1X20.3	229.3	10.2	123	56	7.7	.5
29	6 x 6	68.00	131.3	15.2X15.2	172.7	333.4	420	190	11.7	.8
30	6 x 6	68.00	149.98	15.2X15.2	172.7	380.9	420	190	11.7	.8
31	ø3.0	67.93	13.91	ø7.62	172.5	35.3	850	385	120	8.4
32	ø3.0	67.93	30.41	ø7.62	172.5	77.2	850	385	120	8.4
33	ø3.0	65.89	47.83	ø7.62	167.3	121.5	550	249.5	77.9	5.5
34	6 x 6	58.62	52.57	15.2X15.2	148.9	133.5	165	75	4.6	.3
35	6 x 6	58.62	93.29	15.2X15.2	148.9	236.9	165	75	4.6	.3
36	2 x 8	51.00	47.52	5.1X20.3	129.5	120.7	123	56	7.7	.5
37	6 x 6	39.30	131.28	15.2X15.2	99.8	333.4	420	190	11.7	.8
38	6 x 6	39.30	149.98	15.2X15.2	99.8	380.9	420	190	11.7	.8
39	ø3.0	28.50	13.91	ø7.62	72.4	35.3	850	385	120	8.4

PAD NO.	INCHES PAD SIZE	"X"	"Y"	CENTIMETERS PAD SIZE	"X"	"Y"	WEIGHT LBS.	Kg.	LOADING P.S.I.	Kg/cm²
40	ø3.0	28.5	30.41	ø7.62	72.4	77.2	850	385	120	8.4
41	6 x 6	7.0	52.57	15.2X15.2	17.8	133.5	330	150	9.2	.6
42	6 x 6	7.0	93.29	15.2X15.2	17.8	236.9	330	150	9.2	.6
43	6 x 6	7.0	47.52	15.2X15.2	17.8	333.4	175	79	4.9	.3
44	6 x 6	7.0	131.28	15.2X15.2	17.8	380.9	175	79	4.9	.3
45	2 x 8	4.0	149.98	5.1X20.3	10.2	20.3	316	143	19.8	1.4
46	2 x 8	4.0	11.91	5.1X20.3	10.2	110.7	316	143	19.8	1.4
47	CASTER	217.78	30.41	CASTER	553.2	71.9	114	52	50 PER CASTER	3.5 PER CASTER
48	CASTER	217.78	52.57	CASTER	553.2	148.9				
49	CASTER	204.04	28.31	CASTER	518.3	71.9				
50	CASTER	204.04	58.61	CASTER	518.3	148.9				
51										
52										
53	ø3.0	141.0	50.1	ø7.62	358.2	127.2	550	249.5	77.9	5.5
54	ø3.0	111.1	85.8	ø7.62	282.2	217.8	550	249.5	77.9	5.5
55	CASTER	159.3	58.8	CASTER	404.5	149.3	114	52	50 PER CASTER	3.5 PER CASTER
56	CASTER	167.5	48.4	CASTER	425.5	122.9				
57	CASTER	136.4	38.9	CASTER	346.4	98.9				
58	CASTER	144.6	28.6	CASTER	367.4	72.6				
59	CASTER	59.78	10.08	CASTER	151.8	25.6	114	52	50 PER CASTER	3.5 PER CASTER
60	CASTER	59.78	37.08	CASTER	151.8	94.2				
61	CASTER	49.28	10.08	CASTER	125.2	25.6				
62	CASTER	49.28	37.08	CASTER	125.2	94.2				
63	CASTER	-----	-----	CASTER	-----	-----	175	79.4	44 PER CASTER	20 PER CASTER
64	CASTER	-----	-----	CASTER	-----	-----				
65	CASTER	-----	-----	CASTER	-----	-----				
66	CASTER	-----	-----	CASTER	-----	-----				
67										
68										
69										
70										
71	ø2.5	-----	-----	ø6.3	-----	-----	1860	845.5	65.8 PER PAD	4.64 PER PAD
72	ø2.5	-----	-----	ø6.3	-----	-----				
73	ø2.5	-----	-----	ø6.3	-----	-----				
74	ø2.5	-----	-----	ø6.3	-----	-----				
75	ø2.5	-----	-----	ø6.3	-----	-----	250	114	62 PER PAD	4.4 PER PAD
76	ø2.5	-----	-----	ø6.3	-----	-----				
77	ø2.5	-----	-----	ø6.3	-----	-----				
78	ø2.5	-----	-----	ø6.3	-----	-----				

* SHIPPING INFORMATION NV-GSD-VHE

CRATE	MODULE	WEIGHT LBS.	WEIGHT Kg.	DIMENSIONS HEIGHT IN.	HEIGHT cm	LENGTH IN.	LENGTH cm	WIDTH IN.	WIDTH cm
1	DISK MODULE	7324	3326	96	244	93	236	84	213
2	END STATION MODULE	2787	1265	98	249	128	325	56	142
3	FLOWHOOD #1	628	285	39	99	71	180	63	160
4	FLOWHOOD #2	973	444	39	99	71	180	63	160
5	FLOWHOOD #3	635	288	39	99	85	216	35	89
6	END STATION ELECT. RACK	1030	467	98	249	44	112	38	97
7	FINAL ENERGY MAGNET	4347	1973	79	201	48	122	44	112
8	LINAC MODULE	4080	1850	85	216	138	350	60	152
9	CRATE NOT USED	---	---	---	---	---	---	---	---
10	LINAC P.D. MODULE	800	363	98	249	36	91	35	89
11	INJECTOR MODULE	5700	2587	108	274	101	257	64	163
12	SOURCE CABINET MODULE	2031	921	97	246	68	173	59	150
13	FACILITIES P.D. FRAME	2882	1307	108	274	80	203	41	104
14	REMOTE TRIPLE LOOP CHILLER	2144	973	86	218	40	102	69	175
15	REMOTE CRYO COMPRESSORS	729	331	62	157	33	84	37	94
16	REMOTE DISK CHILLER	628	285	51	130	44	112	34	86
17	REMOTE PUMP PACKAGE	1514	687	37	94	61	155	41	104
18	ROOF SUPPORT CRATE	354	161	11	28	173	439	12	30
19	SPARE DISK CRATE	276	124	16	41	51	130	51	130
20	DOOR CRATE #1	2491	1130	37	94	89	226	58	147
21	DOOR CRATE #2	2248	1020	37	94	89	226	58	147
22	RESONATOR CRATE #1	729	331	56	142	72	183	50	127
23	RESONATOR CRATE #2	729	331	56	142	72	183	50	127
24	LOOSE EQUIP. CRATE #1	3378	1533	45	114	109	277	61	155
25	LOOSE EQUIP. CRATE #2	4684	2125	57	145	109	277	61	155
26	RESONATOR CRATE #3	729	331	56	142	72	183	50	127
TOTAL SHIPPING WEIGHT		55392	25178						
LESS CRATING		10742	4883						
NET WEIGHT		44650	20295						

* NOTE:
1. WEIGHTS AND SIZES INCLUDE SKIDS AND CRATING MATERIALS FOR INTERNATIONAL SHIPMENTS. DEDUCT APPROXIMATELY 3600 LBS (1633 Kg.) OF CRATING FOR DOMESTIC SHIPMENTS.
2. SEISMIC ANCHORING KIT # 1058900 AVAILABLE AS AN OPTION.

DIMENSIONS ARE IN
INCHES (CENTIMETERS)

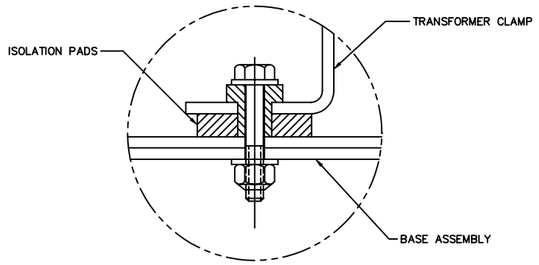
SOFTWARE: AutoCAD 12
NEXT ASSY | SYSTEM
APPLICATION | APPROVED
MATERIAL
FINISH
ITEM | QTY | PART NUMBER | DESCRIPTION | NOTE
PARTS LIST
DRAWN | DATE
CHECK | DATE
ENG MECH | DATE
ENG ELEC | DATE
PROJ ENG | DATE
DO NOT SCALE THIS DRAWING
DIMENSIONS ARE IN INCHES* (METRIC-TEXT)
UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE .X=±.030 X/X=±1/32 .XX=±.010 X°=±30' .XXX=±.005
ALL MACH SURFACES CONCENTRICITY .005TIR
DEBURR AND BREAK ALL SHARP EDGES
EATON Eaton Corporation Semiconductor Equipment Division
TITLE
INSTALLATION DWG
NVGSD-VHE
SIZE | DRAWING NO. | REV
E | 8500259 | J
SCALE | WT ~ | SHEET 2 OF 5

Installation Dwg NVGSD-VHE - 8500259

REVISIONS					
REV	ECO	DESCRIPTION	DRAFT	DATE	APPROVED
		SEE SHEET 1			

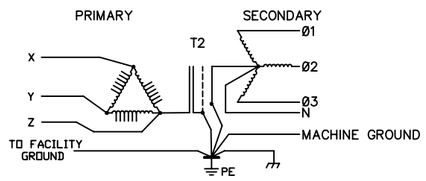
INSTALLATION NOTES:

1. T2 IS THE MAIN POWER ISOLATION TRANSFORMER, NEOPRENE RUBBER VIBRATION ISOLATION PADS AND SLEEVES ISOLATE ITS MOUNTING BRACKETS AND BOLTS FROM THE FRAME ON WHICH IT RESTS. THE FOUR ISOLATION PAD BOLTS ARE TIGHTENED BEFORE SHIPMENT, AND THEY MUST BE LOOSENED AND READJUSTED BEFORE THE TRANSFORMER IS ENERGIZED AT CUSTOMER'S FACILITY.

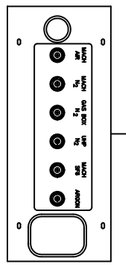


ISOLATION PAD DETAIL

2. THE CUSTOMER SHALL INSTALL AN ELECTRICAL SAFTEY GROUND CONDUCTOR FROM A NEARBY FACILITY GROUND POINT TO THE PRIMARY EARTH (PE) CONNECTION POINT IN THE LOWER SECTION OF THE IMPLANTER'S MAIN POWER DISTRIBUTION (PD) PANEL (REFER TO EATON DRAWING 1194670/1, MAIN PD, OR ITS REPLACEMENT). THE CONNECTION BETWEEN FACILITY GROUNDING POINT AND THE IMPLANTER'S PE TERMINAL MUST BE MADE WITH A CONTINUOUS, UNSPLICED CONDUCTOR, AND THE RESISTANCE BETWEEN THESE POINTS MUST NOT EXCEED 0.100 OHMS.

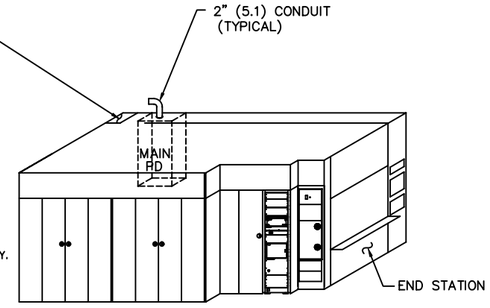


3. POWER THE IMPLANTER FROM A SINGLE SOURCE. IF LINE POWERED MONITORING INSTRUMENTS, SUCH AS CHART RECORDERS, MUST BE CONNECTED TO THE IMPLANTER, THEY SHOULD BE POWERED FROM THE SERVICE OR OPTION OUTLETS ON THE IMPLANTER. ANYTHING WHICH CANNOT BE POWERED IN THIS FASHION SHOULD BE ISOLATED BY TRANSFORMER OR OPTICAL MEANS.
4. AVOID INCIDENTAL, UNDOCUMENTED GROUNDS THROUGH STRUCTURAL STEEL, WATER PIPES, ETC.
5. THE MAXIMUM LOAD FOR THE IMPLANTER WAS MEASURED RUNNING 1.6 MeV AT 1 mA OF B+ WITH AN INPUT VOLTAGE OF 480 VOLTS. THE CUSTOMER MAY EXPERIENCE TRANSIENTS ABOVE THIS VALUE SUCH AS DURING ROTARY DRIVE ACCELERATION.
6. A MAIN CIRCUIT BREAKER IS AN INTEGRAL PART OF THE IMPLANTER MAIN POWER DISTRIBUTION BOX. THE CIRCUIT BREAKER IS RATED FOR 150 AMP FOR 480 VOLT APPLICATIONS AND 160 AMP FOR 400/380 VOLT APPLICATIONS. SEE 8418070.
   A 77 AMP MAIN CIRCUIT BREAKER IS AN INTEGRAL PART OF THE TRIPLE LOOP CHILLER ELECTRICAL SYSTEM. CUSTOMER IS RESPONSIBLE FOR WIRING TO TRIPLE LOOP CHILLER.
7. THE IMPLANTER AND TRIPLE LOOP CHILLER CAN BE BUILT TO EITHER VOLTAGE / FREQUENCY COMBINATION SHOWN IN THE ELECTRICAL TABLE ON SHEET 1, HOWEVER, THIS INFORMATION MUST BE SPECIFIED PRIOR TO PURCHASE ORDER PLACEMENT. FOR A VOLTAGE / FREQUENCY COMBINATION NOT LISTED IN THE TABLE ON SHEET 1, CONSULT THE FACTORY FOR DETAILS. IT IS THE CUSTOMERS RESPONSIBILTY TO ENSURE THAT THE INPUT VOLTAGE AND FREQUENCY COMPLIES AS SHOWN IN THE TABLE; ALL MATERIAL AND EXTERNAL CONNECTIONS TO THE IMPLANTER AND TRIPLE LOOP CHILLER INCLUDING, BUT NOT LIMITED TO, EXTERNAL VOLTAGE MATCHING TRANSFORMERS AND UNINTERRUPTABLE POWER SUPPLY (UPS) SYSTEMS SHALL BE THE RESPONSIBILTY OF THE CUSTOMER. THE INPUT VOLTAGE SHALL VARY NO MORE THAN ±10% AND THE INPUT FREQUENCY NO MORE THAN ±5%.



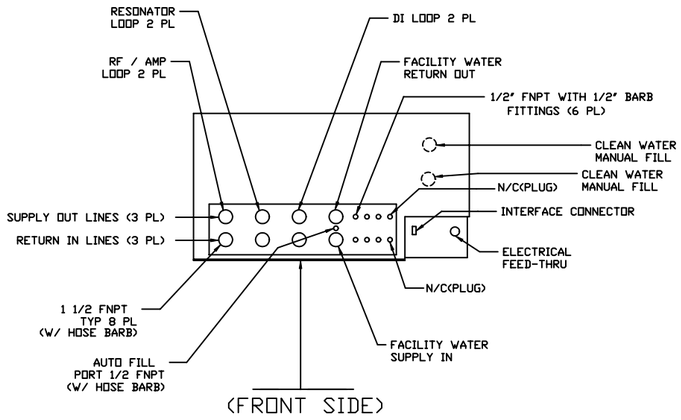
FACILITY GAS CONNECTIONS
TOP FEED

FOR BOTTOM FED FACILITIES CONNECTIONS, REFER TO DWG. NO. 1197860, HE BOTTOM SERVICE ENTRY AND DWG. NO. 8500272, VHE GENERIC SUBPLATE & LAYDOWN ASSY.

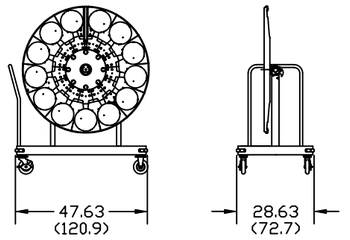


FACILITY CONNECTIONS *					
	CONNECTION	1/4 SWAGELOK	3/8 SWAGELOK	1/4 VCR	1/2 VCR
1	MACH. AIR	N/A	OPT	N/A	OPT
2	MACH. N_2	N/A	OPT	N/A	OPT
3	GAS BOX N_2	OPT	OPT	OPT	OPT
4	UHP N_2	N/A	OPT	N/A	OPT
5	MACH. SF6	N/A	OPT	N/A	OPT
6	ARGON	OPT	OPT	OPT	OPT

* EACH OF THE OPTIONS INDICATED ON THE ABOVE CHART WILL BE PROVIDED WITH THE MACHINE. THE DESIRED FITTINGS CAN BE CONNECTED AT THE TIME OF MACHINE INSTALLATION. CONTACT THE FACTORY FOR ANY DESIRED FITTING NOT SHOWN ON THE CHART.



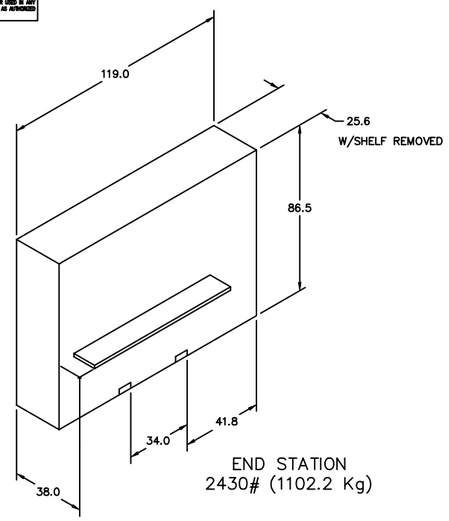
DETAIL "B"
TRIPLE-LOOP CONNECTIONS
REFER TO DWG 1907821



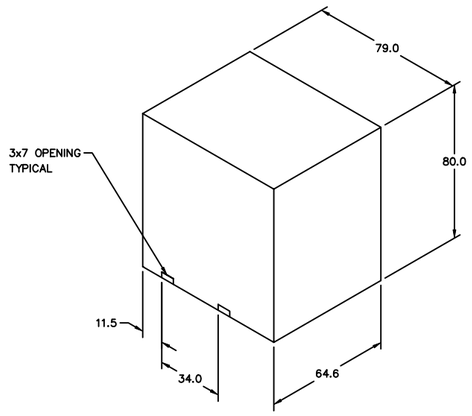
DETAIL A
DISK REMOVAL CART & 200mm DISK

SOFTWARE: AutoCAD 12		ITEM	QTY	PART NUMBER	DESCRIPTION	NOTE
		PARTS LIST				
		DRAWN	DATE	DO NOT SCALE THIS DRAWING	EATON Eaton Corporation Semiconductor Equipment Division	
		CHECK	DATE			
		ENG MECH	DATE	DIMENSIONS ARE IN INCHES (CENTIMETERS)		
		ENG ELEC	DATE	UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE .X=±.060 X/X=±1/32 .XX=±.020 X°=±.30' .XXX=±.005	TITLE: INSTALLATION DWG NVGSD-VHE	
NEXT ASSY	SYSTEM	PROJ ENG	DATE	ALL MACH SURFACES	SIZE: E	DRAWING NO.: 8500259
APPLICATION		APPROVED		CONCENTRICITY .005TIR		REV: J
MATERIAL				DEBURR AND BREAK ALL SHARP EDGES	SCALE	WT ~ SHEET 3 OF 5
FINISH						

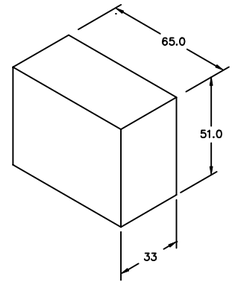
REVISIONS					
REV	ECO	DESCRIPTION	DRAFT	DATE	APPROVED
		SEE SHEET 1			



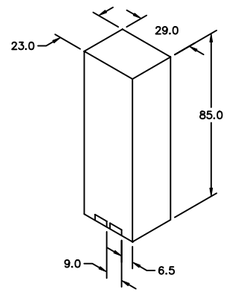
END STATION
2430# (1102.2 Kg)



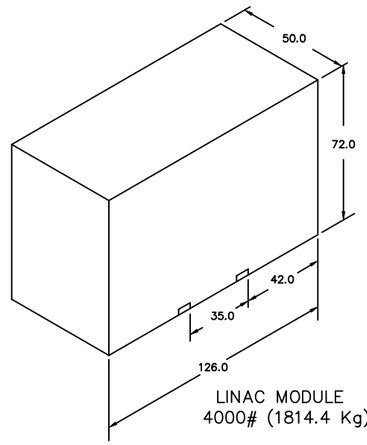
DISK MODULE
6206# (2815.0 Kg)



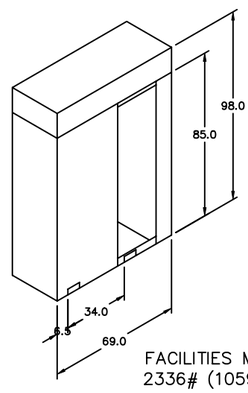
TRIPLE LOOP CHILLER (WET)
2070# (939.0 Kg)



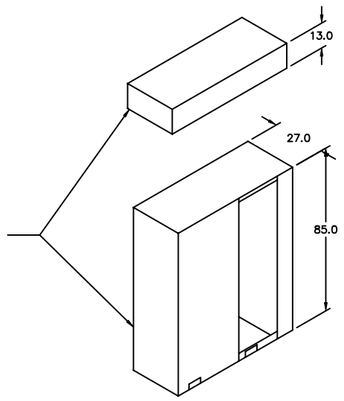
E/S ELEC RACK
730# (331.1 Kg)



LINAC MODULE
4000# (1814.4 Kg)

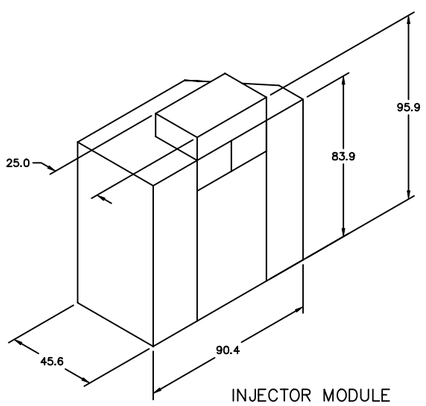


FACILITIES MODULE
2336# (1059.6 Kg)

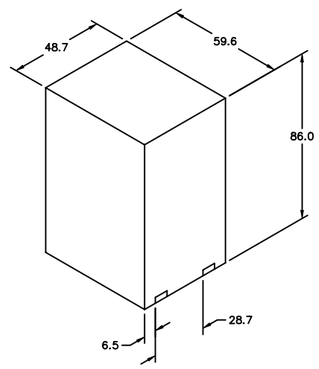


UNCRATED MODULES

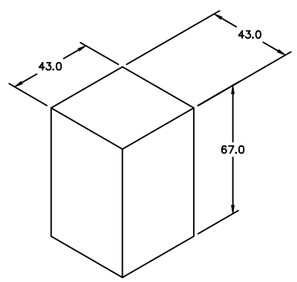
NOTES:
1. WEIGHTS SHOWN ARE APPROXIMATE.
2. MODULES MAY NOT BE TURNED ONTO THEIR SIDE FOR MOVING THROUGH DOORWAYS.
3. MODULES ARE DESIGNED TO BE LIFTED FROM THE BASE. NO PROVISION IS MADE FOR HOISTING FROM THE UPPER FRAMEWORK.
4. ALTHOUGH THE MODULES ARE FREE-STANDING, EXERCISE EXTREME CAUTION DUE TO THE HIGH CENTER OF GRAVITY RELATIVE TO THE BASE DIMENSIONS OF THE MODULES. THE CENTER OF GRAVITY MAY ALSO BE OFFSET HORIZONTALLY FROM THE CENTER OF EACH MODULE.
5. ONLY THE LARGER SIZE MODULES ARE SHOWN. REFER TO THE INSTALLATION DRAWING FOR A LISTING OF ADDITIONAL PARTS.



INJECTOR MODULE
4825# (2188.6 Kg)



SOURCE CABINET MODULE
1494# (677.7 Kg)



FINAL ENERGY MAGNET
4018# (1822.6 Kg)

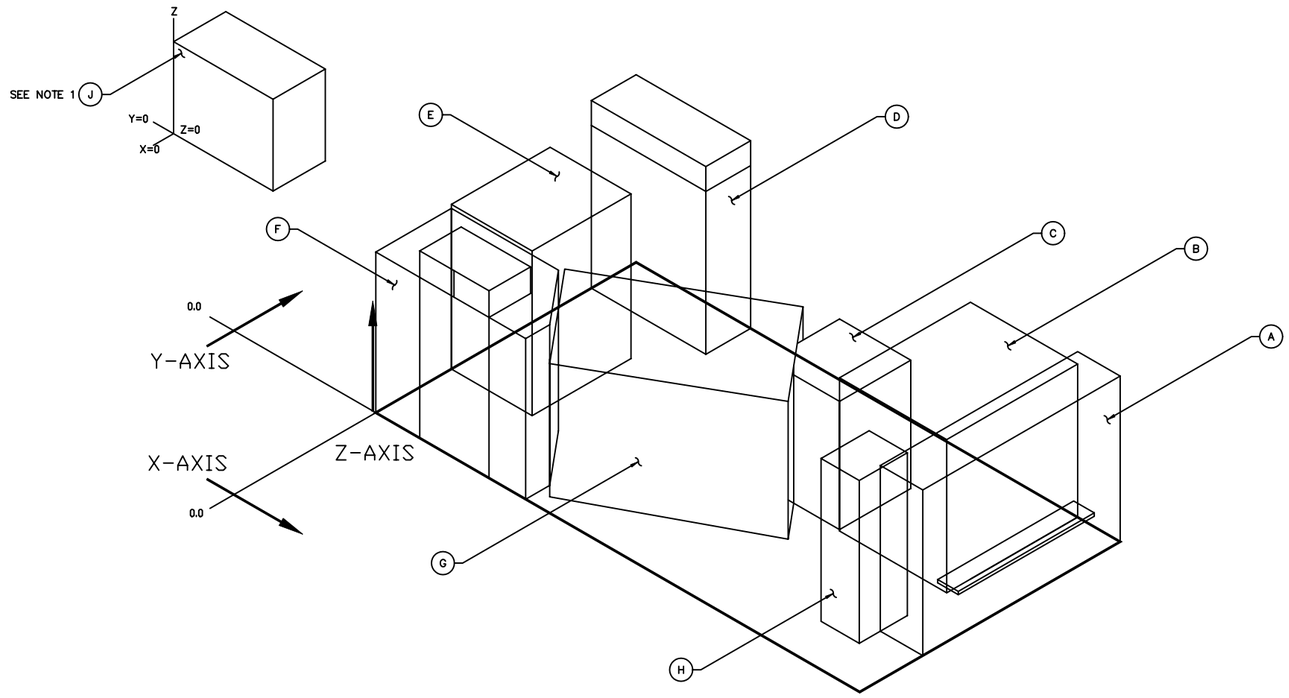
SOFTWARE: AutoCAD 12		ITEM	QTY	PART NUMBER	DESCRIPTION	NOTE
		PARTS LIST				
		DRAWN	DATE	DO NOT SCALE THIS DRAWING	EATON Eaton Corporation Semiconductor Equipment Division	
		CHECK	DATE			
		ENG MECH	DATE	DIMENSIONS ARE IN INCHES (MILLIMETERS)	TITLE: INSTALLATION DWG GSD-VHE	
		ENG ELEC	DATE			
		PROJ ENG	DATE	UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE .X=±.030 X/X=±1/32 .XX=±.010 X°=±.30° .XXX=±.005		
NEXT ASSY	SYSTEM					
APPLICATION		APPROVED		ALL MACH SURFACES CONCENTRICITY .005TIR DEBURR AND BREAK ALL SHARP EDGES	SIZE E	DRAWING NO. 8500259 REV J
MATERIAL					SCALE WT ~	SHEET 4 OF 5
FINISH						

Return to Table of Contents

Return to Module Map

Installation Dwg NVGSD-VHE - 8500259

REVISIONS					
REV	ECO	DESCRIPTION	DRAFT	DATE	APPROVED
		SEE SHT 1			



MODULE	ESTIMATED CENTER OF GRAVITY			
	X	Y	Z	
A END STATION	278.2 (706.6)	96.4 (244.9)	24.2 (61.5)	1
B DISK MODULE	231.1 (587.0)	117.6 (298.7)	28.6 (72.6)	1
C FINAL ENERGY MAG.	185.4 (470.9)	118.7 (301.5)	49.1 (124.7)	1
D FACILITIES MODULE	44.6 (113.3)	140.6 (357.1)	30.0 (76.2)	1
E SOURCE CAB. MODULE	35.5 (90.2)	78.0 (198.1)	22.9 (58.2)	1
F INJECTOR MODULE	50.9 (129.3)	22.6 (57.4)	48.6 (123.4)	1
G LINAC MODULE	124.2 (315.5)	68.9 (175.0)	28.7 (72.9)	1
H END STA. ELEC. RACK	253.6 (644.1)	39.5 (100.3)	46.8 (118.9)	1
J TRIPLE LOOP CHILLER	30.0 (76.2)	16.0 (40.6)	26.0 (66.0)	SEE NOTE 1

NOTE

1. VALUES OF X, Y, AND Z ARE WITH RESPECT TO COORD. SYSTEM SHOWN ON CHILLER

DIMENSIONS ARE IN INCHES (CENTIMETERS)

SOFTWARE: AutoCAD 12	ITEM	QTY	PART NUMBER	DESCRIPTION	NOTE
	PARTS LIST				
DRAWN	DATE	DO NOT SCALE THIS DRAWING	EATON Eaton Corporation Semiconductor Equipment Operations		
CHECK	DATE				
ENG MECH	DATE	DIMENSIONS ARE IN INCHES (MILLIMETERS)			
ENG ELEC	DATE		TITLE	INSTALLATION DWG NVGSD-VHE	
PROJ ENG PAUL LOOMIS	DATE 3/3/98	UNLESS OTHERWISE SPECIFIED ALL TOLERANCES ARE .X=±.030 X/X=±1/32 .XX=±.010 X°=±30' .XXX=±.005			
NEXT ASSY	SYSTEM				
APPLICATION	APPROVED	ALL MACH SURFACES CONCENTRICITY .005TIR DEBURR AND BREAK ALL SHARP EDGES	SIZE E	DRAWING NO. 8500259	REV J
MATERIAL					
FINISH NONE			SCALE 1:1	WT ~	SHEET 5 OF 5

Return to CD-ROM Table of Contents