NOZZLES

NOZZLE NO.	DESCRIPTION	TUBE/PIPE SIZE	FLANGE/CONNECTION	NUMBER REQ'D.	
1	TPC SIGNAL FEEDTHROUGH	6" X 0.083" TUBE	14" CF FLANGE	11	
2	TPC HV FEEDTHROUGH	2" X 0.065" TUBE	3-3/8" CF FLANGE	1	
3	PURITY MONITOR	6" X 0.083" TUBE	8" CF FLANGE	2	G
4	SPARE 4" PORT	4" X 0.083" TUBE	6" CF FLANGE	2	
5	SAFETY VENT	4" X 0.083" TUBE	6" CF FLANGE	1	
6	VACUUM PUMP-OUT PORT	10" X 0.083" TUBE	12" CF FLANGE	2	
7	CONDENSER	2" X 0.065" TUBE	3-3/8" CF FLANGE	1	
8	TOP INSTRUMENT PORT	3/4" SCH 40 PIPE	1/4" VCR FEMALE	1	
9	BOTTOM INSTRUMENT PORT	3/4" SCH 40 PIPE	3/4" SCH 40 PIPE CAP	1	
10	AMR LIQUID LEVEL PROBE	3/4" SCH 40 PIPE	1/2" VCR MALE	2	
11	GAS CIRCULATION IN	2" SCH 10 PIPE	2" SCH 10 PIPE CAP	1	
12	GAS CIRCULATION OUT	2" SCH 10 PIPE	4-1/2" CF FLANGE	1	
13	FROM LAr FILTERS	1-1/2" SCH 10 PIPE	3-3/8" CF FLANGE	1	G
14	TO LAr PUMPS	2" SCH 10 PIPE	2" SCH 10 PIPE CAP	1	
15	RTD SIGNAL FEED-THRU	3/4" SCH 40 PIPE	1" VCR FEMALE	4	
16	PMT SIGNAL FEEDTHROUGH	6" X 0.083" TUBE	14" CF FLANGE	1	G

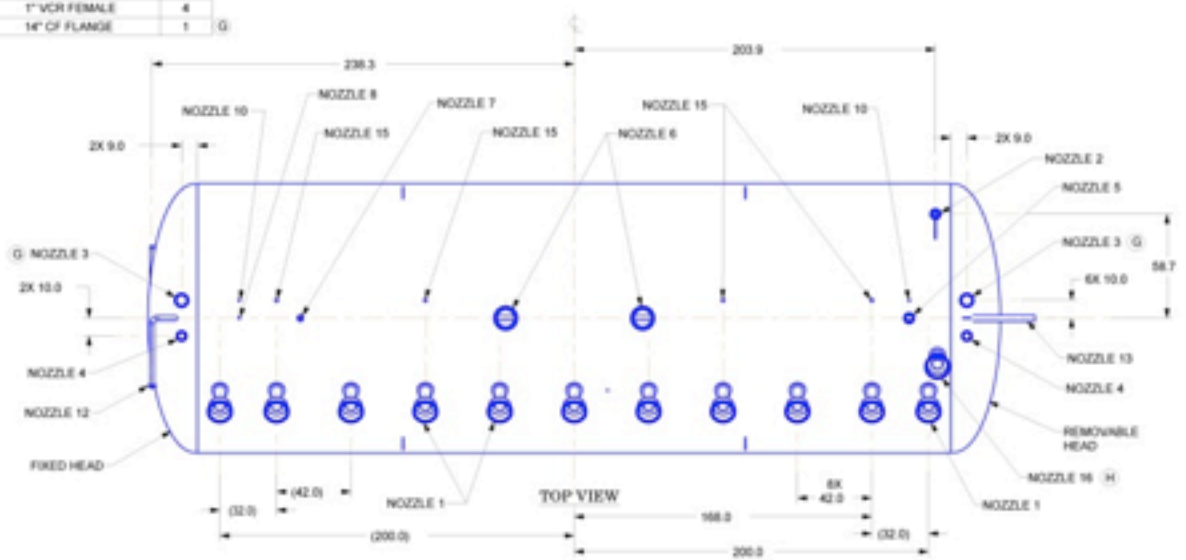
NOTES:

1. ALL WELDS TO BE VACUUM LEAK TIGHT. LEAK TEST: NO LEAK SHALL BE DETECTABLE ON THE MOST SENSITIVE SCALE OF A HELIUM LEAK DETECTOR WITH A MINIMUM SENSITIVITY OF 10-7 ATM. CC/SEC.
2. PRESSURE TEST ENTIRE ASSEMBLY TO 110% OF 30 PSIG WITH DRY NITROGEN GAS IN ACCORDANCE WITH ASME SECTION VIII.
3. CRYOSTAT MUST BE DESIGNED FOR LIFTING FROM FIXED POINTS WHILE CONTAINING ALL INTERNAL COMPONENTS.
4. LIFTING POINTS MUST BE DESIGNED TO WITHSTAND VERTICAL IMPACT IF VESSEL IS LOWERED TO THE GROUND WITH A VELOCITY OF 0.5 FEET PER SECOND.
5. NO INTERNAL RIBS, EXTERNAL RIBS PERMITTED.

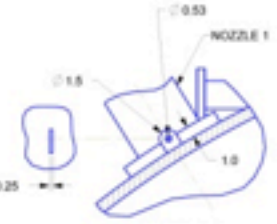
1 MATERIAL:
Vessel Construction (Shell & Heads):
ASME SA-240 TYPE 340 Stainless Steel
Tubing and Pipe:
ASME SA-312, SA-249, SA-213 TYPE 304 Stainless Steel
To be fabricated and tested in accordance with
ASME Boiler and Pressure Vessel Code,
Section VIII, Division 1

REVISIONS

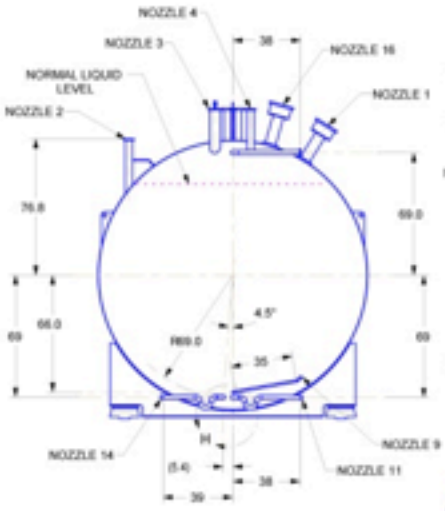
REV	ECN NO	DESCRIPTION	BY	DATE	CHK	APP
A		INITIAL RELEASE	JF	5/21/08		
B		HEAD THICKNESS WAS 0.625"	JF	5/30/08		
C		MOVED SIGNAL FT'S AND PM SIGNAL FT OFF CENTER BY 32°. CHANGED TPC HV FT TO VERTICAL ENTRY. ADDED JUMPER PIPE	JF	6/2/08		
D		REDESIGNED TO FNL DRWG# 3874-220-ME-466740	JF	6/21/10		
E		REMOVED NOTES 1, 7 & PHANTOM LINES. CHANGED DIMENSION TOLERANCES	JF	10/13/10		
F		REMOVED TRANSPORT FIXTURES & NOTE 6	JF	10/19/10		
G		RELOCATED NOZZLE 3 TO VESSEL HEADS. RELOCATED & RENAMED NOZZLE 16. WAS SPARE 6" PORT. REVISED NOZZLE 1 PITCH. WAS 39.5 MOVED NOZZLE 13 LOCATION FROM FIXED HEAD & REMOVED PIPE.	JF	3/2/10		
H		MOVED PMT NOZZLE FROM 32° OFF VERTICAL CENTER. MOVED OUTER TPC SIGNAL FT'S (ENDS) PARTNER OUTWARD.	JF	5/2/11		

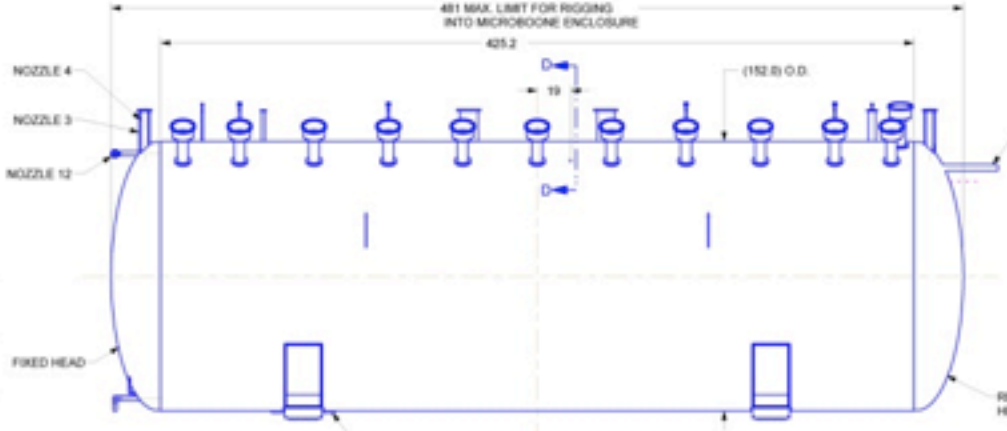


TOP VIEW

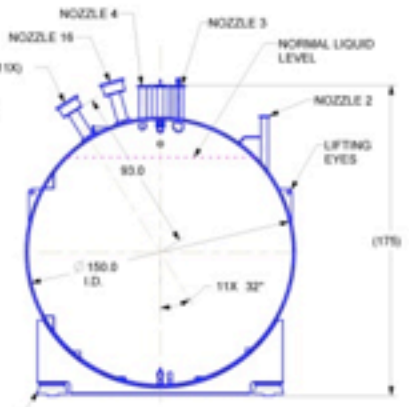


SECTION D-D
GROUND_LUG





SIDE VIEW
MICROBOONE_VESSEL



END VIEW
REMOVABLE HEAD NOT SHOWN

DETAIL H
SCALE 0.125

PRELIMINARY

MATERIAL: SEE ZONE G5
Notes: Unless otherwise specified

BROOKHAVEN NATIONAL LABORATORY

MicroBOONE - LArTPC
CRYOSTAT
MICROBOONE_VESSEL

SIZE E | LArTPC-112 | REV H

SHEET 1 OF 4

DIMENSIONS IN INCHES