Daryl Oshatz

Tom Peterson

DWG. NO.	SIZE	REV.	SH.
2512154	1	1	

ITEM	PART NO	REQD	DESCRIPTION	MATERIAL
4	251652	1	BRAIDED FLEX HOSE, 1/2" ID X 3" LIVE LENGTH, 12mm X 1/2" ELBOW WELD ENDS	
3	-	1	TUBE 2, PER ASTM A269	-
2	-	1	TUBE 1, PER ASTM A269	SS 304L
1	-	1	FLANGE	-

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. THIS IS A CRYOGENIC VACUUM COMPONENT.
2. WELDING PROCEDURE: PER VENDOR SPECIFICATION WITH LBNL APPROVAL.
3. CLEANING PROCEDURE : PER VENDOR SPECIFICATION WITH LBNL APPROVAL.
4. PACKAGING AND STORAGE PROCEDURE OF THE COMPONENTS: PER VENDOR SPCIFICATION WITH LBNL APPROVAL.
5. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M-1982. UNITS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
6. USE OF SULFUR OR SILICONE BEARING OILS, LUBRICANTS, OR COOLANTS ARE STRICTLY PROHIBITED.
7. USE OF RESIN OR RUBBER BONDED ABRASIVES UNDER POWER IS STRICTLY PROHIBITED. USE VITREOUS BONDED ABRASIVES ONLY.
8. VENDOR SUGGESTED CHANGES TO WELD PREPS; SUBECT TO LBNL APPROVAL.
9. ELBOWS MAY BE USED ON THE TUBE BENDS AS NEEDED.
10. COMPOND BENDS MAY BE MADE TO TWO SEPARATE BENDS UPON LBNL APPROVAL.
11. VENDOR SUGGESTED CHANGES TO TOLERANCES TO FACILITATE FABRICATION OR ASSEMBLY; SUBECT TO LBNL APPROVAL.
12. REMOVE ALL THE BURRS AND REAM THE ENDS FOR CIRCULARITY AND CLEAN ENDS.
13. TUBE END SURFACE MUST BE PERPENDICULAR TO THE TUBE AXIS WITHIN +/-.010.
14. ~~PERFORMANCES.~~ 14. PERFORM ACCEPTANCE TESTS PER SECTION 3.2 OF LBNL SPECIFICATION M856.

~~PERFORMANCES PER LBNL ACCEPTANCE CRITERIA SEE SPECIFICATION NUMBER LBNL No. M0056 AND BY VENDOR AND LBNL APPROVED SPECIFICATION.~~

~~a) OPERATING TEMPERATURE 4.2°K.~~
~~b) THERMAL SHOCK WELDS TO LN TEMEPRATURE 2 TIMES ONE HOUR INTERVAL.~~
~~c) TEST PRESSURE 375 PSIG.~~
~~d) VACUUM CHECK WITH HELIUM LEAK MASS SPECTROMETER DETECTOR. THE LEAK RATE AT ANY LOCATION SHALL NOT EXCEED 1 X 10-9 STD CC/SEC.~~

15. EST. WT.: 4.118 LB

~~16. NOMINAL INTERCONNECT PLANE LOCATION. WHERE PIPE IS TO BE CUT DURING INSTALLATION.~~

~~17. MUST HAVE 4.0" MIN CLEARANCE PLANE FOR PIPE WELDER USED DURING INSTALLATION.~~

~~18. PIPE MUST HAVE 1.0" OF LINEAR TRAVEL THROUGH THE SUPPORT SPIDER IN BOTH DIRECTIONS.~~

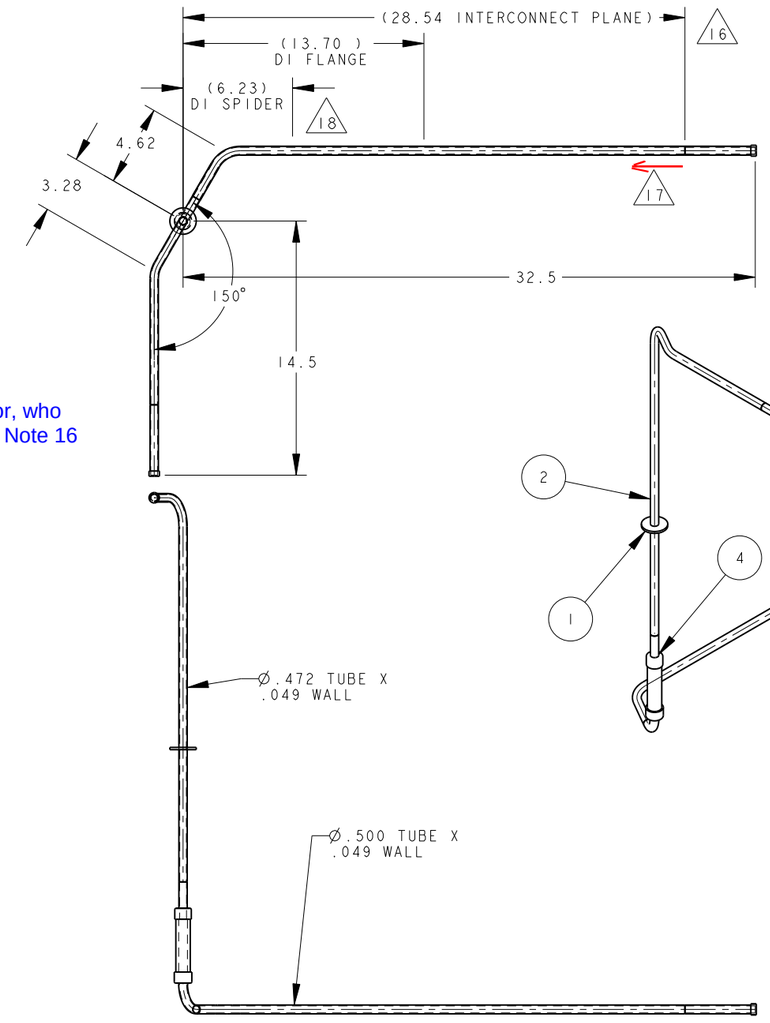
16. THE NOMINAL INTERCONNECT PLANE IS A LOCATION THAT WILL BE UTILIZED DURING FINAL INSTALLATION OF THE FEEDBOX ASSEMBLY. MARK, SCRIBE OR ETCH LOCATION IN A PERMANENT MANNER, SUBJECT TO LBNL APPROVAL, TO AN ACCURACY OF +/- 0.063".
17. PROVIDE A MINIMUM LENGTH OF 4.0" (THIS IS 2.0" FOR SOME PIPES) OF STRAIGHT, SMOOTH PIPE ON THE INDICATED SIDE OF THE INTERCONNECT PLANE FOR PIPE WELDING DURING FINAL INSTALLATION OF THE FEEDBOX ASSEMBLY.
18. PIPE MUST BE STRAIGHT AND SMOOTH (NO BUMPS) FOR 0.5" ON EITHER SIDE OF THE CENTER-PLANE OF THE SPIDER SUPPORT.
19. CAP BOTH ENDS OF PIPE AFTER ACCEPTANCE TESTS PER SECTION 3.2 OF LBNL SPECIFICATION M856.

10. COMPOUND BENDS MAY BE MADE IN TWO SEPERATE BENDS UPON LBNL APPROVAL.

This wording seems awkward, or I just don't understand what is intended.

Does this "cut" refer to CERN's cut at final installation? If so, this will confuse the vendor, who might think he should cut during installation. Note 16 should be clarified.

Again, does this refer to installation at CERN or at the vendor. The vendor may not need 4 inches clearance and so ignore this note.



THIRD ANGLE PROJECTION

REV	DWG	CHK	ZONE	DATE	CHANGES
A		JR		7/15/02	CHANGES PER PRODUCTION READINESS REVIEW

UNLESS OTHERWISE SPECIFIED
TOLERANCES: X.X ± 0.1 FRAC. ± 1/64; X.XX ± 0.03 Angles ± 1.00°; X.XXX ± 0.010 FINISH 125
DO NOT SCALE PRINT
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW TREADS 30°
CUT ROUND, 1.5 THREAD RELIEF ON MACHINED THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE IN ACCORDANCE WITH ASME Y14.5M & B46.1

SHOP ORDERS
SER NO. -
ACCT NO. REQD DATE -
BEL TO DATE -
SURFACE TREATMT -
IDENT METHOD TAG
PROJECT NUMBER N/A
PROJECT NAME N/A
DWG BY R LA MANTIA DATE 12-Dec-01
CHK BY Jon Zbasnik DATE 19-Mar-02
APR BY Jon Zbasnik DATE 19-Mar-02

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA - BERKELEY

LHC IR FEEDBOX
CRYOGENICS
PIPE, CY2

MICROFILMED:	DWG. TYPE	SHOWN ON	SCALE: 1/4	DO NOT SCALE PRINTS
	ASSEM	251226	SHEET 1 OF 1	
PATENT CLEAR:	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE / REV.
	Z5LCE2	LH2003	2512154	1

NAME:DULIE OBJECT:251215 DATE:13-Jul-02 20:56:30