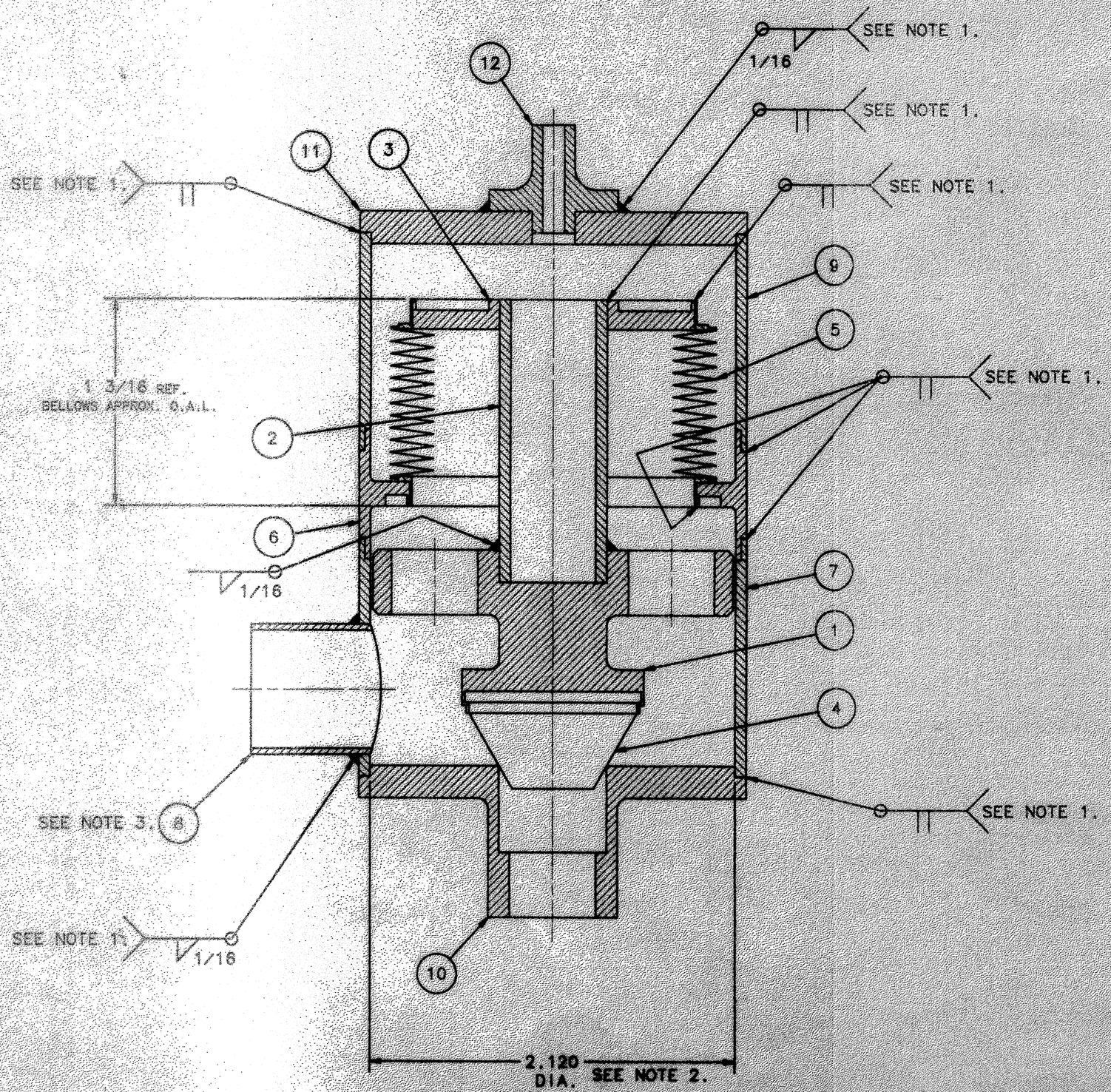
REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE
A	REVISED & REDRAWN.	B. CYKO	9-89
		J. PEIFER	9-89



NOTES:

1. VACUUM TEST:
NO LEAK SHALL BE DETECTABLE ON THE MOST SENSITIVE SCALE OF A HELIUM LEAK DETECTOR WITH A MINIMUM SENSITIVITY OF 10^{-9} ATM CC/SEC.

2. AFTER WELDING ITEM 6 TO ITEM 7, CLEAN-UP I.D. TO DIMENSION SHOWN ON DRAWING, IF NECESSARY.

3. ITEM 8 MUST NOT PROTRUDE INTO I.D. OF ITEM 7.

ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.
12	MB-58276	PRESSURE/VACUUM FITTING	1
11	MB-58271	CAP, HELIUM END	1
10	MB-58270	CAP, HYDROGEN END	1
9	MB-58272	VALVE BODY, HELIUM END	1
8	MB-58274	VALVE INLET TUBE	1
7	MB-58273	VALVE BODY, HYDROGEN END	1
6	MB-58269	TRANSITION PIECE/STOP	1
5	60250-1	BELLOWS, PARKER, SHARON DIV.	1
4	MB-58275	VALVE PLUG	1
3	MB-58268	FLANGE, GUIDE TUBE	1
2	———	TUBING, .625 O.D. x .065 WALL x 1-5/8 LG STN. STL. 304 (SQUARE CUT BOTH ENDS)	1
1	MB-58267	SEAL HOLDER/GUIDE	1

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
1. BREAK ALL SHARP EDGES 1/64 MAX. 2. DO NOT SCALE DWNG. 3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.			APPROVED	J. PEIFER	9-89
			USED ON HYDROGEN TARGET REFRIGERATORS		
63 √ MAX. ALL MACHINED SURFACES			MATERIAL SEE BILL OF MATERIAL		C

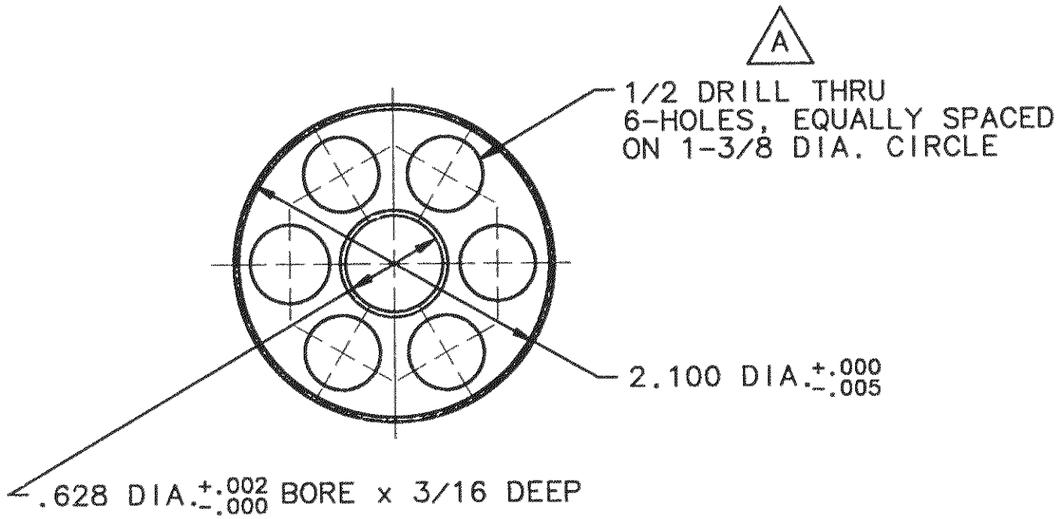
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

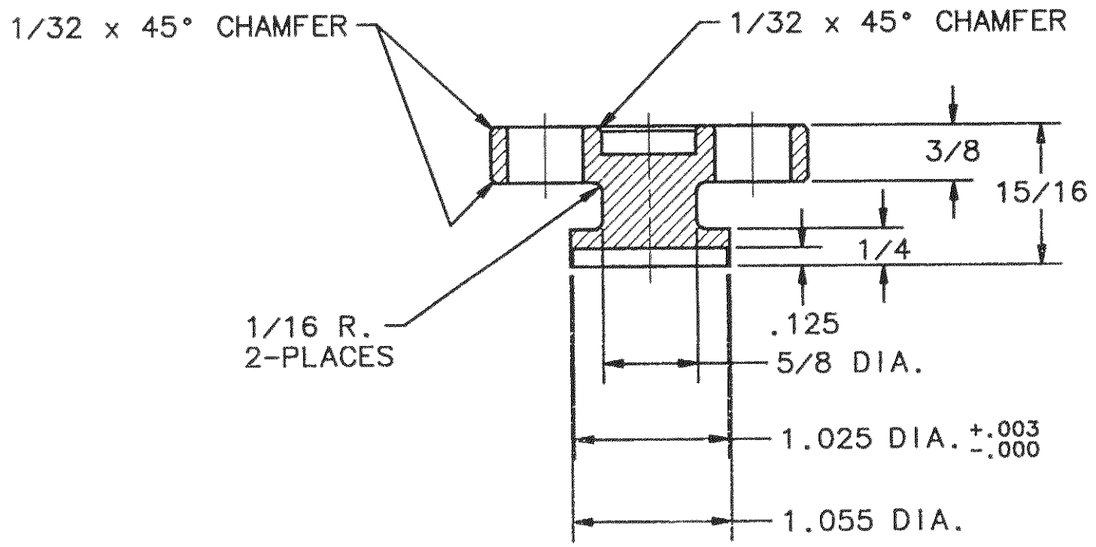
RD/CRYO DEPT.

CRYOGENIC VALVE ASSY., 1/2"
HYDROGEN TARGET REFRIGERATOR SYSTEMS

SCALE	DRAWING NUMBER	SHEET NO.	REV.
2-1	2726.4-MC-58266	1	A

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE
A	REVISED HOLES FROM 3/8 TO 1/2. REVISED HOLE QUAN. FROM 8 TO 6.	B. CYKO	10-89
		J. PEIFER	10-89





ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
± 1/64	± .005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.

63 √ MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 1

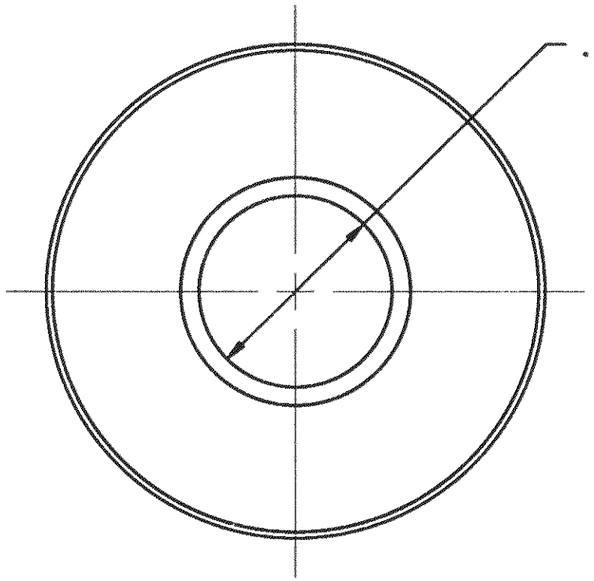
MATERIAL STN. STL. 304 — B

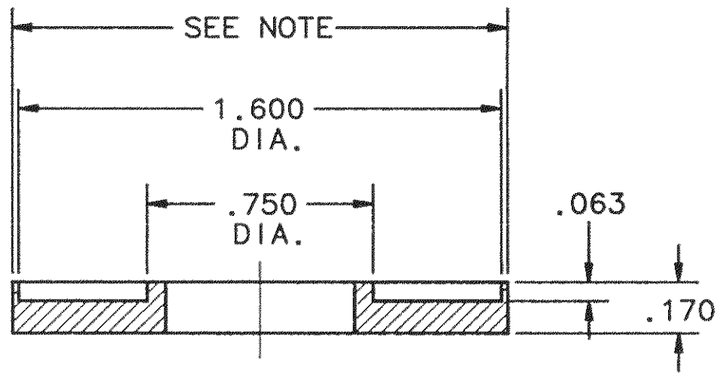
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
SEAL HOLDER/GUIDE
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
FULL	2726.4-MB-58267	1	A

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE
A	REVISED & REDRAWN.	B. CYKO	9-89
		J. PEIFER	9-89





NOTE:

MACHINE FOR SLIP FIT OF BELLOWS NECK I.D., 1.640 NOMINAL DIA.

ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.

63 √ MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 3

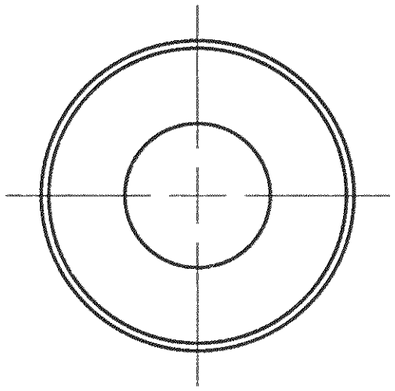
MATERIAL STN. STL. 304 — B

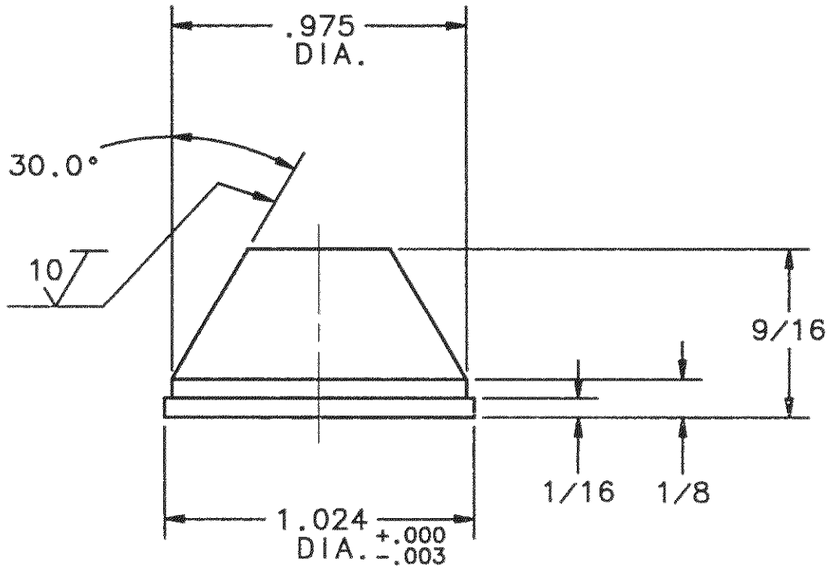
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
FLANGE, GUIDE TUBE
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
2=1	2726.4-MB-58268	1	A

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE





ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	±1/2°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD'S.

63 MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 4

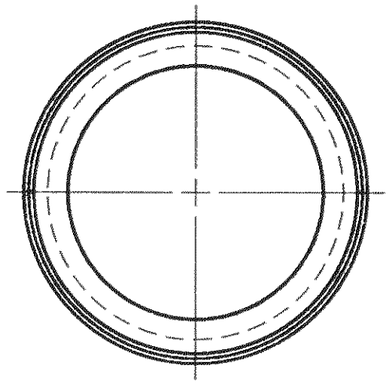
MATERIAL KEL-F — B

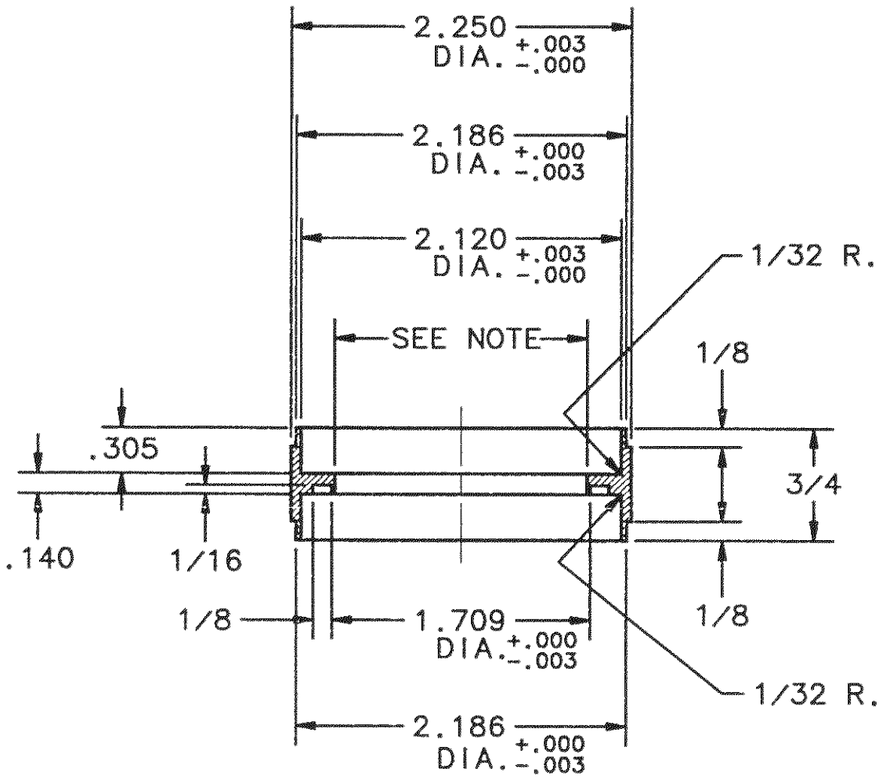
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
VALVE PLUG
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
2=1	2726.4-MB-58275	1	

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE
A	DELETED 1.669 BORE DIMENSION AND REPLACED WITH NOTE.	B. CYKO	9-89
		J. PEIFER	9-89





NOTE:

MACHINE FOR SLIP-FIT OF BELLOWS NECK O.D., 1.664 NOMINAL DIA.

ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.

63 √ MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 6

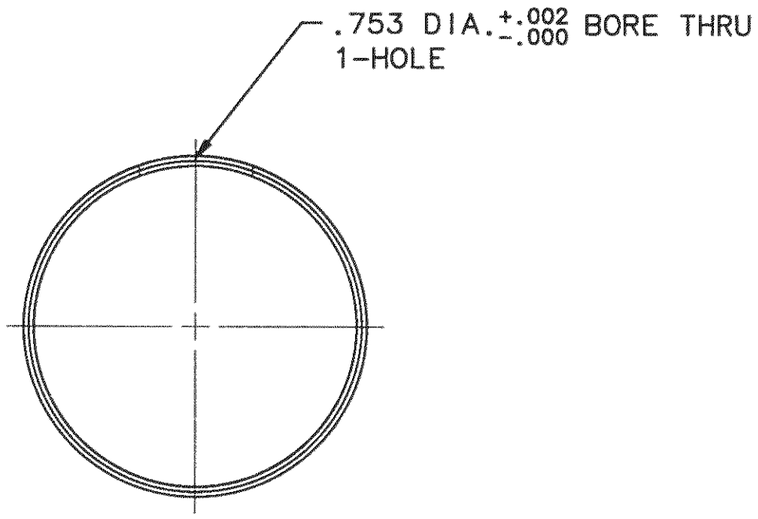
MATERIAL STN. STL. 304 — B

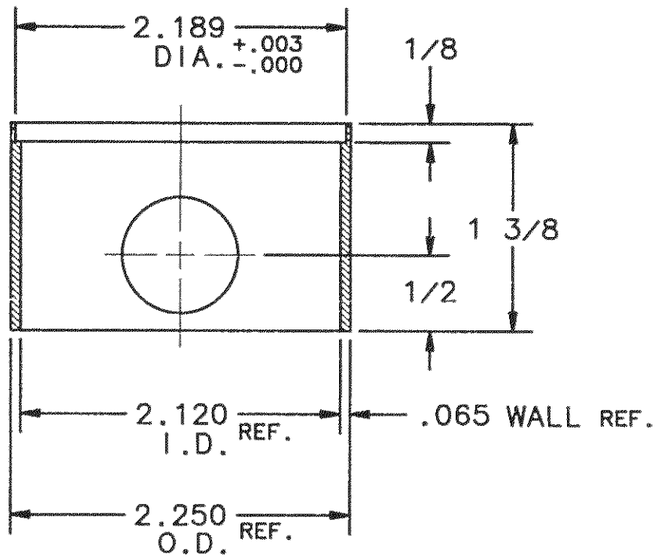
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
TRANSITION PIECE/STOP
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
FULL	2726.4-MB-58269	1	A

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE





ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD'S.

63 MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 7

MATERIAL TUBING, 2.250 O.D. x .065 WALL STN. STL. 304

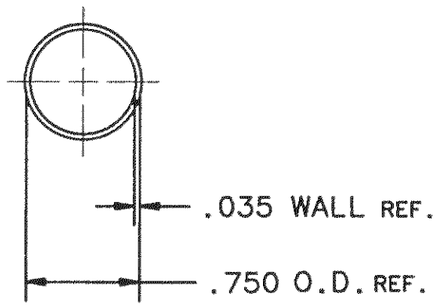
B

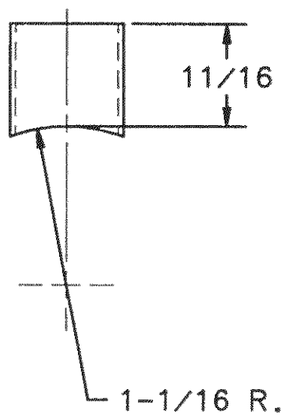
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
VALVE BODY, HYDROGEN END
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
FULL	2726.4-MB-58273	1	

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE





ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.

63 √ MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 8

MATERIAL TUBING, .750 O.D. x .035 WALL STN. STL. 304

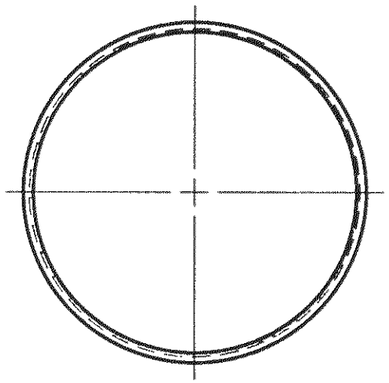
B

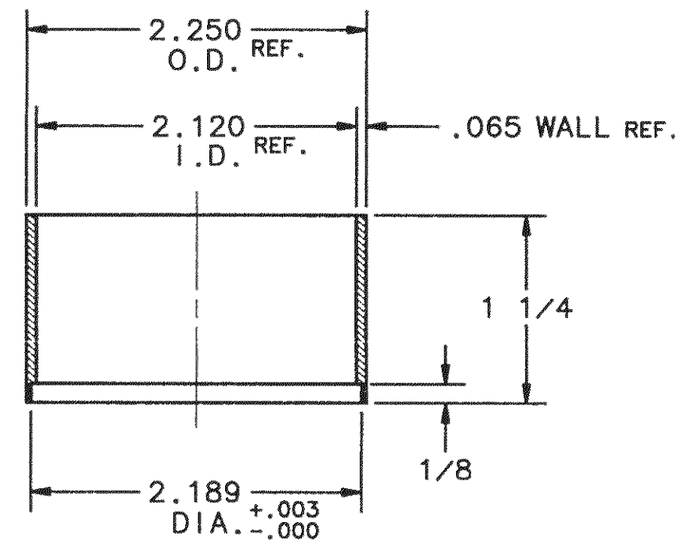
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
VALVE INLET TUBE
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
FULL	2726.4-MB-58274	1	

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE
A	REVISED LENGTH FROM 2 TO 1 1/4.	B. CYKO	9-89
		J. PEIFER	9-89





ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.

63 √ MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 9

MATERIAL TUBING, 2.250 O.D. x .065 WALL STN. STL. 304

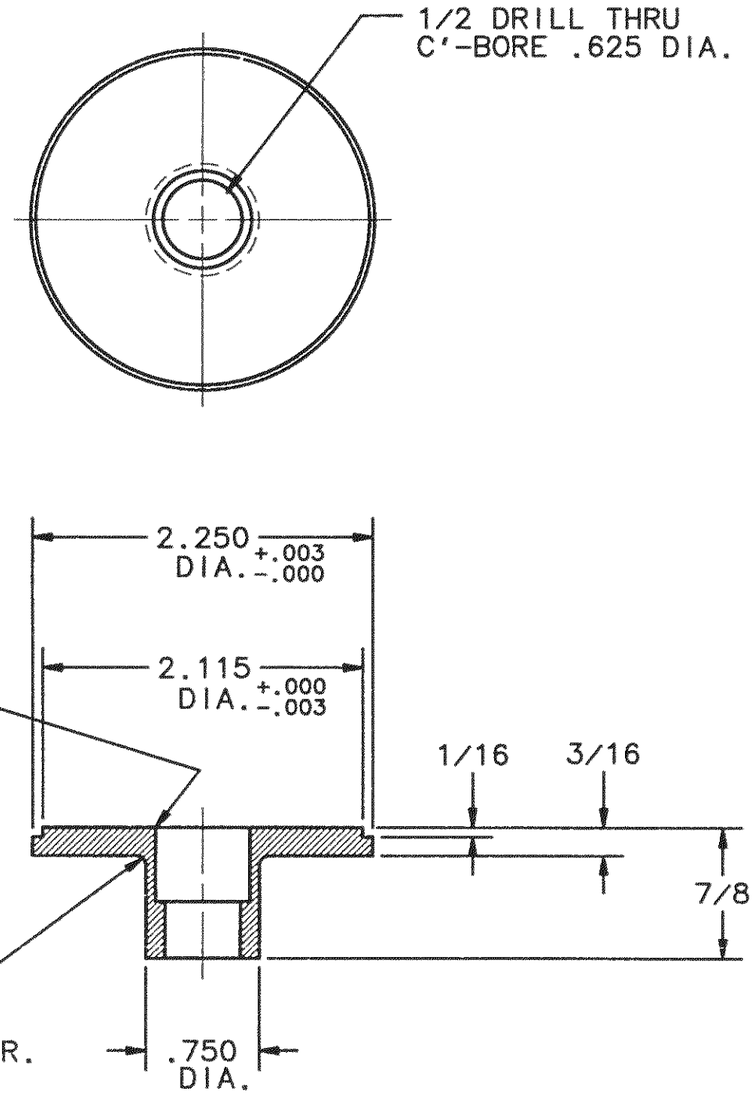
B

FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
VALVE BODY, HELIUM END
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
FULL	2726.4-MB-58272	1	A

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE



ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.

63 MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 10

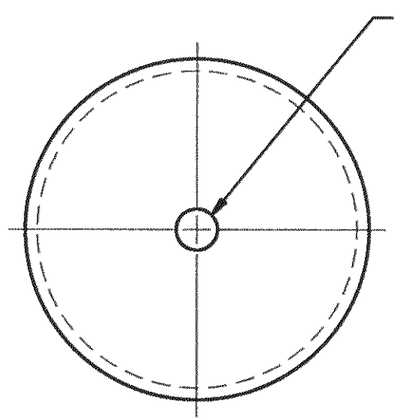
MATERIAL STN. STL. 304 — B

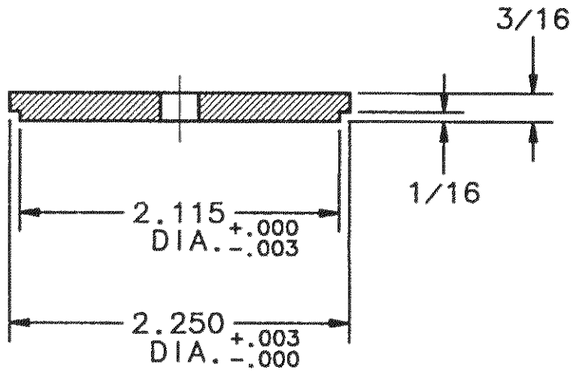
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
CAP, HYDROGEN END
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
FULL	2726.4-MB-58270	1	

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE





ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
±1/64	±.005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD'S.

USED ON MC-58266 ITEM 11

63 √ MAX. ALL MACHINED SURFACES

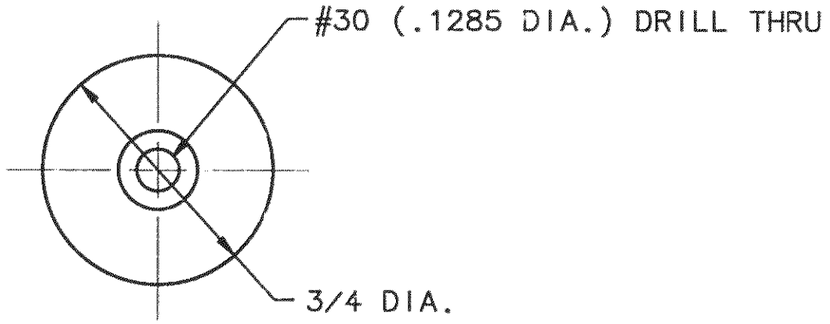
MATERIAL STN. STL. 304 — B

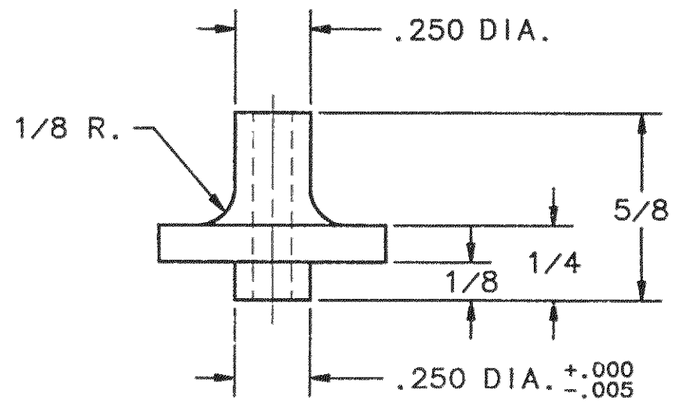
FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
CAP, HELIUM END
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
FULL	2726.4-MB-58271	1	

REV.	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE





ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY. REQ.

PARTS LIST

UNLESS OTHERWISE SPECIFIED			ORIGINATOR	J. PEIFER	9-89
FRACTIONS	DECIMALS	ANGLES	DRAWN	B. CYKO	9-89
± 1/64	± .005	± 1°	CHECKED	J. PEIFER	9-89
			APPROVED	J. PEIFER	9-89

1. BREAK ALL SHARP EDGES 1/64 MAX.
2. DO NOT SCALE DRWG.
3. DIMENSIONING IN ACCORD WITH ANSI Y14.5 STD's.

63 √ MAX. ALL MACHINED SURFACES

USED ON MC-58266 ITEM 12

MATERIAL STN. STL. 304 — B

FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

RD/CRYO DEPT.
PRESSURE/VACUUM FITTING
CRYOGENIC VALVE ASSY., 1/2"

SCALE	DRAWING NUMBER	SHEET NO.	REV.
2=1	2726.4-MB-58276	1	