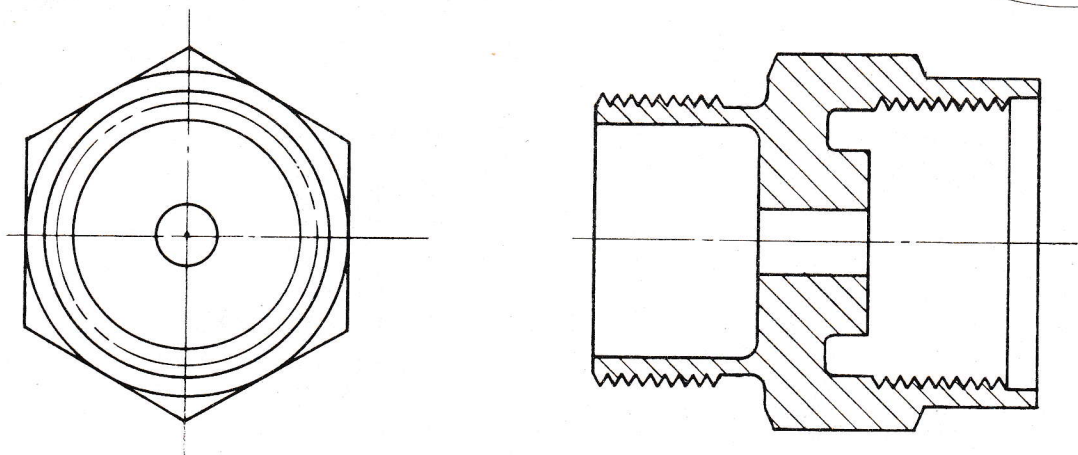


VOI-SHAN MANUFACTURING COMPANY
A DIVISION OF VOI-SHAN INDUSTRIES, INC.



TOOL PART NUMBER	TUBE SIZE	THREAD SIZE
VSFT3004	1/4	9/16-18UNF-3A & 3B
VSFT3005	5/16	5/8-18UNF-3A & 3B
VSFT3006	3/8	3/4-16UNF-3A & 3B
VSFT3008	1/2	7/8-14UNF-3A & 3B
VSFT3010	5/8	1-12UNF-3A & 3B
VSFT3012	3/4	1-3/16-12UN-3A & 3B
VSFT3016	1	1-7/16-12UN-3A & 3B
VSFT3020	1-1/4	1-3/4-12UN-3A & 3B
VSFT3024	1-1/2	2-12UN-3A & 3B
VSFT3032	2	2-5/8-12N-3A & 3B

NOTES: 1. THIS PART TOGETHER WITH VSFT3100 MAKE UP THE PRE-SETTING TOOL AND SHALL BE USED PER VOI-SHAN SPECIFICATION VS-VSF-6-1.

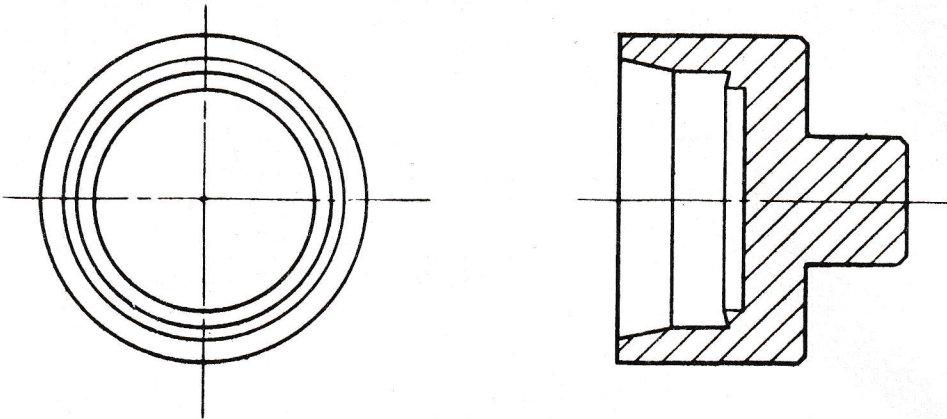
EXAMPLE OF CODE: 1. VSFT 30 08 - 31 08 = PRE-SETTING TOOL 1/2-INCH TUBE O.D.,
 INSERT SIZE IN SIXTEENTHS (1/16ths) INCH
 BODY SIZE IN SIXTEENTHS (1/16ths) INCH
 VOI-SHAN FITTING TOOL

2. VSFT 30 12 - 31 06 = PRE-SETTING TOOL 3/4 TO 3/8 TUBE O.D. REDUCER
 INSERT SIZE IN SIXTEENTHS (1/16ths) INCH
 BODY SIZE SIXTEENTHS (1/16ths) INCH
 VOI-SHAN FITTING TOOL

PATENT PENDING

APPROVED DATE 27 April 1959	TITLE BODY - PRE-SETTING TOOL	STANDARD
LATEST REVISION DATE	SCOTT CONNECTOR SYSTEM	VSFT3000
		SHEET OF

VOI-SHAN MANUFACTURING COMPANY
 A DIVISION OF VOI-SHAN INDUSTRIES, INC.



TOOL PART NUMBER	TUBE SIZE O.D.
VSFT3104	1/4
VSFT3105	5/16
VSFT3106	3/8
VSFT3110	1/2
VSFT3112	5/8
VSFT3116	3/4
VSFT3120	1
VSFT3124	1-1/4
VSFT3132	1-1/2
VSFT3132	2

NOTES: 1. THIS PART TOGETHER WITH VSFT3000 MAKE UP THE PRE-SETTING TOOL AND SHALL BE USED PER VOI-SHAN SPECIFICATION VS-VSF-6-1.

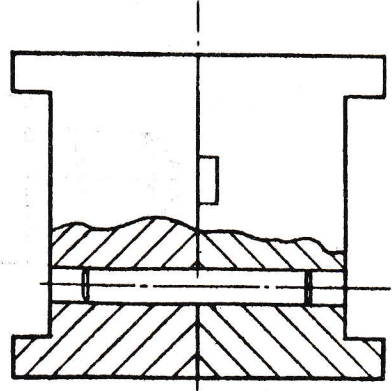
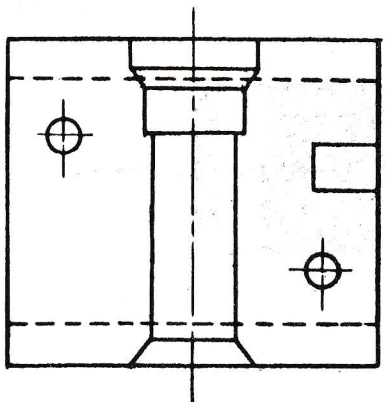
- EXAMPLE OF CODE:**
- 1. **VSEI 3008 - 3108** = PRE-SETTING TOOL 1/2 TUBE O.D.
 INSERT SIZE IN SIXTEENTHS (1/16ths) INCH
 BODY SIZE IN SIXTEENTHS (1/16ths) INCH
 VOI-SHAN FITTING TOOL
 - 2. **VSEI 3012 - 3106** = PRE-SETTING TOOL 3/4 to 3/8 TUBE O.D. REDUCER
 INSERT SIZE IN SIXTEENTHS (1/16ths) INCH
 BODY SIZE IN SIXTEENTHS (1/16ths) INCH
 VOI-SHAN FITTING TOOL

DIMENSIONS IN INCHES

PATENT PENDING

APPROVED DATE 27 April 1959	TITLE INSERT - PRE-SETTING TOOL	STANDARD
LATEST REVISION DATE	SCOTT CONNECTOR SYSTEM	VSFT 3100
		SHEET OF 1

VOI-SHAN MANUFACTURING COMPANY
A DIVISION OF VOI-SHAN INDUSTRIES, INC.



TOOL PART NUMBER	TUBE SIZE O. D.
VSFT3204	1/4
VSFT3205	5/16
VSFT3206	3/8
VSFT3208	1/2
VSFT3210	5/8
VSFT3212	3/4
VSFT3216	1
VSFT3220	1-1/4
VSFT3224	1-1/2
VSFT3228	1-3/4
VSFT3232	2
VSFT3240	2-1/2
VSFT3248	3

NOTES: THIS PART TOGETHER WITH VSFT3300 MAKE UP THE FLARING TOOL AND SHALL BE USED PER VOI-SHAN SPECIFICATION VS-VSF-6-2

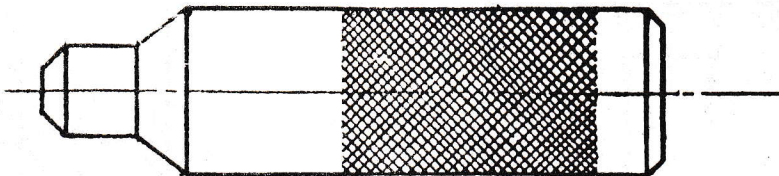
EXAMPLE OF CODE: VSFT 32.08 - 33.08 = FLARING TOOL 1/2-INCH TUBE O. D.
 FLARING PIN SIZE IN SIXTEENTHS (1/16ths) INCH
 FLARING BLOCK SIZE IN SIXTEENTHS (1/16ths) INCH
 VOI-SHAN FITTING TOOL

DIMENSIONS IN INCHES

PATENT PENDING

APPROVED DATE 27 April 1959	TITLE BLOCK - FLARING TOOL SCOTT CONNECTOR SYSTEM	STANDARD VSFT 3200
LATEST REVISION DATE		SHEET 1 OF 1

VOI-SHAN MANUFACTURING COMPANY.
 A DIVISION OF VOI-SHAN INDUSTRIES, INC.



TOOL PART NUMBER	TUBE SIZE O. D.
VSFT3304	1/4
VSFT3305	5/16
VSFT3306	3/8
VSFT3308	1/2
VSFT3310	5/8
VSFT3312	3/4
VSFT3316	1
VSFT3320	1-1/4
VSFT3324	1-1/2
VSFT3329	1-3/4
VSFT3332	2
VSFT3340	2-1/2
VSFT3348	3

NOTES: 1. THIS PART TOGETHER WITH VSFT3200 MAKE UP THE FLARING TOOL AND SHALL BE USED PER VOI-SHAN SPECIFICATION VS-VSF-6-2.

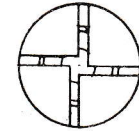
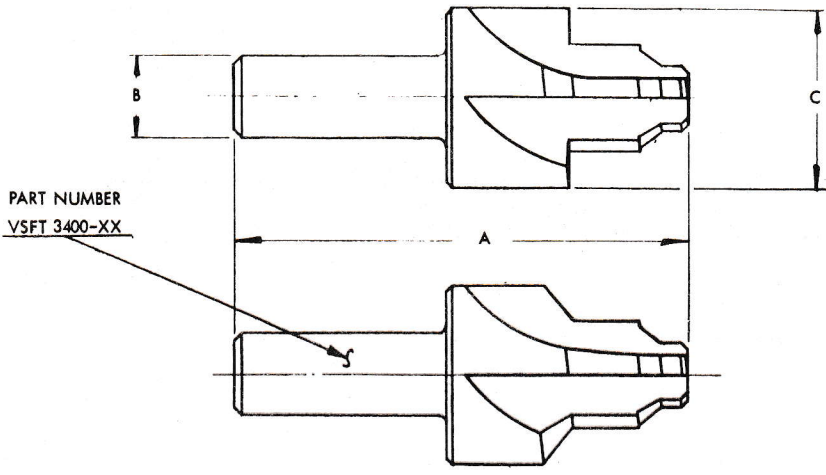
EXAMPLE OF CODE: VSFT 32.08 - 33.08 = FLARING TOOL FOR 1/2-INCH TUBE O. D.
 FLARING PIN SIZE IN SIXTEENTHS (1/16ths) INCH
 FLARING BLOCK SIZE IN SIXTEENTHS (1/16ths) INCH
 VOI-SHAN FITTING TOOL

DIMENSIONS IN INCHES

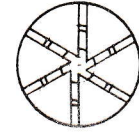
PATENT PENDING

APPROVED DATE 27 April 1959	TITLE PIN - FLARING TOOL SCOTT CONNECTOR SYSTEM	STANDARD
LATEST REVISION DATE		VSFT 3300 SHEET 1 OF 1

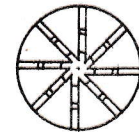
VOI-SHAN MANUFACTURING COMPANY
A DIVISION OF VOI-SHAN INDUSTRIES, INC.



4 FLUTE - 2 THRU - 24



6 FLUTE - 28 AND - 32



8 FLUTE - 40 AND - 48

PART NUMBER	THREAD SIZE	A REF.	B DIA.	C DIA.	NO. OF FLUTES * HSS ONLY
VSFT3400 - 2	5/16-23UNF-3B	5	1/2	.692	4
VSFT3400 - 3	3/8-24UNF-3B	5	1/2	.770	4
VSFT3400 - 4	7/16-20UNF-3B	5-1/4	1/2	.848	4
VSFT3400 - 5	1/2-20UNF-3B	5-1/4	1/2	.926	4
VSFT3400 - 6	9/16-18UNF-3B	5-1/4	1/2	.989	4
VSFT3400 - 8	3/4-16UNF-3B	5-1/4	1/2	1.208	4
VSFT3400 - 10	7/8-14UNF-3B	5-1/4	3/4	1.364	4
VSFT3400 - 12	1-1/6-12UN-3B	5-1/2	3/4	1.645	4
VSFT3400 - 16	1-5/16-12UN-3B	5-1/2	1	1.930	4
VSFT3400 - 20	1-5/8-12N-3B	5-3/4	1	2.290	4
VSFT3400 - 24	1-7/8-12N-3B	5-3/4	1	2.580	4
VSFT3400 - 28	2-1/4-12UN-3B	6-1/4	1	3.030	6
VSFT3400 - 32	2-1/2-12UN-3B	6-1/4	1	3.500	6
VSFT3400 - 40	3-12UN-3B	7-1/2	1-1/2	4.630	8
VSFT3400 - 48	3-1/2-12UN-3B	7-1/2	1-1/2	5.830	8

NOTES:

1. THIS TOOL TO BE USED IN CONJUNCTION WITH VSFT 3401, ROUGHING TOOL.
2. TOOL AVAILABLE IN HIGH SPEED STEEL OR CARBIDE TIPPED. ADD "C" AFTER DASH NO. FOR CARBIDE.
- * 3. ALL CARBIDE TIPPED TOOLS ARE FOUR FLUTE.
4. FOR PROPER END RESULTS THIS TOOL TO BE USED IN CONJUNCTION WITH VSF 1075 CONICAL SEAL.

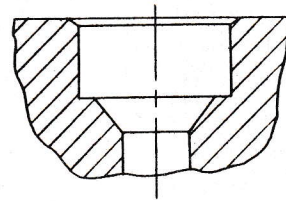
EXAMPLE OF PART NUMBER:

VSFT 3400 - 2 (C)

- DENOTES CARBIDE
- DENOTES TUBE SIZE IN 16THS
- BASIC PART NUMBER

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PATENT APPLIED FOR.

DIMENSIONS IN INCHES

APPROVED DATE

4 MAY 1961

LATEST REVISION DATE

3 JANUARY 1962

TITLE

PORTING TOOL
FOR VSD 1000

CODE IDENT. NO.

92215

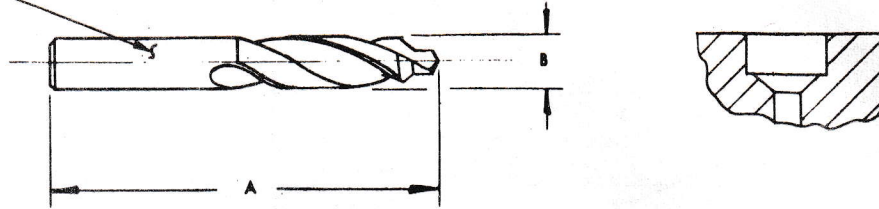
STANDARD

VSFT3400

SHEET 1 OF 1



PART NUMBER
VSFT 3401-XX



PART NUMBER	THREAD SIZE	A	B DIA.		NO. OF FLUTES
VSFT3401 - 2	5/16-24UNF-3B	2-1/2	.250		2
VSFT3401 - 3	3/8-24UNF-3B	2-13/16	.313		2
VSFT3401 - 4	7/16-20UNF-3B	3	.359		2
VSFT3401 - 5	1/2-20UNF-3B	3-3/8	.422		2
VSFT3401 - 6	9/16-18UNF-3B	3-11/16	.484		2
VSFT3401 - 8	3/4-16UNF-3B	4-1/2	.656 ¹		2
VSFT3401 - 10	7/8-14UNF-3B	5-1/8	.766		2
VSFT3401 - 12	1-1/16-12UN-3B	5-3/4	.938		2
VSFT34-1 - 16	1-5/16-12UN-3B	6-5/8	1.188		2
VSFT3401 - 20	1-5/8-12N-3B	7-1/2	1.500		2
VSFT3401 - 24	1-7/8-12N-3B	8	1.750		2
VSFT3401 - 28	2-1/4-12IN-3B	8	2.000		2
VSFT3401 - 32	2-1/2-12UN-3B	8	2.250		2
VSFT3401 - 40	3 - 12UN-3B	8	2.750		2
VSFT3401 - 48	3-1/2-12UN-3B	8	3.250		2

NOTES:

1. THIS TOOL TO BE USED IN CONJUNCTION WITH VSFT 3400, PORTING TOOL.
2. MATERIAL: HIGH SPEED STEEL
3. FOR PROPER END RESULTS THIS TOOL TO BE USED IN CONJUNCTION WITH VSF 1075 CONICAL SEAL.

EXAMPLE OF PART NUMBER:

VSFT 3401 - 2
 DENOTES TUBE SIZE IN 16THS
 BASIC PART NUMBER

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DIMENSIONS IN INCHES

PATENT APPLIED FOR.

CODE IDENT. NO.

92215

STANDARD

VSFT 3401

SHEET 1 OF 1

APPROVED DATE

4 MAY 1961

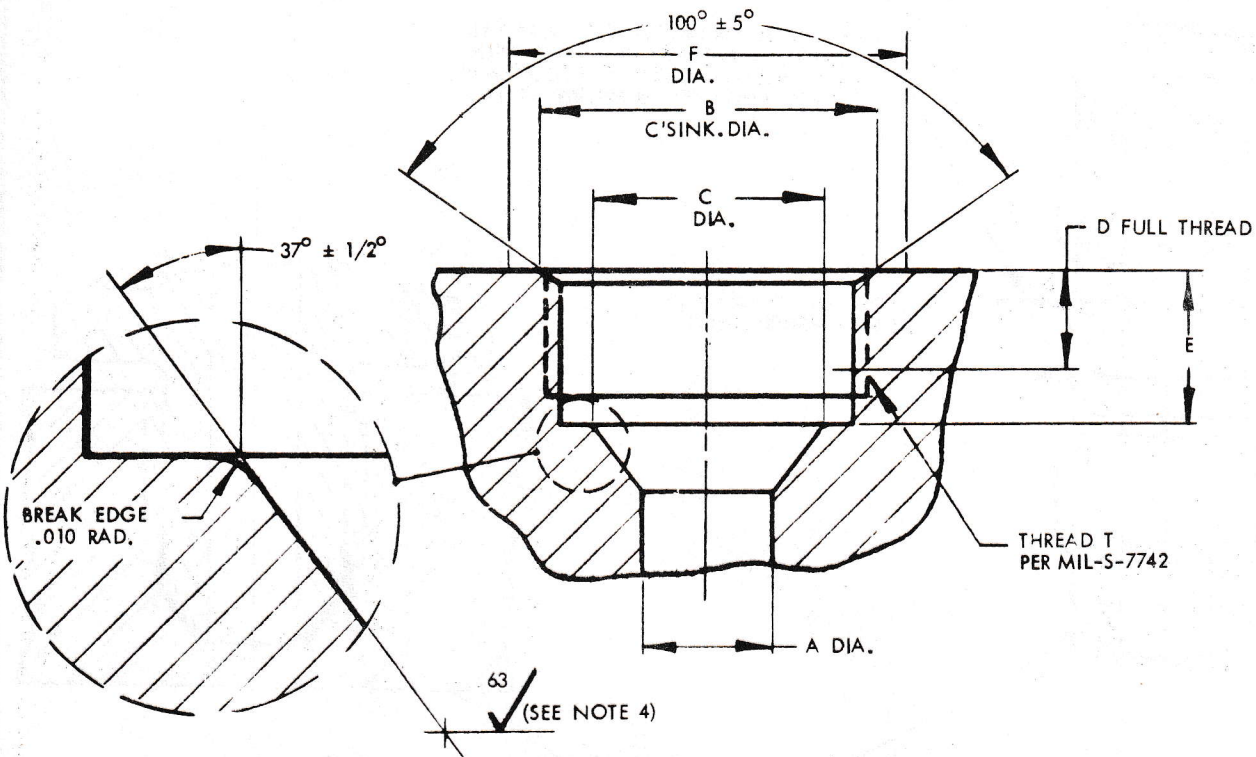
LATEST REVISION DATE

3 JANUARY 1962

TITLE

ROUGHING TOOL
FOR VSD 1000

VOI-SHAN MANUFACTURING COMPANY
A DIVISION OF VOI-SHAN INDUSTRIES, INC.



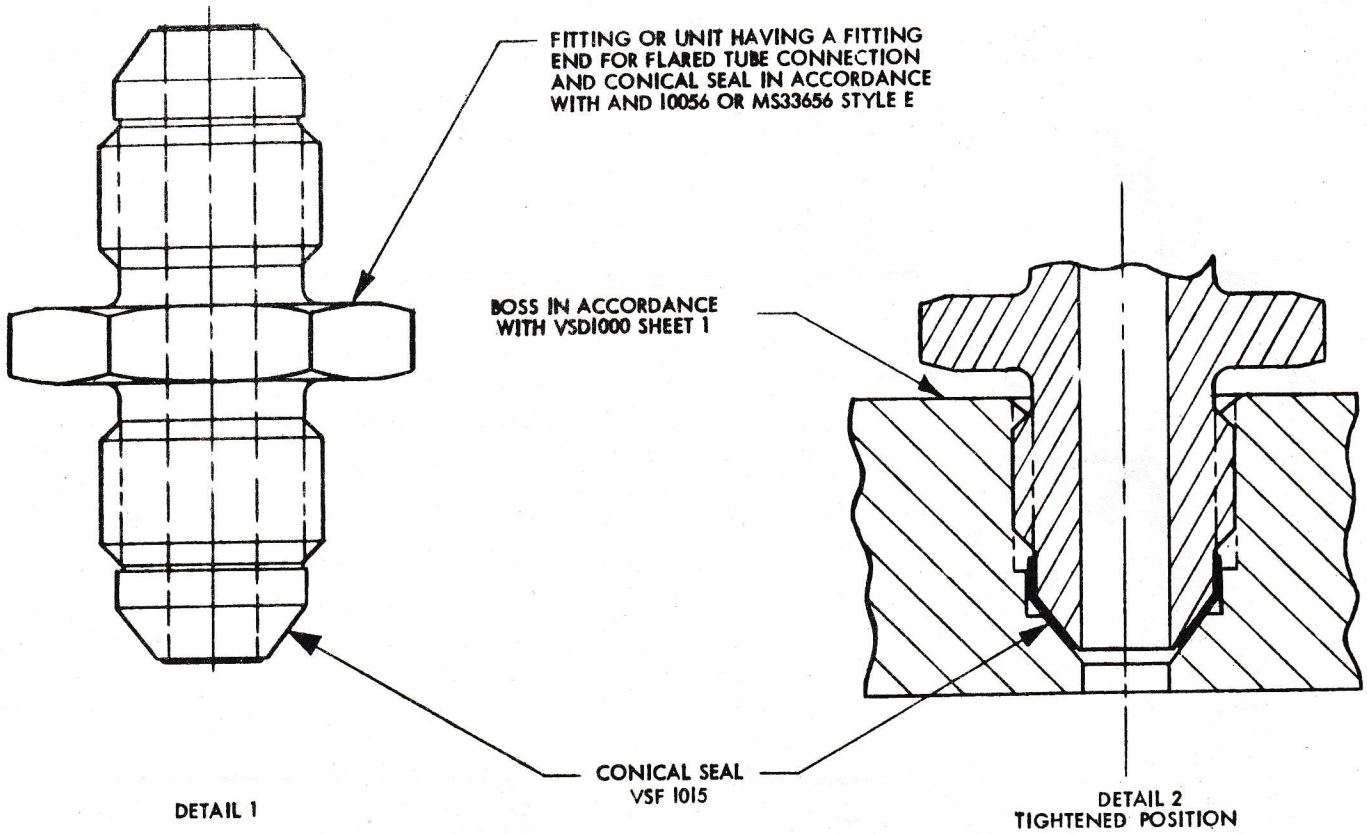
DASH NO.	TUBE SIZE O.D.	THREAD T	A	B ±.010	C ±.010	D MIN.	E ±.010	F MIN. DIA.
2	1/8	5/16-24 UNF-3B	.062	.323	.202	.252	.335	.672
3	3/16	3/8-24 UNF-3B	.125	.385	.265	.283	.366	.750
4	1/4	7/16-20 UNF-3B	.172	.448	.320	.332	.432	.828
5	5/16	1/2-20 UNF-3B	.234	.510	.382	.332	.432	.906
6	3/8	9/16-18 UNF-3B	.297	.572	.441	.330	.441	.969
8	1/2	3/4-16 UNF-3B	.391	.760	.619	.371	.496	1.188
10	5/8	7/8-14 UNF-3B	.484	.885	.732	.453	.596	1.344
12	3/4	1-1/16-12 UN-3B	.609	1.072	.909	.501	.668	1.625
16	1	1-5/16-12 UN-3B	.845	1.322	1.158	.548	.715	1.910
20	1-1/4	1-5/8-12N-3B	1.080	1.635	1.468	.544	.711	2.270
24	1-1/2	1-7/8-12N-3B	1.314	1.885	1.720	.658	.825	2.560
28	1-3/4	2-1/4-12UN-3B	1.550	2.260	2.095	.710	.877	3.010
32	2	2-1/2-12UN-3B	1.784	2.510	2.343	.825	.992	3.480
40	2-1/2	3-12UN-3B	2.284	3.010	2.739	.670	.837	3.900
48	3	3-1/2-12UN-3B	2.784	3.510	3.239	.748	.915	4.500

- NOTES:
1. REMOVE ALL HANGING BURRS AND SLIVERS.
 2. MAXIMUM SURFACE ROUGHNESS (REF. MIL-STD. 10) 125 RHR UNLESS OTHERWISE SPECIFIED.
 3. PITCH DIA. OF THREAD, DIMENSION C AND THE 37° ANGLE MEASURED AND CALCULATED AS AN INCLUDED ANGLE SHALL BE CONCENTRIC WITHIN .008 TIR.
 4. 37° SURFACE SHALL BE FREE FROM BURRS, LONGITUDINAL AND SPIRAL TOOL MARKS AND VISIBLE FLAT SPOTS. ANNULAR TOOL MARKS WILL BE ALLOWED TO 63 RHR MAXIMUM.
 5. SURFACE OF BOSS SHALL BE SPOT-FACED, DIAMETER "F".
 6. USE VSFT 3401 ROUGHING TOOL AND VSFT 3400 PORTING TOOL TO FABRICATE VSD 1000 BOSS.

DIMENSIONS IN INCHES: TOLERANCES UNLESS OTHERWISE SPECIFIED: ANGLES ± 1° DECIMALS ±.005 FRACTIONS ± 1/64 FOR USE WITH VSF 1075 CONICAL SEAL AND FITTING ENDS PER AND10056 OR MS33656.

PATENT APPLIED FOR.

APPROVED DATE 10 June 1960	TITLE BOSSSES, STANDARD DIMENSIONS FOR CONICAL SEAL STRAIGHT THREAD	STANDARD
LATEST REVISION DATE 3 JANUARY 1962		VSD 1000 SHEET 1 OF 2



PROCEDURE FOR INSTALLATION OF AND 10056 OR MS33656 FITTING END, STYLE E.

1. INSTALL CONICAL SEAL ON THE FITTING AS SHOWN IN DETAIL 1.
2. SCREW THE FITTING ASSEMBLY INTO THE BOSS UNTIL IT BOTTOMS TIGHTLY IN THE BOSS AS SHOWN IN DETAIL 2.
3. USE STANDARD AND 10064 TORQUES.

THIS IS A DESIGN STANDARD

NOT USED AS A PART NUMBER

<p>APPROVED DATE 10 June 1960</p>	<p>TITLE BOSSES, STANDARD DIMENSIONS FOR CONICAL SEAL STRAIGHT THREAD</p>	<p>STANDARD</p>
<p>LATEST REVISION DATE 27 March 1961</p>		<p>VSD 1000 SHEET 2 OF 2</p>