

FED. SUPPLY CLASS

3020

MATERIAL:

ALUMINUM ALLOY – 2024 (UNS A92024) PER ~~QQ-A-268~~ AMS-QQ-A-225/6, TEMPER T42 OR ~~QQ-A-355~~
AMS-QQ-A-225/4, TEMPER T4.
CRES – 416 (UNS S41600) PER ~~QQ-S-763~~ ASTM A581/A581M OR ASTM A582/A582M, CLASS 416,
COND A.
CRES – 303 (UNS S30300) ANNEALED PER ~~MIL-S-7720~~ ASTM A582/A582M, COMP. 303, COND. A.
LEADED PHOSPHOR BRONZE – 534 (UNS C53400) PER ASTM B139/B139M, HARD.

HEAT TREATMENT:

CRES 416 – MAY BE HEAT-TREATED TO 125 TO 140 KSI TO IMPROVE MACHINABILITY.

FINISH:

ALUMINUM – ANODIZE PER MIL-A-8625 BEFORE OR AFTER FINAL MACHINING (SEE CODE).
CRES – PASSIVATE PER MIL-DTL-5002.
BRONZE – NO FINISH.

CODE:

MATERIAL CODE:

"D" INDICATES ALUMINUM ALLOY
"H" INDICATES CRES AISI TYPE 416
"C" INDICATES CRES AISI TYPE 303
"B" INDICATES LEADED PHOSPHOR BRONZE TYPE 534

DIAMETRAL PITCH:

"1" INDICATES DIAMETRAL PITCH 48
"2" INDICATES DIAMETRAL PITCH 64
"3" INDICATES DIAMETRAL PITCH 72
"4" INDICATES DIAMETRAL PITCH 96
"5" INDICATES DIAMETRAL PITCH 120
"6" INDICATES DIAMETRAL PITCH 160
"7" INDICATES DIAMETRAL PITCH 200

QUALITY CLASS:

"1" INDICATES .0020 MAXIMUM TOTAL COMPOSITE ERROR
"2" INDICATES .0015 MAXIMUM TOTAL COMPOSITE ERROR
"3" INDICATES .0010 MAXIMUM TOTAL COMPOSITE ERROR
"5" INDICATES .0005 MAXIMUM TOTAL COMPOSITE ERROR
"6" INDICATES .00025 MAXIMUM TOTAL COMPOSITE ERROR

NUMBER OF TEETH: USE THREE DIGITS (EX. 032 MEANS 32 TEETH; 132 MEANS 132 TEETH)

FINISH CODE:

"A" INDICATES ANODIZE AFTER FINAL MACHINING (ALUMINUM)
"T" INDICATES ANODIZE BEFORE FINAL MACHINING (ALUMINUM)
"P" INDICATES PASSIVATE (CRES)
"–" INDICATES NO FINISH (BRONZE)

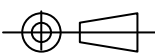
GEAR BLANK: OBTAIN CODE LISTED IN TABLE III UNDER GEAR BLANK NUMERAL.

① COMPLETELY REVISED

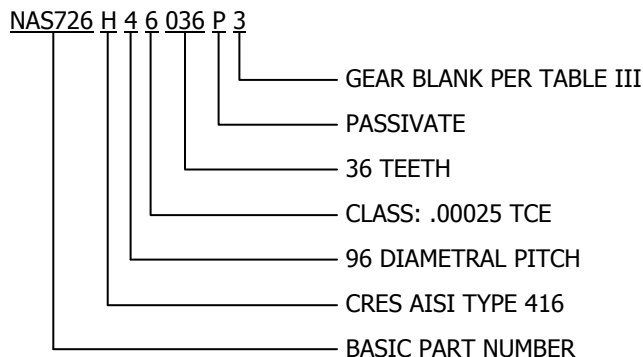
AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.
1000 WILSON BLVD.
ARLINGTON, VA 22209

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME
PRODUCT AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST
REVISION DATE.

FORM 09-01

THIRD ANGLE PROJECTION 	CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NAS727	TITLE GEAR, SPUR, 20° INVOLUTE, LOW INERTIA, 48 AND FINER PITCH ①	CLASSIFICATION PART STANDARD NAS726 SHEET 1 OF 16

EXAMPLE OF PART NUMBER:



NOTES:

- (1) DIMENSIONS IN INCHES AND APPLY AFTER FINISH UNLESS OTHERWISE SPECIFIED.
- (2) THIS STANDARD TAKES PRECEDENCE OVER DOCUMENTS REFERENCED HEREIN.
- (3) UNLESS OTHERWISE SPECIFIED, PART INVENTORY MANUFACTURED TO PREVIOUS REVISIONS OF THE APPLICABLE DRAWING OR SPECIFICATION MAY BE PROCURED AND USED UNTIL STOCK IS DEPLETED.
- (4) UNLESS OTHERWISE SPECIFIED HEREIN, REFERENCED DOCUMENTS SHALL BE THE ISSUE IN EFFECT ON DATE OF MANUFACTURE. HOWEVER, EXISTING MATERIAL INVENTORY CERTIFIED TO A PREVIOUS REVISION OF THE APPLICABLE MATERIAL SPECIFICATION(S) IS ACCEPTABLE FOR USE UNTIL DEPLETION.
- (5) DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982.

TABLE I – TOLERANCE CHART

MAXIMUM TOTAL COMPOSITE ERROR	MAXIMUM TOOTH-TO- TOOTH COMPOSITE ERROR	T _r MAX MAXIMUM TESTING RADIUS /b/	T _r MIN MINIMUM TESTING RADIUS	BORE DIA	OD	RUNOUT OD TO BORE	LATERAL RUNOUT (PER INCH OF RADIUS)	TAPER OF BORE (PER INCH OF LENGTH) /a/	SURFACE FINISH OF BORE μin Ra	SURFACE FINISH OF TEETH μin Ra
.0020	.0010	$\frac{N}{2P}$	T _r MAX -.0023	+.0007 -.0000	$\frac{.20}{P}$	$\frac{.10}{P}$	.0020 .0010	.0007 .0005	63	32
.0015	.0007	$\frac{N}{2P}$	T _r MAX -.0017	+.0005 -.0000			.0020 .0010	.0007 .0005	63	32
.0010	.0004	$\frac{N}{2P}$	T _r MAX -.0013	+.0005 -.0000		$\frac{.05}{P}$	.0015 .0007	.0005 .0003	32	32
.0005	.0003	$\frac{N}{2P}$	T _r MAX -.0008	+.0002 -.0000			.0010 .0005	.0002 .0002	16	32
.00025	.0002	$\frac{N}{2P}$	T _r MAX -.0005	+.0002 -.0000			.0010 .0005	.0002 .0002	16	32

- /a/ NO PORTION OF THE TAPER SHALL EXCEED THE BORE DIAMETER LIMIT.
- /b/ FOR GEAR HAVING MORE THAN 17 TEETH.
- (c) VERIFICATION ERROR OF .00005 IS ACCEPTABLE.
- (d) "N" INDICATES NUMBER OF TEETH; "P" INDICATES DIAMETRAL PITCH.

① COMPLETELY REVISED

REVISION
1
NAS726
SHEET 2



Documents

Document Sharing Hub

TABLE II – COMPARABLE QUALITY CLASSIFICATION

MAXIMUM TOTAL COMPOSITE ERROR	CLASSIFICATION
.0020	C3
.0015	C4
.0010	P1
.0005	P2
.00025	P3

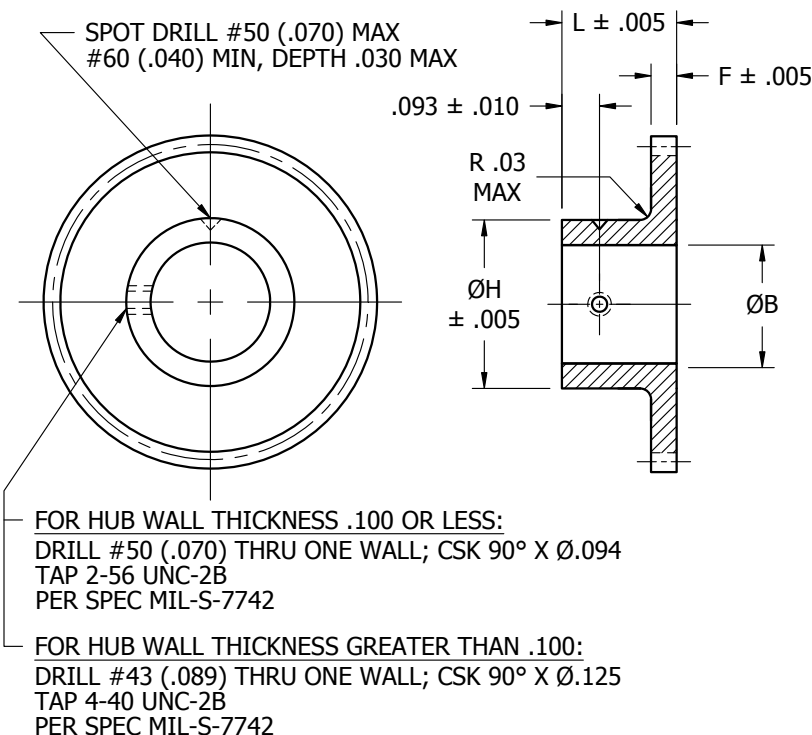


FIGURE 1 – 48, 64, 72, 96 & 120 DIAMETRAL PITCH GEAR DRAWING

TABLE III – DIMENSIONS

48 DIAMETRAL PITCH					
NUMBER OF TEETH	GEAR BLANK NUMERAL	ØB BORE /e/	F FACE WIDTH	ØH HUB	L OVERALL LENGTH
18 THRU 23	-1	.1875	.093	.312	.343
	-2	.1875	.125	.312	.375
24 THRU 53	-1	.1873	.093	.312	.343
	-2	.1873	.125	.312	.375
	-3	.2498	.093	.437	.343
	-4	.2498	.125	.437	.375
54 THRU 144	-1	.1873	.093	.375	.343
	-2	.1873	.125	.375	.375
	-3	.2498	.093	.437	.343
	-4	.2498	.125	.437	.375

64 DIAMETRAL PITCH					
NUMBER OF TEETH	GEAR BLANK NUMERAL	ØB BORE /e/	F FACE WIDTH	ØH HUB	L OVERALL LENGTH
20 THRU 31	-1	.1248	.093	.250	.343
	-2	.1248	.125	.250	.375
32 THRU 71	-1	.1248	.093	.250	.343
	-2	.1248	.125	.250	.375
	-3	.1873	.093	.312	.343
	-4	.1873	.125	.312	.375
72 THRU 192	-1	.1248	.093	.250	.343
	-2	.1248	.125	.250	.375
	-3	.1873	.093	.312	.343
	-4	.1873	.125	.312	.375
	-5	.2498	.093	.375	.343
	-6	.2498	.125	.375	.375

/e/ FOR BORE TOLERANCES SEE TABLE I.

REVISION

1

1 COMPLETELY REVISED

AIA

NAS726
SHEET 3

Document Sharing Hub

USE OF OR RELIANCE UPON THIS DOCUMENT OR ANY NATIONAL AEROSPACE STANDARD IS ENTIRELY VOLUNTARY. AIA DOES NOT QUALIFY SUPPLIERS OR CERTIFY

Copyright Aerospace Industries Association of America Inc. MS PRODUCED UNDER NATIONAL AEROSPACE STANDARD: AIA MAKES NO REPRESENTATION OR WARRANTY AS TO THE SUITABILITY OF
Provided by IHS under license with AIA/NAS Licensee= www.sepana.ir/5991803002, User=sam, albert
No reproduction or networking permitted without license from IHS Not for Resale, 01/04/2016 05:48:21 MST TRADEMARK RIGHTS.

Full document details: AIA NAS726 2013

TABLE III – DIMENSIONS (CONTINUED)

72 DIAMETRAL PITCH					
NUMBER OF TEETH	GEAR BLANK NUMERAL	ØB BORE /f/	F FACE WIDTH	ØH HUB	L OVERALL LENGTH
20 THRU 24	-1	.0935	.093	.218	.281
	-2	.1248	.093	.218	.281
25 THRU 35	-1	.0935	.093	.250	.281
	-2	.1248	.093	.250	.281
36 THRU 60	-1	.1248	.062	.250	.250
	-2	.1248	.093	.250	.281
	-3	.1873	.062	.312	.250
	-4	.1873	.093	.312	.281
61 THRU 216	-1	.1248	.062	.250	.312
	-2	.1248	.093	.250	.343
	-3	.1873	.062	.312	.312
	-4	.1873	.093	.312	.343
	-5	.2498	.062	.375	.312
	-6	.2498	.093	.375	.343

96 DIAMETRAL PITCH					
NUMBER OF TEETH	GEAR BLANK NUMERAL	ØB BORE /f/	F FACE WIDTH	ØH HUB	L OVERALL LENGTH
24 THRU 26	-1	.0935	.093	.218	.281
	-2	.1248	.093	.218	.281
27 THRU 35	-1	.0935	.093	.250	.281
	-2	.1248	.093	.250	.281
36 THRU 50	-1	.1248	.062	.250	.250
	-2	.1248	.093	.250	.281
	-3	.1873	.062	.312	.250
	-4	.1873	.093	.312	.281
51 THRU 288	-1	.1248	.062	.250	.312
	-2	.1248	.093	.250	.343
	-3	.1873	.062	.312	.312
	-4	.1873	.093	.312	.343
	-5	.2498	.062	.375	.312
	-6	.2498	.093	.375	.343

120 DIAMETRAL PITCH					
NUMBER OF TEETH	GEAR BLANK NUMERAL	ØB BORE /f/	F FACE WIDTH	ØH HUB	L OVERALL LENGTH
30 THRU 33	-1	.0935	.093	.218	.281
	-2	.1248	.093	.218	.281
34 THRU 44	-1	.0935	.093	.250	.281
	-2	.1248	.093	.250	.281
45 THRU 64	-1	.1248	.062	.250	.250
	-2	.1248	.093	.250	.281
	-3	.1873	.062	.312	.250
	-4	.1873	.093	.312	.281
65 THRU 360	-1	.1248	.062	.250	.312
	-2	.1248	.093	.250	.343
	-3	.1873	.062	.312	.312
	-4	.1873	.093	.312	.343
	-5	.2498	.062	.375	.312
	-6	.2498	.093	.375	.343

/f/ FOR BORE TOLERANCES SEE TABLE I.

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.
1000 WILSON BLVD.
ARLINGTON, VA 22209

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME PRODUCT AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST REVISION DATE.

FORM 09-01

1 COMPLETELY REVISED

REVISION
1
NAS726
SHEET 4



Documents

Document Sharing Hub

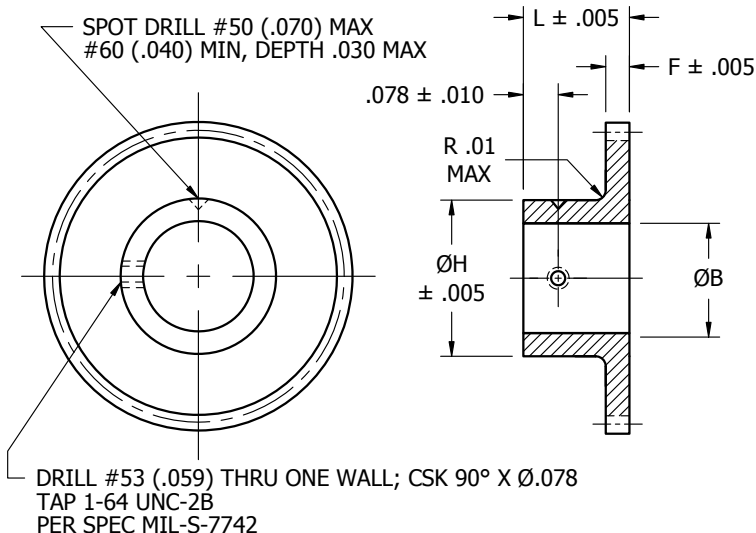


FIGURE 2 - 160 & 200 DIAMETRAL PITCH GEAR DRAWING

TABLE III - DIMENSIONS (CONTINUED)

160 DIAMETRAL PITCH					
NUMBER OF TEETH	GEAR BLANK NUMERAL	ØB BORE	F FACE WIDTH	ØH HUB	L OVERALL LENGTH
33 THRU 38	-1	.0779	.031	.187	.265
	-2	.0935	.031	.187	.265
39 THRU 80	-1	.0779	.031	.218	.281
	-2	.0779	.047	.218	.281
	-3	.0935	.031	.218	.281
	-4	.0935	.047	.218	.281
	-5	.1248	.047	.218	.281
	-6	.1248	.062	.218	.281
81 THRU 160	-1	.0935	.047	.218	.281
	-2	.0935	.062	.218	.281
	-3	.1248	.062	.250	.312
	-4	.1248	.093	.250	.312
	-5	.1873	.062	.375	.312
	-6	.1873	.093	.375	.312
161 THRU 300	-1	.1248	.062	.250	.312
	-2	.1248	.093	.250	.312
	-3	.1873	.062	.312	.312
	-4	.1873	.093	.312	.312
	-5	.2498	.062	.375	.312
	-6	.2498	.093	.375	.312

200 DIAMETRAL PITCH					
NUMBER OF TEETH	GEAR BLANK NUMERAL	ØB BORE	F FACE WIDTH	ØH HUB	L OVERALL LENGTH
41 THRU 46	-1	.0779	.031	.187	.265
	-2	.0935	.031	.187	.265
47 THRU 150	-1	.0779	.031	.218	.281
	-2	.0779	.047	.218	.281
	-3	.0935	.031	.218	.281
	-4	.0935	.047	.218	.281
	-5	.1248	.047	.250	.281
	-6	.1248	.062	.250	.281
151 THRU 300	-1	.0935	.047	.218	.281
	-2	.0935	.062	.218	.281
	-3	.1248	.062	.250	.312
	-4	.1248	.093	.250	.312
	-5	.1873	.062	.375	.312
	-6	.1873	.093	.375	.312

① COMPLETELY REVISED

REVISION

1

NAS726
SHEET 5



Document Sharing Hub