

8 7 6 5 4 3 2 1

DRAWN	CHECKED	CHECKED DATE	RELEASED	RELEASED DATE	REVISED PER ECO	REV
TG					060322	A

NOTES: UNLESS OTHERWISE SPECIFIED

1. DECIPHER PART NUMBER ON PURCHASE ORDER TO DETERMINE TARGET BLANK SIZE AND PATTERN TYPE.

PART NUMBER FORMAT:

1st CHARACTER = T (FOR "TARGET"): DOES NOT CHANGE.
 2nd CHARACTER = b: TARGET BLANK SIZE. SELECT FROM TABLE BELOW.
 3rd CHARACTER(S) = PATTERN TYPE. SELECT FROM IMAGES BELOW.

2] STANDARD TOLERANCES FOR LASER CUT TARGET FEATURES ARE:

± .0005 FOR DIMENSIONS .0050 OR GREATER
 ± .0004 FOR DIMENSIONS .0040 TO .0049
 ± .0003 FOR DIMENSIONS .0030 TO .0039
 ± .0002 FOR DIMENSIONS SMALLER THAN .0030
 (OR AS STATED)

3] TARGET FEATURE CENTRATION WITH RESPECT TO TARGET BLANK OUTER DIAMETER IS ± .0015 INCHES.

4] ALL TARGET PATTERN DIMENSIONS IN PART NUMBER (EXCLUDING ANGLE) ARE DENOTED WITH 4 DIGITS, NO LEADING ZERO, AND A DECIMAL POINT PLACED ANYWHERE WITHIN THAT RANGE.

5] ALL ANGLES IN PART NUMBER ARE DENOTED WITH 3 DIGITS, ONE DECIMAL PLACE, AND LEADING ZEROS AS NEEDED.

6. MINIMUM PINHOLE SIZE IS ϕ .0007; FOR PINHOLE LESS THAN ϕ .0007 CONTACT SBIR SALES FOR CUSTOM QUOTE.

7. MINIMUM SEPARATED BAR FEATURE IS .0016 WIDE; FOR FEATURES BETWEEN .0007 AND .0016 INCH CONTACT SBIR SALES FOR CUSTOM QUOTE.

8. MINIMUM SLIT WIDTH IS .0007; FOR FEATURES LESS THAN .0007 CONTACT SBIR SALES FOR CUSTOM QUOTE.

PART NUMBER FORMAT

TARGET PATTERN TYPES

P
PINHOLE/CIRCLE
(SEE SHEET 3)

4B
4-BAR
(SEE SHEET 4)

4BDHV
4-BAR, DUAL, HORIZ & VERT
(SEE SHEET 5)

S
SLIT/INTERLACE
(SEE SHEET 6)

C
ABINGDON CROSS
(SEE SHEET 7)

A
ALIGNMENT
(SEE SHEET 8)

E
EDGE
(SEE SHEET 9)

D
DISTORTION
(SEE SHEET 10)

TARGET BLANK SELECTION

TARGET BLANK SIZE 2nd CHARACTER "b"	REF ONLY: FOR SBIR TARGET WHEELS	REF ONLY: CLEAR APERTURE
2	312i	ϕ 2.000
3	313i, 316i, 317i	ϕ 3.000
4	314 (LEGACY)	ϕ 1.438
5	315i	ϕ 5.000

EXAMPLES OF VALID PART NUMBERS

T24B-.0035
 T2A-.0157-.2600-.7874-.0157
 T3D-9X9-.0251-.2000
 T44B-.0820
 T5S-.0050-.5100-00.0

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES INTERPRET DWGS IAW ASME Y14.100M AND ASME Y14.5-1994 TOLERANCES ARE: XX .01 XXX .005 XXXX .0005 FRAC. 1/16 ANG. 1/2	DRAWN T.GARCIA	DATE 10-12-2022		
	CHECKED	DATE		
	RELEASED	DATE		
	RELEASED PER ECO NO.	060259	TITLE DOC,SPEC SHEET,TARGET,LASER CUT	CAGE CODE: 0B0B2
DO NOT SCALE FROM DRAWING	SIZE B	NUMBER 319-002-420	SHEET 1 OF 10	REV A

8 7 6 5 4 3 2 1

8

7

6

5

4

3

2

1



D

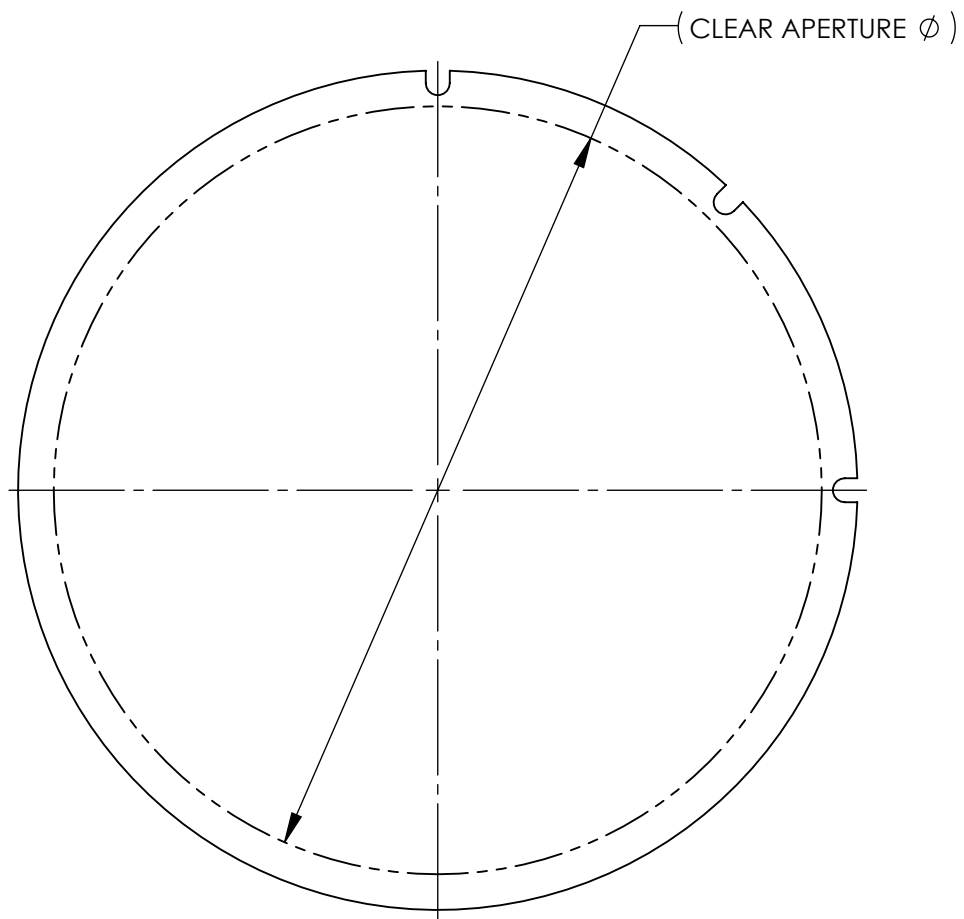
D

C

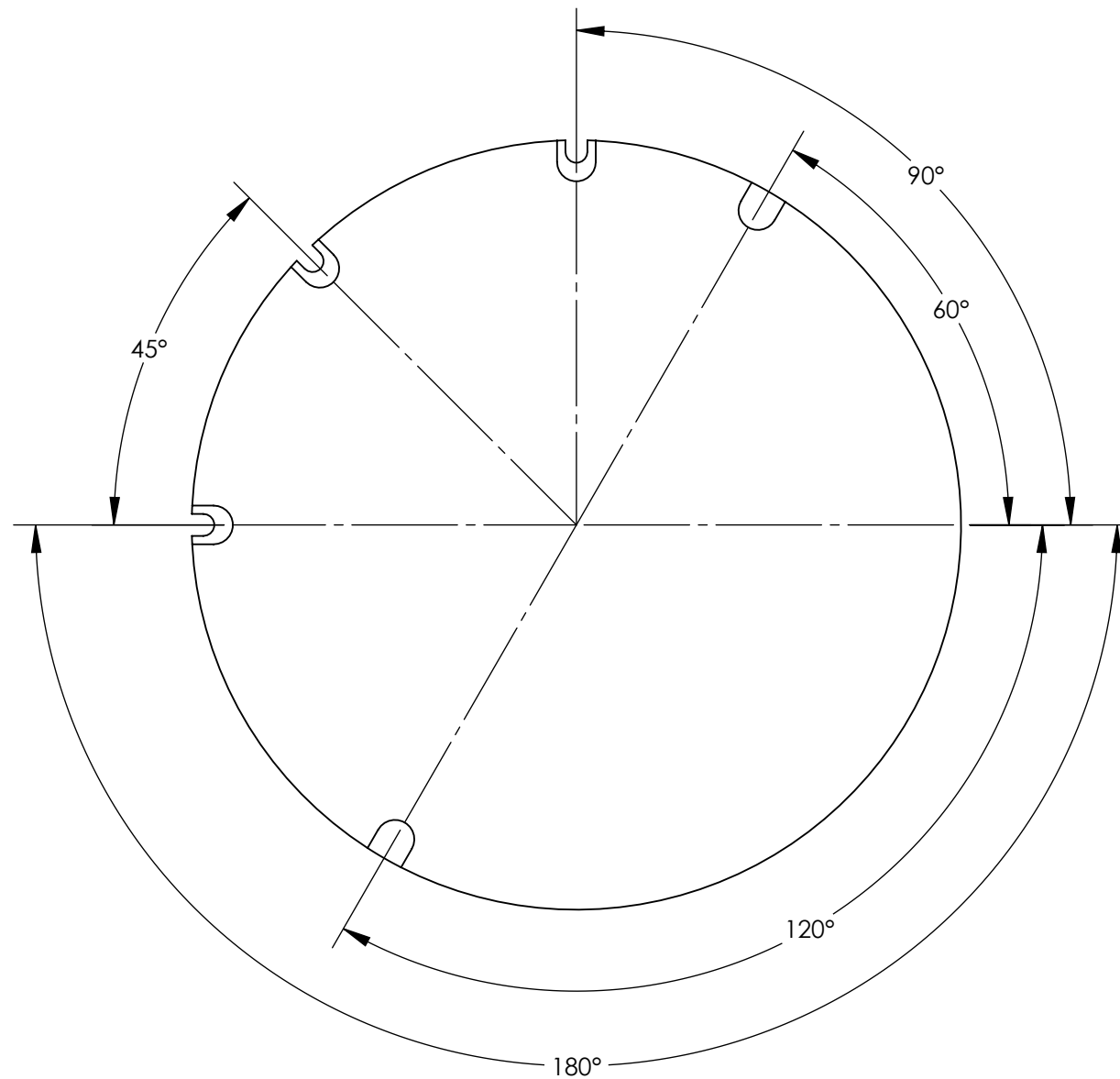
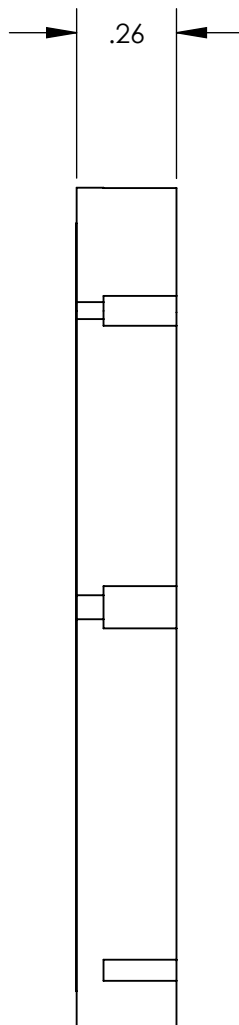
C

B

B



FRONT VIEW
(FOIL SIDE)



REAR VIEW
(NON-FOIL SIDE)

TARGET BLANK SELECTION

TARGET BLANK SIZE 2nd CHARACTER "b"	REF ONLY: FOR SBIR TARGET WHEELS	REF ONLY: CLEAR APERTURE
2	312i	ϕ 2.000
3	313i, 316i, 317i	ϕ 3.000
4	314 (LEGACY)	ϕ 1.438
5	315i	ϕ 5.000

TARGET BLANK

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 2 OF 10	REV A

8

7

6

5

4

3

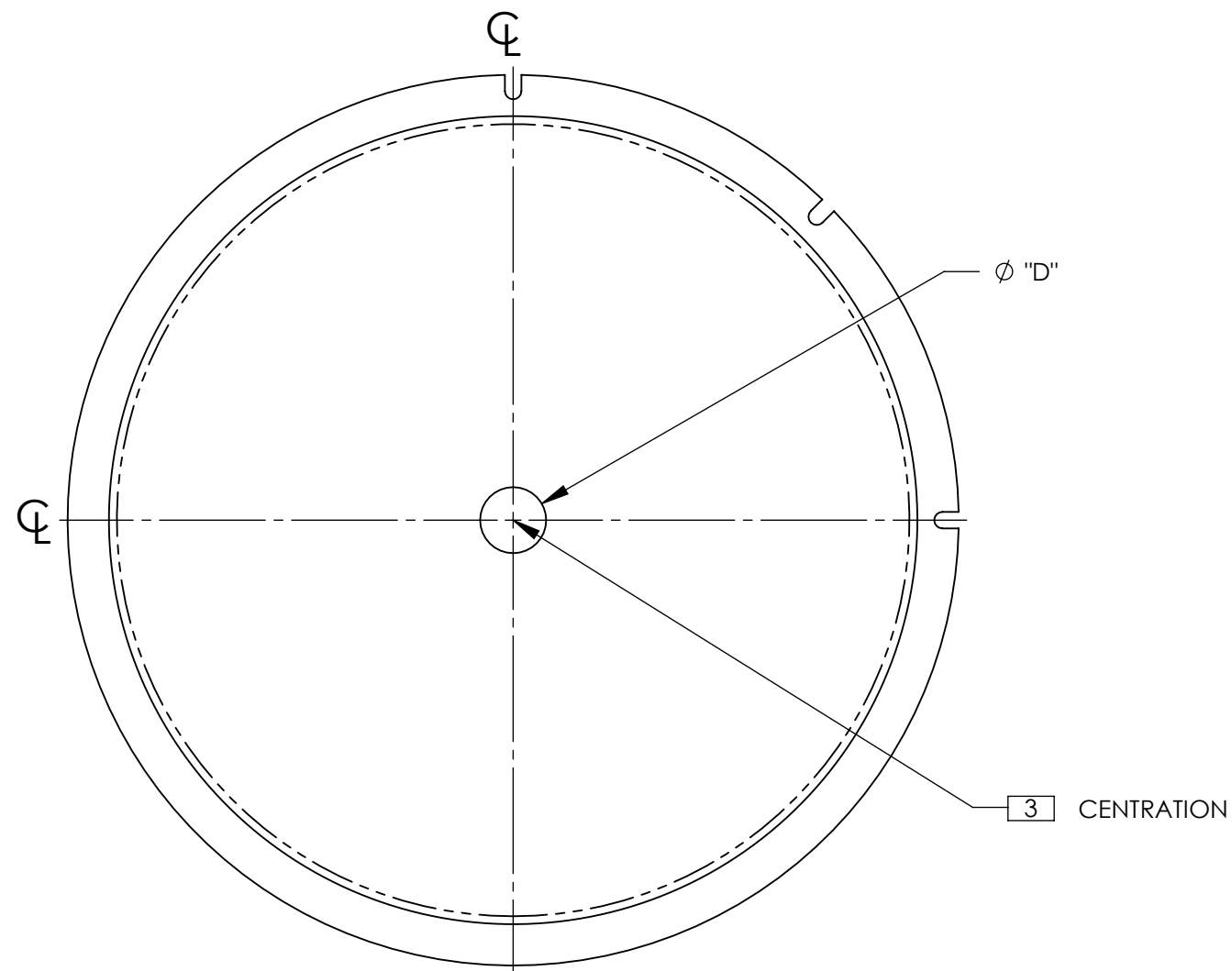
2

1



A

A



T TARGET
b BLANK SIZE
P PINHOLE
P - .dddd PINHOLE ϕ "D"

2
4

FRONT SIDE
 (FOIL SIDE)

TARGET FEATURE SIZE CONSTRAINTS

TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE PINHOLE ϕ "D"	MAX ALLOWABLE PINHOLE ϕ "D"
2	.0007	1.600
3	.0007	2.700
4	.0007	1.110
5	.0007	4.700

EXAMPLES OF VALID PART NUMBERS

T2P-.0500
 T3P-1.750

P = PINHOLE/CIRCLE

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 3 OF 10	REV A

8

7

6

5

4

3

2

1

D

D

C

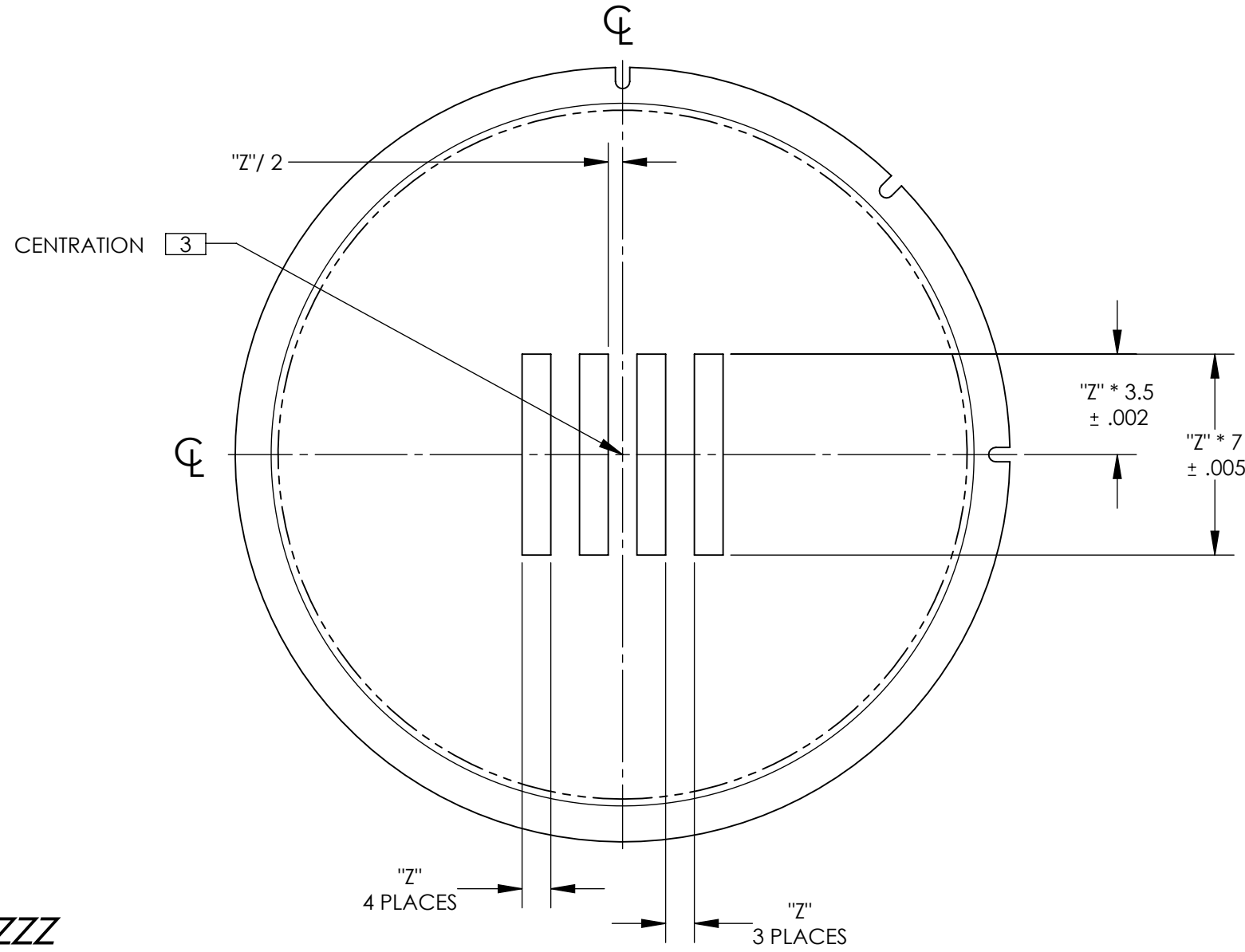
C

B

B

A

A



T b 4B - .zzzz
 TARGET BLANK SIZE 4-BAR BAR WIDTH "Z"

2
4

FRONT SIDE
(FOIL SIDE)

TARGET FEATURE SIZE CONSTRAINTS

TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE BAR WIDTH "Z"	MAX ALLOWABLE BAR WIDTH "Z"
2	.0016	.1616
3	.0016	.2727
4	.0016	.1121
5	.0016	.4747

4B = 4-BAR

EXAMPLES OF VALID PART NUMBERS

T24B-.0500
 T54B-.3937

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 4 OF 10	REV A

8

7

6

5

4

3

2

1

8

7

6

5

4

3

2

1

D

D

C

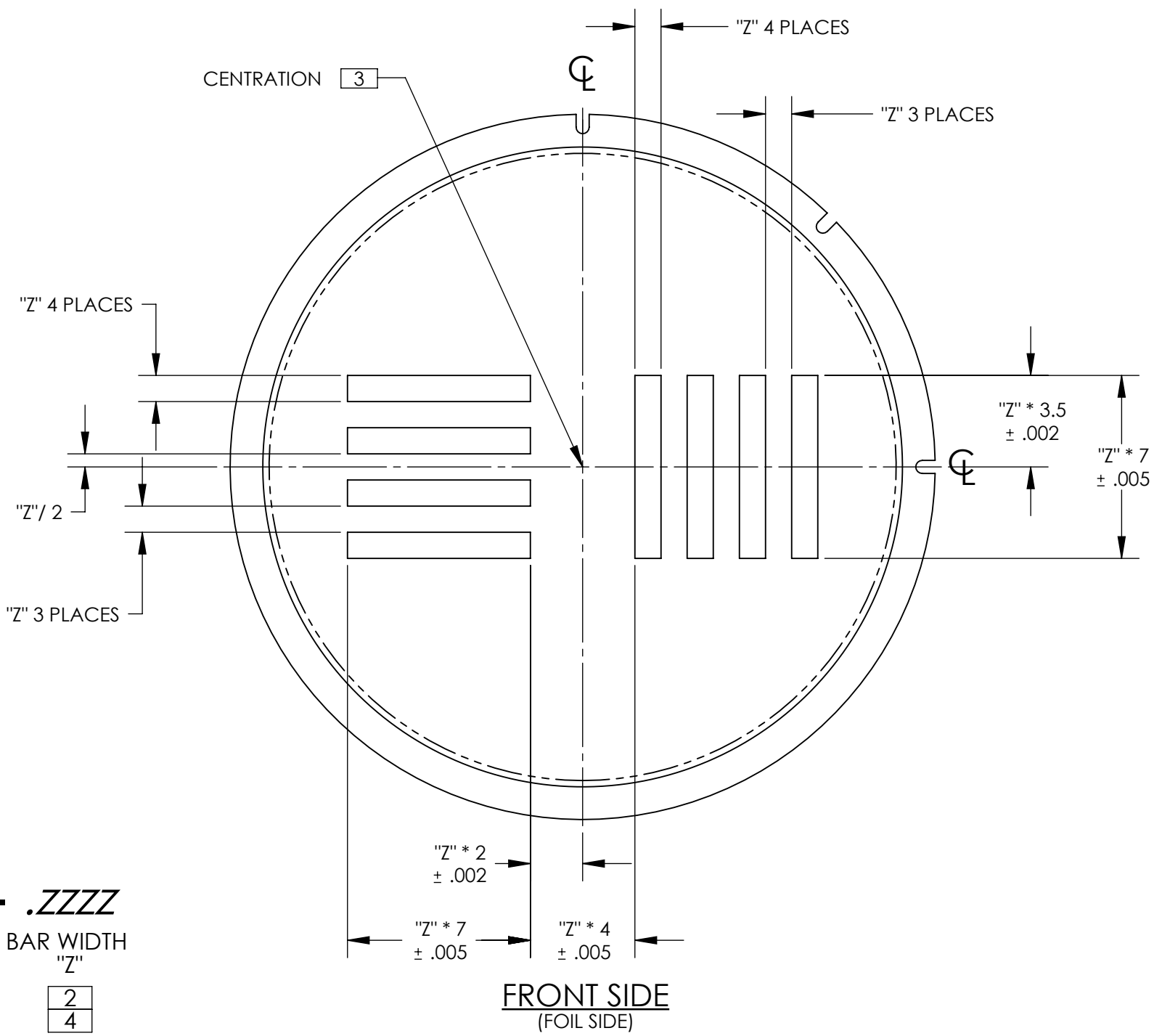
C

B

B

A

A



T b 4BDHV - .ZZZZ
 TARGET BLANK SIZE 4-BAR DUAL HORIZONTAL AND VERTICAL BAR WIDTH "Z"

2
4

TARGET FEATURE SIZE CONSTRAINTS

TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE BAR WIDTH "Z"	MAX ALLOWABLE BAR WIDTH "Z"
2	.0016	.0828
3	.0016	.1398
4	.0016	.0575
5	.0016	.2434

4BDHV = 4-BAR,DUAL,HORIZ & VERT

EXAMPLES OF VALID PART NUMBERS
 T24BDHV-.0500
 T54BDHV-.1969

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 5 OF 10	REV A

8

7

6

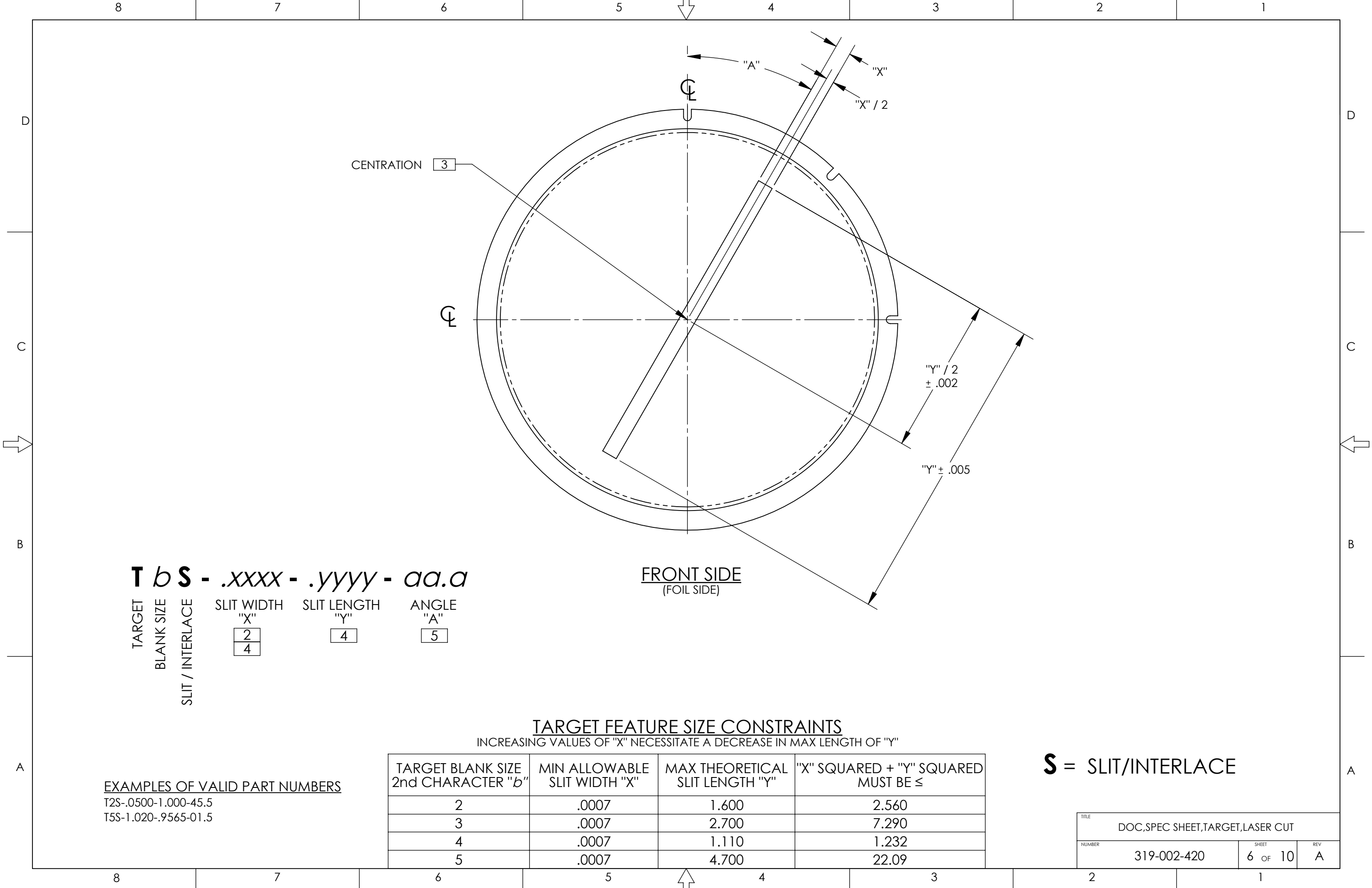
5

4

3

2

1



T b S - .xxxx - .yyyy - aa.a

TARGET
BLANK SIZE
SLIT / INTERLACE

SLIT WIDTH
"X"

2
4

SLIT LENGTH
"Y"

4

ANGLE
"A"

5

FRONT SIDE
(FOIL SIDE)

TARGET FEATURE SIZE CONSTRAINTS

INCREASING VALUES OF "X" NECESSITATE A DECREASE IN MAX LENGTH OF "Y"

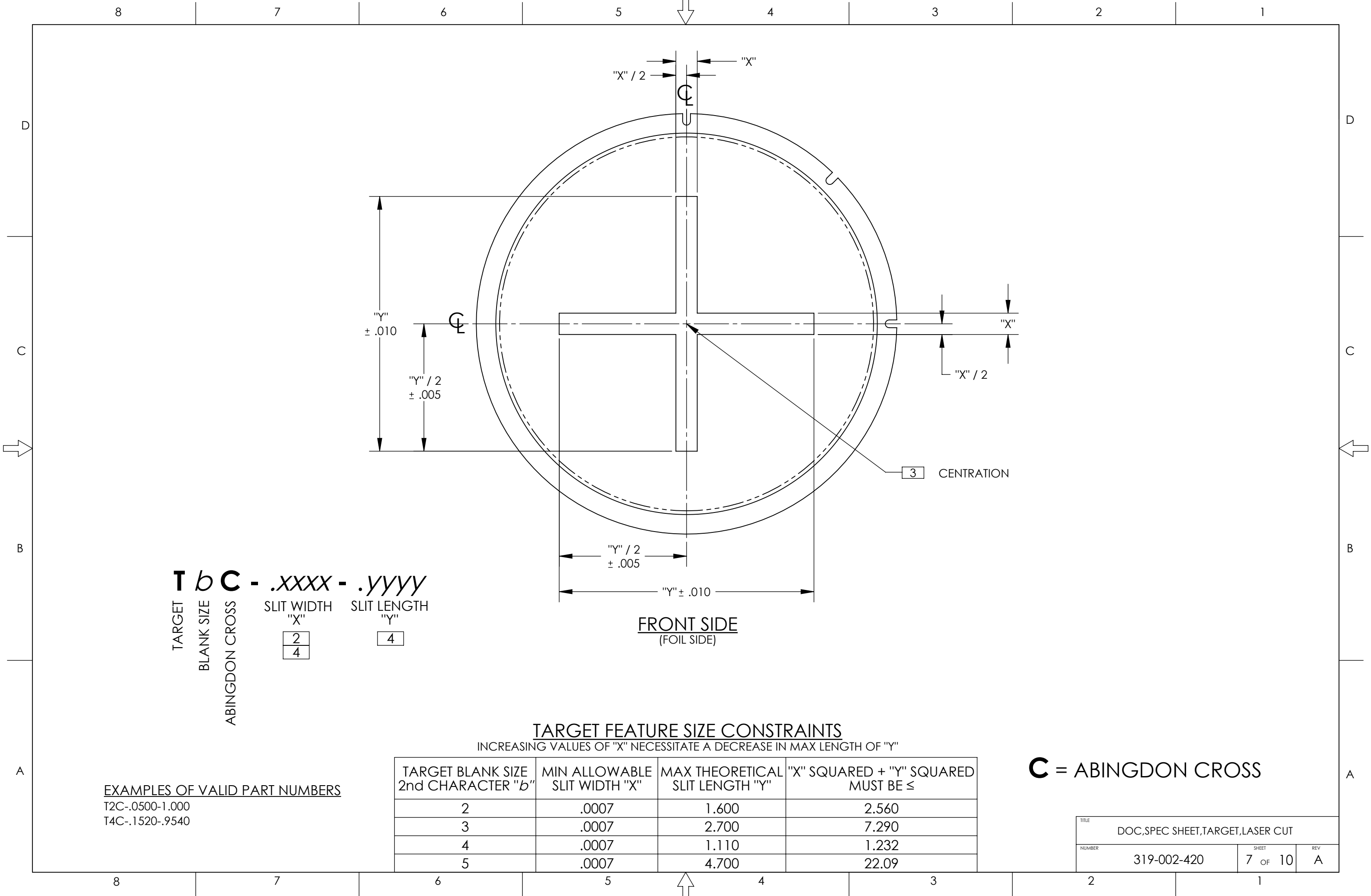
TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE SLIT WIDTH "X"	MAX THEORETICAL SLIT LENGTH "Y"	"X" SQUARED + "Y" SQUARED MUST BE ≤
2	.0007	1.600	2.560
3	.0007	2.700	7.290
4	.0007	1.110	1.232
5	.0007	4.700	22.09

EXAMPLES OF VALID PART NUMBERS

T2S-.0500-1.000-45.5
T5S-1.020-.9565-01.5

S = SLIT/INTERLACE

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 6 OF 10	REV A



T b C - .xxxx - .yyyy
 TARGET BLANK SIZE ABINGDON CROSS
 SLIT WIDTH "X" SLIT LENGTH "Y"
2 4

FRONT SIDE
 (FOIL SIDE)

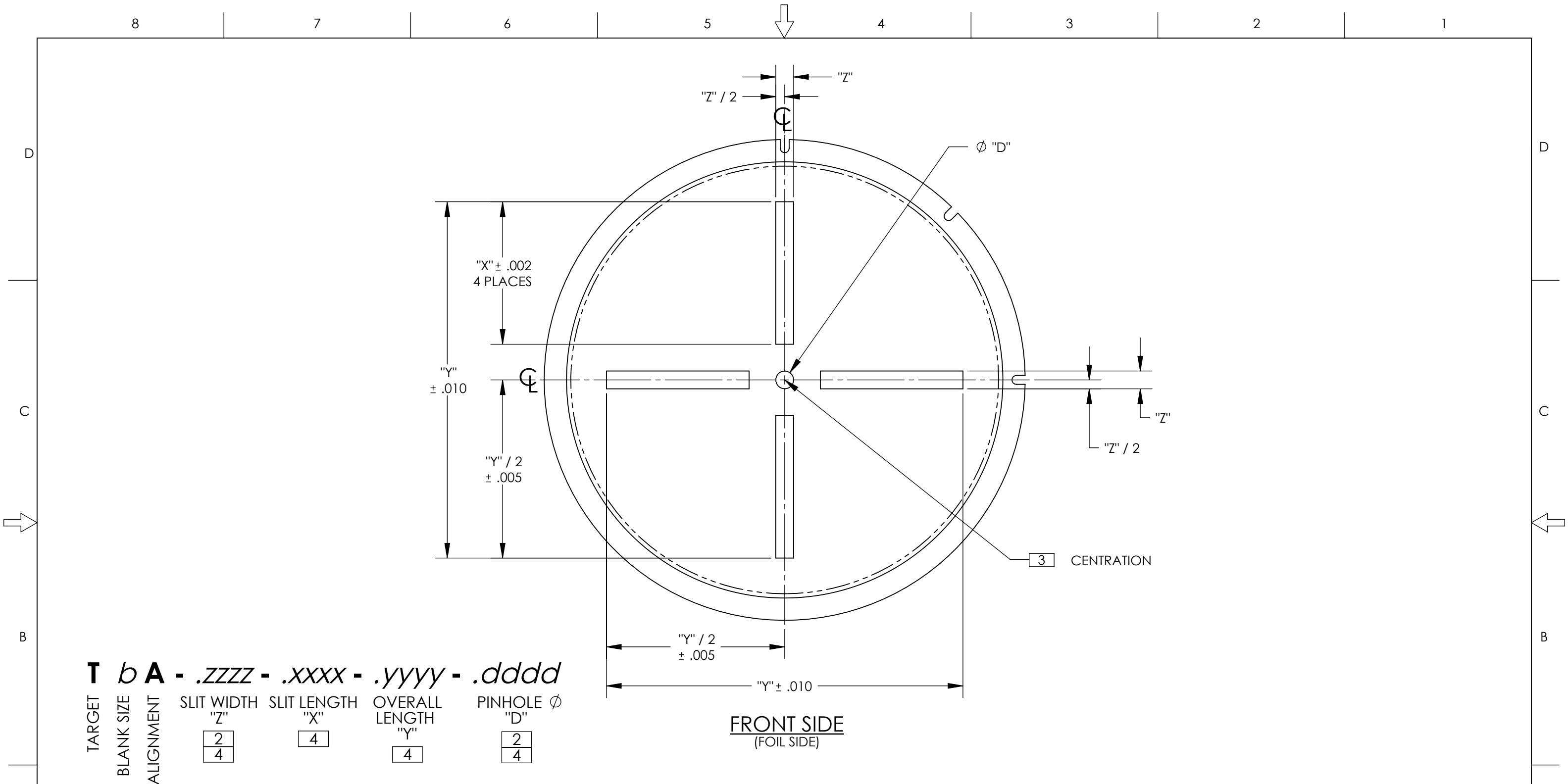
TARGET FEATURE SIZE CONSTRAINTS
 INCREASING VALUES OF "X" NECESSITATE A DECREASE IN MAX LENGTH OF "Y"

TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE SLIT WIDTH "X"	MAX THEORETICAL SLIT LENGTH "Y"	"X" SQUARED + "Y" SQUARED MUST BE ≤
2	.0007	1.600	2.560
3	.0007	2.700	7.290
4	.0007	1.110	1.232
5	.0007	4.700	22.09

EXAMPLES OF VALID PART NUMBERS
 T2C-.0500-1.000
 T4C-.1520-.9540

C = ABINGDON CROSS

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 7 OF 10	REV A



T b A - .zzzz - .xxxx - .yyyy - .dddd

TARGET BLANK SIZE ALIGNMENT SLIT WIDTH "Z" SLIT LENGTH "X" OVERALL LENGTH "Y" PINHOLE ϕ "D"

2	4	4	2
4			4

FRONT SIDE
(FOIL SIDE)

TARGET FEATURE SIZE CONSTRAINTS

INCREASING VALUES OF "X" NECESSITATE A DECREASE IN MAX LENGTH OF "Y"

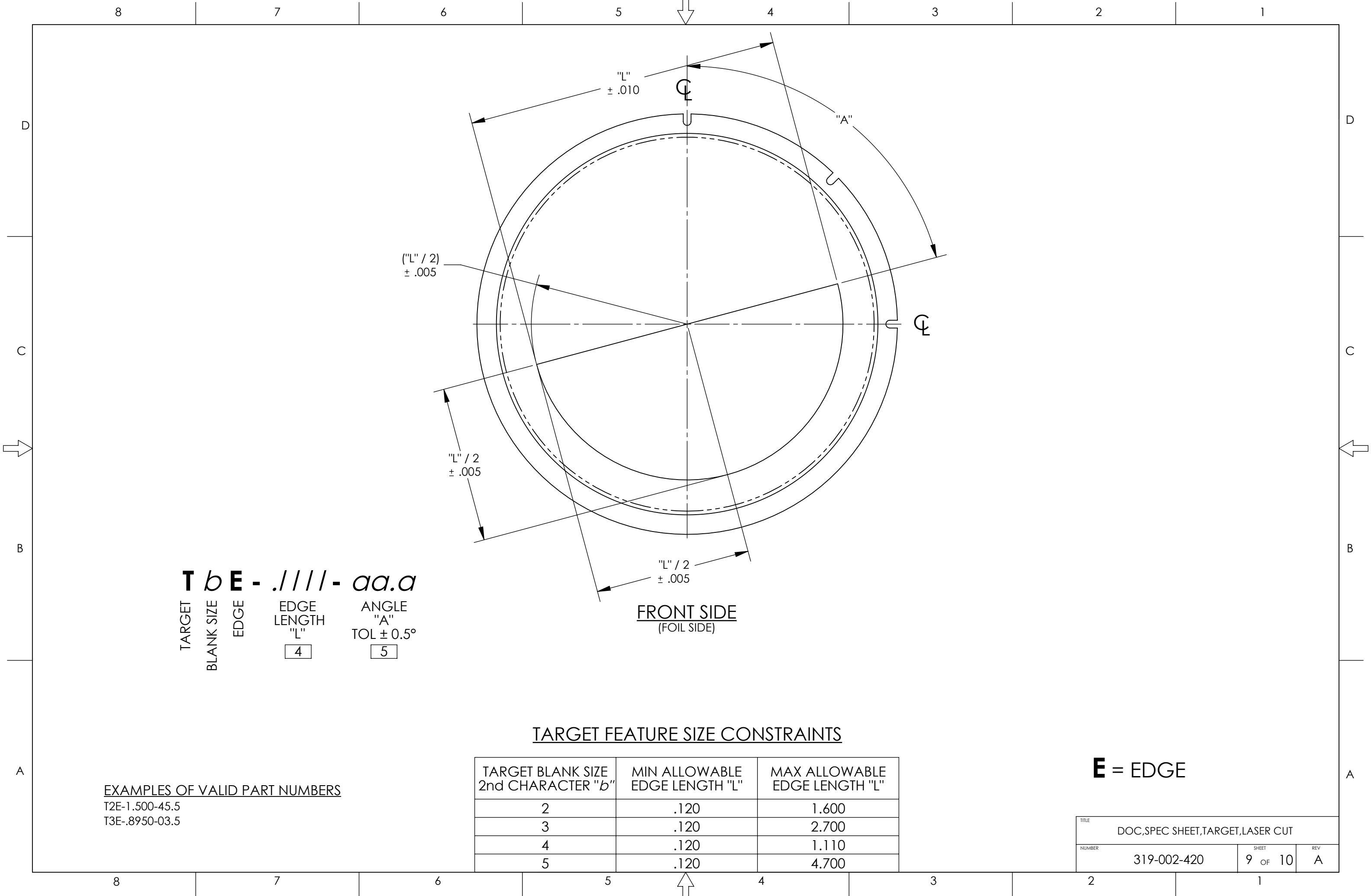
TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE SLIT WIDTH "Z"	MIN ALLOWABLE PINHOLE ϕ "D"	MAX THEORETICAL LENGTH "Y"	"Z" SQUARED + "Y" SQUARED MUST BE \leq	("Y" - "D" - (2 * "X")) / 2 MUST BE >
2	.0007	.0007	1.600	2.560	.0016
3	.0007	.0007	2.700	7.290	.0016
4	.0007	.0007	1.110	1.232	.0016
5	.0007	.0007	4.700	22.09	.0016

EXAMPLES OF VALID PART NUMBERS

T2A-.0500-.0750-1.000-.1000
T5A-.0015-1.050-3.111-.0525

A = ALIGNMENT

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 8 OF 10	REV A



T b E - .llll - aa.a

TARGET
BLANK SIZE
EDGE

EDGE
LENGTH
"L"

ANGLE
"A"
TOL ± 0.5°

4

5

FRONT SIDE
(FOIL SIDE)

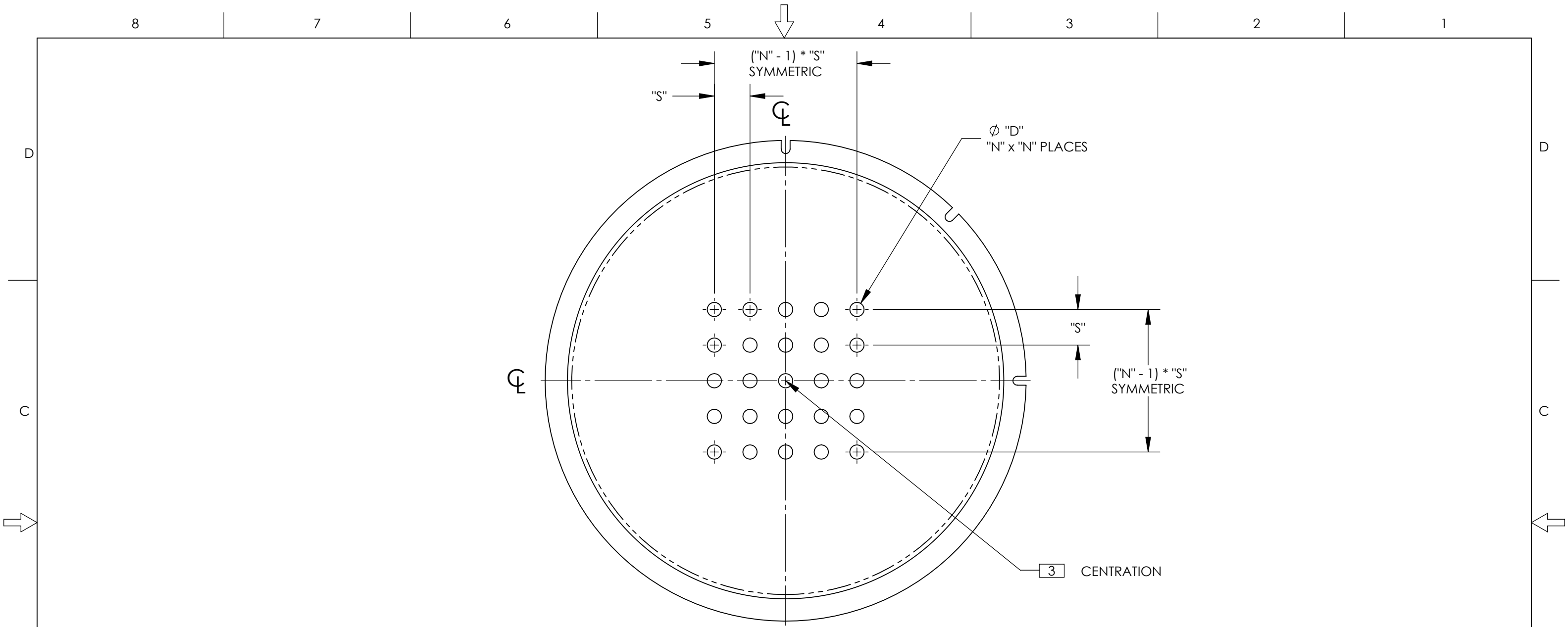
TARGET FEATURE SIZE CONSTRAINTS

TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE EDGE LENGTH "L"	MAX ALLOWABLE EDGE LENGTH "L"
2	.120	1.600
3	.120	2.700
4	.120	1.110
5	.120	4.700

EXAMPLES OF VALID PART NUMBERS
T2E-1.500-45.5
T3E-.8950-03.5

E = EDGE

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 9 OF 10	REV A



T b D - n X n - . d d d d - . s s s s

TARGET
BLANK SIZE
DISTORTION
PINHOLES PER ROW
BY
PINHOLES PER COLUMN
PINHOLE ϕ "D"
CENTER TO CENTER SPACING "S"

$\frac{2}{4}$

$\frac{2}{4}$

TARGET FEATURE SIZE CONSTRAINTS

TARGET BLANK SIZE 2nd CHARACTER "b"	MIN ALLOWABLE PINHOLE ϕ "D"	[("N" * "S") + "D"] * 1.414 MUST BE \leq	"S" - "D" MUST BE $>$
2	.0007	1.600	.0016
3	.0007	2.700	.0016
4	.0007	1.110	.0016
5	.0007	4.700	.0016

EXAMPLES OF VALID PART NUMBERS
T2D-3X5-.0500-.2000
T4D-5X5-.0015-.0750

D = DISTORTION

TITLE DOC,SPEC SHEET,TARGET,LASER CUT		
NUMBER 319-002-420	SHEET 10 OF 10	REV A