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REV.
A

AS22520™/7

FEDERAL SUPPLY CLASS
5120

RATIONALE

REVISION REQUIRED TO ADD NEW CONTACTS TO VARIOUS DATAPLATES AND PERFORM MINOR TECHNICAL OR EDITORIAL CHANGES AS NEEDED.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS22520.

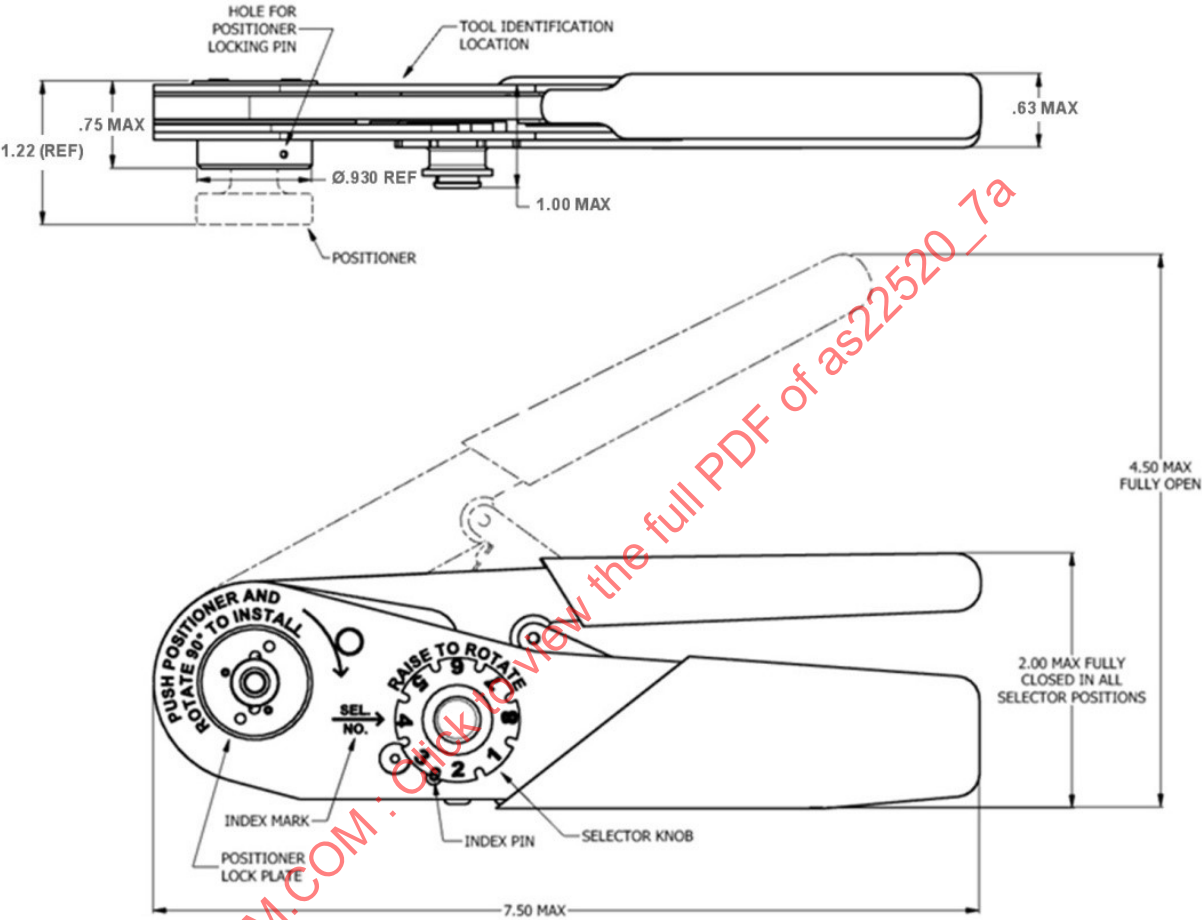
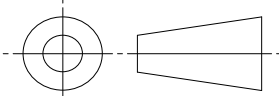


FIGURE 1 - M22520/7-01 CRIMPING TOOL

For more information on this standard, visit
<https://www.sae.org/standards/content/AS22520/7A>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8C2

PROCUREMENT SPECIFICATION: AS22520

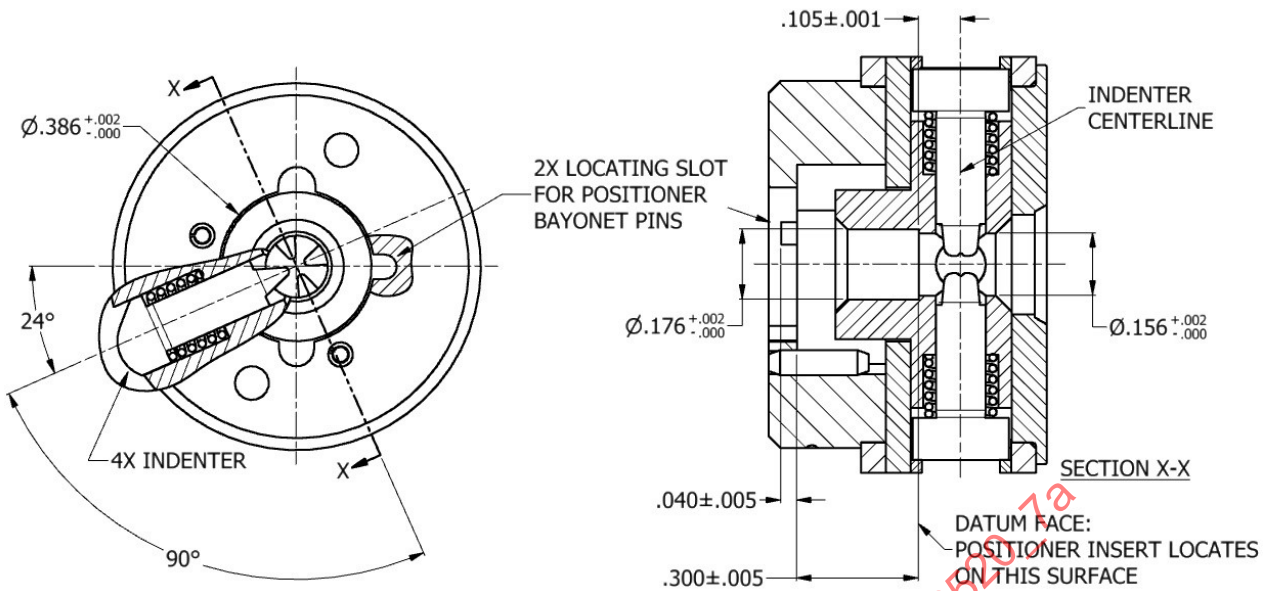


AEROSPACE STANDARD

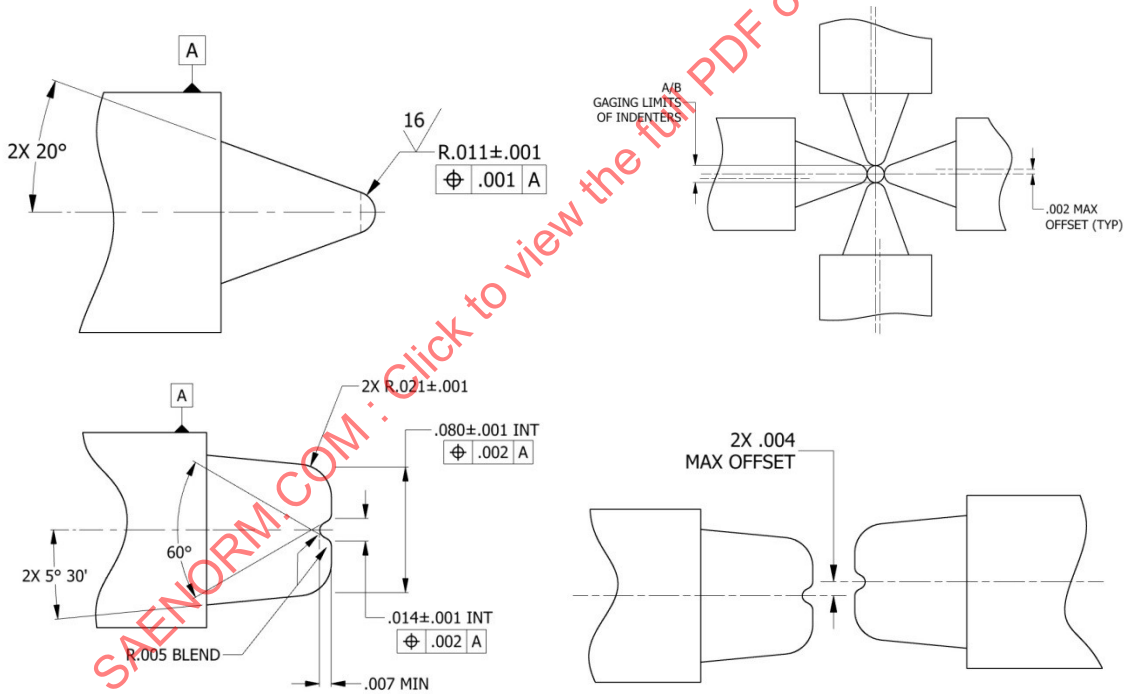
(R) CRIMPING TOOLS, TYPE 1, TERMINAL, HAND,
WIRE TERMINATION FOR WIRE BARREL SIZES 16,
AND SMALLER

AS22520™/7
SHEET 1 OF 12

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TOOL POSITIONER LOCATOR RETAINER RING (LOCK PLATE) DETAILS



INDENTER DETAILS

FIGURE 1 - M22520/7-01 CRIMPING TOOL (CONTINUED)

	AEROSPACE STANDARD		AS22520™/7 SHEET 2 OF 12	REV. A
	(R) CRIMPING TOOLS, TYPE 1, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 16, AND SMALLER			

TABLE 1 - BASIC TOOL MARKINGS AND INSPECTION GAGE

PART NO.	BODY COLOR	HANDLE GRIP COLOR	FOR INSPECTION GAGING USE
M22520/7-01	GREEN	BLACK	M22520/3-3 1/

1/ INSPECTION GAGE ONLY APPLICABLE FOR THE TOOL SET AT SELECTOR POSITION NUMBER 8 (SEE APPLICATION NOTES).

TABLE 2 - INDENTER GAGING LIMITS

SELECTOR NUMBER	INSPECTION GAGE DIAMETERS (INCHES)	
	Ø GO A ± .0001	Ø NO-GO B ± .0001
1	.0160	.0210
2	.0190	.0240
3	.0220	.0270
4	.0250	.0300
5	.0290	.0340
6	.0330	.0380
7	.0370	.0420
8	.0410	.0460

REQUIREMENTS: ALL REQUIREMENTS SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS22520.

1. DIMENSIONS:

DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS ±.010, ANGLES ±1/2°. OUTLINE CONFIGURATION OPTIONAL WITHIN MAXIMUM DIMENSIONS SHOWN IN FIGURE 1. BREAK ALL SHARP EDGES .005 R MAX.

2. MATERIALS:

UNLESS OTHERWISE SPECIFIED, MATERIAL SHALL BE IN ACCORDANCE WITH AS22520. SURFACE TEXTURE SHALL BE 63 RMS OR BETTER IN ACCORDANCE WITH ASME B46 1.

2.1 INDENTER MATERIAL SHALL BE OIL HARDEN TOOL STEEL. THE INDENTER MATERIAL SHALL BE HARDENED TO ROCKWELL "C" 56-58. RETAINER RING (LOCK PLATE) SHALL BE T3 ALUMINUM (OR EQUIVALENT) IN ACCORDANCE WITH AMS-QQ-A-225/6.

2.2 POSITIONER BODY MATERIAL SHALL BE ALUMINUM AMS-QQ-A-225/6. LOCATOR SHALL BE STAINLESS STEEL PER AMS-QQ-S-763, CLASS 304.

2.3 GRIP SHALL BE PLASTIC AND WITHSTAND ALL REQUIREMENTS OF AS22520.

3. IDENTIFICATION MARKING AND COLOR:

TOOL IDENTIFICATION SHALL BE MARKED IN ACCORDANCE WITH MIL-STD-130, STAMP (LETTERING HEIGHT IS .093 MIN AND WHITE FILL) OR LASER MARKED. TOOL IDENTIFICATION SHALL INCLUDE MANUFACTURER'S NAME AND PART NUMBER, THE TOOL PART NUMBER M22520/07-01, AND THE INSPECTION GAGE PART NUMBER M22520/3-3. ADDITIONAL TOOL MARKING AND COLOR SHALL BE AS SHOWN IN FIGURE 1 AND TABLE 1.

3.1 POSITIONERS SHALL BE MARKED AS SHOWN IN FIGURES 3, 4, AND 5. MARKING SHALL BE IN ACCORDANCE WITH MIL-STD-130, STAMP (LETTERING HEIGHT IS .093 MIN AND WHITE FILL) OR LASER MARKED. POSITIONER COLOR SHALL BE GREEN.

3.2 DATAPLATES AND LABELS BE SHALL BE CLEARLY MARKED AS SHOWN IN FIGURES 1 AND 6. ALL LABELS SHALL HAVE BLACK LETTERS PRINTED ON A CONTRASTING BACKGROUND. OTHER UNSPECIFIED LABELS ARE PERMISSIBLE ON TOOL FRAME AND POSITIONER. IF LABELS ARE NOT USED, LASER MARKING OR STAMPING AND WHITE FILL DIRECTLY ONTO METAL SURFACES IS PERMITTED. ALL LABELS AND MARKINGS SHALL REMAIN ATTACHED AND LEGIBLE AFTER WITHSTANDING THE TESTING REQUIREMENTS OF AS22520.

4. WEIGHT:

WEIGHT OF TOOL FRAME WITHOUT POSITIONER SHALL NOT EXCEED 1.0 POUND AND THE POSITIONER SHALL NOT EXCEED .75 OUNCE.

5. COMPRESSION FORCE:

THE COMPRESSION FORCE REQUIRED TO MAKE SATISFACTORY CRIMPS SHALL NOT EXCEED 65 POUNDS, WHICH IS APPLICABLE FOR THE M39029/4-111 CONTACT CRIMPED ON A SIZE 16 WIRE (OR EQUIVALENT).

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	(R) CRIMPING TOOLS, TYPE 1, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 16, AND SMALLER			

6. TOOL FRAME INDENTER GAGE LIMITS:

INDENTER GO AND NO-GO INSPECTION GAGE LIMITS ARE DEFINED IN TABLE 2.

7. POSITIONER LOCK PLATE AND LOCATOR:

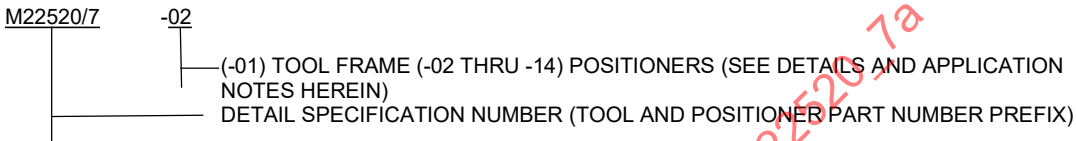
7.1 THE POSITIONER LOCK PLATE SHALL PROVIDE POSITIVE DETENT FOR BAYONET LOCK PINS AND A MEANS OF SECURING THE POSITIONER WITH A LOCKING PIN OR WIRE. THE POSITIONER SHALL BE REMOVABLE ONLY WHEN THE LOCKING PIN OR WIRE IS REMOVED.

7.2 POSITIONER LOCATOR SHALL BE SPRING LOADED. SPRING SHALL DEPRESS .031 INCH MINIMUM WITH A FORCE OF 2 POUNDS $\pm$ 1 POUND.

8. CYCLE CONTROL RATCHET:

THE TOOL SHALL BE MADE WITH A TAMPER-PROOF RATCHET WHICH LIMITS THE MOVEMENT OF THE TOOL HANDLE IN BOTH DIRECTIONS AND ASSURES A COMPLETE CLOSURE OF THE TOOL HANDLE PRIOR TO RELEASE.

9. PART IDENTIFICATION NUMBER (PIN):



APPLICATION NOTES:

1. M22520/7-01 IS USED WITH CONTACTS CONFORMING TO AS39029 (AND SIMILAR) WITH WIRE BARREL SIZES 16 AND PHYSICALLY SMALLER. THE WIRE RANGE IS TYPICALLY SIZE 16 THRU SIZE 28; HOWEVER, THERE MAY BE EXCEPTIONS IN SOME CONTACTS. SEE THE POSITIONER DATAPLATES AND/OR THE CONTACT SPECIFICATIONS FOR FURTHER INFORMATION ON WIRE SIZE AND CRIMP DEPTH (SELECTOR) SETTINGS.
2. FOR APPLICABLE CONTACTS FOR EACH POSITIONER, SEE TABLE 3 AND POSITIONER DATAPLATES IN FIGURE 6.
3. UNLESS OTHERWISE SPECIFIED, FOR TOOL APPLICATIONS INSPECTION GAGING IS RECOMMENDED TO BE PERFORMED WITH THE GAGE SPECIFIED IN TABLE 1 ON TOOL SELECTOR NUMBER 8. OTHER GAGES IN ACCORDANCE WITH TABLE 2 DIMENSIONS WOULD BE REQUIRED, IF OTHER SELECTOR SETTINGS ARE REQUIRED TO BE VERIFIED.
4. AS22520/7 CONFIGURATION IS FOR HAND CRIMPING ONLY.

NOTICE

USE OF HAND CRIMPING TOOLS COVERED BY THIS SPECIFICATION AS A COMPONENT IN ANY POWERED "PRESS" MAY VIOLATE OSHA REGULATIONS CFR 1910.211.

SUPERSESSION INFORMATION:

1. AS22520/7 SUPERSEDES MIL-C-22520/7. PART NUMBERS FOR TOOL AND POSITIONERS REMAIN UNCHANGED.

SPECIFICATION NOTE:

1. REVISION INDICATOR: A CHANGE BAR (I) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT, INCLUDING TECHNICAL REVISIONS. CHANGE BARS AND (R) ARE NOT USED IN ORIGINAL PUBLICATIONS, NOR IN DOCUMENTS THAT CONTAIN EDITORIAL CHANGES ONLY.

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	(R) CRIMPING TOOLS, TYPE 1, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 16, AND SMALLER		

TABLE 3 - M22520/7 POSITIONER-CONTACT ACCOMMODATION INFORMATION

POSITIONER PART NO. M22520/7	AS39029 CONTACTS ACCOMMODATED (M39029/XX-YYY)								OTHER CONTACTS 2/	POSITIONER DATAPLATE	
-02	/4-110	/5-115	/11-145	/12-149		/31-223 THRU /31-227 /31-240 /31-448 /31-627	/32-242 THRU /32-246 /32-449 /32-259 /32-260	/92-532 /93-598 /94-602	NAS1662-20 NAS1663-20 AS39029/31-241 1/	FIGURE 6	
-03	/4-111 /4-112	/5-116 /5-117	/9-514 THRU /9-518 /10-519 THRU -523 /11-146	/12-150	/29-212 /30-217 /30-218	/31-228 THRU /31-233	/32-247 THRU /32-252	/85-454 THRU -457 /86-462 THRU -465 /86-510 THRU -513 /92-533 THRU -534	/93-539 /94-603 /123-676 /124-681		NAS1662-16 NAS1663-16
-04	/56-352 /57-358 /58-364	/87-478 THRU -481	/88-490 THRU -493 /89-502 THRU -505	/106-616 /107-622	/117-635 /117-641	/118-647 /118-653	/121-666	/122-673			
-05	/56-348 /56-349 /56-350		/88-482 /88-483 /88-484 /88-485	/106-614	/117-632 /117-638		/121-664				
-06		/57-354 /57-355 /57-356 /57-982		/89-494 /89-495 /89-496 /89-497							
-07			/58-360 /58-361 /58-362 /58-986	/87-470 /87-471 /87-472 /87-473	/107-620	/118-644 /118-650		/122-671			
-08	/56-351	/57-357 /57-658 1/ /58-363	/87-474 /87-475 /87-476 /87-477	/88-486 /88-487 /88-488 /88-489	/89-498 /89-499 /89-500 /89-501	/106-615 /107-621	/117-634 /117-640 /118-652 /118-646	/121-665 /122-672			
-09	/33-266		/46-306		/47-315 1/ /47-316				AS39029/33-265 1/ /46-305 1/ /47-336 1/		
-10	/33-268		/46-308		/47-337				AS39029/33-267 1/ /46-307 1/ /47-336 1/		
-11	/22-190	/22-191	/101-551	/101-552							
-12	/22-192	/101-553									
-13	/22-193	/101-554									
-14	/11-145 /12-149	/63-368 /63-356	/64-369 /64-657					/93-598 /94-602			

1/ CONTACTS ARE SUPERSEDED, CANCELLED, OR NOT RECOMMENDED FOR NEW DESIGN.

2/ OTHER CONTACTS MAY OR MAY NOT BE LISTED ON POSITIONER DATAPLATE.

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	(R) CRIMPING TOOLS, TYPE 1, TERMINAL, HAND, WIRE TERMINATION FOR WIRE BARREL SIZES 16, AND SMALLER			

Technical drawing of a BAYONET LOCK PIN, showing side and end views with dimensions and assembly instructions.

Dimensions:

- Overall length: $1.155 \pm .020$
- Distance from end to first step: $.575$
- Distance from end to second step: $.250$
- Radius of first step: $R.090$
- Distance between steps: $.047 \pm .005$
- Outer diameter of main body: $\varnothing .150^{+.000}_{-.005}$
- Outer diameter of step: $\varnothing .175^{+.000}_{-.002}$
- Outer diameter of pin: $\varnothing .374^{+.000}_{-.002}$
- Pin diameter: $\varnothing .043 \pm .001$
- Protrusion diameter: $.053 \pm .003$
- Pin fit: $\varnothing .043 \pm .001$ BAYONET LOCK PINS PRESS FIT: $.053 \pm .003$ PROTRUSION
- Radius of second step: $R.090$
- Radius of third step: $R.090$
- Radius of fourth step: $R.090$
- Radius of fifth step: $R.090$
- Radius of sixth step: $R.090$
- Radius of seventh step: $R.090$
- Radius of eighth step: $R.090$
- Radius of ninth step: $R.090$
- Radius of tenth step: $R.090$
- Radius of eleventh step: $R.090$
- Radius of twelfth step: $R.090$
- Radius of thirteenth step: $R.090$
- Radius of fourteenth step: $R.090$
- Radius of fifteenth step: $R.090$
- Radius of sixteenth step: $R.090$
- Radius of seventeenth step: $R.090$
- Radius of eighteenth step: $R.090$
- Radius of nineteenth step: $R.090$
- Radius of twentieth step: $R.090$
- Radius of twenty-first step: $R.090$
- Radius of twenty-second step: $R.090$
- Radius of twenty-third step: $R.090$
- Radius of twenty-fourth step: $R.090$
- Radius of twenty-fifth step: $R.090$
- Radius of twenty-sixth step: $R.090$
- Radius of twenty-seventh step: $R.090$
- Radius of twenty-eighth step: $R.090$
- Radius of twenty-ninth step: $R.090$
- Radius of thirtieth step: $R.090$
- Radius of thirty-first step: $R.090$
- Radius of thirty-second step: $R.090$
- Radius of thirty-third step: $R.090$
- Radius of thirty-fourth step: $R.090$
- Radius of thirty-fifth step: $R.090$
- Radius of thirty-sixth step: $R.090$
- Radius of thirty-seventh step: $R.090$
- Radius of thirty-eighth step: $R.090$
- Radius of thirty-ninth step: $R.090$
- Radius of fortieth step: $R.090$
- Radius of forty-first step: $R.090$
- Radius of forty-second step: $R.090$
- Radius of forty-third step: $R.090$
- Radius of forty-fourth step: $R.090$
- Radius of forty-fifth step: $R.090$
- Radius of forty-sixth step: $R.090$
- Radius of forty-seventh step: $R.090$
- Radius of forty-eighth step: $R.090$
- Radius of forty-ninth step: $R.090$
- Radius of fiftieth step: $R.090$

Assembly Instructions:

- PERMANENTLY MARK ON THIS SURFACE: MFR'S NAME & P/N
- PERMANENTLY MARK ON THIS SURFACE: M22520/7-02 USE WITH M22520/7-01 BASIC TOOL
- FLAT FOR RADIAL LOCATION
- 24° ± 2°

Other Labels:

- DATA PLATE
- LOCATOR
- 2X R.030
- Ø.930

Technical drawing of a shaft with a keyway. The drawing includes a cross-section view (Section A-A) and a side view.

Section A-A (Cross-section view):

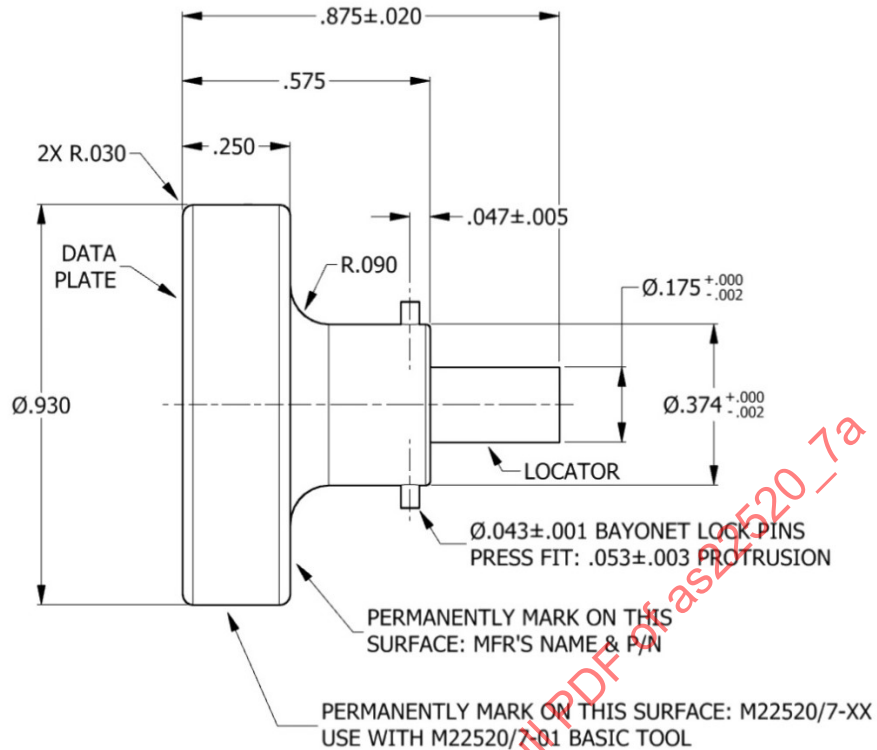
- Overall diameter: $\phi .081^{+.002}_{-.000}$
- Keyway width: $.075 \pm .005$
- Keyway depth: $.030 \pm .002$
- Keyway length: $.280$
- Shaft diameter at keyway: $\phi .1065^{+.001}_{-.000}$

Side View:

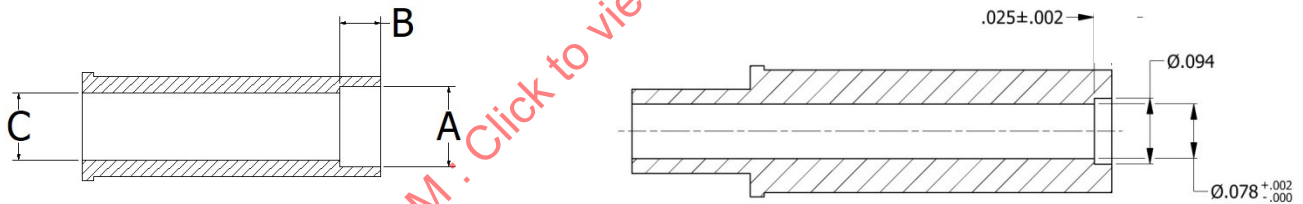
- Feature: FLAT FOR RADIAL LOCATION
- Radius: $.075^{+.000}_{-.005}$
- Angle: 20° TYP
- Dimension: $.064^{+.005}_{-.000}$ TYP

FIGURE 2 - AS22520/7-02 POSITIONER CONFIGURATION

M22520/7-03 THRU -08 AND -11 THRU -14 POSITIONERS

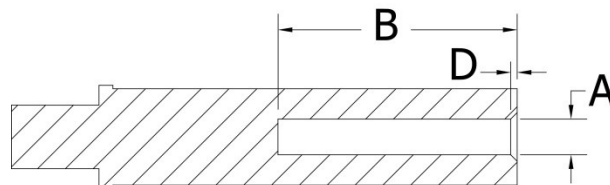


AS22520/7-03 THRU -08 AND -11 THRU -14 POSITIONER DETAILS



M22520/7-03, -04, POSITIONERS LOCATORS DETAILS (SEE TABLE 4)

M22520/7-14 POSITIONER LOCATOR



M22520/7-05, -06, -07, -08, -11, -12, -13 POSITIONERS LOCATORS DETAILS (SEE TABLE 4)

FIGURE 3 - M22520/7-03 THRU -08 AND -11 THRU -14 POSITIONERS CONFIGURATION

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Technical drawing of the M22520/7-01 Basic Tool, showing side and top views with dimensions and markings.

Side View Dimensions:

- Overall length: $1.125 \pm .020$
- Distance from left face to start of locator: $.575$
- Distance from left face to start of bayonet lock pins: $.250$
- Radius of bayonet lock pins: $R.090$
- Locator length: $.047 \pm .005$
- Locator diameter: $\varnothing .150^{+.000}_{-.005}$
- Locator hole diameter: $\varnothing .175^{+.000}_{-.002}$
- Locator hole depth: $\varnothing .374^{+.000}_{-.002}$
- Bayonet lock pins diameter: $\varnothing .043 \pm .001$
- Bayonet lock pins press fit: $.053 \pm .003$ protrusion

Top View Dimensions:

- Overall diameter: $\varnothing .930$
- Distance from center to locator hole: $.250$
- Distance from center to bayonet lock pins: $.250$
- Distance from center to bayonet lock pins (inner): $.250$
- Distance from center to bayonet lock pins (outer): $.250$
- Distance from center to bayonet lock pins (inner): $.250$
- Distance from center to bayonet lock pins (outer): $.250$

Markings and Notes:

- PERMANENTLY MARK ON THIS SURFACE: MFR'S NAME & P/N
- DATA PLATE
- LOCATOR
- FLAT FOR RADIAL LOCATION
- PERMANENTLY MARK ON THIS SURFACE: M22520/7-XX
- USE WITH M22520/7-01 BASIC TOOL

FIGURE 4 - AS22520/7-09 AND -10 POSITIONER CONFIGURATIONS

TABLE 4 - DIMENSION DETAILS FOR FIGURES 3 AND 4

POSITIONER PART NO. M22520/7	A DIA. +.003 -.000	B ±.002	C DIA. +.003 -.000	D C' SINK
-03	.156	.100	.125	--
-04	.140	.070	.116	--
-05	.073	.675	--	.015 X 45°
-06	.073	.348	--	.015 X 45°
-07	.078	.095	.033	--
-08	.098	.065	.081	--
-09	.104 ± .002	.083 ± .001	.082 +.002 -.000	--
-10	.134 ± .002	.083 ± .001	.114 +.002 -.000	--
-11	.065	.156	--	.005 X 45°
-12	.096	.179	--	.005 X 45°
-13	.134	.179	--	.005 X 45°

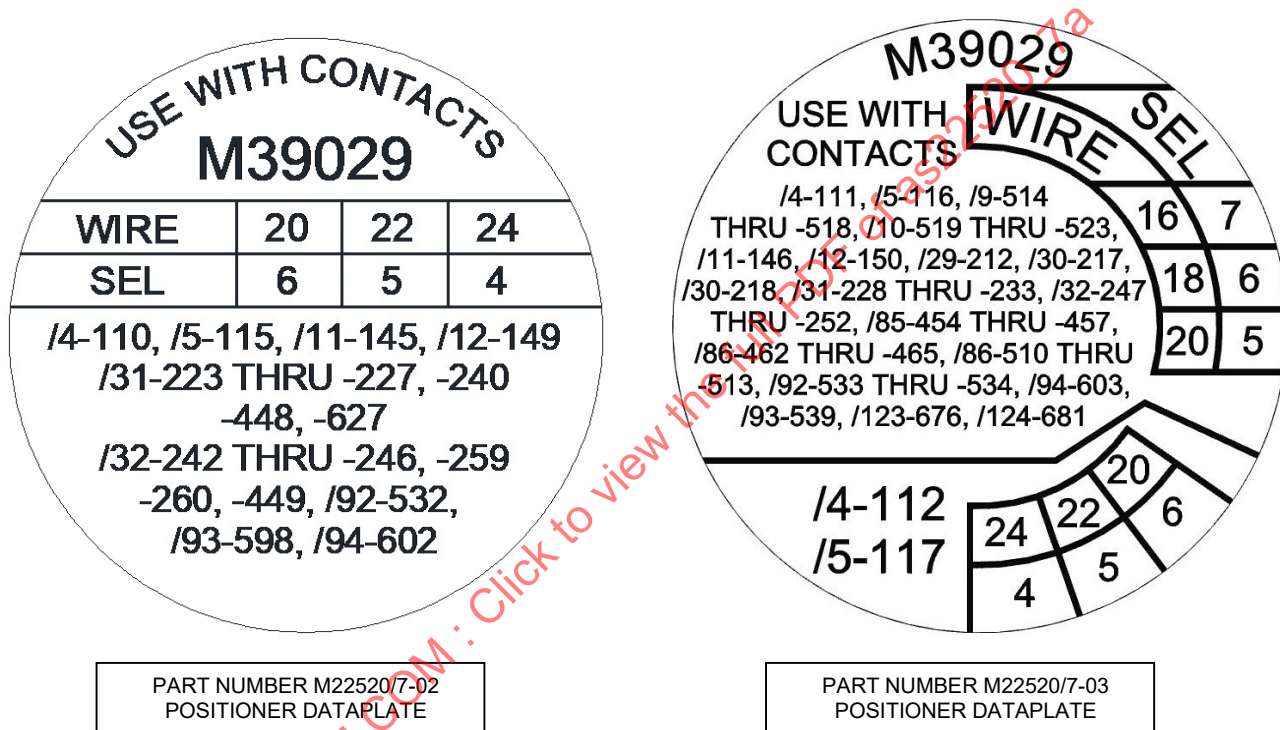


FIGURE 6 - DATAPLATE REQUIREMENTS