

REV.
A

AS22520™/10

RATIONALE

REVISION REQUIRED TO REMOVE APPENDICES B AND C, REFER READER TO MIL-PRF-39012 AND ARP7503, AND ADDRESS MINOR TECHNICAL ERRORS AS NEEDED.

NOTICE

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

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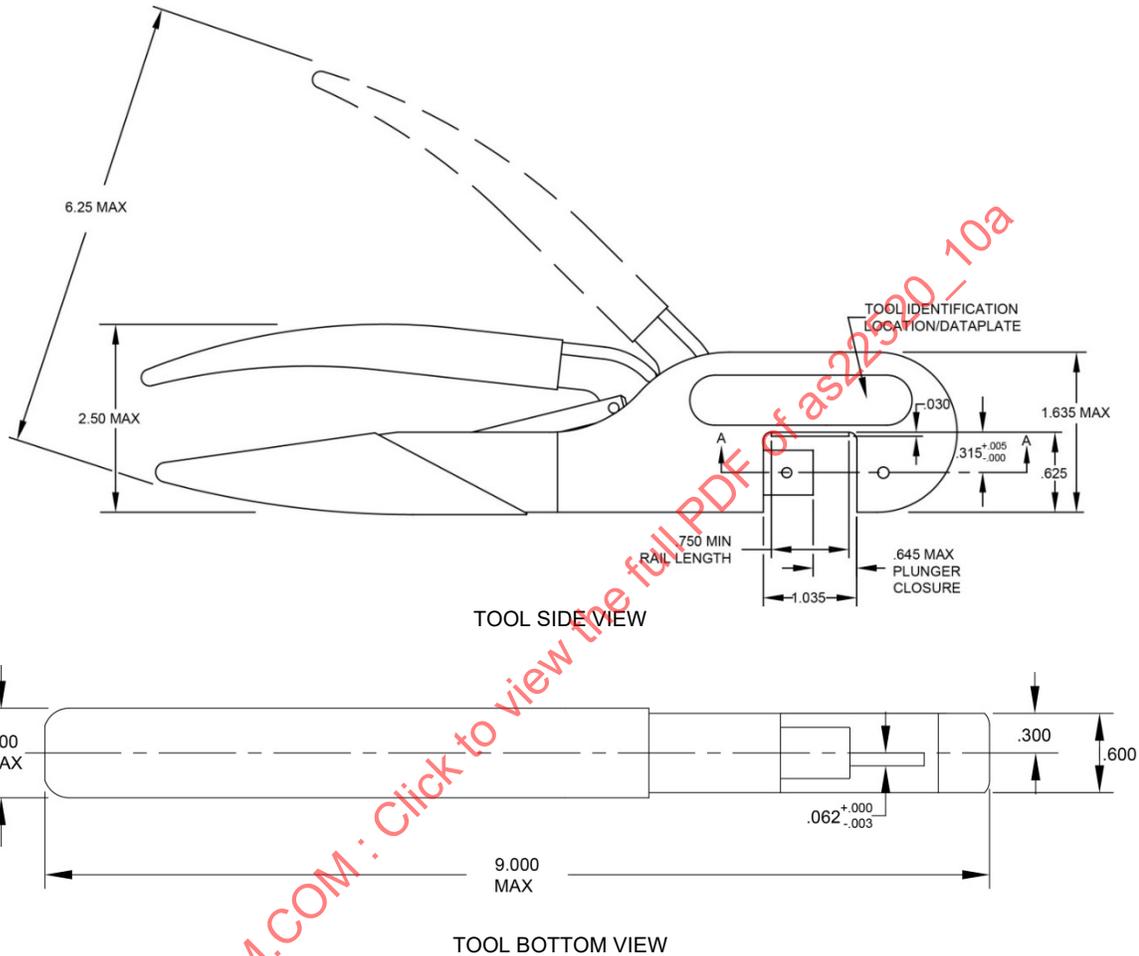
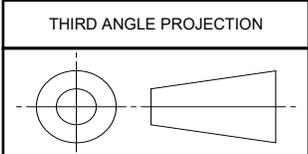


FIGURE 1 - M22520/10-01 TOOL

For more information on this standard, visit
<https://www.sae.org/standards/content/AS22520/10A/>



CUSTODIAN: AE-8/AE-8C2

PROCUREMENT SPECIFICATION: AS22520

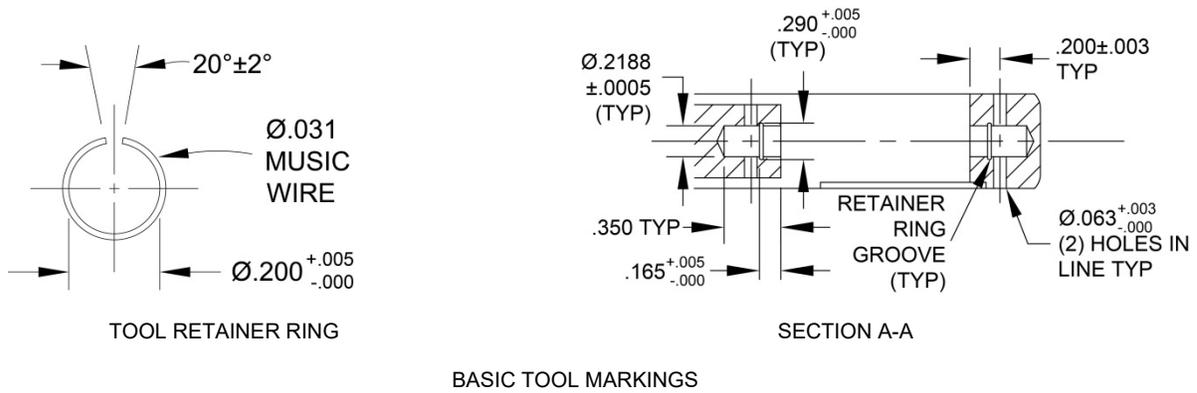


AEROSPACE STANDARD

CRIMPING TOOLS, TYPE 2, TERMINAL, HAND, WIRE TERMINATION, FOR COAXIAL, TWINAXIAL, TRIAXIAL, SHIELDED CONTACTS AND FERRULES, TERMINAL LUGS, SPLICES AND END CAPS

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PART NO.	BODY COLOR	HANDLE GRIP COLOR
M22520/10-01	GOLD	BLACK

FIGURE 1 - M22520/10-01 TOOL (CONTINUED)

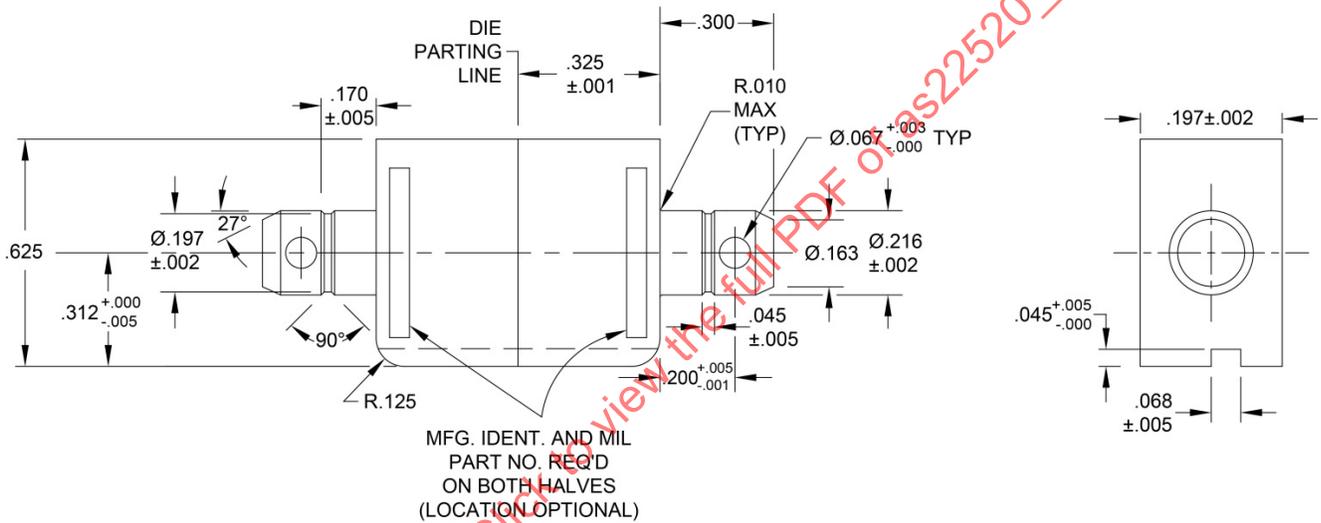


FIGURE 2 - BASIC DIE DIMENSIONS (DIMENSION ARE APPLICABLE TO BOTH HALVES)

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

- TOOL CONFIGURATION: BASIC TOOL CONFIGURATION SHALL BE IN ACCORDANCE WITH FIGURE 1. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES: DECIMALS ± 0.010 , ANGLES $\pm 1/2$ DEGREE. OUTLINE CONFIGURATION AND TOOL CONSTRUCTION OPTIONAL WITHIN MAXIMUM DIMENSIONS SHOWN. REMOVE ALL BURRS AND BREAK ALL EDGES AND CORNERS.
- DIE CONFIGURATION: BASIC DIE CONFIGURATION SHALL BE IN ACCORDANCE WITH FIGURE 2. DETAIL DIE CONFIGURATION SHALL BE AS SPECIFIED FOR EACH SPECIFIED COMPONENT DIE (SEE TABLE 2 AND DETAIL DIE DRAWINGS). DIES ARE INTERCHANGEABLE WITHIN M22520/10-01 BASIC TOOL. ALL DIES SHALL HAVE A FULL LENGTH KEYWAY. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES: DECIMALS ± 0.010 AND ANGLES $\pm 1/2$ DEGREE. ALL RADII SHALL BE BLEND RADII. REMOVE ALL BURRS AND BREAK ALL EDGES AND CORNERS. FOR CRIMP DIE CLOSURE DETAILS SEE DIE DETAIL SPECIFICATION DRAWINGS.
- LOCATOR CONFIGURATION: COMPONENT LOCATOR (WHEN REQUIRED), UNLESS OTHERWISE SPECIFIED, SHALL BE ATTACHED TO THE LOWER DIE, SHALL PROVIDE A POSITIVE STOP FOR LOCATING THE COMPONENT TO BE CRIMPED, AND RETAIN THE COMPONENT IN PLACE WITHOUT BEING HELD BY THE OPERATOR. DURING THE CRIMPING OPERATION THE LOCATOR SHALL BE FREE TO MOVE AS NECESSARY TO PREVENT THE CRIMPED ITEM FROM BENDING IN ACCORDANCE WITH AS22520.

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4. TOOL MARKING: TOOL IDENTIFICATION (SEE FIGURE 1) SHALL BE IN ACCORDANCE WITH MIL-STD-130, STAMP AND WHITE FILL OR LASER MARKED. UNLESS OTHERWISE SPECIFIED, THE STAMPED MARKING HEIGHT IS .093 MINIMUM. PART NUMBER AND COLORS SHALL BE AS SPECIFIED. TOOL IDENTIFICATION SHALL INCLUDE THE M22520/10-01 PART NUMBER, MANUFACTURER'S IDENTIFICATION OR SYMBOL, AND THE MANUFACTURER'S PART NUMBER. IF SYMBOLS ARE USED ON TOOL FRAME, IT SHALL BE IN ACCORDANCE WITH AIR1351. LABEL PERMITTED ON TOOL FRAME, PROVIDING THAT IT IS STILL LEGIBLE AFTER ALL ENVIRONMENTAL TESTING REQUIRE BY AS22520.
5. DIE MARKING: DIE IDENTIFICATION (SEE FIGURE 2) ON EACH HALF SHALL INCLUDE THE M22520/10-XXX PART NUMBER, AND MANUFACTURER'S IDENTIFICATION OR SYMBOL. IF SYMBOLS ARE USED ON THE DIES, IT SHALL BE IN ACCORDANCE WITH AIR1351. DIES CAVITIES SHALL BE MARKED IN ACCORDANCE WITH THE DETAIL DIE DRAWING. UNLESS OTHERWISE SPECIFIED, THE MARK SHALL BE STAMPED (LETTERING HEIGHT .062 MINIMUM) AND WHITE FILL OR LASER MARKED.
6. TOOL MATERIALS: UNLESS OTHERWISE SPECIFIED, MATERIAL IS IN ACCORDANCE WITH AS22520. SURFACE TEXTURE SHALL BE 63 RMS OR BETTER IN ACCORDANCE WITH ASME B46.1 (AMERICAN NATIONAL STANDARDS INSTITUTE). TOOL BODY SHALL BE 7075-T6 ALUMINUM OR EQUIVALENT. MOVABLE HANDLE AND INTERNAL PARTS SHALL BE STEEL. PUSHROD AND DIE HOLDER SHALL BE 400 SERIES STAINLESS STEEL. ALUMINUM COMPONENTS SHALL BE ANODIZED AND STEEL COMPONENTS SHALL BE BLACK OXIDE OR PLATED TO RESIST CORROSION.
7. DIE MATERIALS: DIES SHALL BE ALLOY TOOL STEEL HARDEN TO ROCKWELL C52-58 IN ACCORDANCE WITH ASTM A681. FINISH SHALL BE BLACK OXIDE PER MIL-DTL-13924 OR EQUIVALENT. SURFACE TEXTURE ON CRIMPING SURFACE SHALL BE 64 RMS, UNLESS OTHERWISE SPECIFIED, IN ACCORDANCE WITH ASME B46.1.
8. INSPECTION GAGE: INSPECTION GAGES ARE SPECIFIED WITH EACH DIE DETAIL DRAWING.
9. WEIGHT: TOOL WEIGHT SHALL NOT EXCEED 2.0 POUNDS. DIE WEIGHT SHALL NOT EXCEED .50 POUND.
10. TOOL COMPRESSION FORCE: COMPRESSION FORCE SHALL BE IN ACCORDANCE WITH TABLE 1 USING THE SPECIFIED DIE AND COMPONENT.

TABLE 1 - COMPRESSION FORCE REQUIREMENTS

DIE PART NUMBER	TEST CABLE	TEST FERRULE (±.002)	COMPRESSION FORCE (POUND MAXIMUM)
M22520/10-03	RG62/U	.261 ID, .297 OD	100

11. TOOL CYCLE CONTROL RATCHET: RATCHET RELEASE FORCE ON THE HANDLE SHALL BE 30 POUNDS MINIMUM TO 50 POUNDS MAXIMUM WHEN THE TOOL IS CLOSED ON A .650 INCH ±.0005 GAGE BLOCK OR DIE SET. 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.
12. DIE INTERFACE: THE DIE FACES SHALL TOUCH AT COMPLETION OF CRIMPING CYCLE.
13. ASSEMBLY INSTRUCTIONS: ASSEMBLY AND APPLICATION INSTRUCTION SHALL BE PROVIDED WITH EACH TOOL.

SUPERSESION INFORMATION:

1. AS22520/10 SUPERSEDES MIL-DTL-22520/10D. PART NUMBERS REMAIN UNCHANGED.

APPLICATION NOTES:

1. M22520/10-01 CRIMP TOOL FRAME IS INTENDED FOR USE WITH INTERCHANGEABLE CRIMP DIES TO TERMINATE COAXIAL CONNECTORS, TRI-AXIAL CONNECTORS, SHIELDED CONTACTS, TERMINALS, WIRE SPLICES, END CAPS AND SIMILAR WIRE TERMINATING DEVICES (SEE TABLE 2).
2. WHEN THE DIE ASSEMBLY IS REQUIRED TO BE PERMANENTLY ATTACHED TO THE TOOL, AN MS171526 SPRING PIN IS RECOMMENDED (SEE NASM 171526 AND THE TOOL MANUFACTURER INSTRUCTIONS FOR DETAILS).
3. DIE CRIMP PERFORMANCE IS VERIFIED BY INSPECTION GAGING THE CRIMP CAVITY AS RECOMMENDED IN APPENDIX A.
4. CLOSE TOLERANCE HEX CAVITIES GAGING WITH AS22520 GAGES IN FIELD INSPECTION APPLICATIONS MAY REQUIRE SPECIAL HANDLING. APPENDIX A PROVIDES A RECOMMENDED PROCESS FOR THESE TYPES OF INSPECTION.
5. THE VARIOUS COMPONENT CRIMP BY AS22520/10 DIES ARE LISTED IN TABLE 2.
6. WARNING: AS22520/10 CONFIGURATION IS FOR HAND CRIMPING APPLICATIONS ONLY. USE OF HAND CRIMPING TOOLS COVERED BY THIS SPECIFICATION AS A COMPONENT IN ANY POWERED "PRESS" MAY VIOLATE OSHA REGULATIONS CFR 1910.211.

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TABLE 2 - TOOL/DIE COMPONENT CRIMP APPLICATIONS

CRIMP TOOL FRAME M22520/10-01 1/		
COMPONENT DETAIL SPECIFICATION	DIE PART NUMBER	WIRE BARREL SIZE
MIL-DTL-39012 CONNECTORS CONTACTS (SEE APPENDIX A)	SEE CONNECTOR DETAIL SPECIFICATION	N/A
AS39029/59, /60 CONTACT SHIELD	M22520/10-07	8
AS7928/1, /2, /4, /5, /6, /8, /9, /12, /13, AS17143, AS25036, AS25274, AS27429 (CANCELED)	M22520/10-100	12 THRU 10
AS7928/10	M22520/10-101	26 THRU 14
AS7928/6, /10	M22520/10-101	22 THRU 14
AS81824/3	M22520/10-102	26 THRU 20
AS81824/1, /6, /7, /8, /9, /10, /11, /13, AND /14	M22520/10-104	26-20 (RED DIE)
AS81824/1, /6, /7, /8, /9, /10, /11, /13, AND /14	M22520/10-103	16 THRU 12
AS81824/1, /6, /7, /8, /9, /10, /11, /13, AND /14	M22520/10-104	26 THRU 20 20 THRU 16
AS21608, AS21980, AS21981	REFER TO ARP7503	N/A
APPENDIX A - HEX CAVITY INSPECTION PROCESS	--	--

1/ IN THE EVENT OF CONFLICT BETWEEN THIS LIST AND THE COMPONENT SPECIFICATION, THE COMPONENT SPECIFICATION SHALL TAKE PRECEDENCE. IN SOME CASES THE COMPONENT SPECIFICATION MAY LIST A TOOL NOT INCLUDED IN THE TABLE.

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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AS22520/10-02 THRU -27 HEX DIES

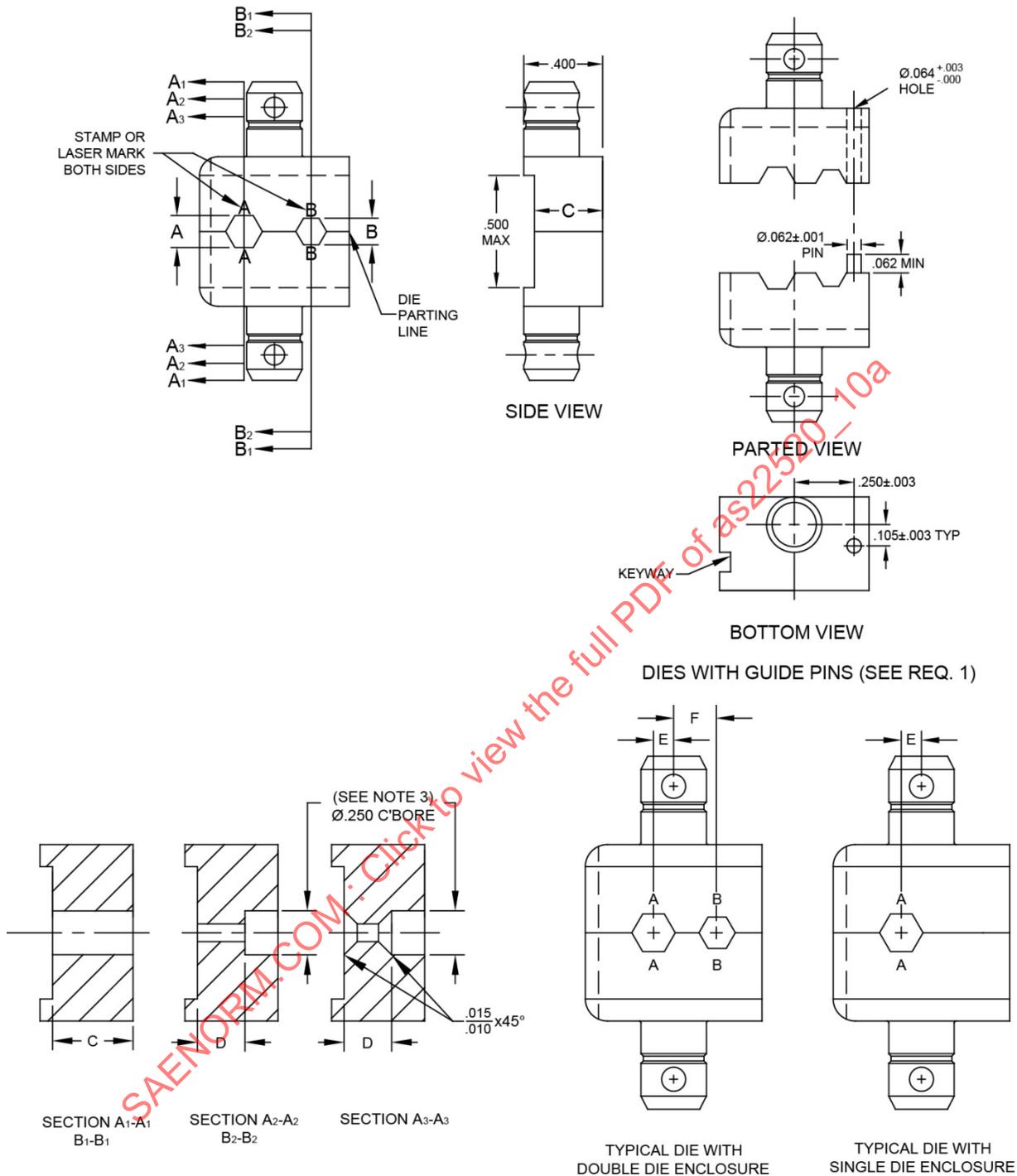


FIGURE 3 - HEX DIE CONFIGURATION

	<p>AEROSPACE STANDARD</p>	<p>AS22520™/10 SHEET 5 OF 14</p>	<p>REV. A</p>
<p>CRIMPING TOOLS, TYPE 2, TERMINAL, HAND, WIRE TERMINATION, FOR COAXIAL, TWINAXIAL, TRIAXIAL, SHIELDED CONTACTS AND FERRULES, TERMINAL LUGS, SPLICES AND END CAPS</p>			

TABLE 3 - HEX DIE CONFIGURATION (REF FIGURES 2 & 3)

PART NO.	A ±.003		B ±.003		C ±.010	D ±.010 A/B	E ±.003	F ±.003	IN-SERVICE INSPECTION GAGE M22520/6	
	DIM	REF. SECTION	DIM	REF. SECTION					DIE CLOSURE A	DIE CLOSURE B
M22520/10-02	.091	A3-A3	.068	B2-B2	.337	A: .090 B: .270	.125	.093	-030	-029
M22520/10-03	.255	A1-A1	N/A		.325	---	.050	---	-011	N/A
M22520/10-04	.138	A3-A3	.118	B2-B2	.337	A: .090 B: .270	.125	.156	-028	-002
M22520/10-05	.128	A1-A1	.105	B1-B1	.325	---	.102	.108	-003	-001
M22520/10-06	.160	A1-A1	N/A		.400	---	.050	---	-005	N/A
M22520/10-07	.213	A1-A1	.178	B1-B1	.325	---	.107	.153	-008	-006
M22520/10-08	.128	A2-A2	N/A		.337	A: .094	.050	---	-003	N/A
M22520/10-09	.118	A1-A1	N/A		.375	---	.030	---	-002	N/A
M22520/10-10	.128	A1-A1	N/A		.375	---	.050	---	-003	N/A
M22520/10-11	.105	A1-A1	N/A		.400	---	.050	---	-001	N/A
M22520/10-13	.128	A1-A1	N/A		.400	---	.050	---	-003	N/A
M22520/10-15	.151	A1-A1	N/A		.400	---	.050	---	-004	N/A
M22520/10-17	.178	A1-A1	N/A		.400	---	.050	---	-006	N/A
M22520/10-19	.197	A1-A1	N/A		.400	---	.050	---	-007	N/A
M22520/10-21	.213	A1-A1	N/A		.400	---	.050	---	-008	N/A
M22520/10-23	.218	A1-A1	N/A		.400	---	.050	---	-009	N/A
M22520/10-25	.231	A1-A1	N/A		.400	---	.050	---	-010	N/A
M22520/10-27	.255	A1-A1	N/A		.400	---	.050	---	-011	N/A

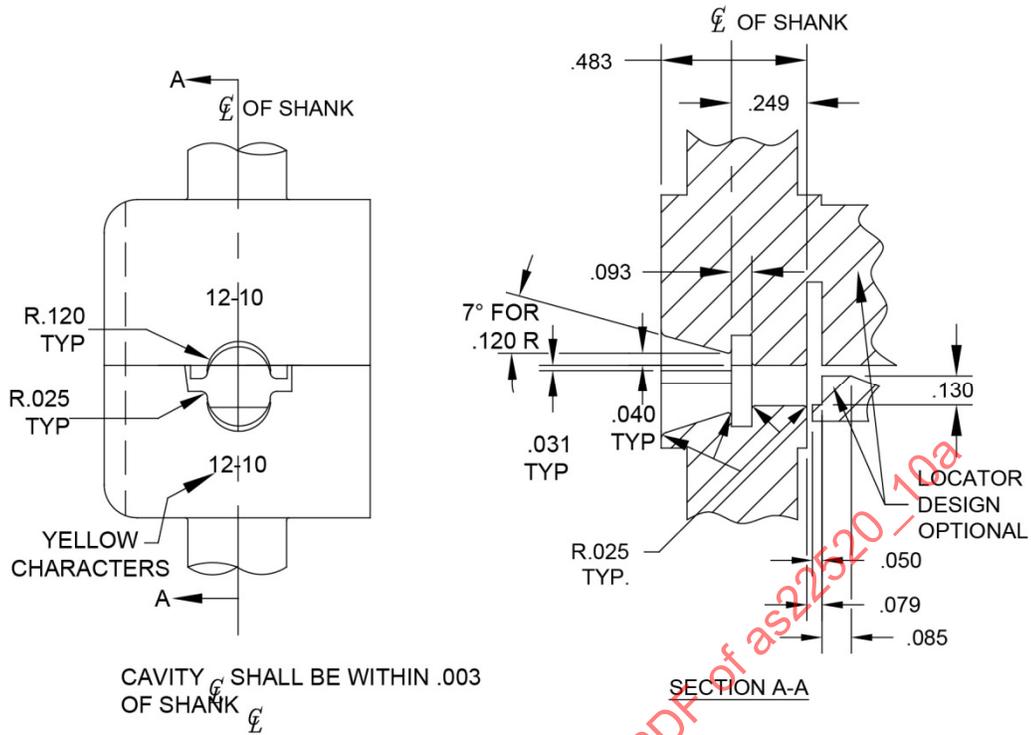
REQUIREMENTS:

1. WHEN THE "C" DIMENSION IS LESS THAN .350, THE .500 MAXIMUM CUT OUT SHALL NOT EXTEND ACROSS THE FACE OF THE DIE. CONFIGURATION OF THE CUTOUT IS OPTIONAL.
2. WHEN BOTH A & B HEX'S REQUIRE A COUNTER BORE, THE .250 DIAMETER MAXIMUM SHALL APPLY TO THE HEX WITH THE SMALLEST "D" DIMENSION. THE COUNTER BORE FOR THE OTHER HEX CAN BE LARGER AND SHALL BE SHAPED SO NO SHARP EDGES ARE FORMED AT THE INTERSECTION OF THE COUNTER BORES.
3. DIES WITH CRIMP CAVITIES .100 INCHES AND SMALLER (DIMENSION A OR B) SHALL HAVE ALIGNMENT GUIDE PINS INSTALLED.
4. M22520/5-25 DIES SHALL HAVE .188 DIAMETER COUNTER BORE INSTEAD OF THE REQUIRED Ø .250 BORE (SEE SECTION A₂-A₂ AND A₃-A₃).

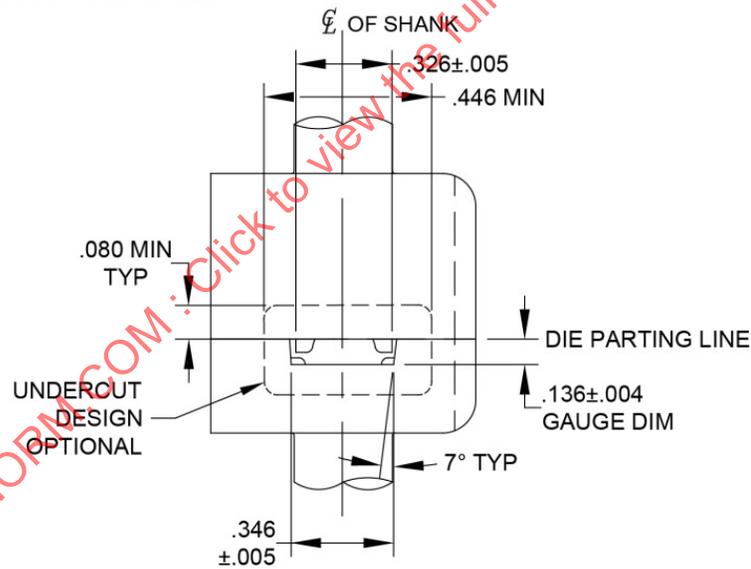
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M22520/10-100 DIE



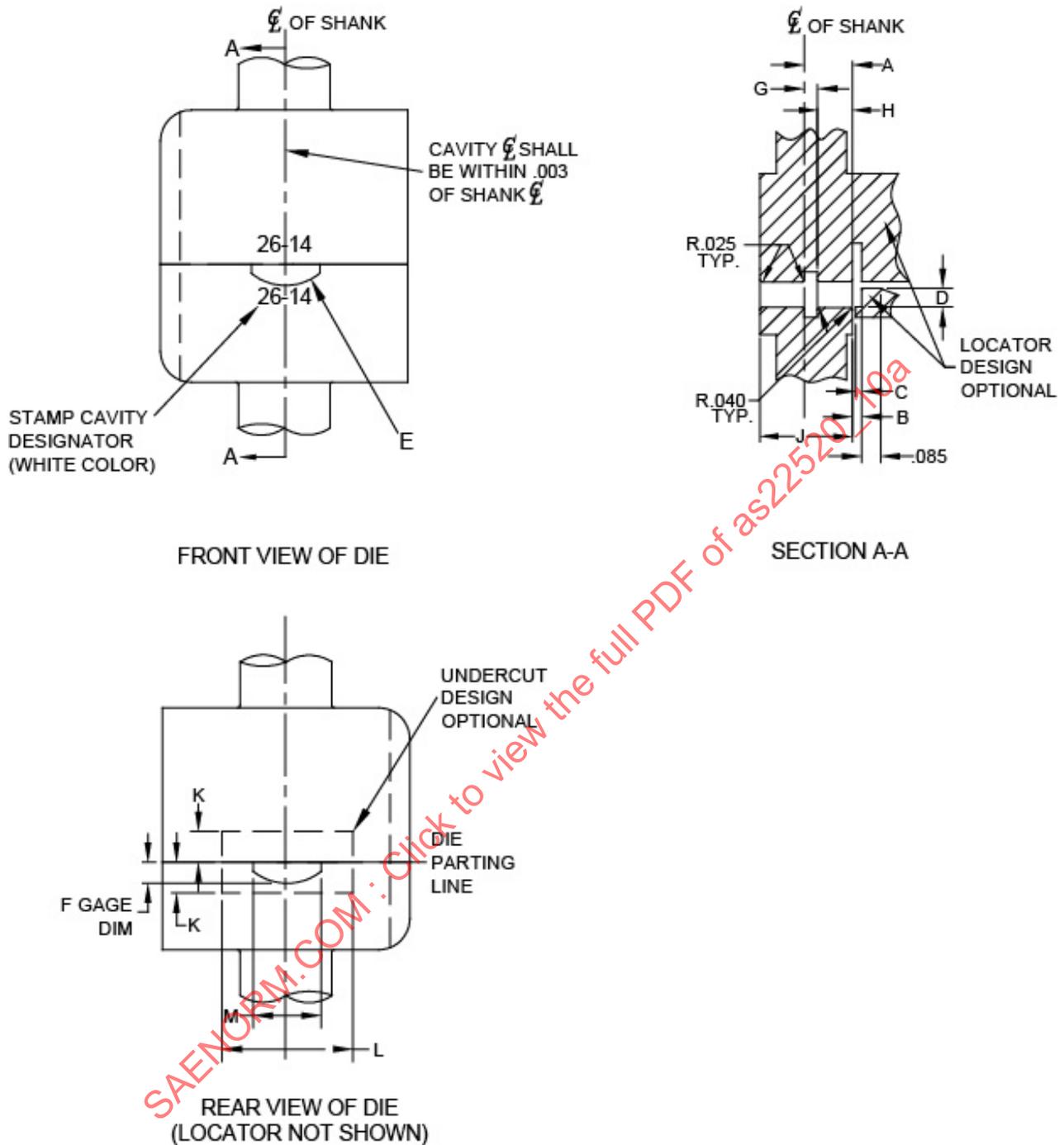
FRONT VIEW OF DIE



PART NUMBER	DIE SIZE	INSPECTION GAGE
M22520/10-100	12-10	M22520/3-9

FIGURE 4 - AS22520/10-100 DIE CONFIGURATION

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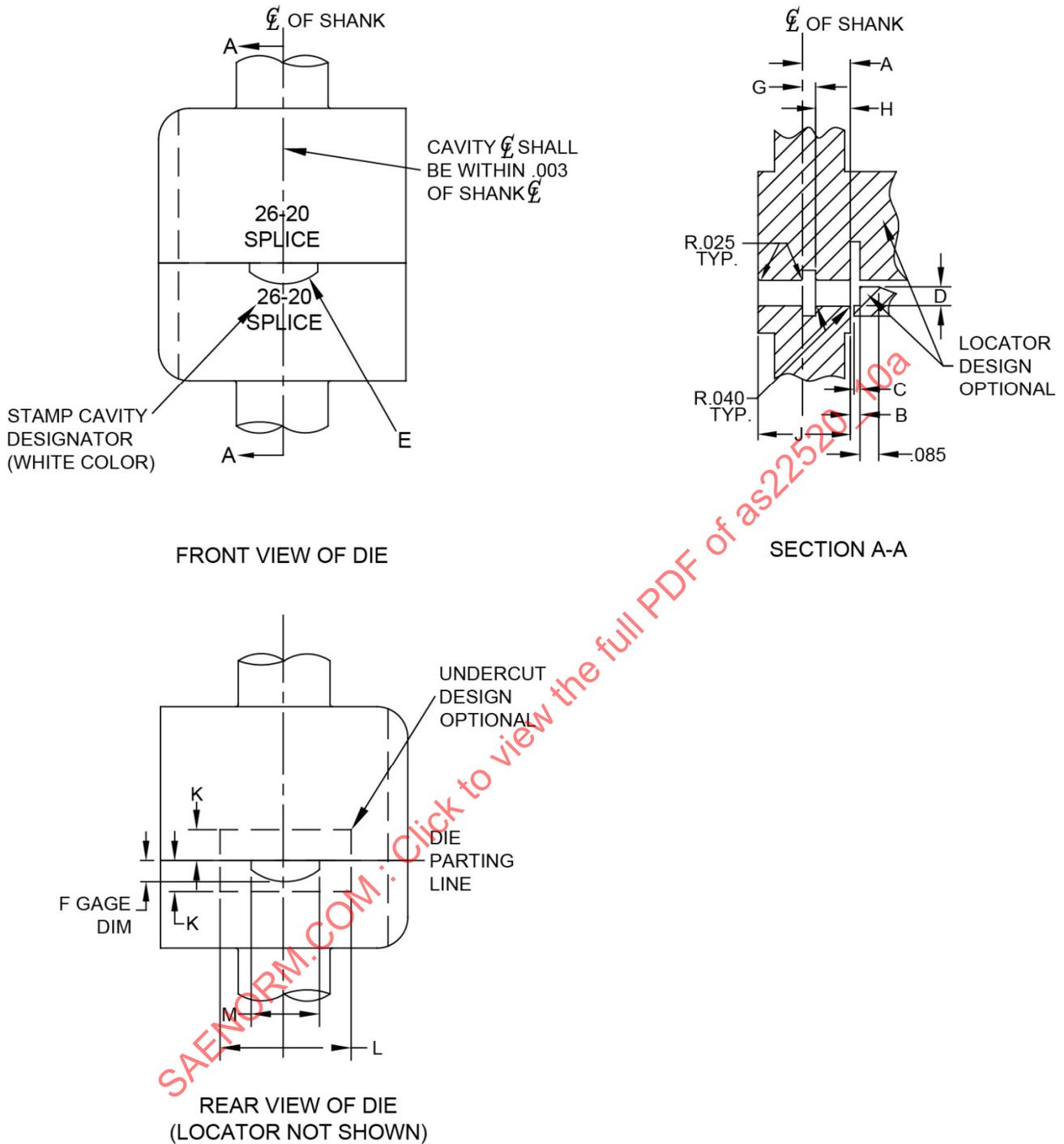


PART NO.	DIE SIZE	A	B	C	D	E (RAD)	F ±.004	G	H	J	K MIN	L MIN	M ±.005	INSPECTION GAGE
M22520 /10-101	26-14	.218	.062	.030	.078	.220	.100	.093	.125	.350	.050	.376	.276	M22520/3-10

FIGURE 5 - M22520/10-101 DIE CONFIGURATION

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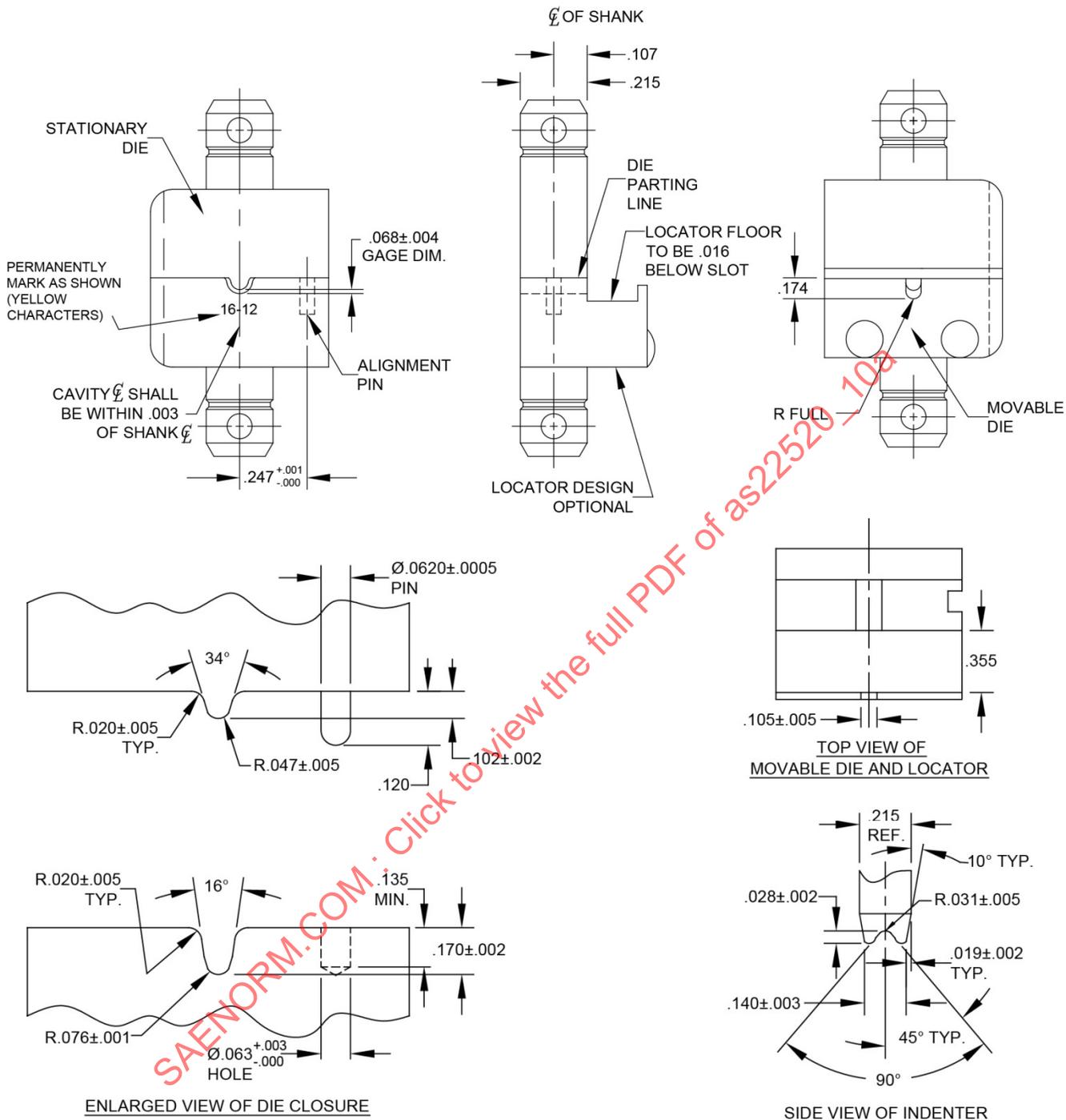
M22520/10-102 DIE



PART NO.	DIE SIZE	A	B	C	D	E (RAD)	F $\pm .004$	G	H	J	K MIN	L MIN	M $\pm .005$	INSPECTION GAGE
M22520 /10-102	26-20	.218	.042	.030	.078	.164	.070	.078	.090	.320	.050	.300	.200	M22520/3-11

FIGURE 6 - M22520/10-102 DIE CONFIGURATION

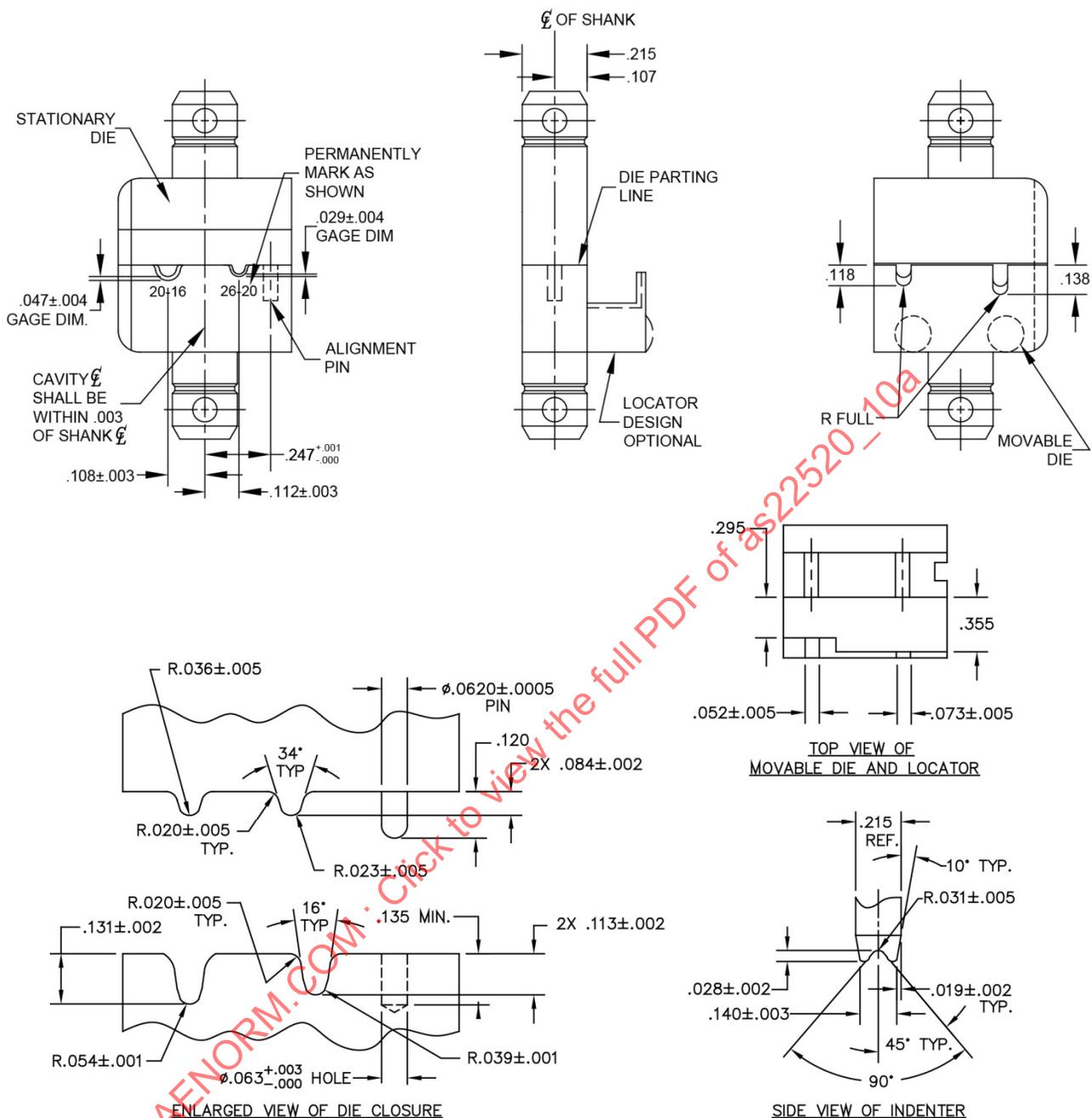
M22520/10-103 DIE



PART NO.	CAVITY SIZE	STAMPING COLOR	IN SERVICE GAGE
M22520/10-103	16-12	YELLOW	M22520/3-12

FIGURE 6 - M22520/10-103 CONFIGURATION

M22520/10-104 DIE



PART NO.	CAVITY SIZE	STAMPING COLOR	IN SERVICE GAGE
M22520/10-104	20-16	BLUE	M22520/3-13
	26-20	RED	M22520/3-14

FIGURE 7 - M22520/10/104 DIE CONFIGURATION