reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

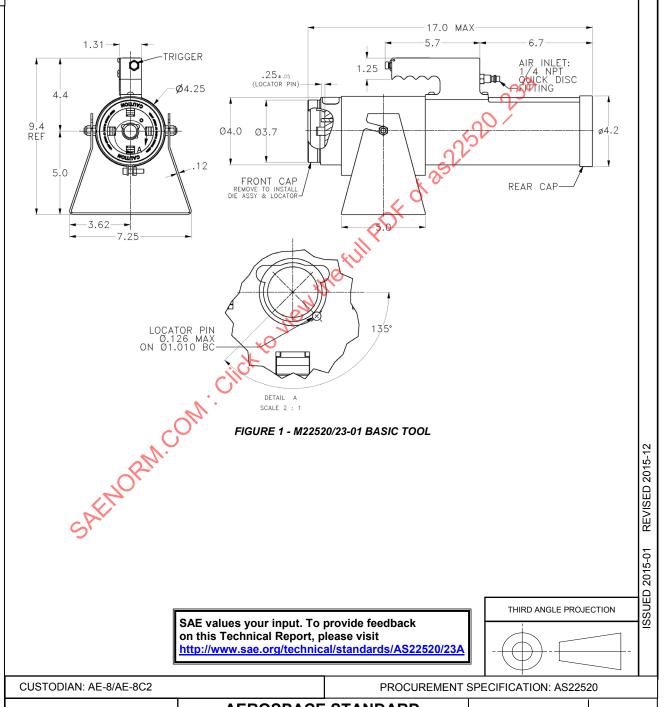
SAE reviews each technical report at least every five years at which time it may be revised,

RATIONALE

REVISION REQUIRED TO CORRECT DIMENSIONS IN FIGURE 2 DETAIL B AND TABLE 1.

NOTICE

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

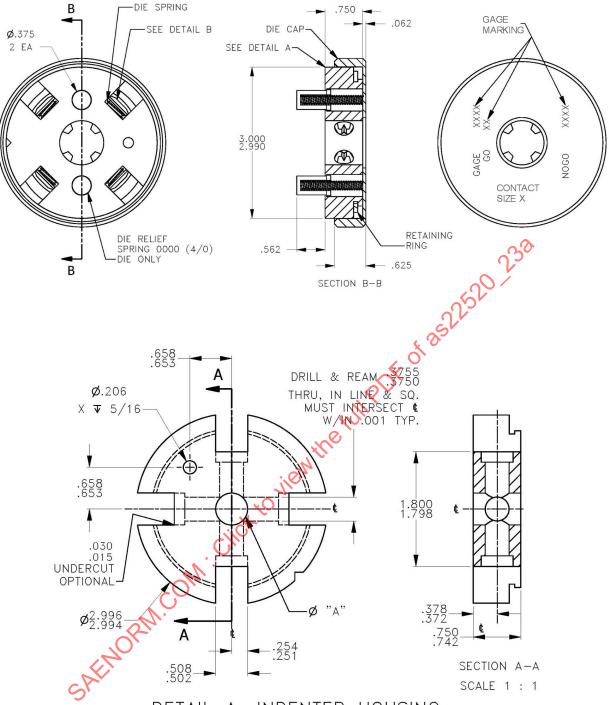


AEROSPACE STANDARD

CRIMP TOOLS, TYPE 1, TERMINAL, HAND OR POWER ACTUATED, WIRE TERMINATION, PNEUMATIC TOOL FOR WIRE BARREL SIZES 0000 THROUGH 8

AS22520™/23 SHEET 1 OF 8

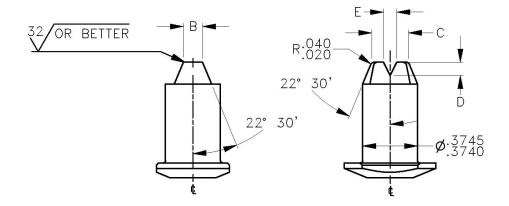
REV. Α



DETAIL A: INDENTER HOUSING

FIGURE 2 - DIE CAP AND DIE ASSEMBLY





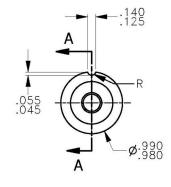
DETAIL B: INDENTERS

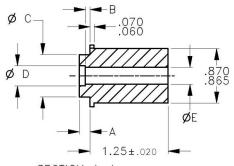
FIGURE 2 - DIE CAP AND DIE ASSEMBLY (CONTINUED)

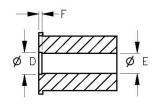
TABLE 1 - INDENTER HOUSING AND INDENTER DIMENSIONS

_							
		FOR	DETAIL A		DET	AIL B	r
	DIE ASSEMBLY	CONTACT	A DIA	В	C	7 D	Е
	PART NUMBER	SIZE	+.010/000	±.002	±.002	±.002	±.002
	M225520/23-02	8	.500	.050	170	.055	.055
	M225520/23-03	6	.500	.060	.174	.060	.060
	M225520/23-04	4	.650	.065	187	.062	.062
	M225520/23-05	0	.690	.094	.198	.070	.070
	M225520/23-06	00	.850	100	.210	.075	.075
	M225520/23-07	0000	.875	.130	.250	.090	.090
	M225520/23-08	1	.650	.091	.203	.047	.047
SALL	M225520/23-06 M225520/23-07 M225520/23-08	Clickto	, Me				

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SECTION A-A
LOCATES CONTACTS

MS90453, MS90454, M39029/29, M39029/30 M39029/44, M39029/45 LOCATOR W/OUT BOSS
LOCATES CONTACTS:
MS90559-*, MS90560-*,
M39029/48, M69029/49
SCALE 1: 1

FIGURE 3 - CONTACT LOCATORS

TABLE 2 - LOCATOR DIMENSIONS

					⊘ Ø "D"	Ø "E"	
LOCATOR PART	CONTACT SIZE	Α	В	Ø "C"_	+.010	+.010	F
NUMBER	(MATING END)	±.005	±.005	±.005	000	000	±.005
M22520/23-09	8	.170	.075	.495	.316	.266	
M22520/23-10	6			1/	.348	.316	.050
M22520/23-11	4	.170	.065	.495	.423	.343	
M22520/23-12	4		01		.423	.338	.050
M22520/23-13	1/0	.170	.025	.675	.618	.520	
M22520/23-14	1/0		7		.615	.520	.050
M22520/23-15	2/0		0,1		.694	.660	.050
M22520/23-16	4/0	\			.787	.754	.050

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

1. CONFIGURATION:

- a. TOOL CONFIGURATION SHALL BE IN ACCORDANCE WITH FIGURES 1 TO 3, AND TABLES 1 AND 2. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE FIGURE 1 TOLERANCE IS ±.125 INCHES, AND FIGURES 2 AND 3 TOLERANCE IS ±.005 INCHES.
- b. BREAK ALL SHARP EDGES
- c. AIR PRESSURE SOURCE REQUIREMENT SHALL BE 90 TO 120 LB/IN² (SEE APPLICATION NOTE).
- d. INDENTER CLOSURE SELECTOR POSITIVE DETENT AT EACH IS NOT REQUIRED.
- THE CENTERLINES OF OPPOSING INDENTERS MUST ALIGN WITHIN .020 INCH.
- f. INDENTER LENGTH IS CONTROLLED BY GAUGE CALLOUTS.
- g. CRIMP JOINT MAY BE OBTAINED WITH AID OF A DIE ASSEMBLY.
- h. M22520/23-01 BASIC TOOL WEIGHT, LESS DIES AND LOCATORS, SHALL BE 19 POUNDS MAXIMUM.



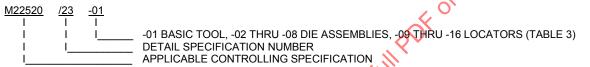
AEROSPACE STANDARD

- i. THE FULL CYCLE MECHANISM SHALL BE TAMPER PROOF SO THAT IT CANNOT BE RELEASED DURING THE NORMAL CRIMPING CYCLE. WHEN THE CRIMPING IS COMPLETED, THE RETURN MECHANISM SHALL AID THE HANDLES AND DIES TO RETURN TO THEIR NORMALLY OPEN POSITION. THE REQUIREMENT SHALL APPLY REGARDLESS OF THE PLANE OR POSITION OF THE TOOL, WITH OR WITHOUT A WIRED ASSEMBLY IN THE TOOL.
- j. THE FULL CYCLE MECHANISM SHALL BE A MECHANICAL OR PNEUMATIC MECHANISM WHICH ADVANCES THE INDENTERS TO CRIMP THE CONTACT. THE MECHANISM SHALL OPERATE IN SUCH A MANNER, THAT IT INSURES THE INDENTERS ARE COMPLETELY CLOSED FOR A PROPER CRIMP ON THE CONTACT/CONDUCTOR COMBINATION. THE MECHANISM SHALL RELEASE AUTOMATICALLY AFTER THE CRIMP IS COMPLETED.

MATERIAL AND FINISH:

MATERIAL SHALL BE IN ACCORDANCE WITH AS22520 EXCEPT AS FOLLOWS:

- a M22520/23-01 BASIC TOOL BODY SHALL BE ALUMINUM 356 WITH BLACK FINISH.
- b. DIE CAP AND BOOSTER END CAPS SHALL BE ALUMINUM 6061 WITH ANODIZED FINISH OR TREATED TO RESIST CORROSION (COLOR OPTIONAL).
- c. BENCH MOUNT BRACKET SHALL BE COMMERCIAL GRADE STEEL WITH BLACK FINISH.
- d. INDENTER HOUSING SHALL BE 17-4 PH STAINLESS STEEL.
- e. INDENTERS SHALL BE TOOL STEEL, HEAT TREATED TO ROCKWELL C54-56.
- LOCATORS SHALL BE ALUMINUM 2024.
- 3. PART IDENTIFICATION NUMBER (PIN) AND MARKING:



- a. MARKING ON THE BASIC TOOL SHOWN IN FIGURE 1 SHALL INCLUDE THE M22520/23-01 PIN, SUPPLIER NAME OR SYMBOL AND PART NUMBER (LOCATION IS OPTIONAL).
- b. MARKING ON THE DIE ASSEMBLY CAP SHOWN IN FIGURE SHALL INCLUDE THE DIE GAGE LIMITS SHOWN IN TABLE 3 AND APPLICABLE CONTACT SIZE SHOWN IN TABLE 1.
- c. MARKING ON THE LOCATOR FACE SHOWN IN FIGURE 3 SHALL INCLUDE THE APPLICABLE PIN SHOWN IN TABLE 2 AND THE APPLICABLE CONTACT SIZE.

4. INSPECTION GAGES:

INSPECTION GAGES SHALL BE IN ACCORDANCE WITH TABLE 3.

TABLE 3 - DIE ASSEMBLY INSPECTION GAGE LIMITS

DIE ASSEMBLY	CONTACT SIZE	DIE GAGING	AS22520/3 GAGE	
PART NUMBER	(WIRE BARREL)	GO	NO GO	PIN
M22520/23-02	8	.130	.136	M22520/3-18
M22520/23-03	6	.171	.178	M22520/3-19
M22520/23-04	4	.195	.202	M22520/3-20
M22520/23-05	0	.325	.332	M22520/3-21
M22520/23-06	00	.351	.358	M22520/3-22
M22520/23-07	0000	.425	.432	M22520/3-23
M22520/23-08	1	.255	.265	M22520/3-24



- 5. ASSEMBLY AND APPLICATION INSTRUCTION IS REQUIRED FOR EACH BASIC TOOL.
- 6. PERFORMANCE REQUIREMENT:

TOOL PERFORMANCE SHALL BE IN ACCORDANCE WITH AS22520 WITH THE FOLLOWING EXCEPTIONS.

a. INSPECTION GAGING:

INSPECTION GAGING OF THE TOOL IS NOT APPLICABLE.

INSPECTION GAGING OF EACH DIE ASSEMBLY IS REQUIRED. THE "GO" GAGE SHALL PASS FREELY THROUGH THE DIE SET. THE "NO-GO" GAGE MAY ENTER. BUT SHALL NOT PASS THROUGH THE DIE SET.

PERFORM THE INSPECTION BY SELECTING THE APPROPRIATE AS22520/3 GAGE (OR EQUIVALENT PRECISION GAGE) FOR THE DIE SET FROM TABLE 3, ACTUATE THE TOOL TO THE FULLY CLOSED POSITION BY HOLDING THE TRIGGER BUTTON DOWN AND INSERT THE "GO" AND "NO-GO" GAGE BETWEEN THE INDENTERS.

- b. HUMIDITY (STEADY STATE) IS NOT REQUIRED.
- c. HANDLE, INDENTER AND DIE RETURN OPERATION (FULL CYCLING) SHALL BE REQUIRED AFTER EACH CRIMP. THE AIR PRESSURE REQUIRED TO CRIMP A 4/0 CONTACT WITH PART NUMBER M39029/112 -4/0-2/0L WIRE BARREL BUSHING TO A 2/0 WIRE MAY REQUIRE 100 POUNDS PER SQUARE INCH.
- d. RATCHETING MECHANISM NOT REQUIRED.
- e. FULL CYCLING MECHANISM REQUIRED (REQUIREMENT AND TEST METHOD BELOW).

REQUIREMENT: THE DIFFERENCE BETWEEN THE FIRST AND THIRD CRIMP MEASUREMENTS SHALL NOT EXCEED .010 INCH.

TEST METHOD: WITH 90 LB/IN². AIR SUPPLIED TO THE TOOL, CRIMP A .312 INCH DIAMETER SOFT COPPER ROD WITH A M22520/23-04 DIE ASSEMBLY. MEASURE AND RECORD THE ROD THICKNESS BETWEEN OPPOSING INDENTS. STARTING WITH A LOW AIR PRESSURE THAT WILL NOT ALLOW THE INDENTERS TO OPEN WHEN CRIMPED ON THE ROD, INCREASE THE AIR PRESSURE UNTIL THE TOOL COMPLETES THE CYCLE AND THE INDENTERS OPEN. AT THIS SAME AIR PRESSURE, CRIMP THE ROD A THIRD TIME. MEASURE AND RECORD THE THICKNESS BETWEEN OPPOSING INDENTS.

- f. HIGH COMPRESSION FORCE NOT REQUIRED.
- g. COMPRESSION FORCE NOT REQUIRED.
- h. DEFORMATION AND AXIAL CONCENTRICITY: AFTER CRIMPING TO WIRE (WIRED CONTACTS), THE TOTAL INDICATOR READING (TIR) SHALL NOT EXCEED .030 INCHES FOR CONTACT SIZES 0000 THRU 8.
- i. VOLTAGE DROP SHALL BE IN ACCORDANCE WITH TABLE 4 AT THE SPECIFIED WIRE TEST CURRENT. VOLTAGE DROP SHALL BE TESTED IN ACCORDANCE WITH THE METHOD SPECIFIED IN AS22520. TEST LEADS SHALL BE PLACED 1/2 INCH FROM THE END OF THE CRIMP INDENTS, OR THE MINIMUM DISTANCE BEYOND 1/2 INCH.

TABLE 4 - MAXIMUM VOLTAGE DROP FOR EACH CONTACT SIZE

DIE ASSEMBLY	LOCATOR	CONTACT	WIRE TEST CURRENT	MAX VOLTAGE DROP
PART NUMBER	PART NUMBER	SIZE	(AMPS)	(MILLIVOLTS)
M22520/23-02	M22520/23-09	8	46	5.0
M22520/23-03	M22520/23-10	6	60	4.5
M22520/23-04	M22520/23-11	4	80	4.0
M22520/23-04	M22520/23-12	4	80	4.0
M22520/23-05	M22520/23-13	1/0	125	3.0
M22520/23-05	M22520/23-14	1/0	125	3.0
M22520/23-06	M22520/23-15	2/0	185	8.0
M22520/23-07	M22520/23-16	4/0	225	6.0
M22520/23-08	M22520/23-14	1	125	3.5

- TENSILE STRENGTH SHALL BE THE IN ACCORDANCE WITH AS22520 (TYPE I TOOL).
- k. LOW TEMPERATURE CRIMP NOT REQUIRED.
- I. SHOCK EXPOSURE NOT REQUIRED.

