Amphenol SINESYSTEMS

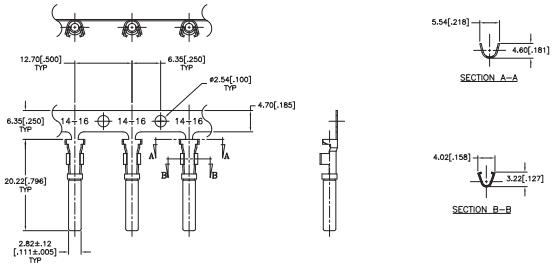
AT Series™ Connectors

STAMPED AND FORMED CONTACTS, PG 1 of 2

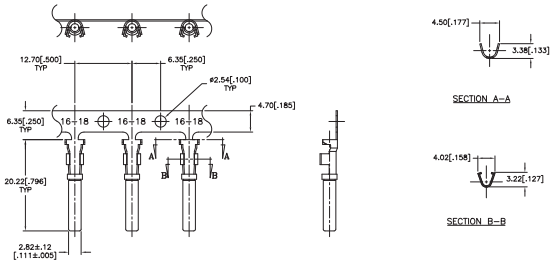
Click on blue underlined part numbers to be taken to their spec sheets.

OPTIONS

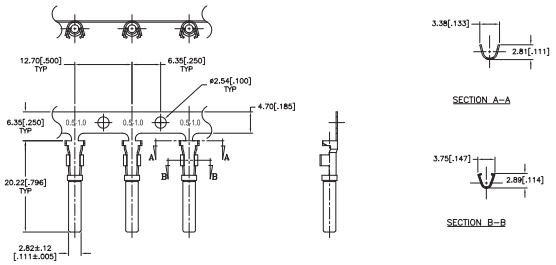
PART NUMBER: AT62-14-01XX
DESCRIPTION: CONTACT, SOCKET, STAMPED, SIZE 16
MATERIAL:
CONTACT BODY: COPPER ALLOY
HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
XX=22 NICKEL PLATING
XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16 00, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



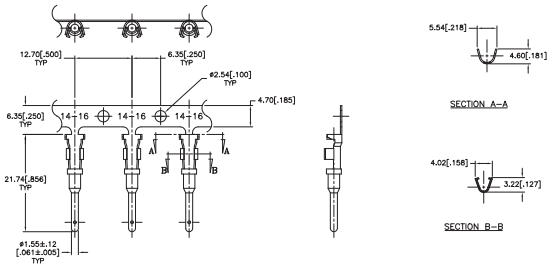
PART NUMBER: AT62-16-01XX
DESCRIPTION: CONTACT, SOCKET, STAMPED, SIZE 16
MATERIAL:
CONTACT BODY: COPPER ALLOY
HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
XX=22 NICKEL PLATING
XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-00, ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



PART NUMBER: AT62-16-06XX
DESCRIPTION: CONTACT, SOCKET, STAMPED, SIZE 16
MATERIAL:
CONTACT BODY: COPPER ALLOY
HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
XX=22 NICKEL PLATING
XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



PART NUMBER: AT60-14-01XX
DESCRIPTION: CONTACT, PIN, STAMPED, SIZE 16
MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
XX=22 NICKEL PLATING
XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-00, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)

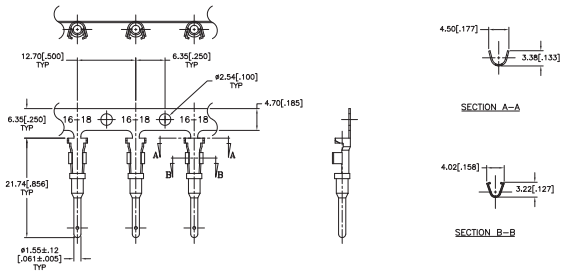


STAMPED AND FORMED CONTACTS, PG 2 of 2

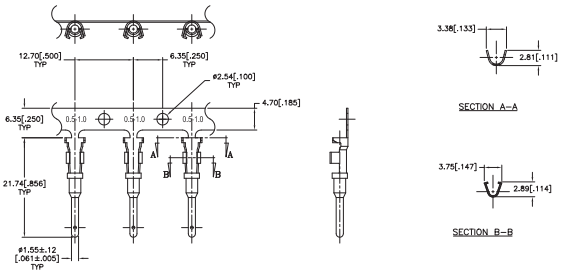
Click on blue underlined part numbers to be taken to their spec sheets.

OPTIONS

PART NUMBER: AT60-16-01XX
DESCRIPTION: CONTACT, PIN, STAMPED, SIZE 16
MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
XX=22 NICKEL PLATING
XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-00, ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



PART NUMBER: AT60-16-06XX
DESCRIPTION: CONTACT, PIN, STAMPED, SIZE 16
MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
XX=22 NICKEL PLATING
XX=44 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: ATT-16-01, MFX-3950 & MFX-3953
CRIMPER SPECIFICATIONS: S2-15223 & S2-15224
CRIMP INFORMATION DRAWING: S2-15221 & S2-15222
CONTACTS PER REEL: APPROX. 4000 (PARTIAL REELS AVAILABLE)



Amphenol SineSystems

AT Series™ Connectors

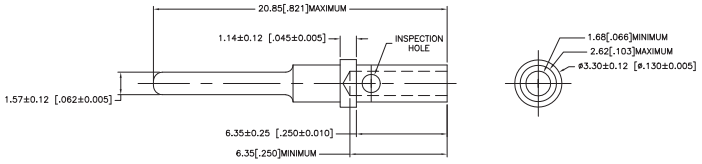
SOLID/MACHINED CONTACTS

Click on blue underlined part numbers to be taken to their spec sheets.

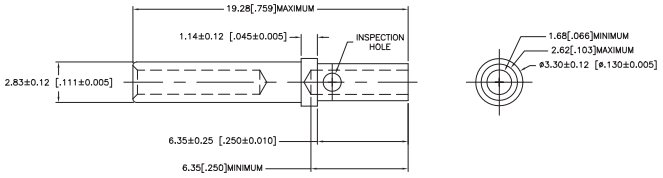
OPTIONS

MILITARY-STYLE

PART NUMBER: AT60-202-16XX
DESCRIPTION: CONTACT, PIN, SOLID MACHINED, SIZE 16
MATERIAL: COPPER ALLOY
PLATING SUFFIX CODE:
XX=141 NICKEL PLATING
XX=31 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218

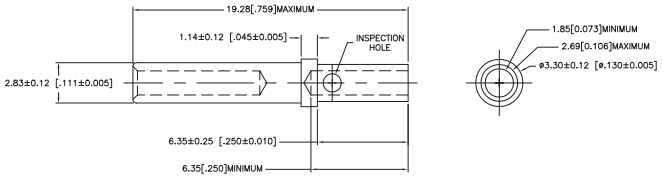


PART NUMBER: AT62-201-16XX
DESCRIPTION: CONTACT, SOCKET, SOLID MACHINED, SIZE 16
MATERIAL:
CONTACT BODY: COPPER ALLOY
HOOD: STAINLESS STEEL
PLATING SUFFIX CODE:
XX=141 NICKEL PLATING
XX=31 GOLD PLATING
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218

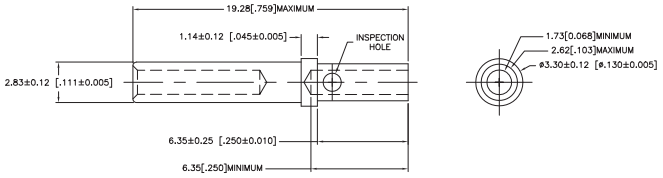


ROCKSOLID™ CONTACTS

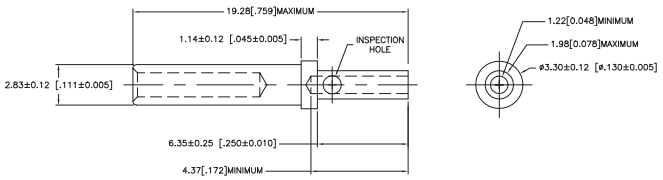
PART NUMBER: 65-54942-14
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 14AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218



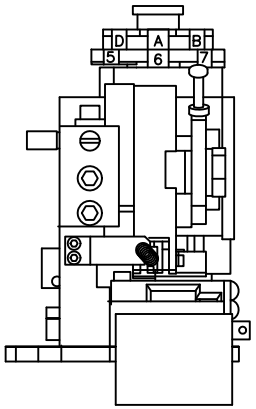
PART NUMBER: 65-54942-16
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 16AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218

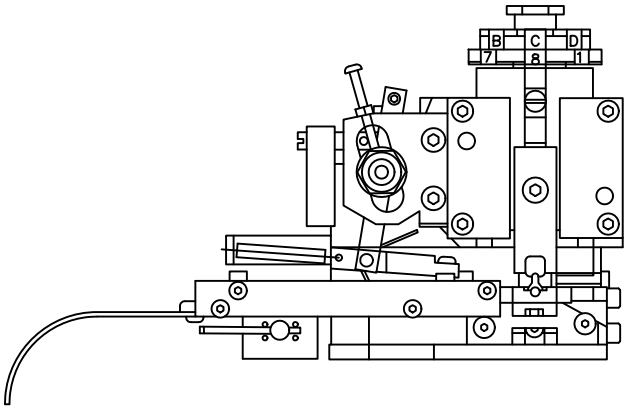


PART NUMBER: 65-54942-20
DESCRIPTION: CONTACT, SOCKET, ROCKSOLID, SIZE 16
AWG RANGE: 20AWG
MATERIAL: COPPER ALLOY
PLATING: GOLD
CONTACT GENERAL DATA SPECIFICATION: S2-15217
AVAILABLE CRIMPERS: CA-5D12 & CA-5E12
CRIMPER SPECIFICATIONS: S2-15219 & S2-15220
CRIMP INFORMATION DRAWING: S2-15218

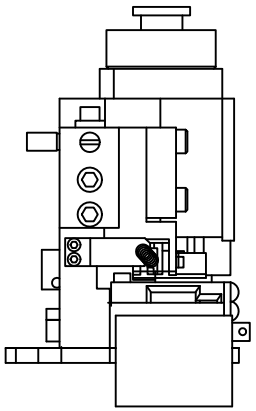


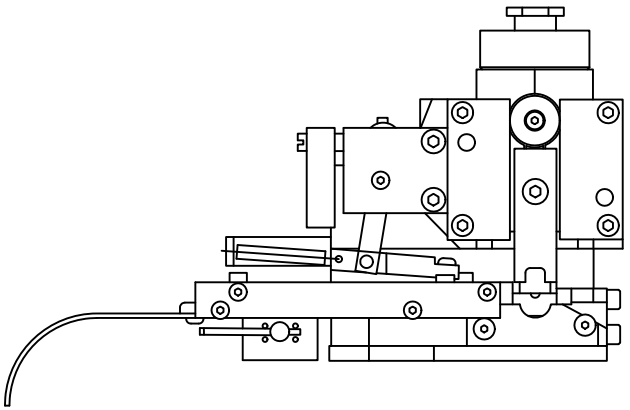
REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	-	-	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.





SINE PART NUMBER	MFX-3950
DEUTSCH PART NUMBER	DCT16-02-00
TYCO PART NUMBER	1-3-1385344-1, 2, 3, 4, 5 & 7





SINE PART NUMBER	MFX-3953
DEUTSCH PART NUMBER	DCT1620-02-00

ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

ALL REFERENCES TO TYCO PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO TYCO ELECTRONICS.

PART NUMBER	DESCRIPTION	ITEM
QUANTITY	MATERIALS LIST	

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5-20020
4) Note Reference = ⚠
U

MATERIAL SPECIFICATIONS: N/A

PROCESS SPECIFICATIONS:

NEXT ASS'Y:

SIGNATURES		DATE
DRAWN:	BERNUM	6/9/09
CHECKED:	FORCE	6/9/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/9/09
CUSTOMER:		

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
44724 Morley Drive
Clinton Township, MI 48036

CRIMPER INFORMATION
MFX-3950 & MFX-3953

SIZE	FSCM NO.	DWG NO:	REVISION
C	1GK44	S2-15224	A1

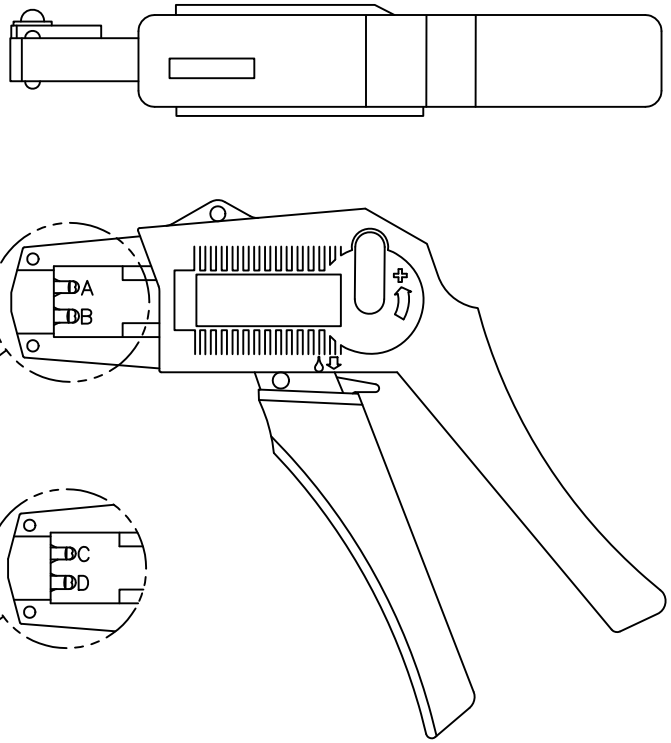
SCALE: NONE | S2-15224 | SHEET 1 OF 1

TITLE: CRIMPER INFORMATION
DWG NO: S2-15224
REV: A1
SH: 1
OF: 1

REVISIONS					
REV	ECO	DESCRIPTION	DATE	BY	APPR
A1	–	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

USE CRIMPER NUMBER: ATT–16–00 WITH CAVITY A & B

CONTACT P/N:		INSULATION ø	CAVITY	WIRE SIZE
AT60–16–01**	PIN	.075 – .140	B	1.5mm²
AT62–16–01**	SOC	[1.91 – 3.56]	A	16AWG
			A	1.0mm²
AT60–14–01**	PIN	.095 – .150	B	14AWG
AT62–14–01**	SOC	[2.41 – 3.81]	B	2.0mm²
			B	1.5mm²
			A	1.5mm²
			A	16AWG
			A	1.0mm²
AT60–16–06**	PIN	.055 – .100	A	16AWG
AT62–16–06**	SOC	[1.40 – 2.54]	A	1.0mm²



CAVITY VIEW OF CRIMPER NUMBER ATT–16–00

CAVITY VIEW OF CRIMPER NUMBER ATT–16–01

USE CRIMPER NUMBER: ATT–16–01 WITH CAVITY C & D

CONTACT P/N:		INSULATION ø	CAVITY	WIRE SIZE
AT60–16–01**	PIN	.075 – .140	D	18AWG
AT62–16–01**	SOC	[1.91 – 3.56]	D	.75mm²
AT60–16–06**	PIN	.055 – .100	D	18AWG
AT62–16–06**	SOC	[1.40 – 2.54]	D	.75mm²
			C	.50mm²

ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

NOTES (UNLESS OTHERWISE SPECIFIED):
1. ALL DIMENSIONS IN INCHES [MILLIMETERS]
2. FOR PLATING CODES ** SEE CONTACT DATA DRAWINGS.
3. THIS TOOL IS FOR CRIMPING SIZE 16 CONTACTS ONLY TO WIRES LISTED IN THE CHARTS.
4. DEUTSCH IPD CROSS REFERENCE PART NUMBERS ARE DTT–16–00 AND DTT–16–01.

	PART NUMBER	DESCRIPTION	ITEM
QUANTITY	MATERIALS LIST		

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5–20020
4) Note Reference = 2
U

MATERIAL SPECIFICATIONS: N/A

PROCESS SPECIFICATIONS:

NEXT ASS'Y:

SIGNATURES		DATE
DRAWN:	BERNUM	6/8/09
CHECKED:	FORCE	6/8/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/8/09
CUSTOMER:		

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
44724 Morley Drive
Clinton Township, MI 48036

INSTRUCTIONS, ATT–16–00 & 01
CRIMPER, HAND, STAMPED CONTACTS

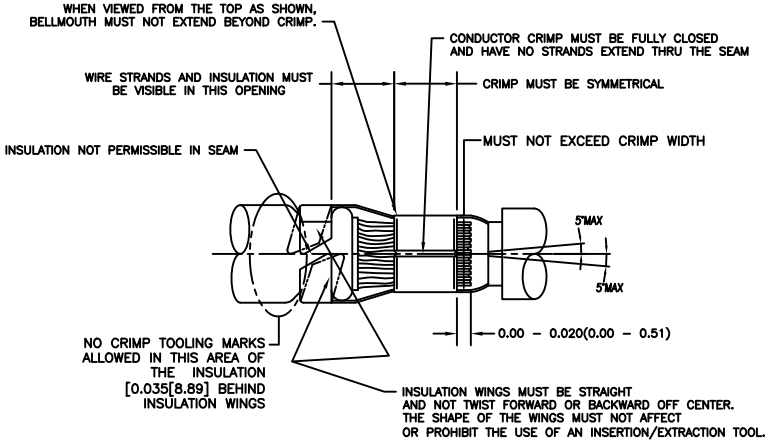
SIZE	FSCM NO.	DWG NO:	REVISION
B	1GK44	S2–15223	A1

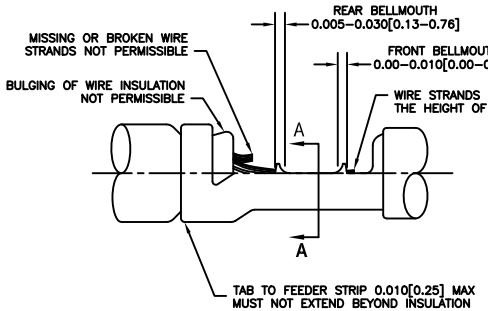
SCALE: NONE | S2–15223 | SHEET 1 OF 1

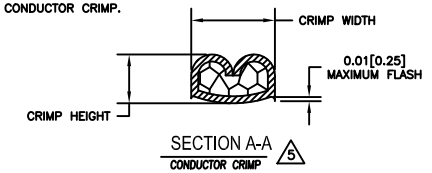
TITLE: INSTRUCTIONS, CRIMPER, HAND
DWG NO: S2–15223
REV: A1
SH: 1
OF: 1

REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	–	–	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

STAMPED CONTACT PART NUMBER 1060=PIN 1062=SOCKET (3)	SIZE	(9) CONDUCTOR WIRE SIZE	CRIMP HEIGHT (5) +0.001/-0.002 INCH [+0.03/-0.05 mm]	CRIMP WIDTH (5) ±0.003 INCH [±0.08 mm]	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE (6) LBS[N]
AT60-14-01xx AT62-14-01xx INSULATION RANGE 0.095-0.150[2.41-3.81]	16	14 AWG	0.055[1.40]	0.094[2.39]	AT17-002-0200	AT17-101-0200	25[111]
		2.00mm²	0.055[1.40]	0.094[2.39]			
		1.50mm²	0.053[1.35]	0.094[2.39]			
		16 AWG	0.050[1.27]	0.094[2.39]			
		1.00mm²	0.050[1.27]	0.094[2.39]			
		18 AWG	0.049[1.24]	0.094[2.39]			
		0.75mm²	0.048[1.22]	0.094[2.39]			
AT60-16-01xx AT62-16-01xx INSULATION RANGE 0.075-0.140[1.91-3.56]	16	14 AWG	0.055[1.40]	0.094[2.39]	AT17-002-0200	AT17-101-0200	25[111]
		2.00mm²	0.055[1.40]	0.094[2.39]			
		1.50mm²	0.053[1.35]	0.094[2.39]			
		16 AWG	0.050[1.27]	0.094[2.39]			
		1.00mm²	0.050[1.27]	0.094[2.39]			
		18 AWG	0.049[1.24]	0.094[2.39]			
		0.75mm²	0.048[1.22]	0.094[2.39]			
AT60-16-06xx AT62-16-06xx INSULATION RANGE 0.055-0.100[1.40-2.54]	16	16 AWG	0.050[1.27]	0.079[2.01]	AT17-003-0200	AT17-103-0200	25[111]
		1.00mm²	0.050[1.27]	0.079[2.01]			
		18 AWG	0.049[1.24]	0.079[2.01]			
		0.75mm²	0.048[1.22]	0.079[2.01]			
		20 AWG	0.048[1.22]	0.079[2.01]			15[67]
		0.50mm²	0.045[1.14]	0.079[2.01]			







(7)

INSULATION DIAMETER RANGE		INSULATION PUNCH NUMBER	INSULATION ANVIL NUMBER
0.120-0.150	[3.05-3.81]	AT17-210-0200	AT17-310-0200
0.105-0.125	[2.67-3.18]	AT17-211-0200	AT17-311-0200
0.085-0.111	[2.16-2.82]	AT17-213-0200	AT17-313-0200
0.075-0.105	[1.91-2.67]	AT17-214-0200	AT17-304-0200
0.063-0.094	[1.62-2.39]	AT17-217-0200	AT17-317-0200
0.050-0.075	[1.27-1.91]	AT17-218-0200	AT17-318-0200

CROSS REFERENCE

SINE PART NUMBER	DEUTSCH PART NUMBER
MFX–3950	DCT16–02–00
AT17–002–0200	1017–002–0200
AT17–003–0200	1017–003–0200
AT17–101–0200	1017–101–0200
AT17–103–0200	1017–103–0200
AT17–210–0200	1017–210–0200
AT17–211–0200	1017–211–0200
AT17–213–0200	1017–213–0200
AT17–214–0200	1017–214–0200
AT17–217–0200	1017–217–0200
AT17–218–0200	1017–218–0200
AT17–310–0200	1017–310–0200
AT17–311–0200	1017–311–0200
AT17–313–0200	1017–313–0200
AT17–304–0200	1017–304–0200
AT17–317–0200	1017–317–0200
AT17–318–0200	1017–318–0200

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN INCHES[mm].
2. FORCES ARE IN POUNDS[LBS] AND NEWTONS[N].
3. "XX"= PLATING SUFFIX. SEE INDIVIDUAL CONTACT DRAWING .
4. WIRE STRIP LENGTH: 0.175±0.025[4.45±0.64]. BROKEN OR MISSING CONDUCTOR STRANDS ARE NOT ACCEPTABLE.
5. USE A BLADE MICROMETER (0.100[2.54] MIN SPINDLE AND 0.060/0.010[1.50/0.040] ANVIL) TO MEASURE THE CONDUCTOR CRIMP. SEE SECTION A-A
6. CRIMP TENSILE STRENGTH IS DETERMINED AT A PULL RATE SPEED OF 1.00 INCH[25.4] PER MINUTE. INSULATION WINGS ARE REMOVED FOR TEST. ACTUAL CRIMP TENSILE STRENGTH DEPENDS ON WIRE/CONDUCTOR SIZE. VALUES ON THIS SPECIFICATION ARE FOR REFERENCE ONLY.
7. INSULATION DIAMETER RANGE IS DETERMINED BY CONNECTOR AND IT'S WIRE SEAL SIZE. SEE CONNECTOR DRAWING FOR INSULATION RANGE.
8. INSULATION CRIMP DIAMETER SHOULD BE THE EQUAL OR LESS THAN THE DIAMETER OF THE WIRE INSULATION (HARD OR TEFLON INSULATION MAY BE AN EXCEPTION). INSULATION CRIMP SHALL NOT AFFECT REMOVAL TOOL PERFORMANCE AND SHALL NOT DAMAGE CONNECTOR GROMMET SEAL.
9. CONDUCTOR TYPE ARE PER SAEJ1128(AWG) AND ISO 6722(METRIC)
10. FOR CONTACT MATERIAL AND PERFORMANCE DATA, SEE DRAWING S2-15217.
11. REFER TO S2-15223 AND S2-15224 AND CROSS REFERENCE CHARTS FOR CRIMP TOOL DATA.

ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

PART NUMBER	DESCRIPTION	ITEM
QUANTITY	MATERIALS LIST	

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5–20020
4) Note Reference = (4)
MATERIAL SPECIFICATIONS: N/A
PROCESS SPECIFICATIONS:
NEXT ASS'Y:
U

SIGNATURES		DATE
DRAWN:	POTER	4/7/09
CHECKED:	FORCE	6/8/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/8/09
CUSTOMER:		

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
44724 Morley Drive
Clinton Township, MI 48036

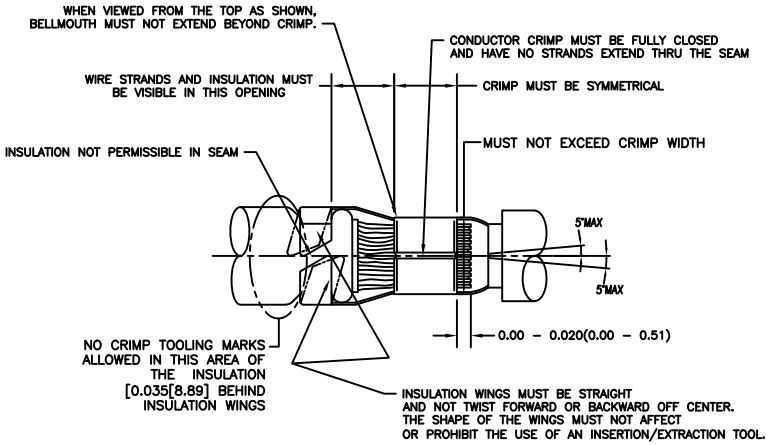
CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MFX–3950

SIZE	FSCM NO.	DWG NO:	REVISION
C	1GK44	S2–15222	A1
SCALE: NONE	S2–15222	SHEET 1 OF 1	

TITLE: CRIMP DATA, STAMPED CONTACTS
DWG NO: S2–15222
REV: A1
SH: 1
OF: 1

REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	–	–	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

STAMPED CONTACT PART NUMBER 1060=PIN 1062=SOCKET [3]	SIZE	CONDUCTOR WIRE SIZE [9]	CRIMP HEIGHT [5] +0.001/-0.002 INCH [+0.03/-0.05 mm]	CRIMP WIDTH [5] ±0.003 INCH [±0.08 mm]	CONDUCTOR PUNCH NUMBER	CONDUCTOR ANVIL NUMBER	CRIMP TENSILE REFERENCE [6] LBS[N]
AT60-14-01xx AT62-14-01xx INSULATION RANGE 0.095-0.150[2.41-3.81]	16	14 AWG	0.055[1.40]	0.094[2.39]	AT17-083-0200	AT17-183-0200	25[111]
		2.00mm²	0.055[1.40]	0.094[2.39]			
		1.50mm²	0.053[1.35]	0.094[2.39]			
		16 AWG	0.050[1.27]	0.094[2.39]			
		1.00mm²	0.050[1.27]	0.094[2.39]			
		18 AWG	0.049[1.24]	0.094[2.39]			
		0.75mm²	0.048[1.22]	0.094[2.39]			
AT60-16-01xx AT62-16-01xx INSULATION RANGE 0.075-0.140[1.91-3.56]	16	14 AWG	0.055[1.40]	0.094[2.39]	AT17-083-0200	AT17-183-0200	25[111]
		2.00mm²	0.055[1.40]	0.094[2.39]			
		1.50mm²	0.053[1.35]	0.094[2.39]			
		16 AWG	0.050[1.27]	0.094[2.39]			
		1.00mm²	0.050[1.27]	0.094[2.39]			
		18 AWG	0.049[1.24]	0.094[2.39]			
		0.75mm²	0.048[1.22]	0.094[2.39]			
AT60-16-06xx AT62-16-06xx INSULATION RANGE 0.055-0.100[1.40-2.54]	16	16 AWG	0.050[1.27]	0.079[2.01]	AT17-082-0200	AT17-182-0200	25[111]
		1.00mm²	0.050[1.27]	0.079[2.01]			
		18 AWG	0.049[1.24]	0.079[2.01]			
		0.75mm²	0.048[1.22]	0.079[2.01]			
		20 AWG	0.048[1.22]	0.079[2.01]			15[67]
		0.50mm²	0.045[1.14]	0.079[2.01]			

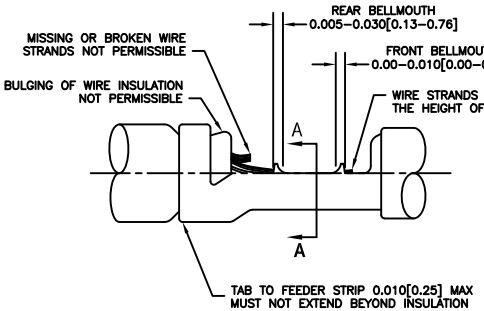


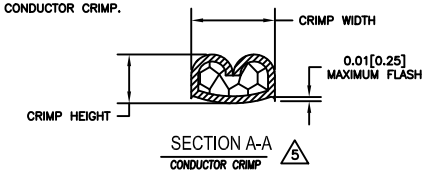
[7]

INSULATION DIAMETER RANGE		INSULATION PUNCH NUMBER	INSULATION ANVIL NUMBER
0.120-0.150	[3.05-3.81]	AT17-225-0200	AT17-325-0200
0.105-0.125	[2.67-3.18]	AT17-226-0200	AT17-326-0200
0.085-0.111	[2.16-2.82]	AT17-227-0200	AT17-327-0200
0.075-0.105	[1.91-2.67]	AT17-228-0200	AT17-328-0200
0.063-0.094	[1.62-2.39]	AT17-229-0200	AT17-329-0200
0.050-0.075	[1.27-1.91]	AT17-230-0200	AT17-330-0200

CROSS REFERENCE

SINE PART NUMBER	DEUTSCH PART NUMBER
MFX-3953	DCT1620-02-00
AT17-083-0200	1017-083-0200
AT17-082-0200	1017-082-0200
AT17-183-0200	1017-183-0200
AT17-182-0200	1017-182-0200
AT17-225-0200	1017-225-0200
AT17-226-0200	1017-226-0200
AT17-227-0200	1017-227-0200
AT17-228-0200	1017-228-0200
AT17-229-0200	1017-229-0200
AT17-230-0200	1017-230-0200
AT17-325-0200	1017-325-0200
AT17-326-0200	1017-326-0200
AT17-327-0200	1017-327-0200
AT17-328-0200	1017-328-0200
AT17-329-0200	1017-329-0200
AT17-330-0200	1017-330-0200





NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN INCHES[mm].
2. FORCES ARE IN POUNDS[LBS] AND NEWTONS[N].
3. "XX"= PLATING SUFFIX. SEE INDIVIDUAL CONTACT DRAWING .
4. WIRE STRIP LENGTH: 0.175±0.025[4.45±0.64]. BROKEN OR MISSING CONDUCTOR STRANDS ARE NOT ACCEPTABLE.
5. USE A BLADE MICROMETER (0.100[2.54] MIN SPINDLE AND 0.060/0.010[1.50/0.040] ANVIL) TO MEASURE THE CONDUCTOR CRIMP. SEE SECTION A-A
6. CRIMP TENSILE STRENGTH IS DETERMINED AT A PULL RATE SPEED OF 1.00 INCH[25.4] PER MINUTE. INSULATION WINGS ARE REMOVED FOR TEST. ACTUAL CRIMP TENSILE STRENGTH DEPENDS ON WIRE/CONDUCTOR SIZE. VALUES ON THIS SPECIFICATION ARE FOR REFERENCE ONLY.
7. INSULATION DIAMETER RANGE IS DETERMINED BY CONNECTOR AND IT'S WIRE SEAL SIZE. SEE CONNECTOR DRAWING FOR INSULATION RANGE.
8. INSULATION CRIMP DIAMETER SHOULD BE THE EQUAL OR LESS THAN THE DIAMETER OF THE WIRE INSULATION (HARD OR TEFLON INSULATION MAY BE AN EXCEPTION). INSULATION CRIMP SHALL NOT AFFECT REMOVAL TOOL PERFORMANCE AND SHALL NOT DAMAGE CONNECTOR GROMMET SEAL.
9. CONDUCTOR TYPE ARE PER SAEJ1128(AWG) AND ISO 6722(METRIC)
10. FOR CONTACT MATERIAL AND PERFORMANCE DATA, SEE DRAWING S2-15217.
11. REFER TO S2-15223 AND S2-15224 AND CROSS REFERENCE CHARTS FOR CRIMP TOOL DATA.

ALL REFERENCES TO DEUTSCH PRODUCTS OR SPECIFICATIONS ARE FOR COMPARISON PURPOSES ONLY, AND REFER TO DEUTSCH INDUSTRIAL PRODUCTS.

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
MATERIALS LIST			

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5-20020
4) Note Reference = [4]
MATERIAL SPECIFICATIONS: N/A
PROCESS SPECIFICATIONS:
NEXT ASS'Y:
U

SIGNATURES		DATE
DRAWN:	POTER	4/7/09
CHECKED:	FORCE	6/8/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/8/09
CUSTOMER:		

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
44724 Morley Drive
Clinton Township, MI 48036

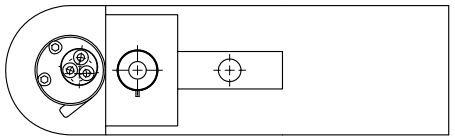
CRIMP DATA, STAMPED CONTACTS FOR CRIMPER MFX-3953

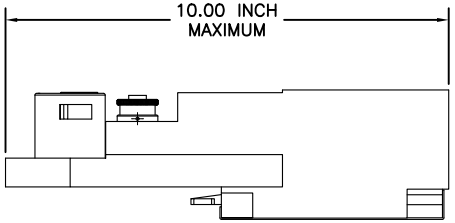
SIZE	FSCM NO.	DWG NO:	REVISION
C	1GK44	S2-15221	A1

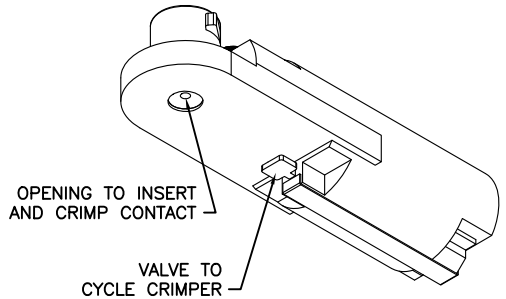
SCALE: NONE | S2-15221 | SHEET 1 OF 1

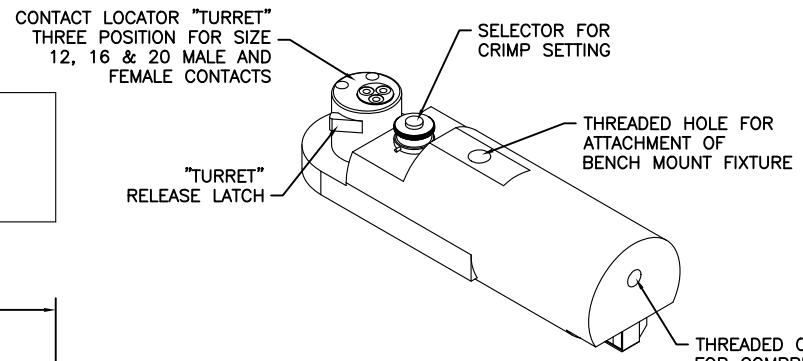
TITLE: CRIMP DATA, STAMPED CONTACTS
DWG NO: S2-15221
REV: A1
SHT: 1
OF: 1

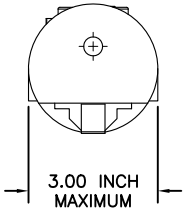
REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	–	–	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.







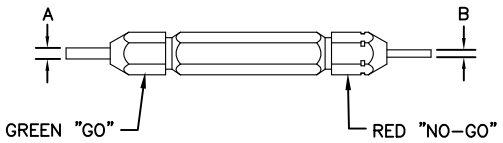




NOTES:
1. THE CA–5E12 IS A COMPRESSED AIR OPERATED HAND CRIMPER FOR ELECTRICAL CONTACTS. IT IS ADJUSTABLE TO 3 CONTACT SIZES (12, 16 & 20) AND 8 INDENTER CRIMP POSITIONS FOR DIFFERENT WIRE SIZES (12AWG THRU 26 AWG).
2. 80–120 PSI COMPRESSED AIR.
3. WEIGHT: 3.1 LBS
4. SELECTING CONTACT SIZE: PRESS THE RELEASE LATCH ON SIDE OF THE CONTACT LOCATOR "TURRET". ROTATE TO THE DESIRED CONTACT SIZE. THE TOP OF THE "TURRET" IS EMBOSSED WITH THE CONTACT SIZES.
5. SELECTING WIRE SIZE: GRASP THE SELECTOR AND ROTATE TO THE DESIRED NUMBER.

		SELECTOR NUMBER							
CONTACT SIZE	LOCATOR "TURRET" POSITION COLOR	26 AWG WIRE	24 AWG WIRE	22 AWG WIRE	20 AWG WIRE	18 AWG WIRE	16 AWG WIRE	14 AWG WIRE	12 AWG WIRE
20–20	RED	1	2	3	4				
16–22	BLUE	4	5	6					
16–20	BLUE	1	2	3	4				
16–16	BLUE				4	5	6		
12–16	YELLOW				4	5	6		
12–12	YELLOW							7	8

GAGE PART NO.	A GO DIA.	B NO–GO DIA.	SELECTOR NUMBER
G125	.0390	.0440	4

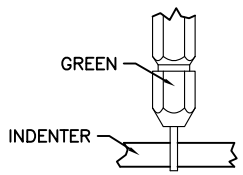


GAGING INSTRUCTIONS

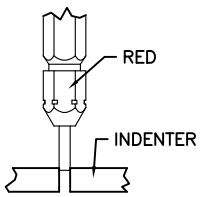
CAUTION!
DO NOT CRIMP GAGE!

"GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "GO" GAGE END AS SHOWN. GAGE MUST PASS FREELY BETWEEN INDENTER TIPS.

"NO–GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "NO–GO" GAGE END AS SHOWN. THE "NO–GO" MAY PARTIALLY ENTER THE INDENTER OPRNING, BUT MUST NOT PASS COMPLETELY THROUGHT THE OPENING.



SELECTOR NUMBER	A ±.0001 GO DIA.	B ±.0001 NO–GO DIA.
1	.0280	.0330
2	.0320	.0370
3	.0360	.0410
4	.0390	.0440
5	.0450	.0500
6	.0520	.0570
7	.0590	.0640
8	.0680	.0730



QUANTITY	PART NUMBER	DESCRIPTION	ITEM
	MATERIALS LIST		

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5–20020
4) Note Reference = ⚠
MATERIAL SPECIFICATIONS: N/A
PROCESS SPECIFICATIONS:
NEXT ASS'Y:

SIGNATURES		DATE
DRAWN:	BERNUM	6/2/09
CHECKED:	FORCE	6/3/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/3/09
CUSTOMER:		

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SINE Systems Corporation
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44724 Morley Drive
Clinton Township, MI 48036

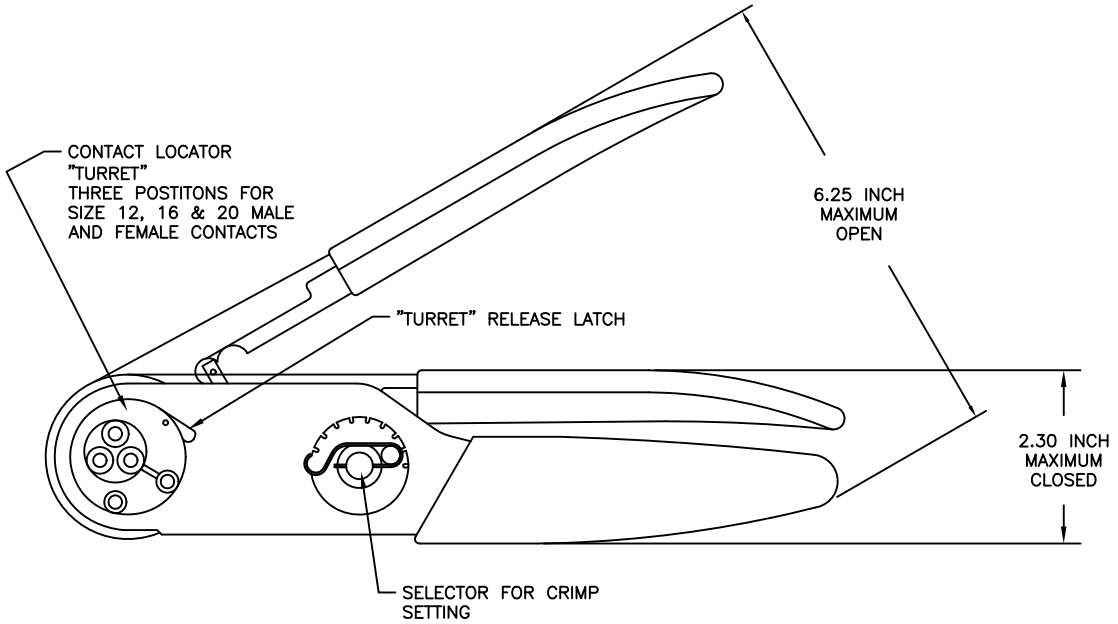
INSTRUCTIONS FOR CA–5E12
CRIMPER, PNEUMATIC

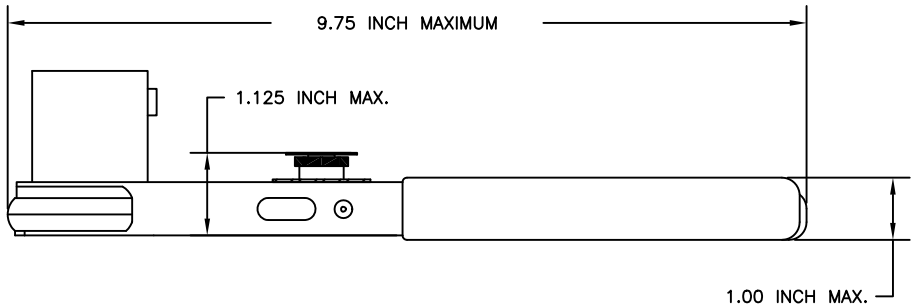
SIZE	FSCM NO.	DWG NO:	REVISION
C	1GK44	S2–15220	A1

SCALE: NONE | S2–15220 | SHEET 1 OF 1

TITLE: CRIMPER, PNEUMATIC, CA–5E12
DWG NO: S2–15220
REV: A1
SH: 1
OF: 1

REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	–	–	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

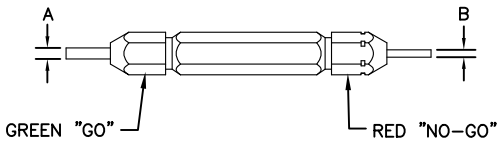




NOTES:
1. THE CA–5D12 IS A HAND OPERATED CRIMPER FOR ELECTRICAL CONTACTS. IT IS ADJUSTABLE TO 3 CONTACT SIZES (12, 16 & 20) AND 8 INDENTER CRIMP POSITIONS FOR DIFFERENT WIRE SIZES (12AWG THRU 26 AWG).
2. WEIGHT: 1.64 LBS
3. SELECTING CONTACT SIZE: PRESS THE RELEASE LATCH ON SIDE OF THE CONTACT LOCATOR "TURRET". ROTATE TO THE DESIRED CONTACT SIZE. THE TOP OF THE "TURRET" IS EMBOSSED WITH THE CONTACT SIZES.
4. SELECTING WIRE SIZE: REMOVE THE LOCKING CLIP. GRASP THE SELECTOR AND ROTATE TO THE DESIRED NUMBER.

CONTACT SIZE	LOCATOR "TURRET" POSITION COLOR	SELECTOR NUMBER							
		26 AWG WIRE	24 AWG WIRE	22 AWG WIRE	20 AWG WIRE	18 AWG WIRE	16 AWG WIRE	14 AWG WIRE	12 AWG WIRE
20–20	RED	1	2	3	4				
16–22	BLUE	4	5	6					
16–20	BLUE	1	2	3	4				
16–16	BLUE				4	5	6		
12–16	YELLOW				4	5	6		
12–12	YELLOW							7	8

GAGE PART NO.	A GO DIA.	B NO–GO DIA.	SELECTOR NUMBER
G125	.0390	.0440	4

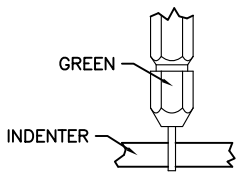


GAGING INSTRUCTIONS

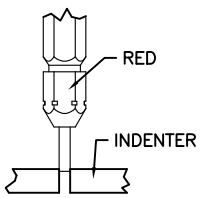
CAUTION!
DO NOT CRIMP GAGE!

"GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "GO" GAGE END AS SHOWN. GAGE MUST PASS FREELY BETWEEN INDENTER TIPS.

"NO–GO" GAGING: OPERATE TOOL TO FULLY CLOSED POSITION. INSERT "NO–GO" GAGE END AS SHOWN. THE "NO–GO" MAY PARTIALLY ENTER THE INDENTER OPRNING, BUT MUST NOT PASS COMPLETELY THROUGHT THE OPENING.



SELECTOR NUMBER	A ±.0001 GO DIA.	B ±.0001 NO–GO DIA.
1	.0280	.0330
2	.0320	.0370
3	.0360	.0410
4	.0390	.0440
5	.0450	.0500
6	.0520	.0570
7	.0590	.0640
8	.0680	.0730



QUANTITY	PART NUMBER	DESCRIPTION	ITEM

MATERIALS LIST

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5–20020
4) Note Reference = ⚠
MATERIAL SPECIFICATIONS: N/A
PROCESS SPECIFICATIONS:
NEXT ASS'Y:

SIGNATURES		DATE
DRAWN:	BERNUM	6/3/09
CHECKED:	FORCE	6/3/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/3/09
CUSTOMER:		

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SINE Systems Corporation
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44724 Morley Drive
Clinton Township, MI 48036

INSTRUCTIONS FOR CA–5D12
CRIMPER, HAND, MACHINED CONTACTS

SIZE	FSCM NO.	DWG NO:	REVISION
C	1GK44	S2–15219	A1

SCALE: NONE | S2–15219 | SHEET 1 OF 1

TITLE: CRIMPER, HAND, CA–5D12
DWG NO: S2–15219
REV: A1
SHT: 1
OF: 1

REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	–	–	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

CONTACT P/N	SIZE TYPE	WIRE SIZE △7	REF. ONLY TENSILE LBS[N] △3
AT60–202–16XX AT62–201–16XX △2	16PIN 16SOC	1.5mm² 16AWG 1.0mm² 18AWG 0.75mm² 20AWG 0.50mm²	35[156] 25[111] 20[89]

RECOMMENDED STRIP LENGTH	
CONTACT SIZE	STRIP LENGTH INCH[MM]
16	0.250–0.312[6.35–7.92]

CRIMP TOOLING						
CONTACT SIZE	CRIMP TOOL PART NUMBER	CONTACT LOCATOR "TURRET" POSITION	WIRE SELECTOR NUMBER	GO GAGE INCH[MM]	"NOGO" GAGE INCH[MM]	REMARKS
16	CA–5D12 CA–5E12	BLUE	6	0.052[1.32]	0.057[1.45]	
16	CA–5D12 CA–5E12	BLUE	4	0.039[.991]	0.044[1.12]	SIZE 16 WITH 20 AWG WIRE
				△1 △9	△1 △9	

NOTES: UNLESS OTHERWISE SPECIFIED

△1 MINIMUM +/–0.0005 [0.013] TOLERANCE STEEL GAGE PINS. DO NOT CRIMP GAGE PINS. CLOSE DIE, THEN USE GAGE PINS.

△2 WHEN XX=31, CONTACT PLATING IS GOLD
WHEN XX=141, CONTACT PLATING IS NICKEL

△3 PULL RATE OF 1.0 IN [25.4] PER MINUTE. ACTUAL STRENGTH DEPENDS ON WIRE SIZE.

4. FOR CONTACT PERFORMANCE, MATERIAL SPECIFICATIONS AND APPLICATION DETAILS, SEE DRAWING S2–15217.

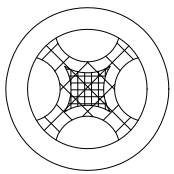
△5 CONDUCTOR STRANDS MUST BE VISIBLE THRU THE INSPECTION HOLE PRIOR TO CRIMP.

△6 PROPER CRIMP TOOLING WILL PRODUCE A CRIMP CENTERED BETWEEN THE INSPECTION HOLE AND CRIMP BARREL END.

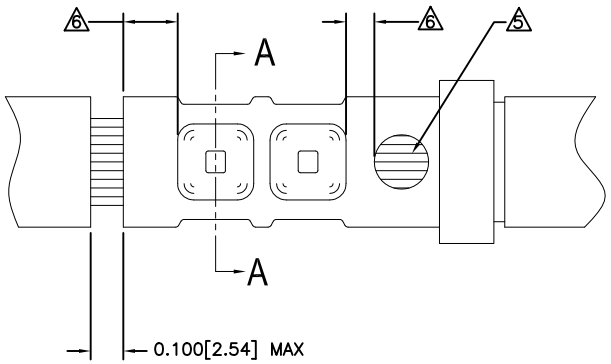
△7 WIRE SIZES PER SAE JI128 AND JI560 [DIN 72551–6]

8. REFERENCE INSTRUCTION MANUALS S2–15219 AND S2–15220 FOR CA–5D12 AND CA–5E12 HAND AND PNUEMATIC CRIMPER.

△9 THE CRIMP HEIGHT DIMENSION AFTER CRIMPING MAY VARY FROM THE VALUES LISTED FOR THE "GO–NOGO" PINS.



SECTION A–A
CRIMP CROSS–SECTION



PART NUMBER	DESCRIPTION	ITEM
QUANTITY	MATERIALS LIST	

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5–20020
4) Note Reference = △
U

MATERIAL SPECIFICATIONS: N/A

PROCESS SPECIFICATIONS:

NEXT ASS'Y:

SIGNATURES		DATE
DRAWN:	BERNUM	6/3/09
CHECKED:	FORCE	6/3/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/3/09
CUSTOMER:		

SINE Systems Corporation
A Subsidiary of Amphenol Corporation
44724 Morley Drive
Clinton Township, MI 48036

CRIMP INFORMATION
SOLID MACHINED CONTACTS

SIZE	FSCM NO.	DWG NO:	REVISION
C	1GK44	S2–15218	A1

SCALE: NONE | S2–15218 | SHEET 1 OF 1

TITLE: CRIMP INFORMATION SOLID CONTACTS
DWG NO: S2–15218
REV: A1
SH: 1
OF: 1

REVISIONS						
REV	ZONE	ECO	DESCRIPTION	DATE	BY	APPR
A1	–	–	RELEASE NUMBER 016571	6/12/09	B.D.B.	M.R.F.

SOLID CONTACT SIZE	SOLID CONTACT PART NUMBERS		WIRE SIZE AWG(mm^2) ④	RECOMMENDED STRIP LENGTH INCH [mm]	MIN CONTACT RETENTION LBS [N] ③	REF CRIMP TENSILE LBS [N] ③	MAX RATED AMPS@125°C CONTINUOUS ⑤⑦
	PIN	SOCKET					
16	AT60-202-16**	AT62-201-16**	16-20 [1.5-0.5]	0.25-0.31 [6.35-7.92]	25 [111]	35-20 [156-89]	13

S&F CONTACT SIZE	STAMPED CONTACT PART NUMBERS		WIRE SIZE AWG [mm^2]	WIRE INSULATION O.D. RANGE	RECOMMENDED STRIP LENGTH INCH [mm]	MIN CONTACT RETENTION LBS [N]	REF CRIMP TENSILE LBS [N]	MAX RATED AMPS@125°C CONTINUOUS
	PIN	SOCKET						
16	AT60-14-01**	AT62-14-01**	14-16 [2.0-1.0]	.100 - .150 [2.54 - 3.81]	0.150-0.200 [3.81-5.08]	25 [111]	25 [111]	13
16	AT60-16-01**	AT62-16-01**	16-18 [1.0-0.75]	.075 - .100 [1.90 - 2.54]	0.150-0.200 [3.81-5.08]	25 [111]	25 [111]	13
16	AT60-16-06**	AT62-16-06**	18-20 [0.75-0.50]	.055 -.095 [1.40 - 2.41]	0.150-0.200 [3.81-5.08]	25 [111]	25-15 [111-67]	13

⑦

CONTACT RESISTANCE STRENGTH (LESS DROP THROUGH WIRE)			
WIRE AWG	TEST CURRENT	MILLIVOLT DROP SOLID	MILLIVOLT DROP S&F
14	18	60	100
16	13	60	100
18	10	60	100
20	7.5	60	100

⑦

MATERIAL SPECIFICATION AND PLATING ** CODES
PIN: COPPER ALLOY SOCKET: COPPER ALLOY WITH STAINLESS STEEL SLEEVE
SOLID MACHINED CONTACT PLATING OPTIONS: ⑥ 31= GOLD* 141= NICKEL
STAMPED CONTACT PLATING OPTIONS: ⑥ 22= NICKEL 44= GOLD* 88= SELECTIVE GOLD*
GOLD*= PLATING IS AVAILABLE (RECOMMENDED) FOR ONLY(<5V) CIRCUIT APPLICATIONS MATERIALS AND PLATINGS ARE RoHS COMPLIANT

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE INCHES[MM].
2. ALL FORCES ARE IN "LBS"(POUNDS) AND "[N]" (NEWTONS).
3. ③ CONTACT RETENTION TEST PULL RATE SHALL BE 1.0 INCH[25.4] PER MINUTE MAXIMUM. WIRE SIZE WILL AFFECT THE TRUE STRENGTH OF THE CRIMP.
4. ④ WIRE SIZES AND INSULATION RANGES ARE FOR REFERENCE ONLY. THE ACTUAL INSULATION RANGE DEPENDS ON CONNECTOR GROMMET SEALING SIZE.

SEE SPECIFICATIONS LISTED BELOW FOR INDIVIDUAL CRIMP INFORMATION:

"SOLID" CONTACTS	SIZE
S2-15218	16

"STAMPED" CONTACTS	SIZE
S2-15222	16
S2-15221	16/20

⑤ MAXIMUM RATED CURRENT IN CHART DEPENDS ON CONTACT SIZE. ACTUAL RATED CURRENT DEPENDS ON WIRE SIZE.
⑥ CONTACT FACTORY FOR ALL AVAILABLE PLATING ON SPECIFIC CONTACTS.
⑦ AMPHENOL SINE PERFORMANCE SPECIFICATIONS REQUIRE THE USE OF AMPHENOL SINE APPROVED TOOLING.

QUANTITY	PART NUMBER	DESCRIPTION	ITEM
	MATERIALS LIST		

UNLESS OTHERWISE SPECIFIED
1) All dimensions are in inches.
2) Tolerances are as follows:
1 PL DEC ±0.05 | Fractions ±1/64
2 PL DEC ±0.01 | Angles ±1°
3 PL DEC ±0.005
3) Fabrication Standards Per: S5-20020
4) Note Reference = ④
MATERIAL SPECIFICATIONS: N/A
PROCESS SPECIFICATIONS:
NEXT ASS'Y:
U

SIGNATURES		DATE
DRAWN:	POTER	4/5/09
CHECKED:	FORCE	6/3/09
ENGINEER:	BERNUM	
APPROVAL:	BERNUM	6/3/09
CUSTOMER:		

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44724 Morley Drive
Clinton Township, MI 48036

GENERAL DATA, CONTACTS STAMPED AND FORMED / MACHINED

SIZE	FSCM NO.	DWG NO:	REVISION
C	1GK44	S2-15217	A1

SCALE: NONE | S2-15217 | SHEET 1 OF 1

TITLE: CONTACT DATA, GENERAL
DWG NO: S2-15217
REV: A1
SH: 1
OF: 1