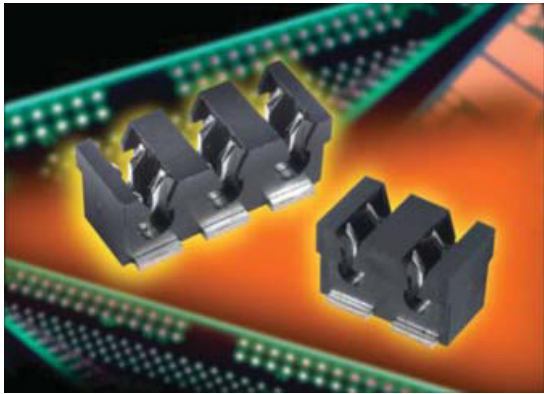


STANDARD IDC 18-24 AWG: 00-9176

General Information



The 917X series of surface mount Insulation Displacement Connectors (IDC) were developed to meet the harsh automotive and industrial market applications for connecting individual wires directly to a PCB ranging from 14 AWG to 28 AWG. This industry proven contact system has been tested to automotive levels of shock, vibration, and temperature cycling to prove their reliability and robustness. The simplicity of inserting a wire into the connector with a small tool allows a wide range of devices to be connected to the PCB without soldering. In SSL applications specifically, these connectors are used to bring power and signal onto the PCB or are used to daisy chain multiple boards together in a long string. While the IDC contact provides a gas-tight connection to conductor of the wire, the housing has been designed to grab the insulation of the wire to provide a positive strain relief even in the harshest conditions. In case of repair, the wires can be removed and replace up to three times.

The 9176 series accepts 18 AWG to 24 AWG wires with an insulation diameter ranging from 1.1mm to 2.1mm. These dual contact connectors support a 10 amp current rating with two large SMT solder tails per wire to provide maximum stability on the PCB. Available in 1p-3p configuration, these connectors can be end stackable for higher pin counts. The 9176 series also comes with optional locking strain relief caps that act as the termination tool for severe vibration applications.

APPLICATIONS

- Connecting discrete wire components directly to the PCB
- Bringing power and signals onto a PCB
- Daisy chaining PCB's together to create a continuous string of boards
- Application Notes: refer to 201-01-124

FEATURES AND BENEFITS

- IDC contact provides a gas-tight connection to the PCB for long term reliability
- Connector housing captures the wire insulation for positive strain relief
- Tested to automotive levels on shock, vibration and temperature cycling for reliability
- Low and high volume assembly tools to match production volumes
- Reduced total applied cost versus solder or crimp processes
- Optional thru and end caps lock in place to provide maximum strain relief
- High temperature insulator capable to 260°C reflow soldering processes

ELECTRICAL

- Current Rating: 10 Amp / Contact
- Voltage Rating: 300 VAC

ENVIRONMENTAL

- Operating Temperature: -40°C to +125°C

MECHANICAL

- Insulator Material: Nylon 46: UL94V0
- Contact Material: Phosphor Bronze
- Plating: Tin over Nickel
- Durability: 3 Cycles

HOW TO ORDER

00

Prefix

9175

Series

00X

Number of Ways
001 = 1
002 = 2
003 = 3

0XX

Wire Gauge Size

| Code | Accepted Wire Gauge | Wire Insulation | Cap Code Pages 21-22 |
|------|----------------------------|-----------------|----------------------|
| 001 | 18 Gauge Stranded | Ø 1.6-2.1 | 021 |
| 011 | 20 Gauge Solid or Stranded | Ø 1.6-2.1 | 021 |
| 022 | 22 Gauge Solid or Stranded | Ø 1.1-1.6 | 016 |
| 032 | 24 Gauge Solid or Stranded | Ø 1.1-1.6 | 016 |

X

Insulator Color

All Sizes
9 = UL White (Standard)
8 = UL Black (Special Order)

One Way Only (Special Order)

2 = UL Brown
3 = UL Blue
4 = UL Yellow
5 = UL Red
6 = UL Green
7 = UL Orange

06

Plating

Option
6 = Pure Tin all over



Certification: UL File #E90723

STANDARD IDC 18-24 AWG: 00-9176

General Information



CONNECTOR/TOOLING PART NUMBER MATRIX

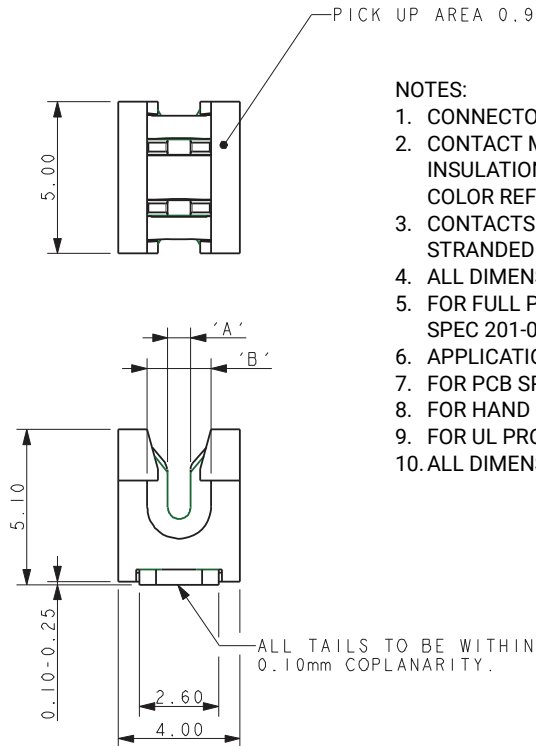
| SERIES 9176 IDC | | | | | HAND INSERTION TOOLING* | | | ACCESSORY CAPS | |
|-----------------|-----------------|-----------|-------|-----------------|-------------------------|---------------------|------------------|-----------------|-----------------|
| AWG | Wire Insulation | Positions | Color | Part Number | Plastic (medium volume) | Metal (high volume) | Mass Termination | Though Wire | Wire Stop |
| 18 | Ø 1.6 - 2.1 | 1p | Black | 009176001001806 | 069176701601000 | 069176701701000 | N/A | 609176001021000 | 609176001021099 |
| 18 | Ø 1.6 - 2.1 | 1p | White | 009176001001906 | 069176701601000 | 069176701701000 | N/A | 609176001021100 | 609176001021199 |
| 18 | Ø 1.6 - 2.1 | 2p | Black | 009176002001806 | 069176701601000 | 069176701701000 | 069176701701002 | 609176002021000 | 609176002021099 |
| 18 | Ø 1.6 - 2.1 | 2p | White | 009176002001906 | 069176701601000 | 069176701701000 | 069176701701002 | 609176002021100 | 609176002021199 |
| 18 | Ø 1.6 - 2.1 | 3p | Black | 009176003001806 | 069176701601000 | 069176701701000 | 069176701701003 | 609176003021000 | 609176003021099 |
| 18 | Ø 1.6 - 2.1 | 3p | White | 009176003001906 | 069176701601000 | 069176701701000 | 069176701701003 | 609176003021100 | 609176003021199 |
| 20 | Ø 1.6 - 2.1 | 1p | Black | 009176001011806 | 069176701601000 | 069176701701000 | N/A | 609176001021000 | 609176001021099 |
| 20 | Ø 1.6 - 2.1 | 1p | White | 009176001011906 | 069176701601000 | 069176701701000 | N/A | 609176001021100 | 609176001021199 |
| 20 | Ø 1.6 - 2.1 | 2p | Black | 009176002011806 | 069176701601000 | 069176701701000 | 069176701701002 | 609176002021000 | 609176002021099 |
| 20 | Ø 1.6 - 2.1 | 2p | White | 009176002011906 | 069176701601000 | 069176701701000 | 069176701701002 | 609176002021100 | 609176002021199 |
| 20 | Ø 1.6 - 2.1 | 3p | Black | 009176003011806 | 069176701601000 | 069176701701000 | 069176701701003 | 609176003021000 | 609176003021099 |
| 20 | Ø 1.6 - 2.1 | 3p | White | 009176003011906 | 069176701601000 | 069176701701000 | 069176701701003 | 609176003021100 | 609176003021199 |
| 22 | Ø 1.1 - 1.6 | 1p | Black | 009176001022806 | 069176701602000 | 069176701702000 | N/A | 609176001016000 | 609176001016099 |
| 22 | Ø 1.1 - 1.6 | 1p | White | 009176001022906 | 069176701602000 | 069176701702000 | N/A | 609176001016100 | 609176001016199 |
| 22 | Ø 1.1 - 1.6 | 2p | Black | 009176002022806 | 069176701602000 | 069176701702000 | 069176701702002 | 609176002016000 | 609176002016099 |
| 22 | Ø 1.1 - 1.6 | 2p | White | 009176002022906 | 069176701602000 | 069176701702000 | 069176701702002 | 609176002016100 | 609176002016199 |
| 22 | Ø 1.1 - 1.6 | 3p | Black | 009176003022806 | 069176701602000 | 069176701702000 | 069176701702003 | 609176003016000 | 609176003016099 |
| 22 | Ø 1.1 - 1.6 | 3p | White | 009176003022906 | 069176701602000 | 069176701702000 | 069176701702003 | 609176003016100 | 609176003016199 |
| 24 | Ø 1.1 - 1.6 | 1p | White | 009176001032106 | 069176701602000 | 069176701702000 | N/A | 609176001016100 | 609176001016199 |
| 24 | Ø 1.1 - 1.6 | 1p | Black | 009176001032806 | 069176701602000 | 069176701702000 | N/A | 609176001016000 | 609176001016099 |
| 24 | Ø 1.1 - 1.6 | 1p | White | 009176001032906 | 069176701602000 | 069176701702000 | N/A | 609176001016100 | 609176001016199 |
| 24 | Ø 1.1 - 1.6 | 2p | Black | 009176002032806 | 069176701602000 | 069176701702000 | 069176701702002 | 609176002016000 | 609176002016099 |
| 24 | Ø 1.1 - 1.6 | 2p | White | 009176002032906 | 069176701602000 | 069176701702000 | 069176701702002 | 609176002016100 | 609176002016199 |
| 24 | Ø 1.1 - 1.6 | 3p | Black | 009176003032806 | 069176701602000 | 069176701702000 | 069176701702003 | 609176003016000 | 609176003016099 |
| 24 | Ø 1.1 - 1.6 | 3p | White | 009176003032906 | 069176701602000 | 069176701702000 | 069176701702003 | 609176003016100 | 609176003016199 |

* Hand Insertion Tooling - Universal Hand Tool 067000773001000; Consult Application Notes 201-01-124

STANDARD IDC 18-24 AWG: 00-9176

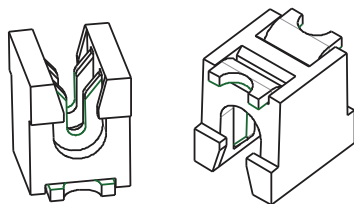
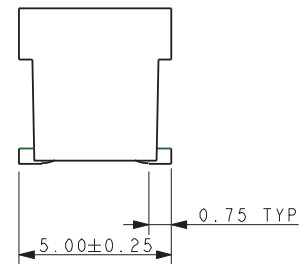
1 Position

18-24 AWG 1 WAY IDC CONNECTOR



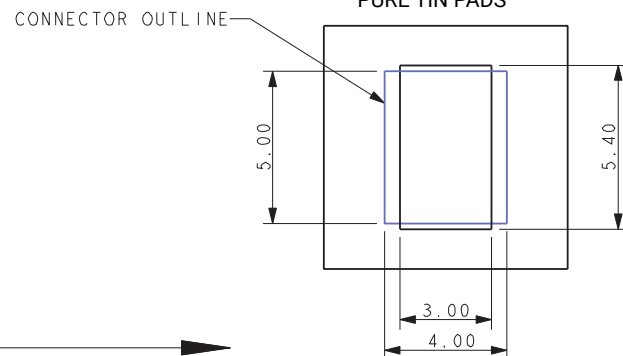
NOTES:

- CONNECTOR FOR IDC WIRE TO BOARD CONNECTION.
- CONTACT MATERIAL: PHOSPHOR BRONZE.
INSULATION MATERIAL: HIGH TEMPERATURE NYLON 46.
COLOR REFER TO PAGE 16.
- CONTACTS DESIGNED TO ACCEPT BETWEEN 20AWG AND 24AWG SOLID AND STRANDED WIRES. 18AWG WILL ONLY ACCEPT STRANDED WIRES, SEE TABLE.
- ALL DIMENSIONS FOR REFERENCE UNLESS OTHERWISE STATED.
- FOR FULL PRODUCT SPECIFICATION ON STANDARD CONNECTORS REFER TO ELCO SPEC 201-01-106. UL COMPONENTS REFER TO ELECO SPEC 201-01-106U.
- APPLICATION NOTES 201-01-124.
- FOR PCB SPACE RESTRICTED BY WIRE ASSEMBLY TOOLING REFER TO PAGE 23.
- FOR HAND WIRE ASSEMBLY TOOLING REFER TO PAGE 23.
- FOR UL PRODUCT CODES UL REFERENCE E90723 (US AND CANADA).
- ALL DIMENSIONS ± 0.20 TOLERANCE SPECIFIED.



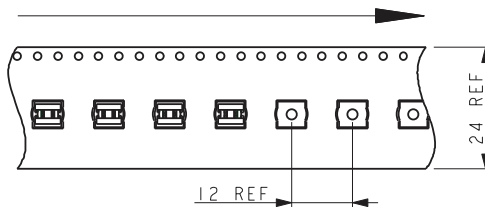
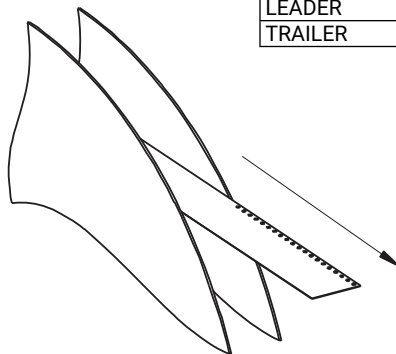
| Code | Accepted Wire Gauge | A | Wire Insulation | B |
|------|--------------------------|------|-----------------|-----|
| 001 | 18AWG Stranded | 0.72 | Ø1.6-2.1 | 2.1 |
| 011 | 20AWG Solid and Stranded | 0.60 | Ø1.6-2.1 | 2.1 |
| 022 | 22AWG Solid and Stranded | 0.47 | Ø1.1-1.6 | 1.6 |
| 032 | 24AWG Solid and Stranded | 0.37 | Ø1.1-1.6 | 1.6 |

SMT PCB LAYOUT PURE TIN PADS



PACKING DETAILS

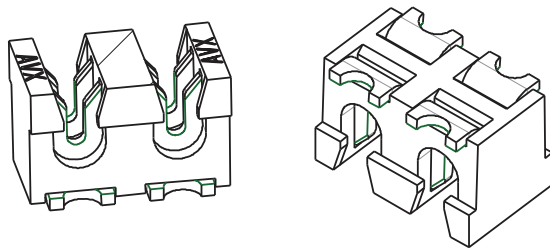
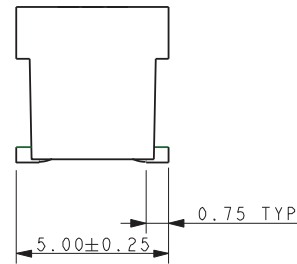
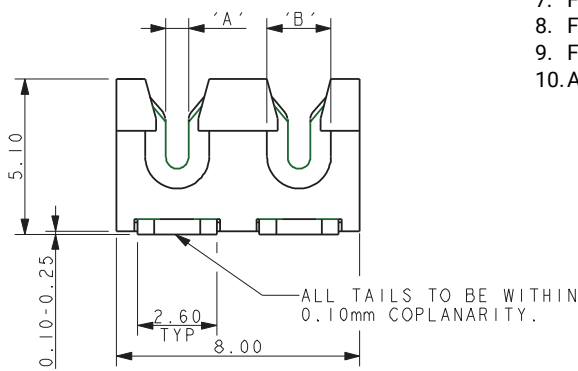
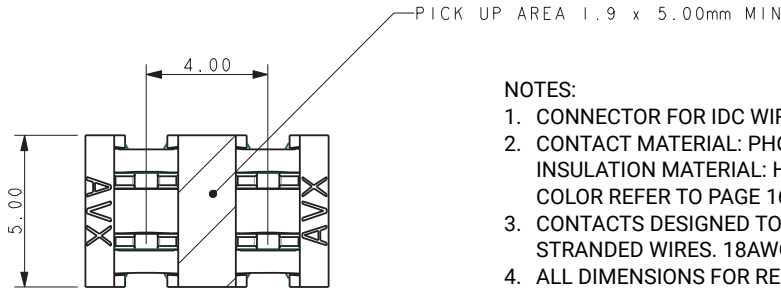
| | |
|----------|-------|
| REEL QTY | 1000 |
| LEADER | 480MM |
| TRAILER | 120MM |



STANDARD IDC 18-24 AWG: 00-9176

2 Position

18-24 AWG 2 WAY IDC CONNECTOR



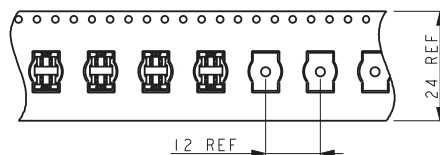
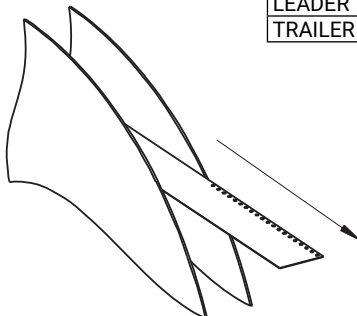
NOTES:

- CONNECTOR FOR IDC WIRE TO BOARD CONNECTION.
- CONTACT MATERIAL: PHOSPHOR BRONZE.
INSULATION MATERIAL: HIGH TEMPERATURE NYLON 46.
COLOR REFER TO PAGE 16.
- CONTACTS DESIGNED TO ACCEPT BETWEEN 20AWG AND 24AWG SOLID AND STRANDED WIRES. 18AWG WILL ONLY ACCEPT STRANDED WIRES, SEE TABLE.
- ALL DIMENSIONS FOR REFERENCE UNLESS OTHERWISE STATED.
- FOR FULL PRODUCT SPECIFICATION ON STANDARD CONNECTORS REFER TO ELCO SPEC 201-01-106. UL COMPONENTS REFER TO ELECO SPEC 201-01-106J.
- APPLICATION NOTES 201-01-124.
- FOR PCB SPACE RESTRICTED BY WIRE ASSEMBLY TOOLING REFER TO PAGE 23.
- FOR HAND WIRE ASSEMBLY TOOLING REFER TO PAGE 23.
- FOR UL PRODUCT CODES UL REFERENCE E90723 (US AND CANADA).
- ALL DIMENSIONS ± 0.20 TOLERANCE SPECIFIED.

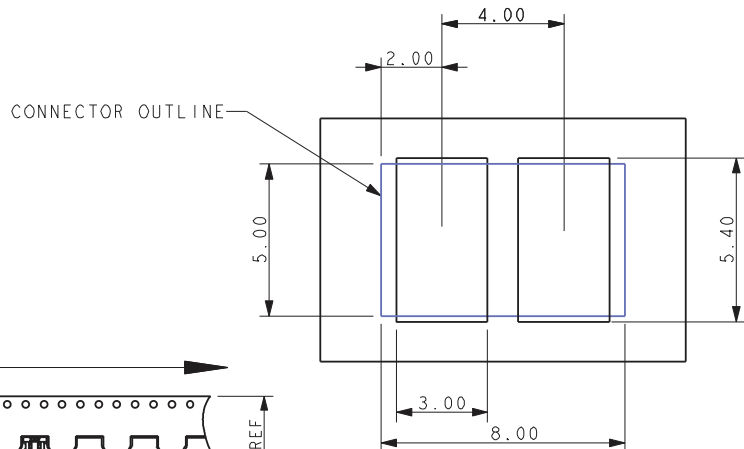
| Code | Accepted Wire Gauge | A | Wire Insulation | B |
|------|--------------------------|------|-----------------------|-----|
| 001 | 18AWG Stranded | 0.72 | $\varnothing 1.6-2.1$ | 2.1 |
| 011 | 20AWG Solid and Stranded | 0.60 | $\varnothing 1.6-2.1$ | 2.1 |
| 022 | 22AWG Solid and Stranded | 0.47 | $\varnothing 1.1-1.6$ | 1.6 |
| 032 | 24AWG Solid and Stranded | 0.37 | $\varnothing 1.1-1.6$ | 1.6 |

PACKING DETAILS

| | |
|----------|-------|
| REEL QTY | 1000 |
| LEADER | 480MM |
| TRAILER | 120MM |



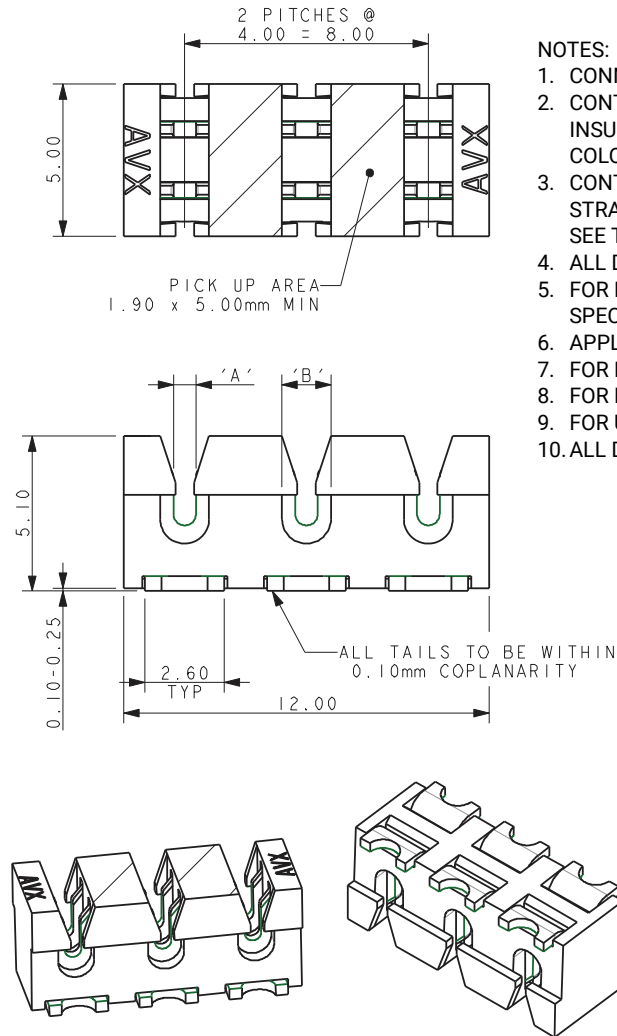
SMT PCB LAYOUT PURE TIN PADS



STANDARD IDC 18-24 AWG: 00-9176

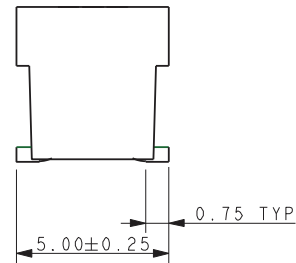
3 Position

18-24 AWG 3 WAY IDC CONNECTOR



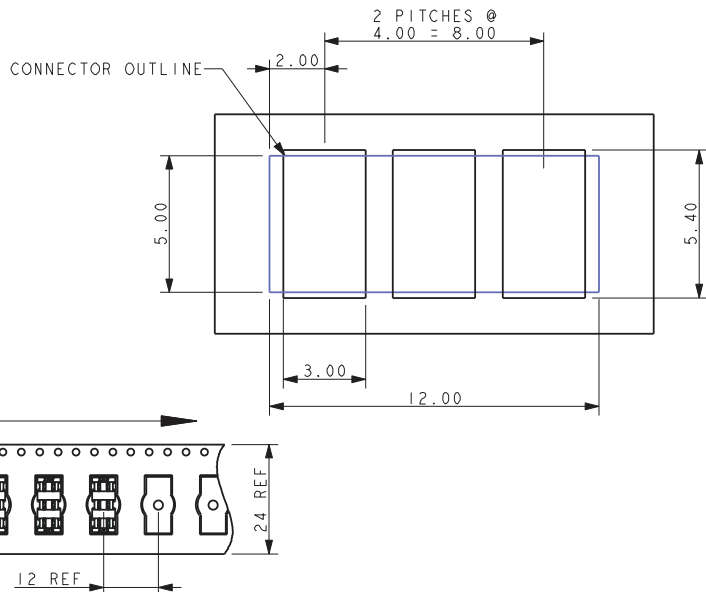
NOTES:

- CONNECTOR FOR IDC WIRE TO BOARD CONNECTION.
- CONTACT MATERIAL: PHOSPHOR BRONZE.
INSULATION MATERIAL: HIGH TEMPERATURE NYLON 46.
COLOR REFER TO PAGE 16.
- CONTACTS DESIGNED TO ACCEPT BETWEEN 20AWG AND 24AWG SOLID AND STRANDED WIRES. 18AWG WILL ONLY ACCEPT STRANDED WIRES, SEE TABLE.
- ALL DIMENSIONS FOR REFERENCE UNLESS OTHERWISE STATED.
- FOR FULL PRODUCT SPECIFICATION ON STANDARD CONNECTORS REFER TO ELCO SPEC 201-01-106. UL COMPONENTS REFER TO ELECO SPEC 201-01-106U.
- APPLICATION NOTES 201-01-124.
- FOR PCB SPACE RESTRICTED BY WIRE ASSEMBLY TOOLING REFER TO PAGE 23.
- FOR HAND WIRE ASSEMBLY TOOLING REFER TO PAGE 23.
- FOR UL PRODUCT CODES UL REFERENCE E90723 (US AND CANADA).
- ALL DIMENSIONS ± 0.20 TOLERANCE SPECIFIED.



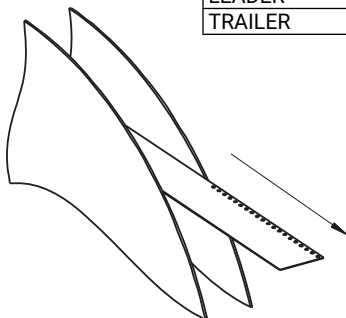
| Code | Accepted Wire Gauge | A | Wire Insulation | B |
|------|--------------------------|------|-----------------|-----|
| 001 | 18AWG Stranded | 0.72 | Ø1.6-2.1 | 2.1 |
| 011 | 20AWG Solid and Stranded | 0.60 | Ø1.6-2.1 | 2.1 |
| 022 | 22AWG Solid and Stranded | 0.47 | Ø1.1-1.6 | 1.6 |
| 032 | 24AWG Solid and Stranded | 0.37 | Ø1.1-1.6 | 1.6 |

SMT PCB LAYOUT PURE TIN PADS



PACKING DETAILS

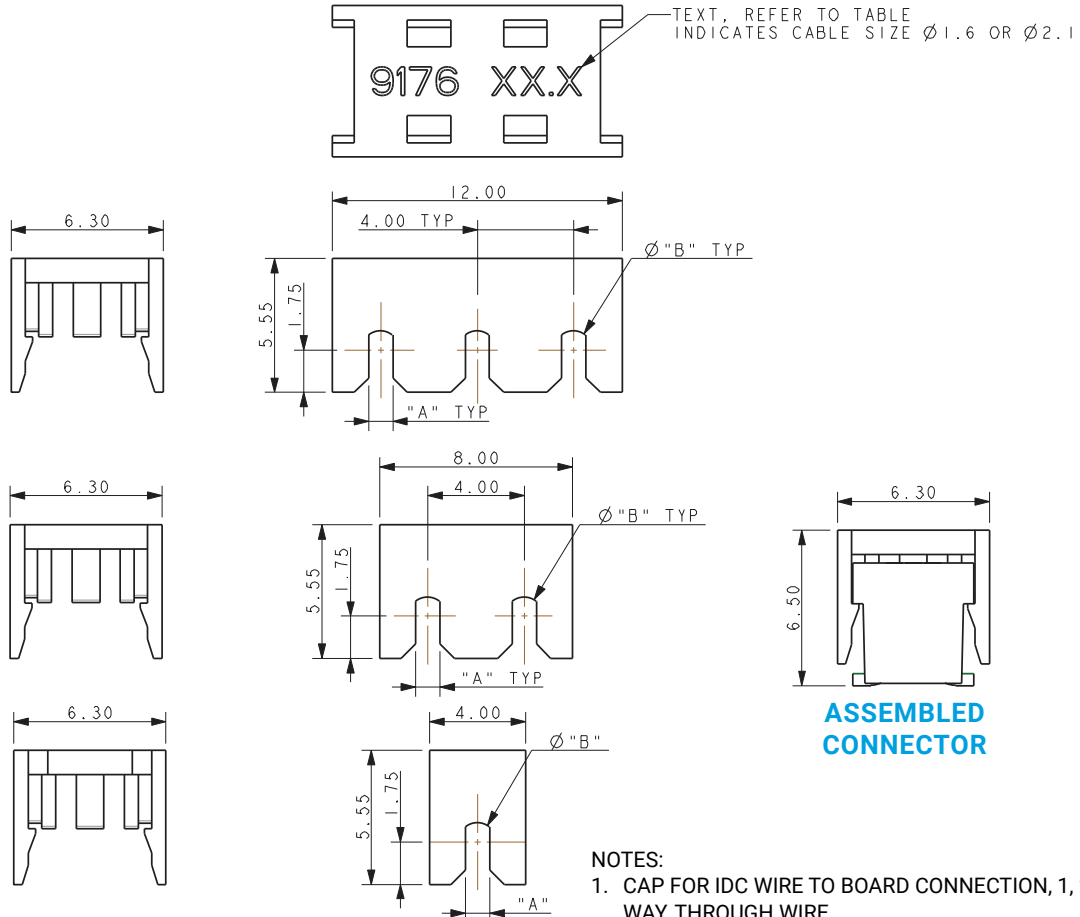
| | |
|----------|-------|
| REEL QTY | 1000 |
| LEADER | 480MM |
| TRAILER | 120MM |



STANDARD IDC 18-24 AWG: 00-9176

Accessory Cap - Through Wire

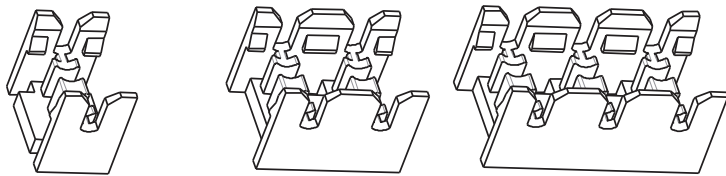
60-9176-00X-0XX-X00 ACCESSORY CAP – THROUGH WIRE



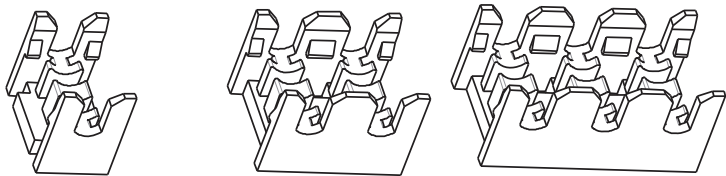
ASSEMBLED CONNECTOR

NOTES:

- CAP FOR IDC WIRE TO BOARD CONNECTION, 1, 2 AND 3 WAY, THROUGH WIRE.
- FOR USE WITH STANDARD 9176 IDC CONNECTORS, SEE PAGE 17 FOR THE CORRECT PART CODE TO MATCH WIRE.
- CAP MATERIAL: GLASS FILLED NYLON 46, FOR COLORS SEE TABLE BELOW.
- DIMENSIONS A, B AND TEXT, SEE TABLE BELOW.
- CAPS DESIGNED TO ACCOMMODATE WIRE INSULATION DIAMETERS 1.1MM TO 1.6MM AND 1.6MM TO 2.1MM.
- ALL DIMENSIONS SHOWN ARE REFERENCE DIMENSIONS.
- PACKED IN BAGS, 1000 PIECES PER BAG.
- ONE WAY CAP ASSEMBLY AID, REFER TO PAGE 25.
- ALL DIMENSIONS ± 0.20 TOLERANCE SPECIFIED.



60-9176-001-016-X00 60-9176-002-016-X00 60-9176-003-016-X00



60-9176-001-021-X00 60-9176-002-021-X00 60-9176-003-021-X00

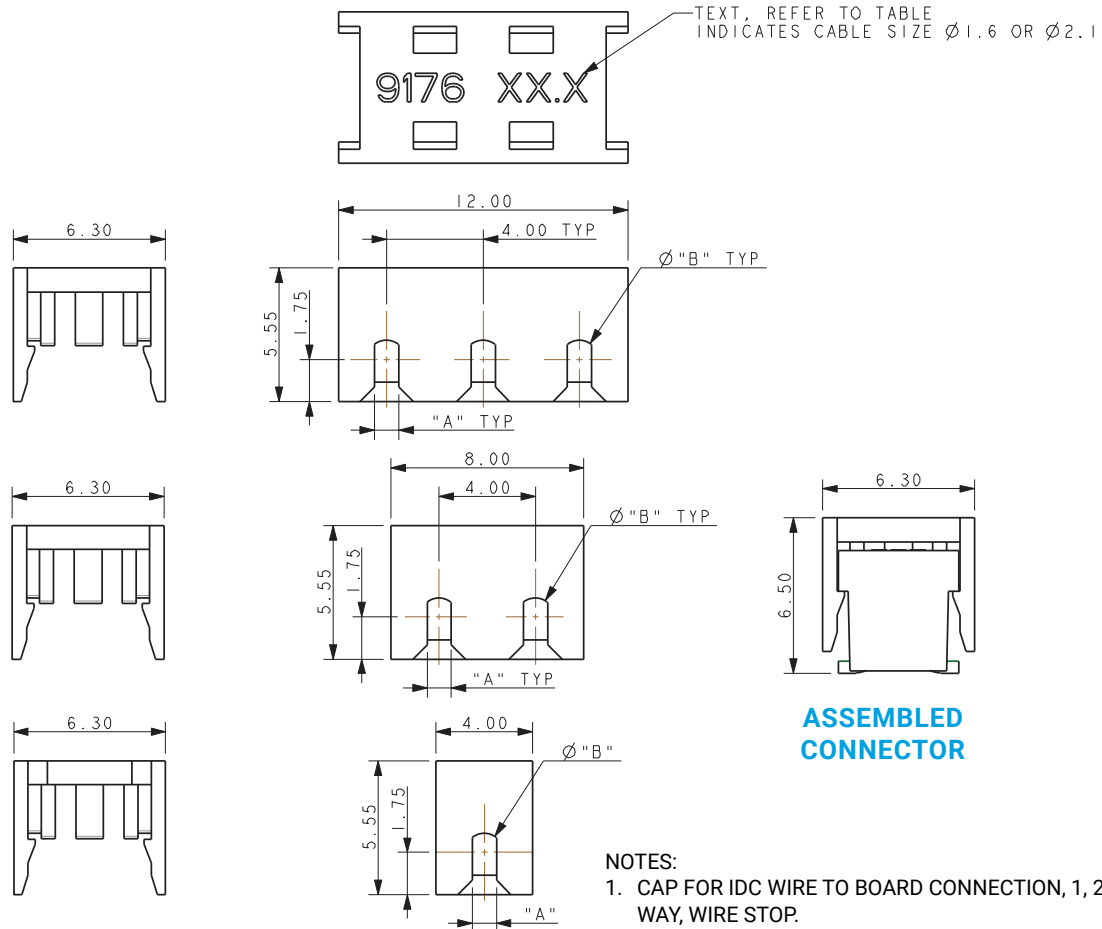
| Code | Slot A | Diameter B | Text |
|------|--------|------------|-------------------|
| 016 | 1.00 | 1.60 | $\varnothing 1.6$ |
| 021 | 1.50 | 2.10 | $\varnothing 2.1$ |

| Color | X00 |
|-------|-----|
| Black | 000 |
| White | 100 |

STANDARD IDC 18-24 AWG: 00-9176

Accessory Cap - Wire Stop

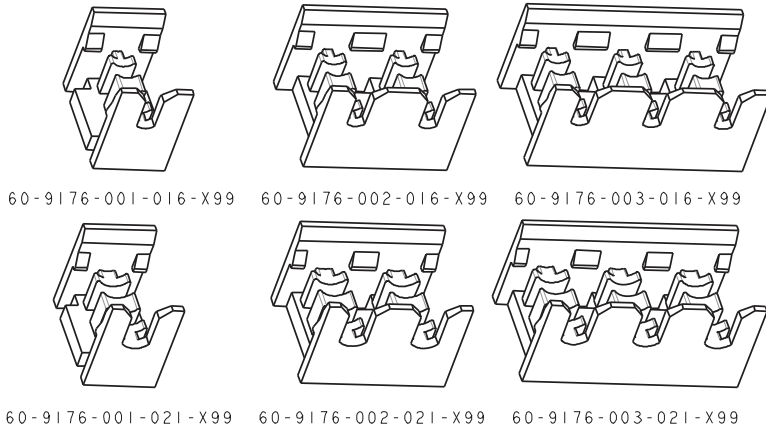
60-9176-00X-0XX-X99 ACCESSORY CAP - WIRE STOP



ASSEMBLED CONNECTOR

NOTES:

1. CAP FOR IDC WIRE TO BOARD CONNECTION, 1, 2 AND 3 WAY, WIRE STOP.
2. FOR USE WITH STANDARD 9176 IDC CONNECTORS, SEE PAGE 17 FOR THE CORRECT PART CODE TO MATCH WIRE.
3. CAP MATERIAL: GLASS FILLED NYLON 46, FOR COLORS SEE TABLE BELOW.
4. DIMENSIONS A, B AND TEXT, SEE TABLE BELOW.
5. CAPS DESIGNED TO ACCOMMODATE WIRE INSULATION DIAMETERS 1.1MM TO 1.6MM AND 1.6MM TO 2.1MM.
6. ALL DIMENSIONS SHOWN ARE REFERENCE DIMENSIONS.
7. PACKED IN BAGS, 1000 PIECES PER BAG.
8. ONE WAY CAP ASSEMBLY AID, REFER TO PAGE 25.
9. ALL DIMENSIONS ± 0.20 TOLERANCE SPECIFIED.



60-9176-001-016-X99 60-9176-002-016-X99 60-9176-003-016-X99

60-9176-001-021-X99 60-9176-002-021-X99 60-9176-003-021-X99

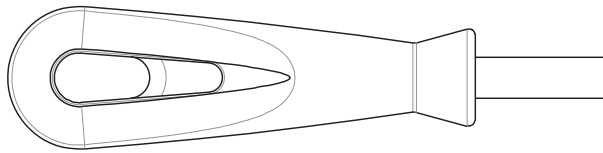
| Code | Slot A | Diameter B | Text |
|------|--------|------------|------|
| 016 | 1.00 | 1.60 | Ø1.6 |
| 021 | 1.50 | 2.10 | Ø2.1 |

| Color | X00 |
|-------|-----|
| Black | 000 |
| White | 100 |

STANDARD IDC 18-24 AWG: 00-9176

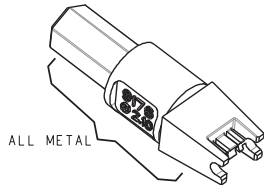
Hand Insertion Tooling for Single 18/24 Gauge Wire

HAND INSERTION TOOLING FOR SINGLE 18/24 GAUGE WIRE



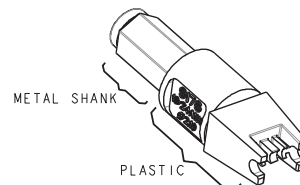
UNIVERSAL HANDLE

| Details | Tool Part Number |
|-------------------------|---------------------|
| 6.35 A/F HEX BIT HOLDER | 06 7000 7730 01 000 |



HIGH PRODUCTION Metal

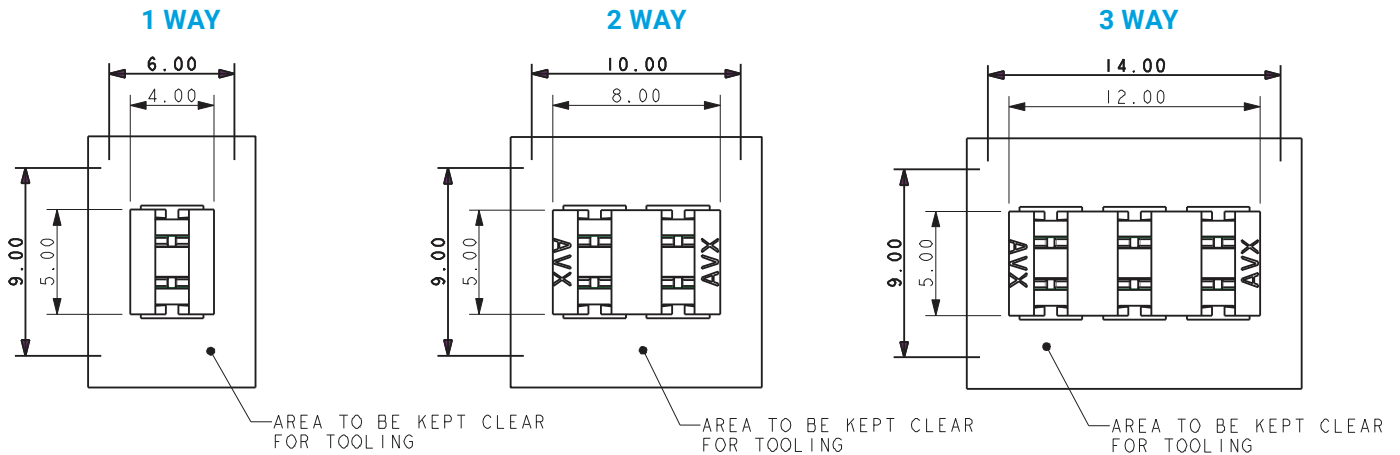
| Max Insulation Dia | Tool Part Number |
|--------------------|---------------------|
| Ø2.10 | 06 9176 7017 01 000 |
| Ø1.60 | 06 9176 7017 02 000 |



MEDIUM PRODUCTION Metal/Plastic

| Max Insulation Dia | Tool Part Number |
|--------------------|---------------------|
| Ø2.10 | 06 9176 7016 01 000 |
| Ø1.60 | 06 9176 7016 02 000 |

CLEARANCE AREA ON PCB FOR HAND TOOLING

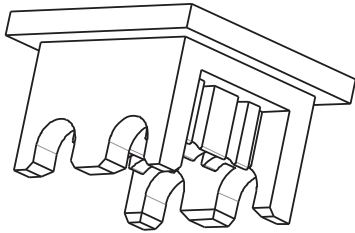


STANDARD IDC 18-24 AWG: 00-9176

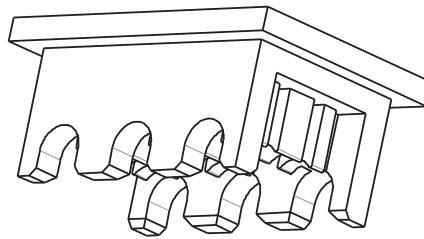
Insertion Tooling Requires Hand Press with Flat Rock Plates

INSERTION TOOLING REQUIRES HAND PRESS WITH FLAT ROCK PLATES

2 WAY



3 WAY

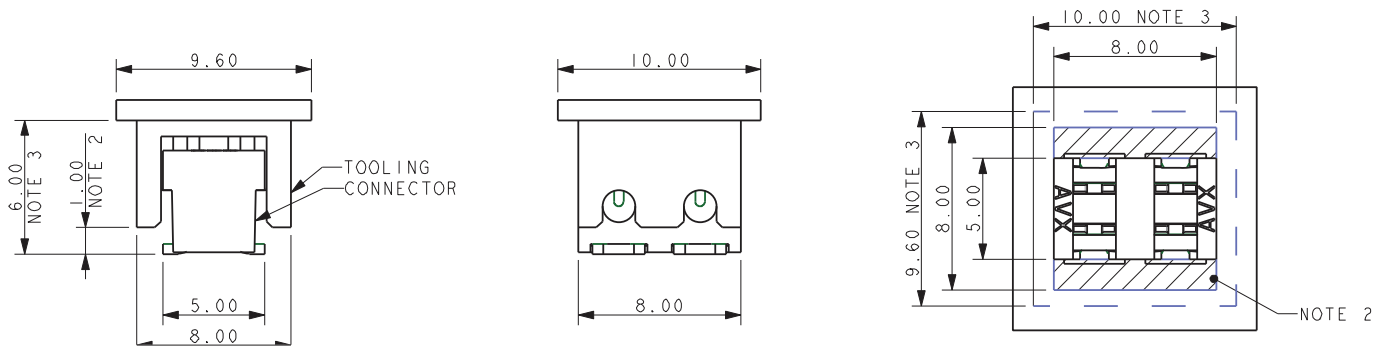


HIGH PRODUCTION Metal

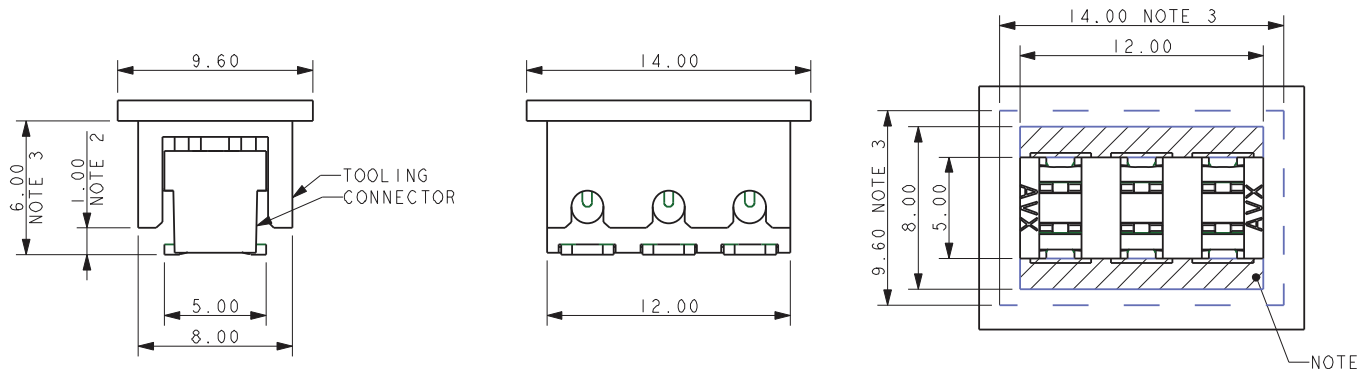
| No. of Ways | Max Insulation Dia | Tool Part Number |
|-------------|--------------------|---------------------|
| 2 | Ø2.10 | 06 9176 7017 01 002 |
| | Ø1.60 | 06 9176 7017 02 002 |
| 3 | Ø2.10 | 06 9176 7017 01 003 |
| | Ø1.60 | 06 9176 7017 02 003 |

PCB RESTRICTED AREAS FOR PRESS ASSEMBLY TOOLING

2 WAY



3 WAY



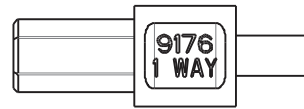
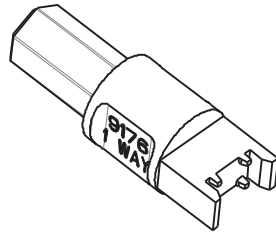
NOTES:

1. DIMENSIONS SHOWN ARE REFERENCE DIMENSIONS.
2. MAXIMUM COMPONENT HEIGHT 1.00MM IN THIS AREA.
3. MAXIMUM COMPONENT HEIGHT 6.00MM IN THIS AREA.
4. THE SAME RESTRICTIONS APPLY TO ALL WIRE INSULATION DIAMETERS.
5. 2 AND 3 WAY TOOLS ONLY, FOR USE UNDER HAND PRESS WITH FLAT PLATES.
6. FOR HAND TOOLING REFER TO PAGE 23.
7. ALL DIMENSIONS ±0.20 UNLESS TOLERANCE SPECIFIED.

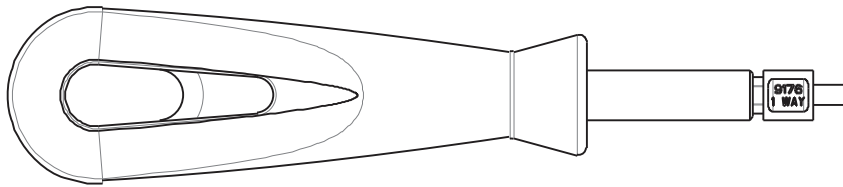
STANDARD IDC 18-24 AWG: 00-9176

Hand Insertion Tooling for One Way Cap Insertion / Clearance Area on PCB for Hand Tooling

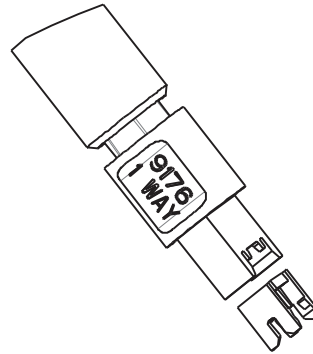
HAND INSERTION TOOLING FOR ONE WAY CAP INSERTION



06-9176-7028-01-000

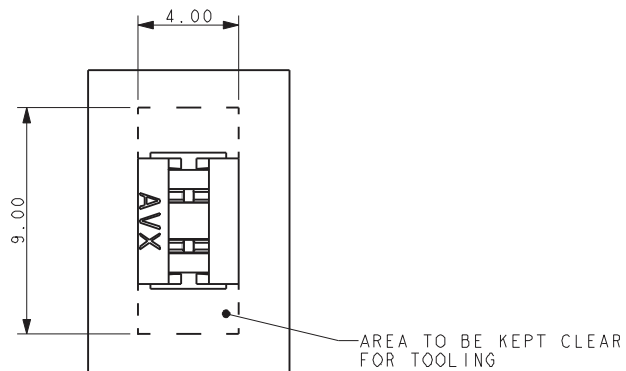


TO BE USED WITH 06-7000-7730-01-000
UNIVERSAL HANDLE



FOR ASSEMBLY INSTRUCTION REFER TO 201-01-124 APPLICATION NOTES

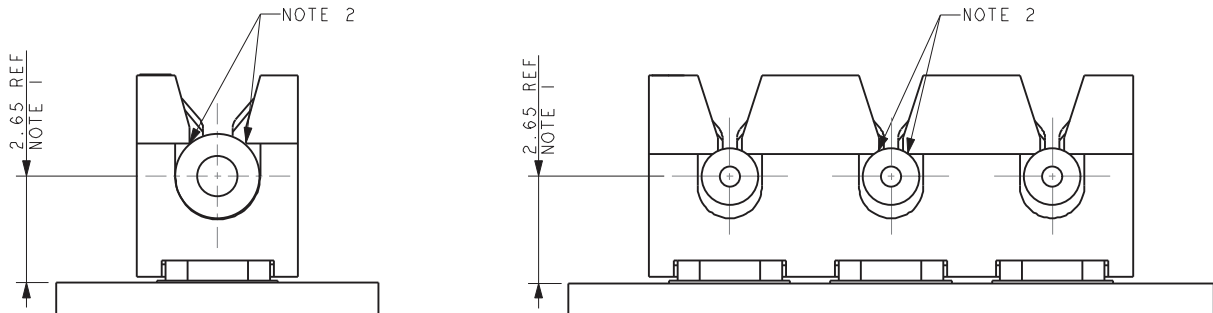
CLEARANCE AREA ON PCB FOR HAND TOOLING



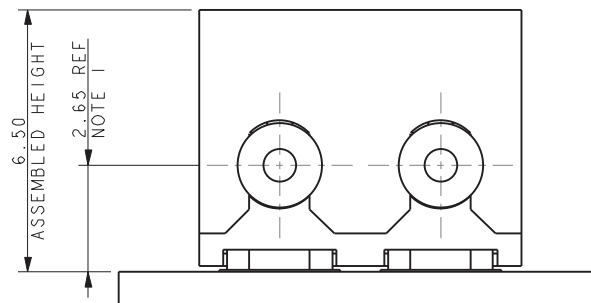
STANDARD IDC 18-24 AWG: 00-9176

Assembled Connector

ASSEMBLED CONNECTOR



ASSEMBLED CONNECTOR



CONNECTOR WITH CAP

NOTES:

1. ASSEMBLED HEIGHTS INCLUDE 0.10MM ALLOWANCE FOR PAD AND SOLDER THICKNESS.
NO ALLOWANCE HAS BEEN MADE FOR ANY SOLDER RESIST OR OTHER FEATURES.
2. WHEN THE WIRE IS ASSEMBLED THE INSULATION SHOULD BE TRAPPED BY THESE EDGES.

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