

Amphenol	Product Application Specification For Connector Micro cool edge Orthogonal NF1/NGSFF series	Product Spec. # S-MDT-004		Date : Jul.10,2018
		Rev. A1	ECN # CDXXXX	Page : 1 of 10

**Product Application Specification
For Connector
Micro cool edge Orthogonal NF1/NGSFF series**

REVISION RECORD

<u>REV</u>	<u>PAGE</u>	<u>DESCRIPTION</u>	<u>ECN#</u>	<u>DATE</u>	<u>Prepared By</u>
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Prepared by : _____ _____ (Product Engineer)	Date: _____	Approved by : _____ _____ (Engineering Manager)	Date: _____
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1. OBJECTIVE

This specification provides information and requirements for customer application of the Micro cool edge Orthogonal NF1/NGSFF Connector. It is intended to provide general guidance for process development. It should be recognized that no single process will work under all customer applications and the customers should develop processes to meet individual needs. However, if the processes vary from the recommended one, Amphenol cannot guarantee acceptable results.

2. SCOPE

This specification provides information and requirements regarding application of Orthogonal NF1/NGSFF Connector to printed circuit boards (PCB). The connectors are designed for mother/daughter board applications.



Figure 1: Orthogonal NF1/NGSFF Connectors

3. DRAWING AND APPLICABLE DOCUMENTS

- Amphenol Product Specification S-MDT-003
- Application Amphenol Customer Drawings

Amphenol product drawings and specifications are available by accessing the Amphenol website or contacting the Amphenol Technical Service. In the event of a conflict between this specification and the product drawing, the drawing takes precedence. Customers should refer to the latest revision level of Amphenol product drawings for appropriate product details.

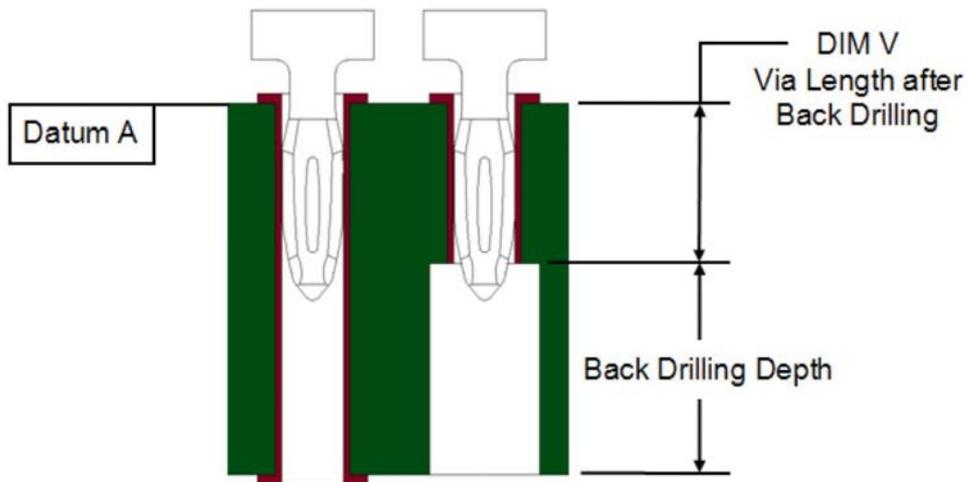


Figure 4: View of Back Drilling

After a back drilling operation, the remaining via barrel length(Dim V) must be at least 1.2mm to ensure a reliable connection between the press-fit tails and the PCB. Assuming that the PCB manufacture can maintain a back drilling depth tolerance of $\pm 0.30\text{mm}$ relative to datum A, the nominal via length after back drilling would need to be 1.5mm.

5. APPLICATION TOOLING

Orthogonal Micro cooledge Connector

The application tools recommended for Orthogonal Micro cooledge Connector are shown in Figure 4. A special bottom support tool will be necessary only if the connector tails are longer than the thickness of the PCB (the nominal tail length is 1.20mm). This tool could be a PCB with oversized holes or a custom tool designed by the user.

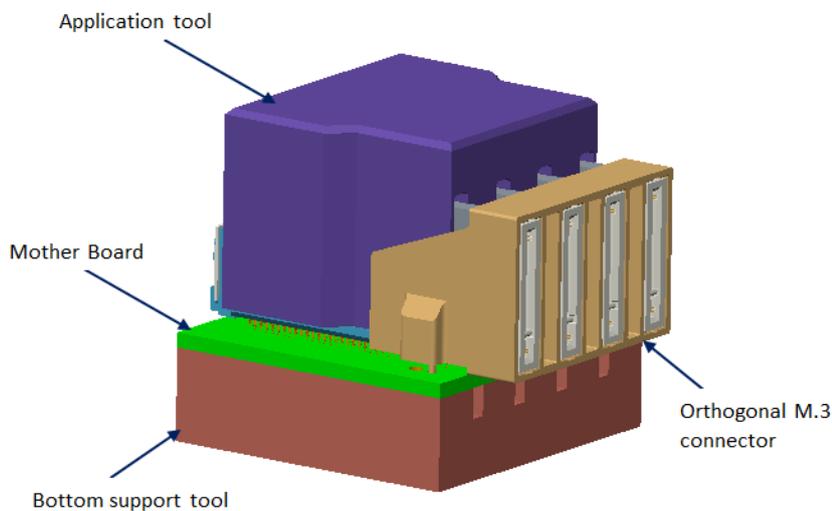


Figure 5: Orthogonal NF1/NGSFF Connector application tools

CUSTOM TOOLING

The application tools recommended drawing for Orthogonal NF1/NGSFF Connector is shown in Figure 6.

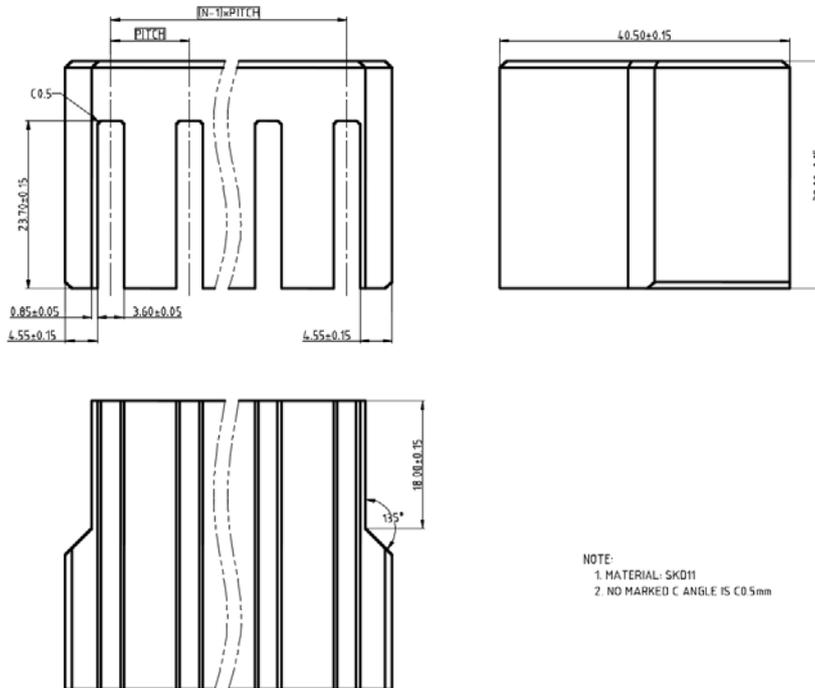


Figure 6: Orthogonal NF1/NGSFF connector application tools drawing

INSERTION PRESSES Considerations when specifying a press

The specified application tooling can work in a variety of pressed. Several important items to consider when selecting an insertion press include:

- The press must have sufficient force capabilities to insert the specific receptacle configuration.
- The press ram should be sufficiently long to cover the Press Block tooling. This will prevent tolling flex.
- The press table should be large enough to properly accommodate the PCB size.

Typical press types include:

- Manual arbor press
- Pneumatic press
- Hydraulic press
- Servo driven electronic press (IMPRESS)

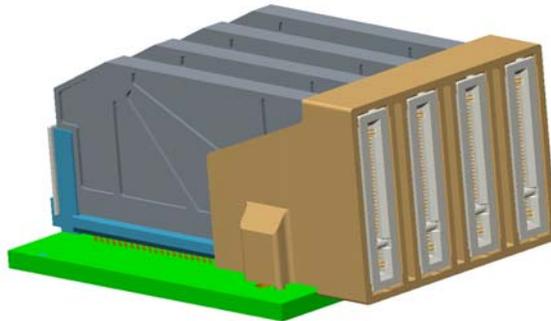
The preferred press type is the servo driven electronic press. This press gives the best control during the insertion process and offers the most flexibility. Amphenol offers arbor, pneumatic and electronic presses. For more information, contact your local Customer Service Representative.

6. APPLICATION PROCEDURE

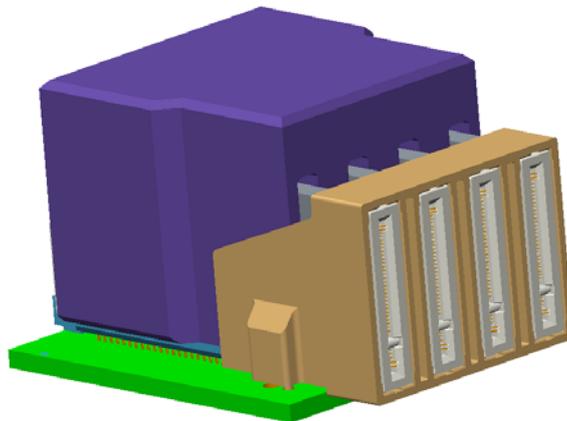
Orthogonal NF1/NGSFF Connector

The application procedure for the Orthogonal NF1/NGSFF connector is as follows.

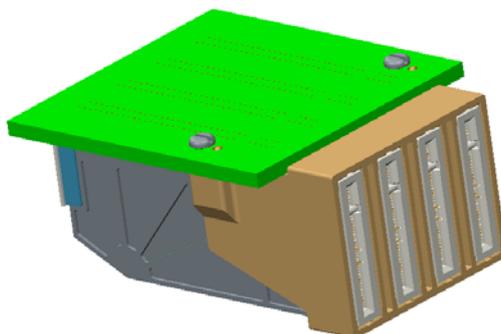
- Place Connector in the desired location on the backplane taking care to assure that all press-fit tails line up with the proper holes.



- Place the application tool in the proper location with respect to the Connector as shown below.



- Press-fit: To ensure proper insertion, connectors must be centered beneath the press ram.
- Remove application tool and Install the M2 screw (Length 5mm).



RECOMMENDED INSERTION FORCES

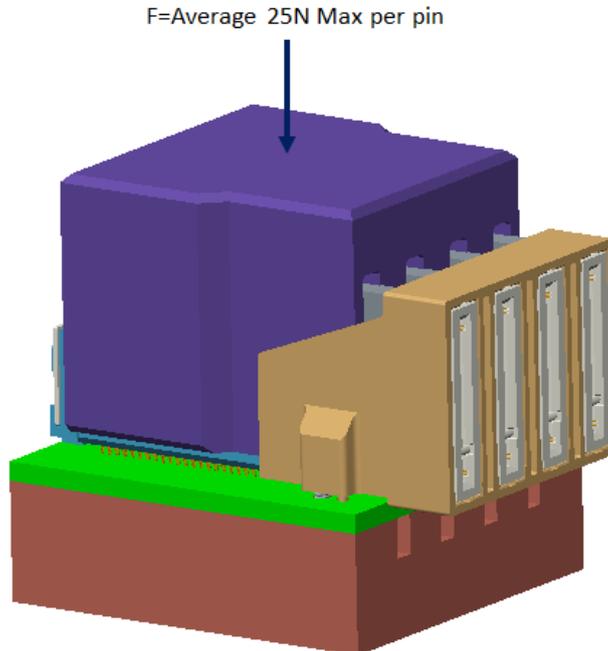
The recommended maximum insertion force for each press-fit pin is 25 N.

These recommended maximum force recommendations have been determined to yield acceptable insertion results for SnPb PTH's. While it is acceptable to use a lower force per press-fit pin, steps should be taken to guarantee that the connector is fully seated. Force settings may vary with different types of PTH finishes. Customers should develop parameters that best suit individual application requirements.

EXAMPLE: For 1x4 Orthogonal NF1/NGSFF Connector, there are 268 press-fit tails being inserted into the PC board. Therefore, the maximum recommended press setting would be 6700 N (268 press-fit tails x 25 N).

- Actuate the insertion press

Actuation of the insertion press should be slow and controlled (example: 25.4mm/minute), not fast like a punch press. Inserting to a specified force will yield more consistent results than inserting to a set distance.



- Remove assembly from insertion press.
- Inspect product for proper application.

7. POST-APPLICATION INSPECTION REQUIREMENTS

Post-application inspection should consist of several simple checks to assure that the Connector is applied properly and is not damaged.

- Visually assure that all press-fit tails are seated in the proper PCB holes and that none have been crushed during application.
- Visually assure that the plastic standoffs on the bottom of each assembly are seated within 0.10 mm of flush to the PCB but not crushed (see Figure 8). A larger gap beneath the standoffs may indicate that the connector is not seated fully or is not seated parallel to the board. This can cause misalignment when the PCB is mated to the SSD card.

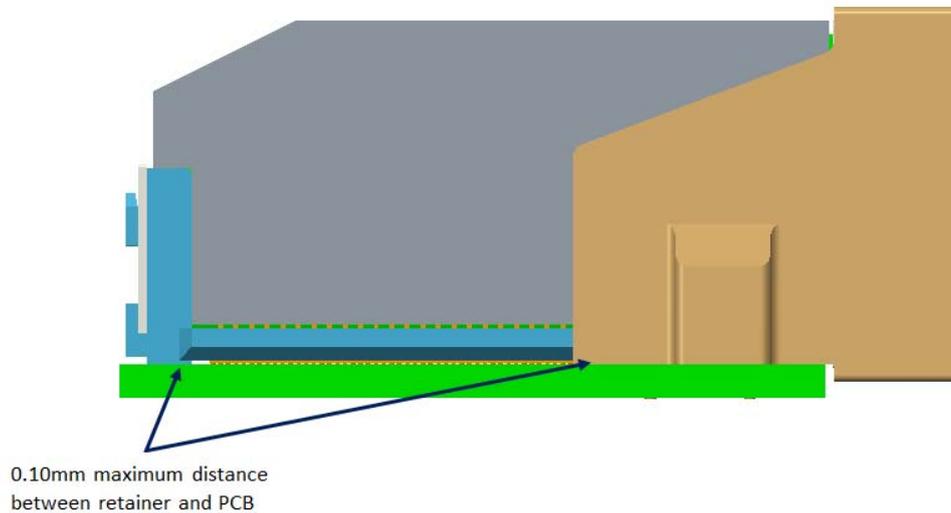


Figure 9: Proper seating depth

8. CONNECTOR REMOVAL TOOLING

The following are Amphenol removal tool part numbers for Orthogonal NF1/NGSFF Connectors. The referenced Amphenol Manual describes proper connector removal procedures for each type of connector.

Connector PN	Column pitch, mm	Removal tool part no	Manual no.
MD367XM23100X12	11.00	MD367XREMOVAL	R-MDT-100

For some connector configurations it may be possible to use multiple repair methods. All recommended methods for repair will be described in the Amphenol manuals listed above.