

# molex<sup>®</sup> APPLICATION SPECIFICATION

## 1.0 SCOPE

This specification covers the requirements for the application of Nano-Fit 2.50 mm pitch wire to board connector systems.

## 2.0 PRODUCT NAME AND SERIES NUMBERS

Nano-Fit Female Crimp Terminal	105300
Nano-Fit Receptacle Housing	105307 / 105308
TPA	105325
Nano-Fit Vertical Header	105429 / 105431
Nano-Fit Right Angle Header	105405 / 105430

## 3.0 REFERENCE DOCUMENTS

See the appropriate sales drawings for information on specific part numbers and materials.

## 4.0 GENERAL APPLICATION NOTES

### Appearance:

- Parts conform to class "B" requirements of cosmetic specification PS-45499-002 except where noted on the sales drawings.

### Connector Application

- This connector system is designed to mate gold plating to gold plating OR tin plating to tin plating. Never cross mate tin plated parts to gold plated parts.
- This connector system is not designed for current sharing (i.e. splitting one current load across multiple circuits)
- Connectors are not to be mated or unmated while circuits are live except per the current interrupt rating listed in product specification: PS-105405-001
- UL rating only maintained when used with molex application tooling**
- the product was tested and qualified with molex application tooling**

### Packaging

- The parts should remain in the original Molex packaging until ready for use to prevent damage.

### Chemical Exposure

- Do not store terminals or header assemblies near any chemicals listed below as they may cause corrosion in the terminal contacts.

Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur Nitrites		Tartrates

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>1 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>

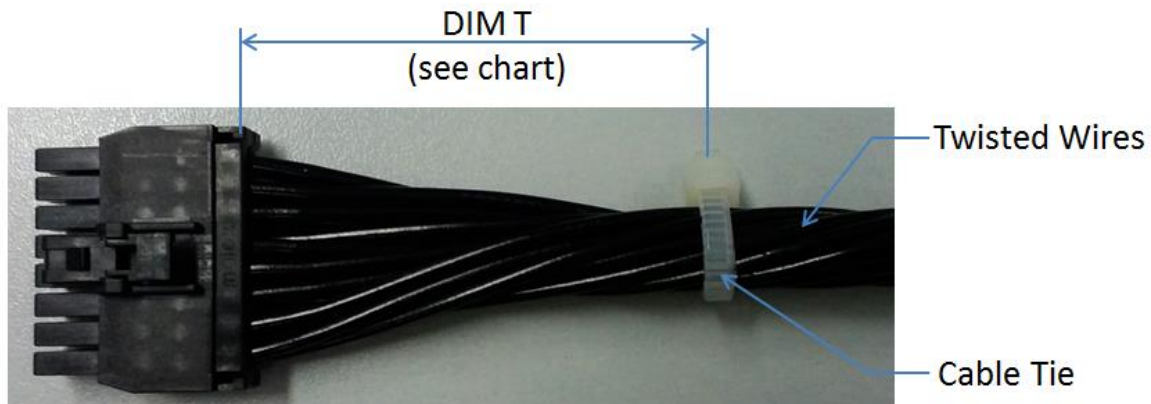
# molex<sup>®</sup> APPLICATION SPECIFICATION

## Crimped Terminal Extraction

- Female terminal extraction tool: See Molex part# 63824-4600 instructions online on website. Do not reuse terminals that have been removed with the extraction tool. The receptacle housing can be reused if it was not damaged.

## Minimum wire bend, cable tie or twist location

Circuit Sizes	Dim T Min. (single row)	Dim T Min. (dual row)
2	.50" (12.7 mm)	
4-6	.75" (19.1 mm)	.75" (19.1 mm)
8	1.00" (25.4 mm)	
10-12		1.25" (31.75 mm)
14-16		1.25" (31.75 mm)



- The "T" dimension defines a "free" length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. This dimension is a general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.
- Wires are to be dressed in such a manner to allow the terminals to float freely in the receptacle pocket.

## Connector Testing

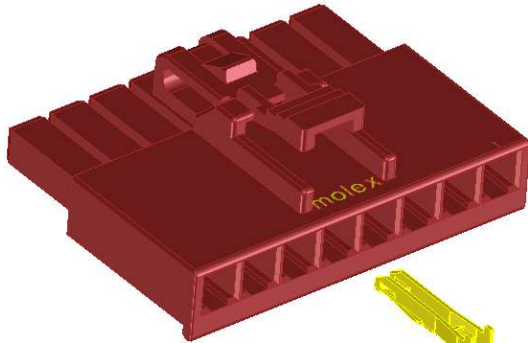
- Do not use Nano-Fit connectors as test parts, they are not intended to be used with repeated mating. Follow durability cycles as listed in PS-105300-100

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>2 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>

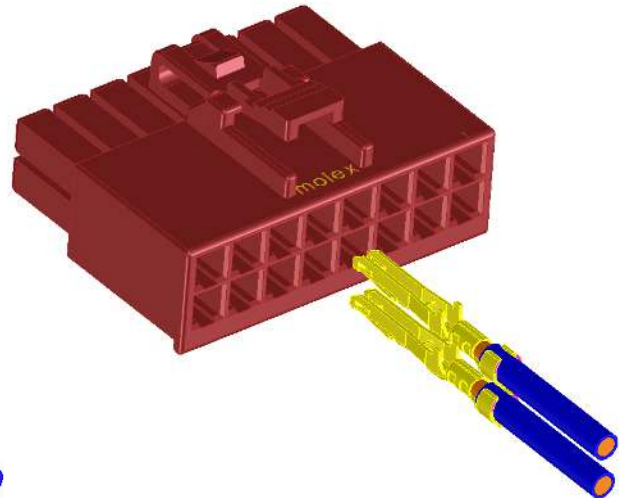
# molex<sup>®</sup> APPLICATION SPECIFICATION

## Crimped Terminal Insertion

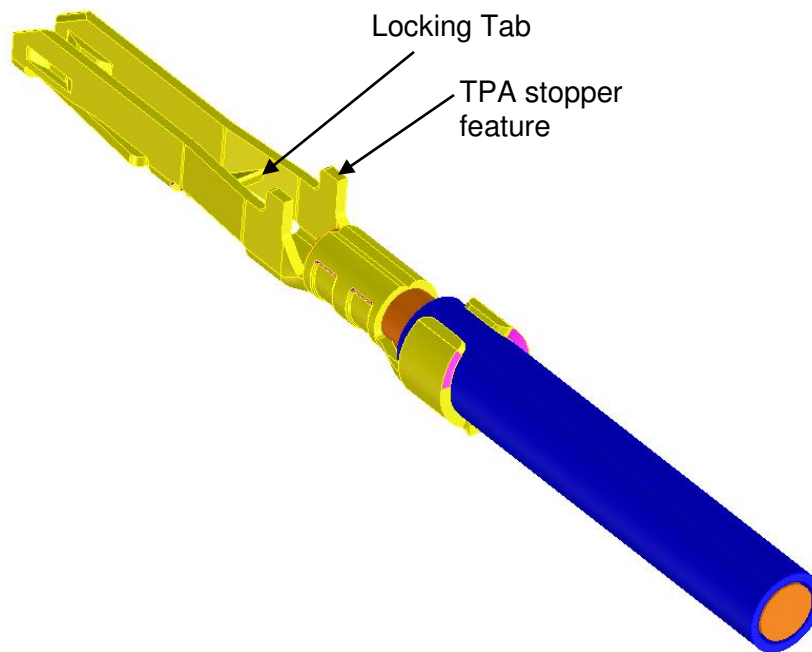
- Terminals are inserted in same orientation for top and bottom row. Details refer to below **pictures**.
- DO NOT reuse receptacle housing if a crimped terminal was pushed out without an extraction tool.



Single Row Receptacle –  
Terminal position into the housing



Dual Row Receptacle –  
Terminal position into the housing

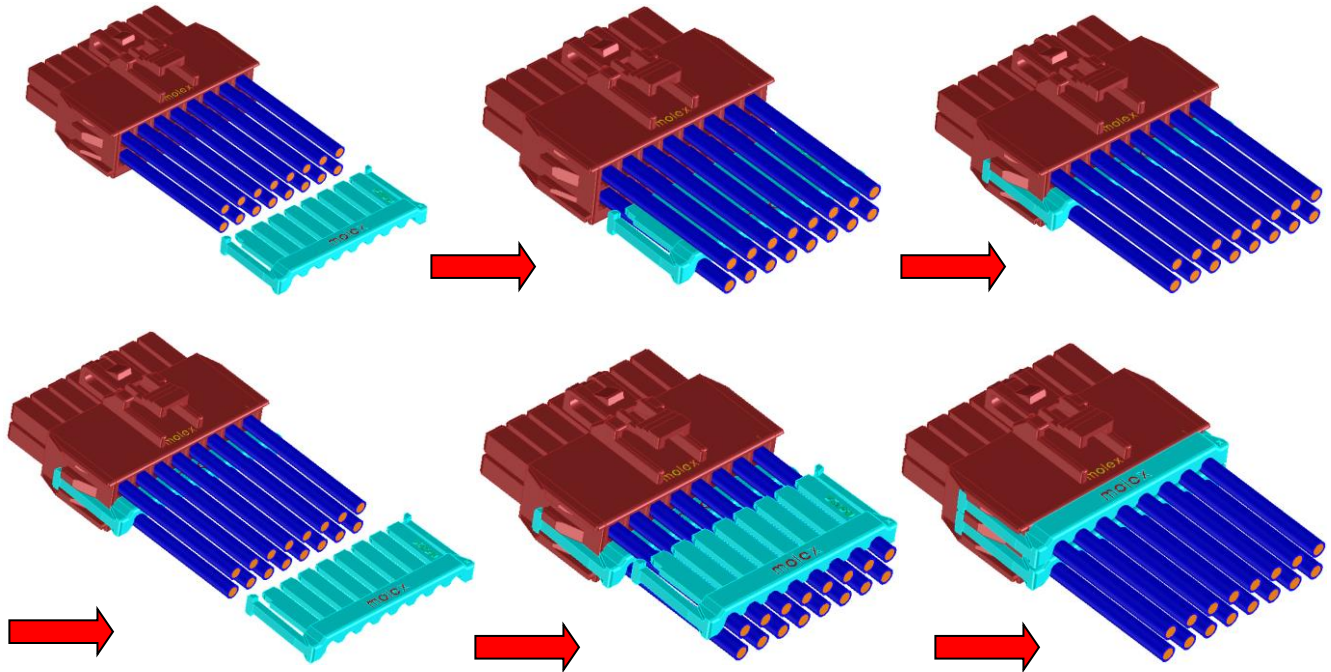


- Ensure terminals are fully seated and locked during terminal insertion to the receptacle housing

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>3 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>

# molex<sup>®</sup> APPLICATION SPECIFICATION

## TPA Assembly over the wires



- Do not use damaged TPA showing as below picture



### Crimp Terminal Appearance

- Forming marks on female terminal are normal. These are due to stretching of the plating during the forming process and are superficial cracks on the plating surface. Refer to cosmetic specification PS-45499-002.

### Crimp Terminal Handling

- Due to exposed terminal interface, keep crimp terminals on prepackaged reel until they are crimped onto wires. Do not precut and bulk pack terminals due to risk of damaging the contact

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>4 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>

# molex<sup>®</sup> APPLICATION SPECIFICATION

interface. Store and handle crimped terminals so the interface does not make contact with other terminals or foreign objects. If terminal interface is damaged please discard prior to assembly.

## Crimping

- For acceptable crimp tools and specifications see application tooling section on Molex.com listed for each terminal part number.
- Use with multi strand wire only. Single strand wire should not be used.
- This female crimp terminal is designed for single wire crimping only, no double wire crimping is allowed.
- Use only Molex specified crimp tooling, refer to Molex.com for acceptable crimp tooling. Crimped terminals must also meet Molex crimp specifications. Using crimp tooling/specifications other than specified voids any product warranties and will negatively impact mechanical and electrical performance.

## Header Appearance

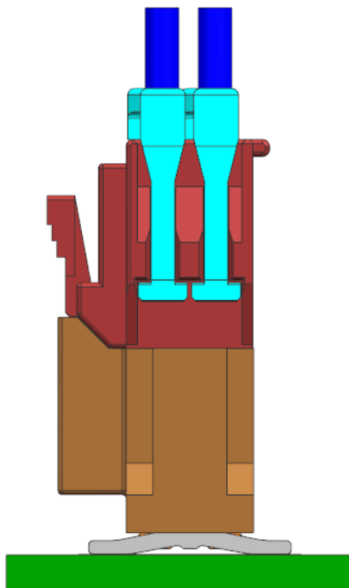
- Refer to cosmetic specification PS-45499-002.

## Right Angle Header Appearance

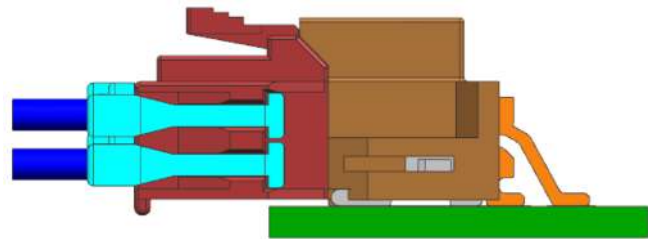
- Forming marks on header pins are acceptable. Refer to cosmetic specification PS-45499-002.

## Header Assembly to Board

- Headers are designed with press fit pegs and need to be pushed into the circuit board.
- Header should be flush with board after insertion.
- See below for solder process information.



Vertical type



Right angle type

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>5 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>

# molex<sup>®</sup> APPLICATION SPECIFICATION

## Solder Process Temperatures

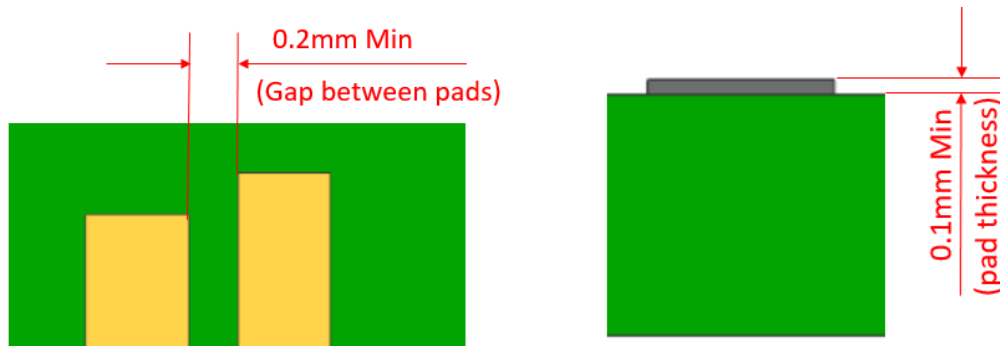
- Wave Solder: 260°C Max
- Reflow Solder: 260°C Max

## Reflow Soldering Profile

- See AS-40000-5013

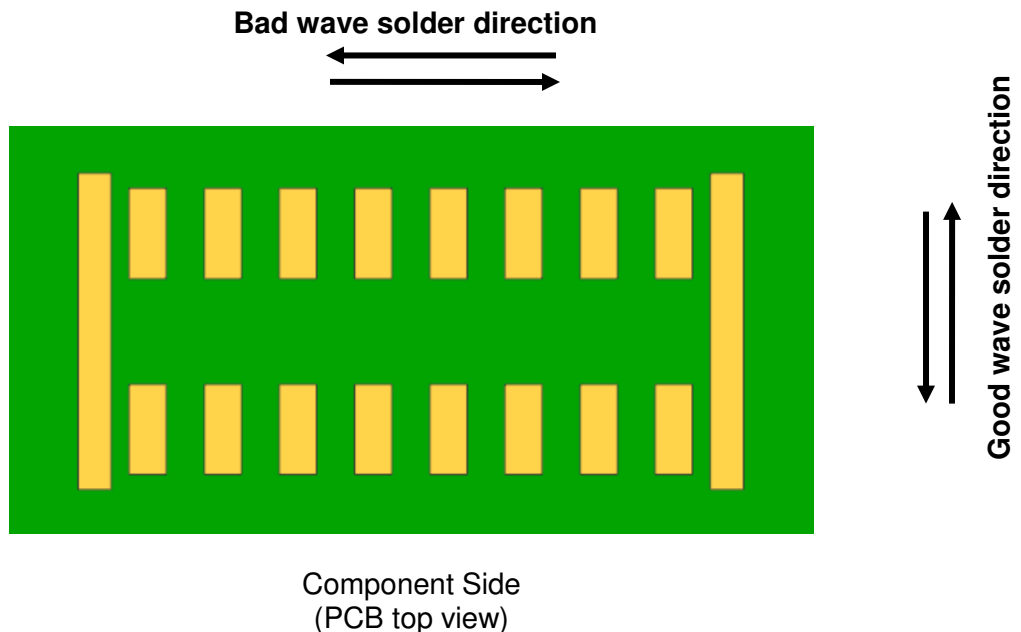
## Plated Thru Hole profile

- Keep outer ring at 5 mils max with at least 20 mils distance between adjacent metal pads



## Wave Solder Direction

- Preferred wave solder direction:



REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>6 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>




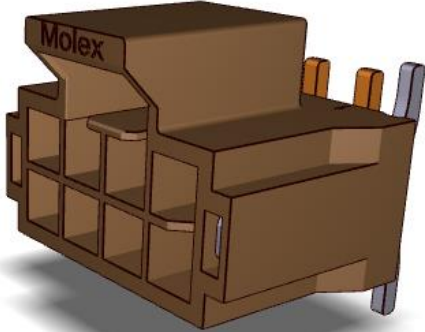

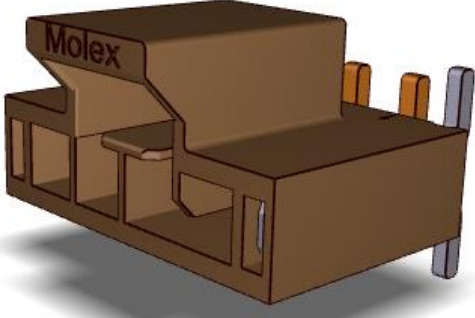
# molex<sup>®</sup> APPLICATION SPECIFICATION

## HANDLING OF NANO-FIT WIRE-TO-BOARD (WTB) HEADER ASSEMBLIES IN TRAYS

### 1.0 SCOPE

This specification covers the handling guidelines for Molex Nano-Fit Wire-to-Board (WTB) Header Assembly connectors. Any figures and illustrations found in this document are for graphical representation only and are not drawn to scale.

When corresponding with Molex personnel, kindly use the terminology provided in this document to facilitate your request for more information. Basic terms and features of this product are illustrated below.

	Right Angle	Vertical
Dual row	 <p>105312</p>	 <p>105310</p>
Single row	 <p>105311</p>	 <p>105309</p>

### 2.0 DESCRIPTION ON PRODUCT PACKAGING

Nano-Fit WTB header assemblies are packed in reels:

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>7 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>

# molex<sup>®</sup> APPLICATION SPECIFICATION



## 3.0 REFERENCE DOCUMENT

### 3.1 DRAWINGS:

Packaging Specification Drawings (PSD) is available from the Molex service network. By referring to the appropriate PSD for information on number of parts per reel, number of reels per carton, orientation of parts and reels vs packaging method.

In the event of any discrepancies between the information contained in the PSD and this specification or with any other technical documentation supplied. PSD take precedence.

## 4.0 PROCEDURES

### 4.1 HANDLING OF PACKAGING

Simulations have been done on the potential of on spot handling scenario by the material handlers/operators. This session will guide them on the dos and don'ts when handling the received packaging.

- a) Avoid stacking the pallet on another pallet.

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>8 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>



# molex® APPLICATION SPECIFICATION



b) Ensure the 'Molex' logo is at upright location when opening the box.



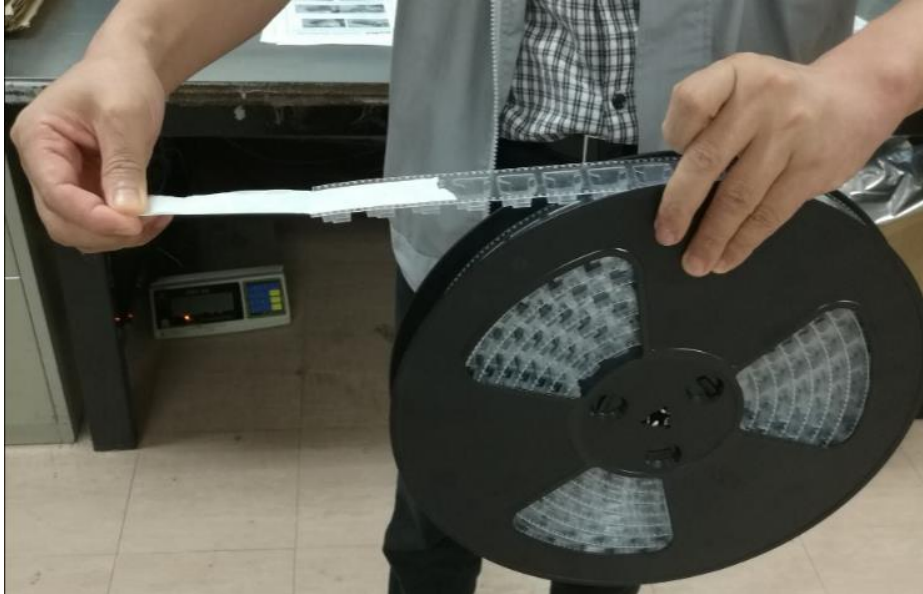
c) Lift up one reel at a time from the carton, use both hands, by the whole reel as shown.



REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>9 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>

# molex<sup>®</sup> APPLICATION SPECIFICATION

## 4.2 unrolling direction.



- End of Document -

REVISION: <b>A</b>	ECR/ECN INFORMATION: EC No: 118358 DATE: 2016/06/17	TITLE: <b>APPLICATION SPECIFICATION FOR NANO-FIT WIRE TO BOARD CONNECTOR SYSTEM</b>	SHEET No. <b>10 of 10</b>
DOCUMENT NUMBER: <b>AS-105405-100</b>	CREATED / REVISED BY: <b>Dixon Li</b>	CHECKED BY: <b>Anson Yin</b>	APPROVED BY: <b>Anson Yin</b>