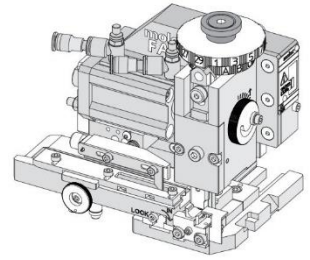


**Order Number**  
**213069-4510**

# molex

## Application Tooling Specification



### FEATURES

- Applicator designed to industry-standard mounting and 135.80mm (5.346") shut height
- Quick setup time; plus, the crimp height, track and feed adjustments can be set without removing the applicator from the press
- Fine adjustment allows users to achieve target with little effort by adjusting in increments of 0.015mm (.0006") for conductor crimp height and 0.025mm (.001") for insulation height
- Independent adjustment rings allow users to quickly adjust the conductor or insulation crimp height without affecting each other
- Directly adapts to most automatic wire processing machines
- This applicator is configured with a pneumatic feed, which requires a 4-way pneumatic valve for operation

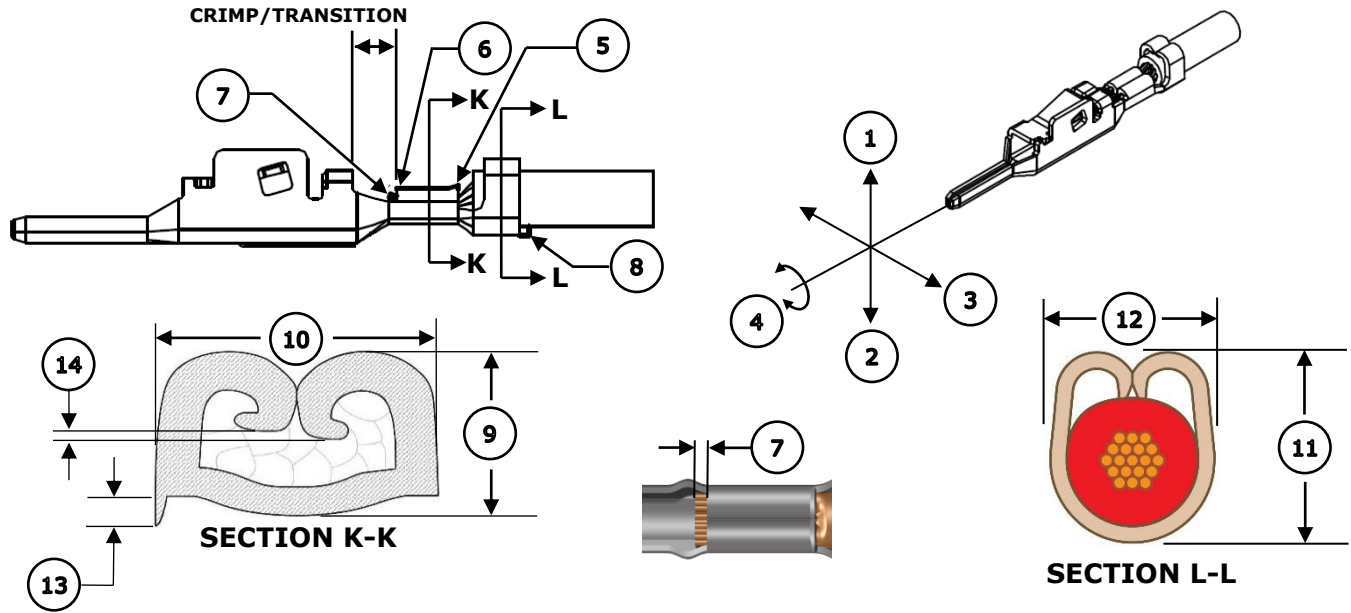
### SCOPE

**Products:** Micro-Lock Plus 2.0 Crimp Terminals, 22-24 AWG, UL1061 Wire.

| Terminal Series No. | Terminal Order No. | Wire      |                  | Insulation Diameter |           | Strip Length |           |
|---------------------|--------------------|-----------|------------------|---------------------|-----------|--------------|-----------|
|                     |                    | Wire Type | Size             | mm                  | In.       | mm           | In.       |
| 213720              | 213720-1000        | UL1061    | 22 AWG<br>24 AWG | 0.90-1.50           | .079-.110 | 4.30-4.80    | .169-.189 |

**CAUTION:** To operate the pneumatic feed, a 4-way pneumatic valve is required.

**DEFINITION OF TERMS**



**CRIMP SPECIFICATIONS**

| Feature                          | Requirement              |                         |               |   |               |
|----------------------------------|--------------------------|-------------------------|---------------|---|---------------|
| <b>1. Bend Up</b>                | 3° Max                   |                         |               |   |               |
| <b>2. Bend Down</b>              | 3° Max                   |                         |               |   |               |
| <b>3. Twist</b>                  | 2° Max                   |                         |               |   |               |
| <b>4. Roll</b>                   | 4° Max                   |                         |               |   |               |
| <b>5. Bell Mouth Rear</b>        | 0.10-0.45mm (.004-.018") |                         |               |   |               |
| <b>6. Bell Mouth Front</b>       | Not Applicable           |                         |               |   |               |
| <b>7. Conductor Brush</b>        | 0.10-0.65mm (.004-.026") |                         |               |   |               |
| <b>8. Cut-Off Tab</b>            | 0.10mm (.004") Max       |                         |               |   |               |
| <b>Conductor Crimp</b>           | <b>Wire Size</b>         | <b>9. Crimp Height</b>  |               | <b>10. Crimp Width</b>                                      |               |
|                                  | 22 AWG                   | 0.78-0.83mm             | .031-.033 in. | 1.18-1.28mm   | .046-.050 in. |
| 24 AWG                           | 0.70-0.75mm              | .028-.030 in.           |               |   |               |
| <b>Insulation Crimp</b>          | <b>Wire Size</b>         | <b>11. Crimp Height</b> |               | <b>12. Crimp Width</b>                                      |               |
|                                  | 22 AWG                   | 1.69-1.79mm             | .067-.070 in. | 1.54-1.64mm   | .061-.065 in. |
| 24 AWG                           | 1.61-1.79mm              | .063-.070 in.           |               |   |               |
| <b>Pull Force</b>                | <b>Wire Size</b>         | <b>Minimum Force</b>    |               | To be measured with no influence from the insulation crimp. |               |
|                                  | 22 AWG                   | 39.2 N                  | 8.8 lb.       |   |               |
| 24 AWG                           | 29.4 N                   | 6.6 lb.                 |               |   |               |
| <b>13. Conductor Anvil Flash</b> | 0.075mm (.003") Max      |                         |               |   |               |
| <b>14. Wing Dissymmetry</b>      | 0.20mm (.008") Max       |                         |               |   |               |

## NOTES

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### Specification Notes

- It is very important that the brush length is consistently within specification for this sealed connector system to work properly.
- This applicator should only be run in a properly set up wire processor to consistently achieve the brush length.

### General Notes

1. Molex recommends that an extra perishable tooling kit be maintained at your facility.
2. Verify tooling alignment by hand cycling the press and applicator before crimping under power. Check that all screws are tight.
3. Slugs, terminals, dirt and oil should be kept clear of the work area.
4. Wear safety glasses at all times.
5. For recommended maintenance, refer to the FA2 manual (TM-638080200).
6. Molex recommends crimping stranded copper wire only.

## WARNINGS

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**CAUTION:** This applicator must be installed in a press with a standard shut height of 135.80mm (5.346"). Tooling damage could result at a lower setting.

**CAUTION:** To prevent injury, never operate this applicator without the guards supplied with the press or wire-processing machine in place. Reference the press or wire processing manufacturer's instruction manual.

**CAUTION:** Molex tooling crimp specifications are valid only when used with Molex terminals and tooling manufactured by Molex and sold by Molex or authorized distributors ("Molex Tooling"). When using tooling other than Molex Tooling with Molex-specific connector systems listed in our ATS documents, the Molex Tooling qualification does not apply, and the responsibility for full qualification of the connector system is that of the customer. Molex accepts no liability for connector performance or tooling support where tooling other than Molex Tooling is used or where Molex Tooling is modified.

**PARTS LIST**

| <b>FA2 Applicator 213069-4510</b>   |                  |                        |                                   |                 |
|---|------------------|------------------------|-----------------------------------|-----------------|
| <b>Item</b>   | <b>Order No.</b> | <b>Engineering No.</b> | <b>Description</b>                | <b>Quantity</b> |
| <b>Perishable Tooling</b>   |                  |                        |                                   |                 |
|   | 213069-4570      | 213069-4570            | Tool Kit (All "Y" Items)          | Ref             |
| 1   | 200220-1510      | 200220-1510            | Insulation Punch                  | 1 Y             |
| 2   | 200216-1202      | 200216-1202            | Conductor Punch                   | 1 Y             |
| 3   | 200221-1402      | 200221-1402            | Insulation Anvil                  | 1 Y             |
| 4   | 200217-1207      | 200217-1207            | Conductor Anvil                   | 1 Y             |
| 5   | 63443-0136       | 63443-0136             | Cut-Off Plunger                   | 1 Y             |
| 6   | 63443-0119       | 63443-0119             | Cutting Insert                    | 1 Y             |
| <b>Non-Perishable Components</b>  |                  |                        |                                   |                 |
| 7   | 63443-0118       | 63443-0118             | Front Plunger Retainer            | 1               |
| 8   | 01124-1067       | 4996-4                 | Cut-Off Plunger Spring            | 1               |
| 9   | 63443-0117       | 63443-0117             | Front Scrap Chute                 | 1               |
| 10  | 63443-2207       | 63443-2207             | Coarse Spacer                     | 1               |
| 11  | 63443-2807       | 63443-2807             | Front Plunger Striker             | 1               |
| 12  | 63443-2905       | 63443-2905             | Wire Hold Down Plunger            | 1               |
| 13  | 63600-0021       | 63600-0021             | Wire Hold Down Spring             | 1               |
| 14  | 63600-5775       | 63600-5775             | Nose Hold Down Shank              | 1               |
| 15  | 63700-0992       | 63700-0992             | Terminal Hold Down Plunger Spring | 1               |
| 16  | 63443-7338       | 63443-7338             | Terminal Hold Down                | 1               |
| 17  | 63443-4716       | 63443-4716             | Terminal Guide                    | 1               |
| 18  | 63808-0220       | 63808-0220             | Hold Down Block                   | 1               |
| 19  | 63808-0229       | 63808-0229             | Bend Adjust Dial                  | 1               |
| 20  | 63443-7315       | 63443-7315             | Terminal Hold Down Plunger        | 1               |
| 21  | 63443-7316       | 63443-7316             | Terminal Hold Down Retainer       | 1               |
| 22  | 63443-7317       | 63443-7317             | Terminal Hold Down Plate          | 1               |
| 23  | 63808-0249       | 63808-0249             | Feed Pawl                         | 1               |
| 24  | 203045-0030      | 203045-0030            | Feed Pawl Spring                  | 1               |
| <b>Frame</b>  |                  |                        |                                   |                 |
| 25  | 63808-0200       | 63808-0200             | Applicator Core                   | 1               |
| 26  | 63808-0196       | 63808-0196             | Pneumatic Feed Assembly           | 1               |
| 27  | 63808-0191       | 63808-0191             | Track Assembly                    | 1               |
| <b>Hardware</b>   |                  |                        |                                   |                 |
| 28  | —                | —                      | M2.5 x 4 SHCS                     | 2*              |
| 29  | —                | —                      | M3 Hex Nut                        | 1*              |
| 30  | —                | —                      | M3 Flat Washer Hard               | 1*              |
| 31  | —                | —                      | M3 Inner Tooth Lock Washer        | 1*              |
| 32  | —                | —                      | M3 x 6 BHCS                       | 2*              |
| 33  | —                | —                      | M3 x 10 SHCS                      | 2*              |
| 34  | —                | —                      | M3 x 12 SHCS                      | 4*              |
| 35  | —                | —                      | M4 x 5 SSS                        | 1*              |
| 36  | —                | —                      | M4 x 6 SHCS                       | 1*              |
| 37  | —                | —                      | M4 x 45 SHCS                      | 2*              |
| 38  | —                | —                      | M5 Hex Jam Nut                    | 1*              |
| 39  | —                | —                      | M5 x 12 Long Cup Point SSS        | 1*              |
| *Fastener parts can be purchased through most industrial suppliers by using the description in the table above. |                  |                        |                                   |                 |

**ASSEMBLY DRAWING**

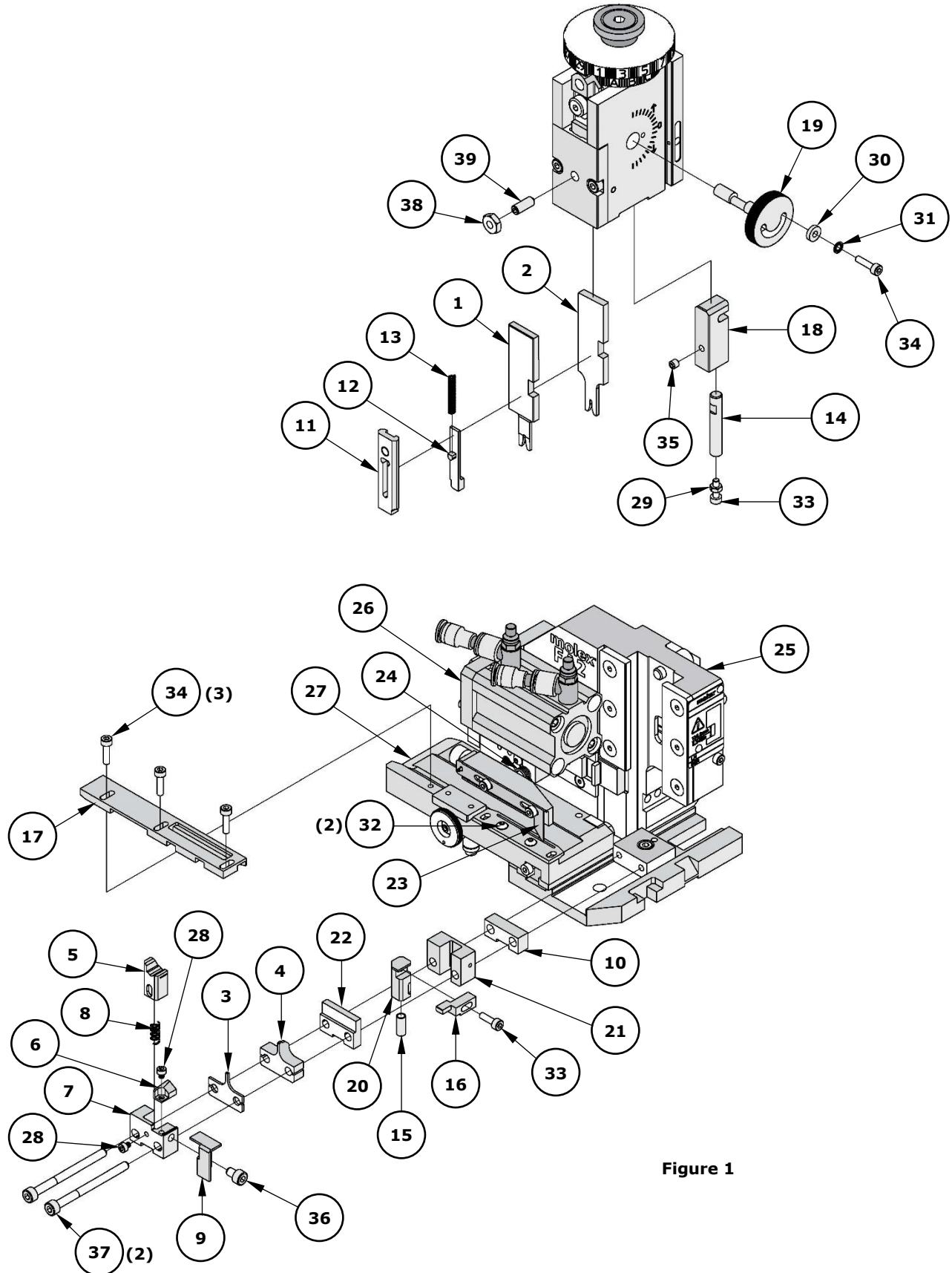


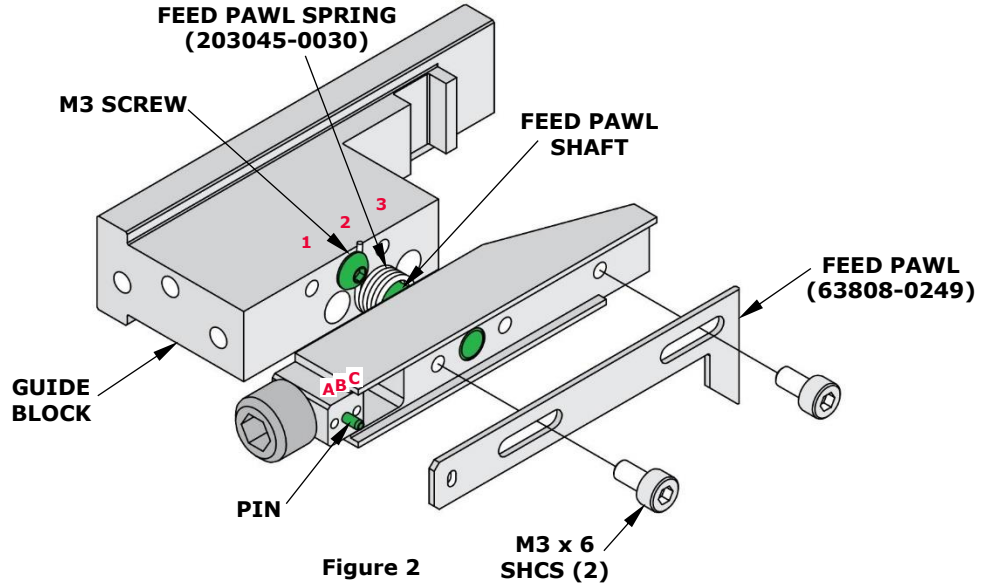
Figure 1

**FACTORY SETTINGS**

**Feed Pawl Assembly**

The FA2 applicator number 213069-4510 ships with the following factory settings. See Figure 2:

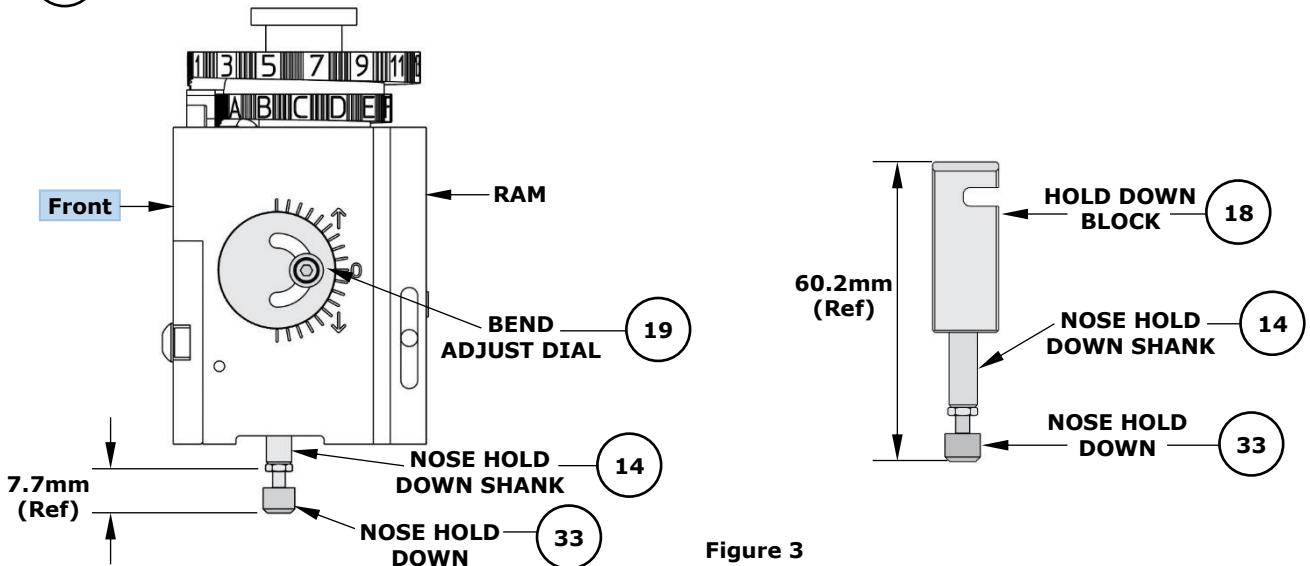
- The feed pawl shaft and M3 screw that holds the feed pawl spring are in position 2.
- The pin is in position B.



**Note:** Each applicator is configured and tested by Molex prior to shipping, and the above settings were used to produce the included sample crimps.

**Third Dial/Ram Assembly**

○ Indicates item number on the Parts List and Assembly Drawing



**Note:** The above dimensions were measured during setup and are included as a reference only. Additional adjustments may be required before crimping for production.

### Mounting Datum Location

This applicator was assembled and tested by Molex with the mounting datum in the location shown in Figure 4. Do not remove the mounting datum.

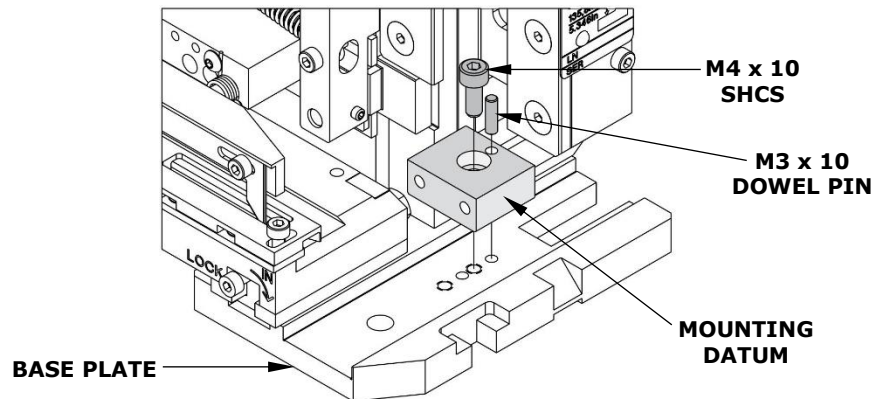


Figure 4

### PNEUMATIC CONNECTION (AIR FEED)

- The pneumatic feed applicator uses a double-acting air cylinder that must be actuated by a 4-way pneumatic valve.
- The air cylinder is equipped with push-in fittings for 6mm diameter vinyl or Nylon tube. Adapters are included for 1/4" diameter and 4mm diameter vinyl or Nylon tube.

**Note:** The TM-3000 and TM-4000 presses have pneumatic valves with 1/4" diameter tube fittings. Be sure to install the 1/4" diameter adapters in the air cylinder fittings and use 1/4" diameter vinyl or Nylon tube.

- Pneumatic tubes must be connected as shown in Figure 5. Tubes are typically connected so the terminal feed is forward when the applicator ram is up.
- When using the TM-3000 or TM-4000 presses, connect the tubes to the press pneumatic valve as shown in Figure 6.

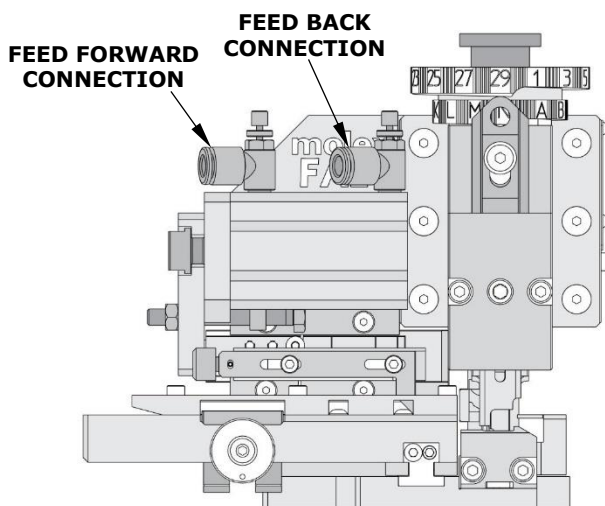


Figure 5

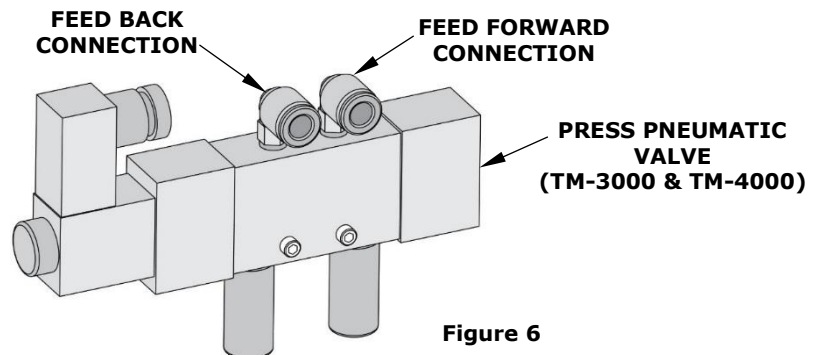


Figure 6

**Application Tooling Support**

**Phone:** (402) 458-TOOL (8665)

**E-Mail:** [toolingsupport@molex.com](mailto:toolingsupport@molex.com)

**Website:** [www.molex.com/applicationtooling](http://www.molex.com/applicationtooling)

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