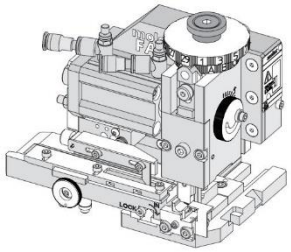
Order Number
213069-1410

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 tool is IPC/WHMA-A-620 Class 2 compliant, as indicated below
- This applicator is configured with a pneumatic feed, which requires a 4-way pneumatic valve for operation

SCOPE

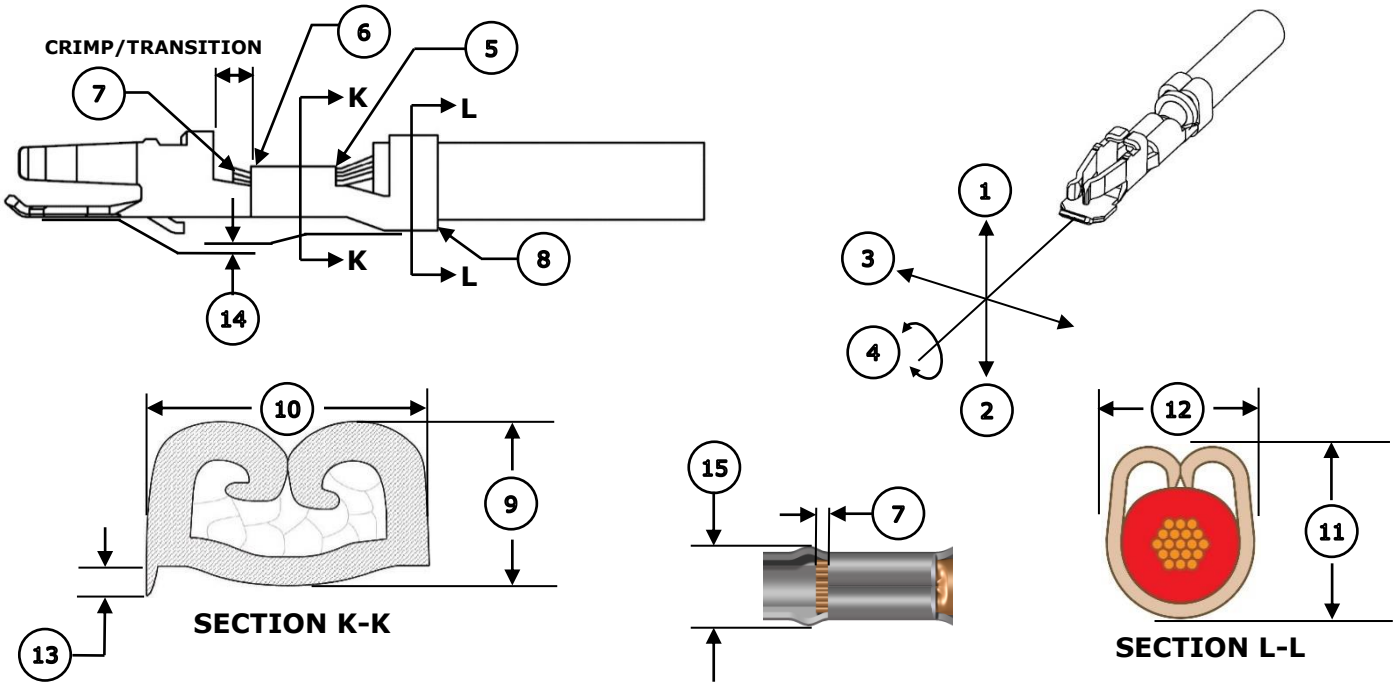
Products: Pico-Lock 2.0 Crimp Terminals, 20-22 AWG Wire.

Terminal Series No.	Terminal Order No.	Wire		Insulation Diameter				Strip Length	
				IPC/WHMA-A-620 (1)		Terminal (2)			
		Wire Type	Wire Size	mm	In.	mm	In.	mm	In.
205342	205342-5028	UL1061	20 AWG	1.30-1.45	.051-.057	1.20-1.50	.047-.059	2.20-2.60	.087-.102
		UL1061	22 AWG	1.30-1.35	.051-.053	1.20-1.50	.047-.059	2.20-2.60	.087-.102

(1) To achieve optimum IPC/WHMA-A-620 insulation crimps, use this insulation OD range.
(2) Overall insulation OD specification for terminal.

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

DEFINITION OF TERMS



CRIMP SPECIFICATIONS

The following crimp specifications are based on document 2053410000-PS-000 Revision A:

Feature	Requirement					
1. Bend Up	3° Max					
2. Bend Down	2° Max					
3. Twist	3° Max					
4. Roll	6° Max					
5. Bell Mouth Rear	0.20-0.45mm (.008-.018”)					
6. Bell Mouth Front	Not Applicable					
7. Conductor Brush	0.10-0.70mm (.004-.028”)					
8. Cut-Off Tab	0.10mm (.004”) Max					
Conductor Crimp	**Wire Type**	**Wire Size**	**9. Crimp Height**		**10. Crimp Width**	
	UL1061	22 AWG	0.81-0.86mm	.032-.034 in.	1.42-1.46mm	.056-.057 in.
	UL1061	20 AWG	0.90-0.98mm	.035-.039 in.	1.43-1.47mm	.056-.058 in.
Insulation Crimp	**Wire Type**	**Wire Size**	**11. Crimp Height**		**12. Crimp Width**	
	UL1061	22 AWG	1.73-1.77mm	.068-.070 in.	1.58-1.62mm	.062-.064 in.
	UL1061	20 AWG	1.76-1.85mm	.069-.073 in.	1.58-1.62mm	.062-.064 in.
Pull Force	**Wire Type**	**Wire Size**	**Minimum Force**			
	UL1061	22 AWG	39.2 N	8.8 lb.		
	UL1061	20 AWG	58.8 N	13.2 lb.		
13. Conductor Anvil Flash	0.10mm (.004”) Max					
14. Insulation Grip Step	0.22-0.28mm (.009-.011”)					
15. Crimp Bulge	1.62mm (.064”) Max within crimp/transition area					

NOTES

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

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

FA2 Applicator 213069-1410				
Item	**Order No.**	**Engineering No.**	**Description**	**Quantity**
Perishable Tooling				
	213069-1470	213069-1470	Tool Kit (All "Y" Items)	Ref
1	63454-1502	63454-1502	Insulation Punch	1 Y
2	63457-0170	63457-0170	Conductor Punch	1 Y
3	63456-0149	63456-0149	Insulation Anvil	1 Y
4	63455-0188	63455-0188	Conductor Anvil	1 Y
5	63443-0136	63443-0136	Cut-Off Plunger	1 Y
6	63443-0119	63443-0119	Cutting Insert	1 Y
Non-Perishable Components				
7	63443-0118	63443-0118	Front Plunger Retainer	1
8	11-24-1067	4996-4	Cut-Off Plunger Spring	1
9	63443-0117	63443-0117	Front Scrap Chute	1
10	63443-2208	63443-2208	Spacer	1
11	63443-2807	63443-2807	Front Plunger Striker	1
12	63890-0140	63890-0140	Wire Hold Down Plunger	1
13	63600-4389	63600-4389	Wire Hold Down Spring	1
14	63600-5775	63600-5775	Nose Hold Down Shank	1
15	63443-4722	63443-4722	Terminal Guide	1
16	63443-7403	63443-7403	Hold Down Block	1
17	63808-0229	63808-0229	Bend Adjust Dial	1
18	63443-7315	63443-7315	Terminal Hold Down Plunger	1
19	63700-0992	63700-0992	Terminal Hold Down Plunger Spring	1
20	63443-7316	63443-7316	Terminal Hold Down Retainer	1
21	63443-7317	63443-7317	Terminal Hold Down Retainer Plate	1
22	63443-7322	63443-7322	Terminal Hold Down	1
Frame				
23	63808-0200	63808-0200	Applicator Core	1
24	63808-0196	63808-0196	Pneumatic Feed Assembly	1
25	63808-0191	63808-0191	Track Assembly	1
Hardware				
26	—	—	M2.5 x 4 SHCS	2*
27	—	—	M3 Flat Washer Hard	1*
28	—	—	M3 Hex Nut	2*
29	—	—	M3 Inner Tooth Lock Washer	1*
30	—	—	M3 x 6 BHCS	2*
31	—	—	M3 x 8 SHCS	1*
32	—	—	M3 x 10 SHCS	1*
33	—	—	M3 x 12 SHCS	4*
34	—	—	M4 x 5 SSS	1*
35	—	—	M4 x 6 SHCS	1*
36	—	—	M4 x 50 SHCS	2*
37	—	—	#10-32UNF x 1/2” Long Cup Point SSS	1*
38	—	—	#10-32UNF Hex Jam Nut	1*

*Fastener parts can be purchased through most industrial suppliers by using the description in the table above.

ASSEMBLY DRAWING

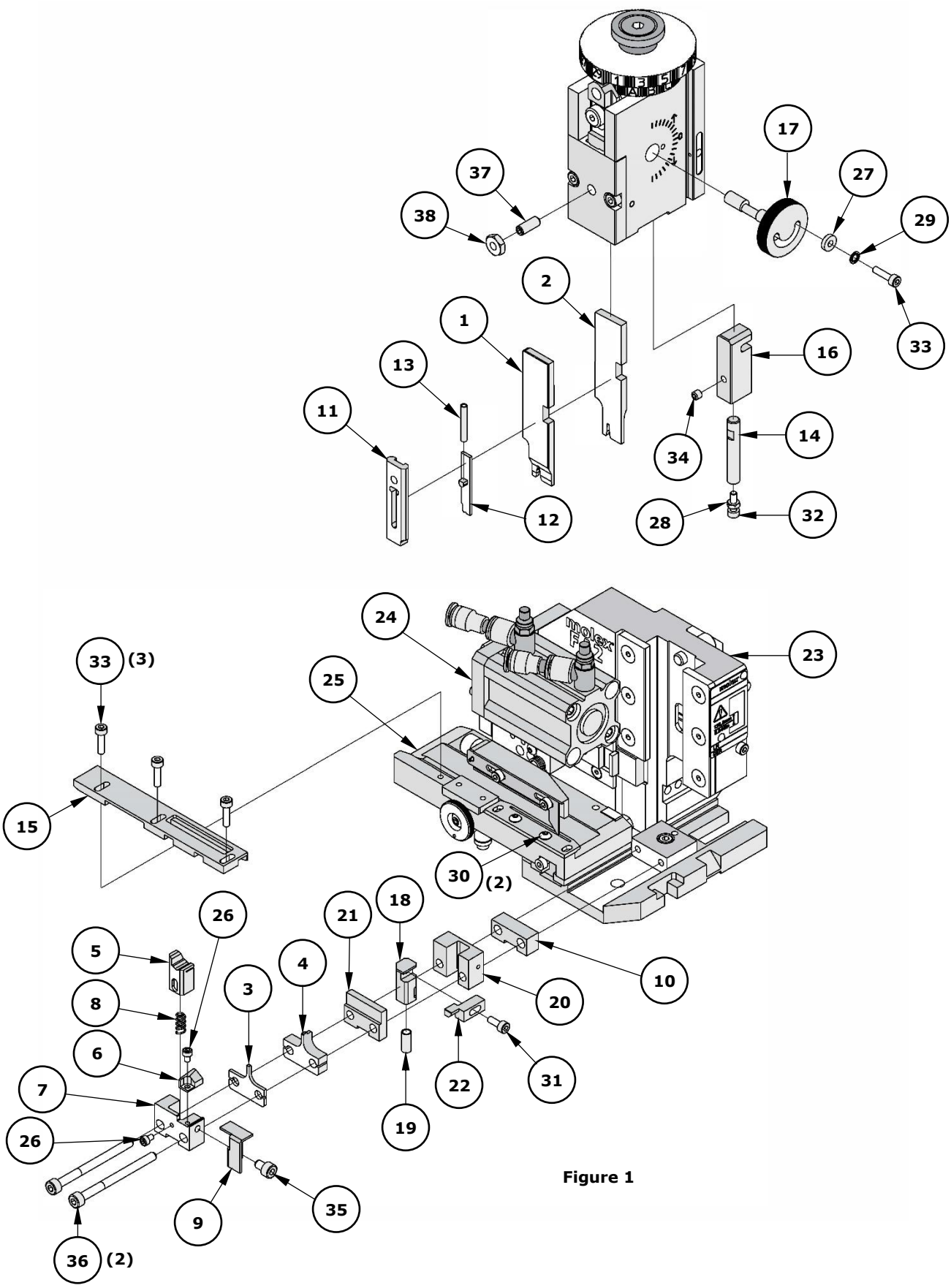


Figure 1

FACTORY SETTINGS

Feed Pawl Assembly

The FA2 applicator number 213069-1410 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 3.
- The pin is in position B.

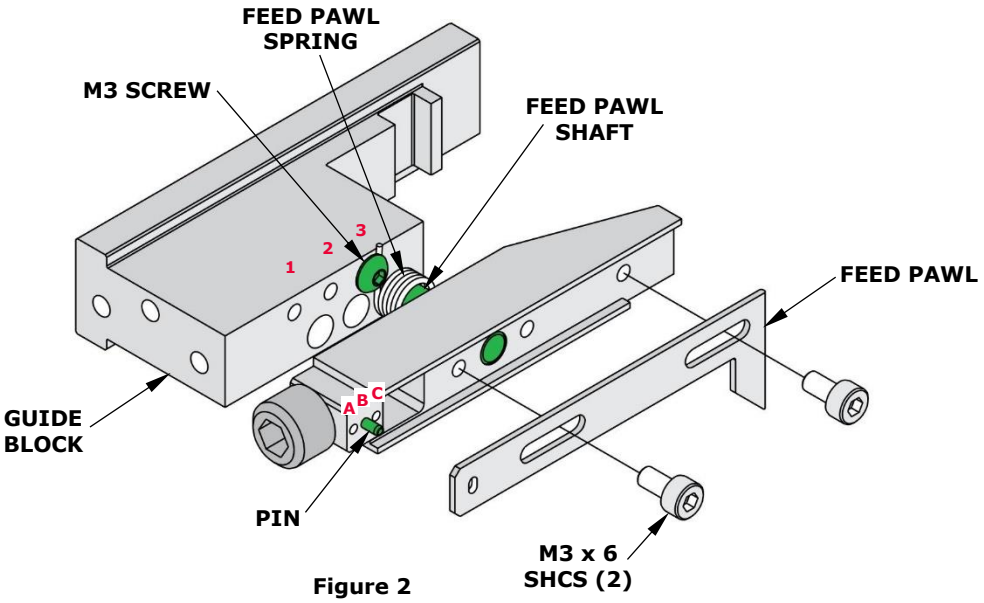


Figure 2

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

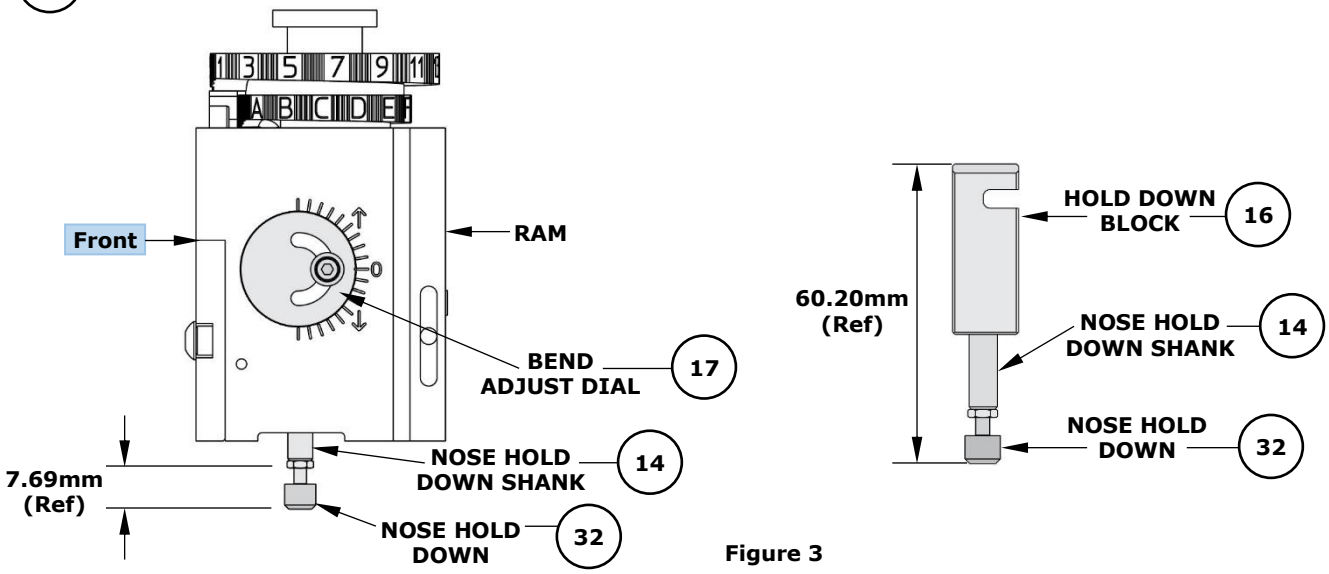


Figure 3

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

CAUTION: A tooling crash may occur if any of the following conditions exist:

- The M3 x 10 SHCS extends more than 7.69mm from the nose hold down shank
- The bend adjust dial is adjusted too far down
- The press shut height is less than 135.80mm (5.346")

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.

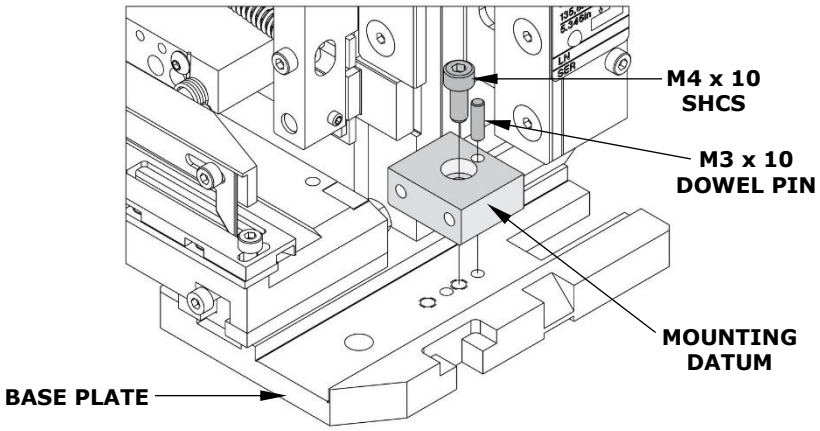


Figure 4

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 ¼" diameter and 4mm diameter vinyl or Nylon tube.

  Note: The TM-3000 and TM-4000 presses have pneumatic valves with ¼" diameter tube fittings. Be sure to install the ¼" diameter adapters in the air cylinder fittings and use ¼" 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.

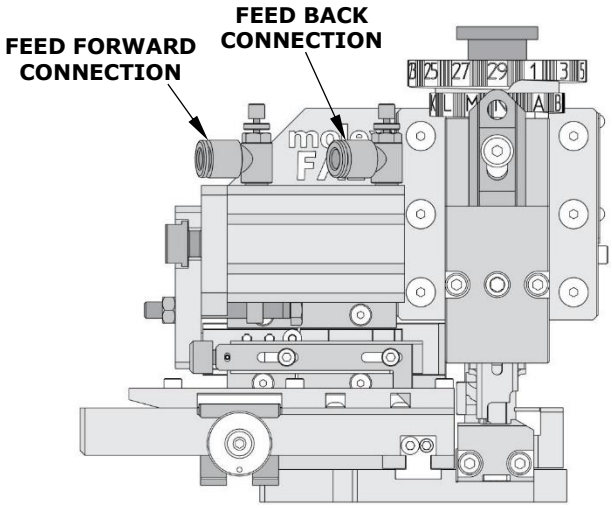


Figure 5

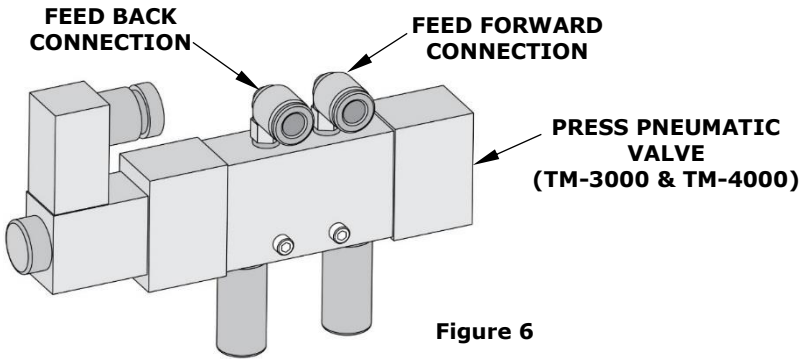


Figure 6

Application Tooling Support

Phone: (402) 458-TOOL (8665)
E-Mail: applicationtooling@molex.com
Website: www.molex.com/applicationtooling

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