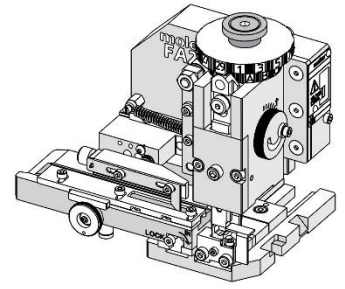


**Order Number**  
**213069-6100**

**molex**<sup>®</sup>

## 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
- Fine adjustment of the bend is achieved using the bend adjust dial
- 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

### SCOPE

**Products:** 1.25mm (.049") Pitch Crimp Terminal, 28-32 AWG.

| Terminal Series No. | Terminal Order No.       | Wire Size |                 | Insulation Diameter |           | Strip Length (Ref) |           |
|---------------------|--------------------------|-----------|-----------------|---------------------|-----------|--------------------|-----------|
|                     |                          | AWG       | mm <sup>2</sup> | mm                  | In.       | mm                 | In.       |
| 50058               | 50058-8001<br>50058-8020 | 28-32     | 0.08-0.03       | 0.50-1.00           | .020-.039 | 1.40-1.90          | .055-.075 |

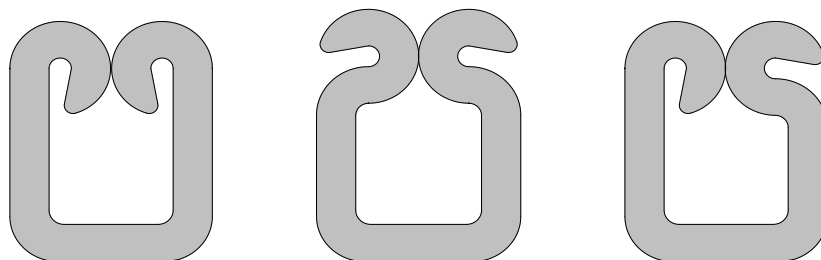
**CAUTION:** Lubrication must be used to prevent terminals from sticking in the conductor punch. Use 63801-7240 oiler or equivalent.

### INSULATION CRIMP FORM

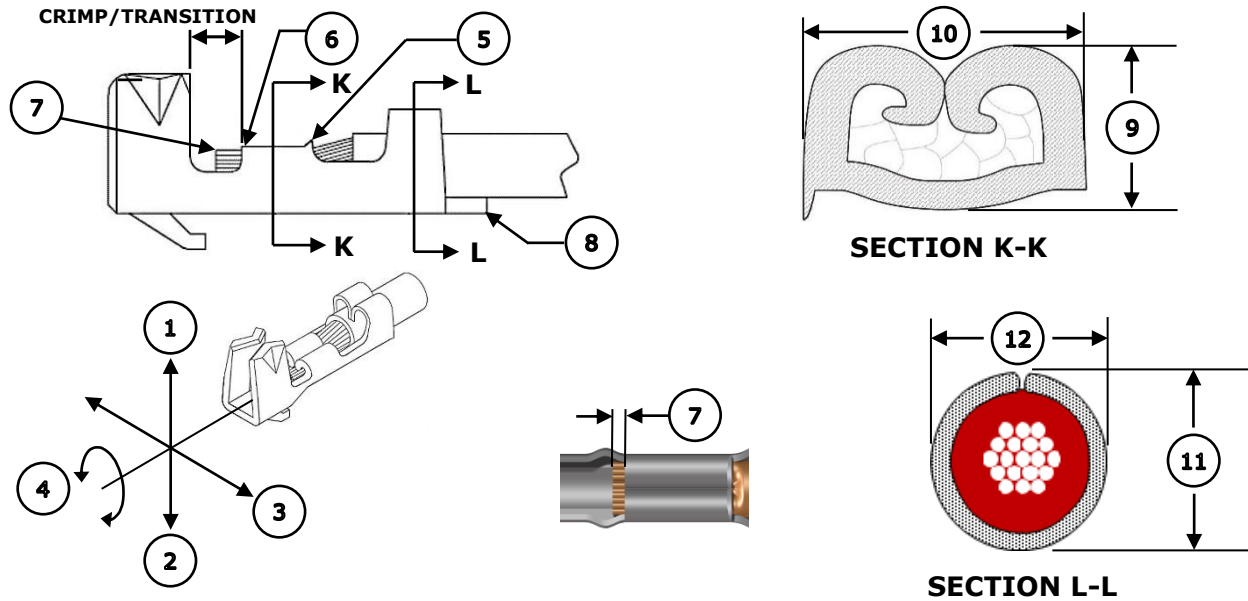
This crimp terminal is designed for miniaturization; therefore, each dimension of insulation crimp portion appears small as compared to the terminal material thickness. To avoid insulation piercing the crimp forms by the insulation barrel, coining is provided inside of the insulation barrel. For this reason, various crimp forms will occur at the tip of the insulation crimp barrel shown in the figure below.

These crimp forms maybe changed completely by a small change in the wire, insulation punch or terminal.

These crimp forms are satisfactory for original function of the insulation crimp portion, and it is confirmed the forms below are acceptable insulation crimps.



**DEFINITION OF TERMS**



**CRIMP SPECIFICATIONS**

| Feature                    | Requirement              |                     |                               |               |   |          |
|----------------------------|--------------------------|---------------------|-------------------------------|---------------|---|----------|
| <b>1. Bend Up</b>          | 5° Max                   |                     |                               |               |   |          |
| <b>2. Bend Down</b>        | 4° Max                   |                     |                               |               |   |          |
| <b>3. Twist</b>            | 6° Max                   |                     |                               |               |   |          |
| <b>4. Roll</b>             | 8° Max                   |                     |                               |               |   |          |
| <b>5. Bell Mouth Rear</b>  | 0.05-0.30mm (.002-.012") |                     |                               |               |   |          |
| <b>6. Bell Mouth Front</b> | Not Applicable           |                     |                               |               |   |          |
| <b>7. Conductor Brush</b>  | 0.00-0.70mm (.000-.028") |                     |                               |               |   |          |
| <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 (Ref)</b>                                |          |
|                            | 28 AWG                   | 0.08mm <sup>2</sup> | 0.45-0.49mm                   | .017-.019 in. | 0.77mm  | .030 in. |
|                            | 30 AWG                   | 0.05mm <sup>2</sup> | 0.44-0.48mm                   | .017-.019 in. | 0.77mm  | .030 in. |
|                            | 32 AWG                   | 0.03mm <sup>2</sup> | 0.43-0.47mm                   | .017-.019 in. | 0.77mm  | .030 in. |
| <b>Insulation Crimp</b>    | <b>Wire Size</b>         |                     | <b>11. Crimp Height (Ref)</b> |               | <b>12. Crimp Width (Ref)</b>                                |          |
|                            | 28 AWG                   | 0.08mm <sup>2</sup> | 1.25mm                        | .049 in.      | 0.90mm  | .035 in. |
|                            | 30 AWG                   | 0.05mm <sup>2</sup> | 1.25mm                        | .049 in.      | 0.90mm  | .035 in. |
|                            | 32 AWG                   | 0.03mm <sup>2</sup> | 1.25mm                        | .049 in.      | 0.90mm  | .035 in. |
| <b>Pull Force</b>          | <b>Wire Size</b>         |                     | <b>Minimum Force</b>          |               | To be measured with no influence from the insulation crimp. |          |
|                            | 28 AWG                   | 0.08mm <sup>2</sup> | 9.8 N                         | 2.2 lb.       |   |          |
|                            | 30 AWG                   | 0.05mm <sup>2</sup> | 4.9 N                         | 1.1 lb.       |   |          |
|                            | 32 AWG                   | 0.03mm <sup>2</sup> | 3.4 N                         | 0.8 lb.       |   |          |

## NOTES

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### 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 when operating or maintaining the applicator.
5. For recommended maintenance, refer to the FA2 manual (TM-638080200).
6. Molex recommends crimping standard copper wire only.
7. Lubrication must be used when crimping this terminal to prevent terminal from sticking in the conductor punch. Use 63801-7240 oiler or equivalent.

## 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 213069-6100</b>   |                  |                        |   |                 |
|---|------------------|------------------------|---|-----------------|
| <b>Item</b>   | <b>Order No.</b> | <b>Engineering No.</b> | <b>Description</b>                        | <b>Quantity</b> |
| <b>Perishable Tooling</b>   |                  |                        |   |                 |
|   | 213069-6170      | 213069-6170            | Tool Kit (All "Y" Items)                  | Ref             |
| 1   | 63454-0801       | 63454-0801             | Insulation Punch                          | 1 Y             |
| 2   | 63457-0703       | 63457-0703             | Conductor Punch                           | 1 Y             |
| 3   | 200217-0805      | 200217-0805            | Combination Anvil                         | 1 Y             |
| 4   | 63443-0136       | 63443-0136             | Cut-Off Plunger                           | 1 Y             |
| 5   | 63443-0119       | 63443-0119             | Cutting Insert                            | 1 Y             |
| <b>Non-Perishable Components</b>  |                  |                        |   |                 |
| 6   | 11-24-1067       | 4996-4                 | Cut-Off Plunger Spring                    | 1               |
| 7   | 63443-0117       | 63443-0117             | Front Scrap Chute                         | 1               |
| 8   | 63443-0118       | 63443-0118             | Front Plunger Retainer                    | 1               |
| 9   | 63443-7403       | 63443-7403             | Hold Down Block                           | 1               |
| 10  | 63600-5775       | 63600-5775             | Nose Hold Down Shank                      | 1               |
| 11  | 63443-2807       | 63443-2807             | Front Plunger Striker                     | 1               |
| 12  | 63443-4701       | 63443-4701             | Terminal Guide                            | 1               |
| 13  | 63443-4402       | 63443-4402             | Feed Cam                                  | 1               |
| 14  | 63808-0249       | 63808-0249             | Feed Pawl                                 | 1               |
| 15  | 63808-0229       | 63808-0229             | Bend Adjust Dial                          | 1               |
| 16  | 63443-7315       | 63443-7315             | Combination Wire Stop / Hold Down Plunger | 1               |
| 17  | 63443-7316       | 63443-7316             | Terminal Hold Down Retainer               | 1               |
| 18  | 63700-0992       | 63700-0992             | Terminal Hold Down Plunger Spring         | 1               |
| 19  | 63443-7318       | 63443-7318             | Terminal Hold Down                        | 1               |
| 20  | 200213-7204      | 200213-7204            | Terminal Hold Down Retainer Plate         | 1               |
| <b>Frame</b>  |                  |                        |   |                 |
| 21  | 63808-0200       | 63808-0200             | Applicator Core                           | 1               |
| 22  | 63808-0197       | 63808-0197             | Mechanical Feed Assembly                  | 1               |
| 23  | 63808-0191       | 63808-0191             | Track Assembly                            | 1               |
| <b>Hardware</b>   |                  |                        |   |                 |
| 24  | —                | —                      | M2.5 x 3 SHCS                             | 2*              |
| 25  | —                | —                      | M3 Hex Nut                                | 1*              |
| 26  | —                | —                      | M3 Flat Washer Hard                       | 1*              |
| 27  | —                | —                      | M3 Inner Tooth Lock Washer                | 1*              |
| 28  | —                | —                      | M3 x 6 BHCS                               | 2*              |
| 29  | —                | —                      | M3 x 8 SHCS                               | 1*              |
| 30  | —                | —                      | M3 x 10 SHCS                              | 1*              |
| 31  | —                | —                      | M3 x 12 SHCS                              | 4*              |
| 32  | —                | —                      | M4 x 4 SSS                                | 1*              |
| 33  | —                | —                      | M4 x 6 SHCS                               | 1*              |
| 34  | —                | —                      | M4 x 8 SHCS                               | 2*              |
| 35  | —                | —                      | M4 x 45 SHCS                              | 2*              |
| 36  | —                | —                      | #10-32UNF x .25" BHCS                     | 1*              |
| *Fastener parts can be purchased through most industrial suppliers by using the description in the table above. |                  |                        |   |                 |

**ASSEMBLY DRAWING**

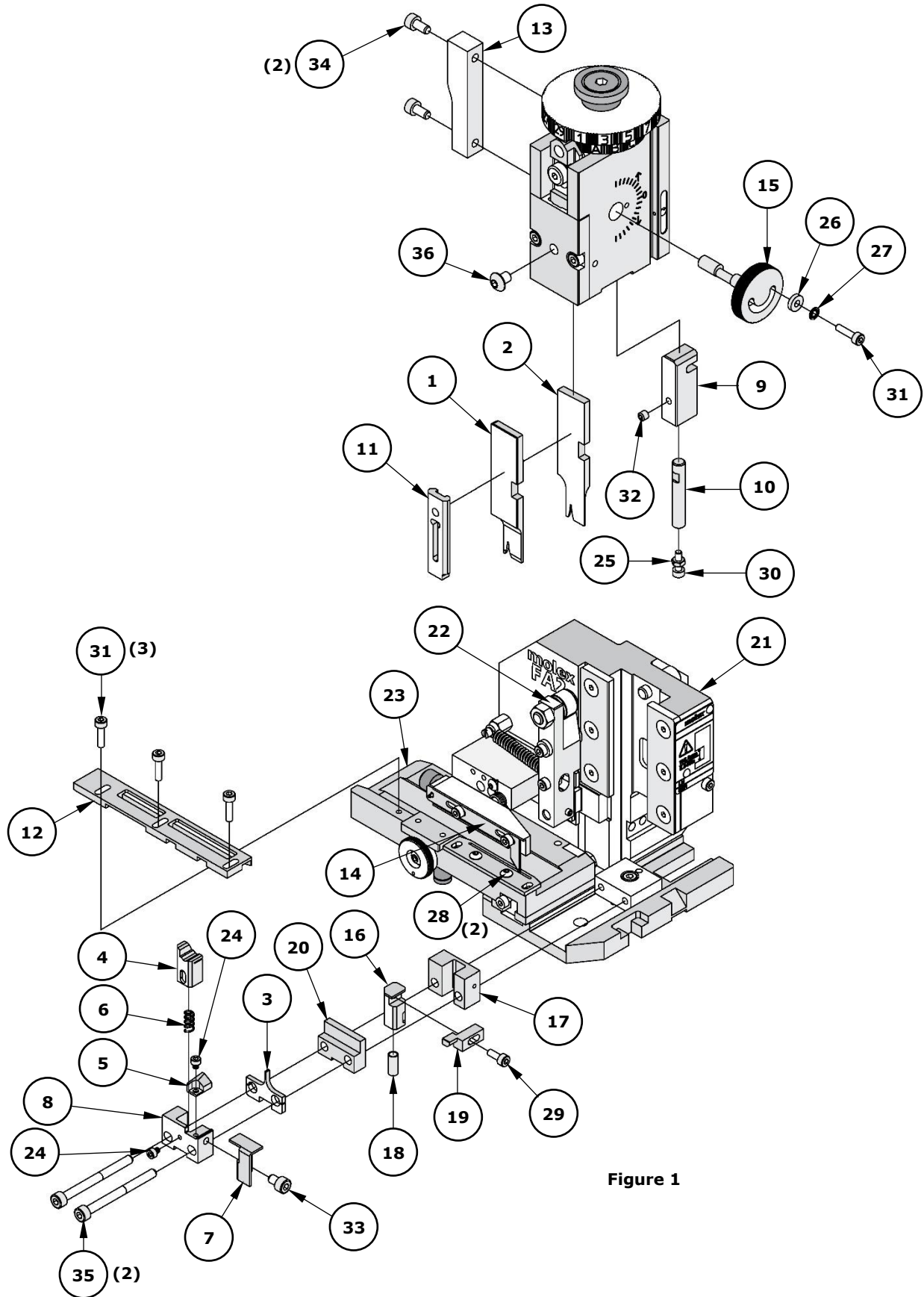


Figure 1

## FACTORY SETTINGS

### Feed Pawl Assembly

The FA2 applicator number 213069-6100 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.

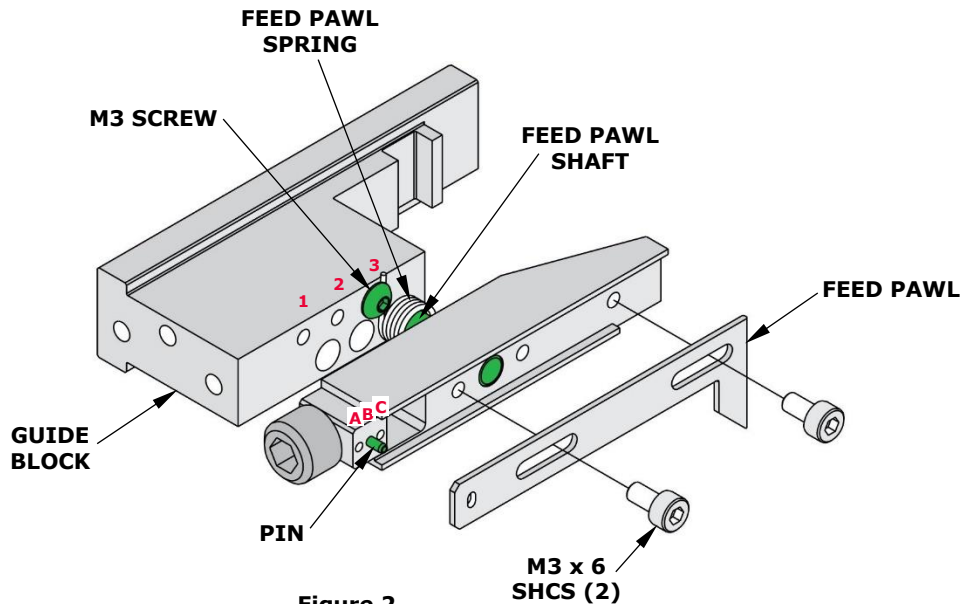
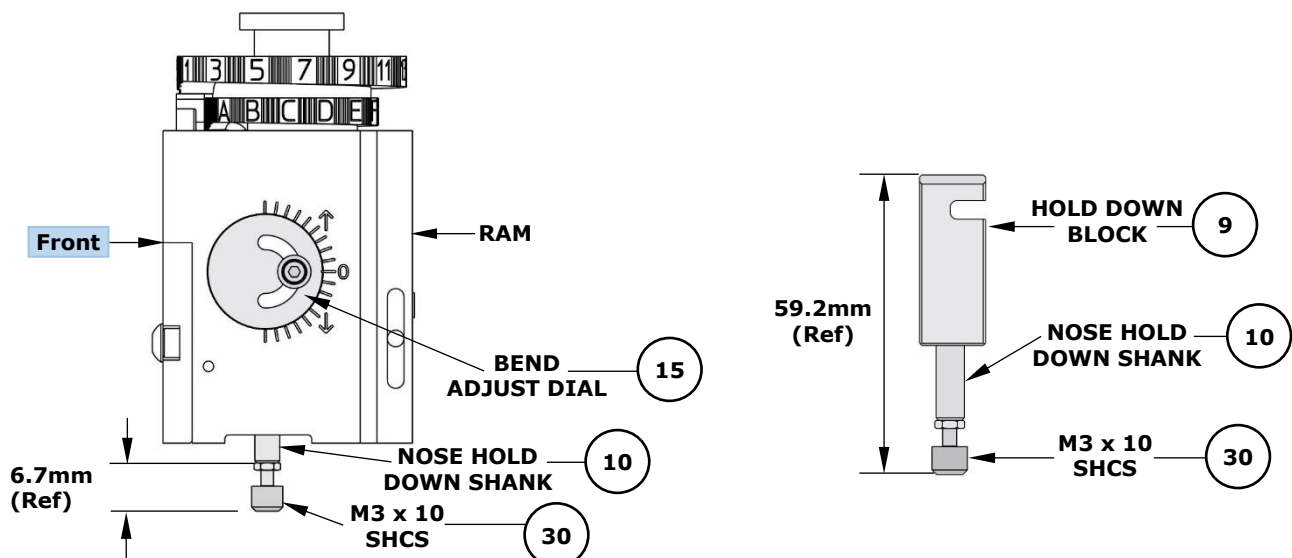


Figure 2

**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



**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 6.7mm from the nose hold down shank
- The overall length of the hold down block, shank, and M3 SHCS exceeds 59.2mm
- The bend adjust dial is adjusted too far down
- The press shut height is less than 135.80mm (5.346")

**Combination Wire Stop / Hold Down Plunger**

- This Applicator contains a combination wire stop / hold down plunger. It can be adjusted in the direction shown to be used as a wire stop to control brush specification.
- See the factory settings section for adjustments of the third dial bend adjustment settings.



**Note:** Each applicator is configured and tested by Molex prior to shipping, and the Combination Wire Stop / Hold Down Plunger was used to produce the included sample crimps.

**Mounting Datum Location**

This applicator was assembled and tested by Molex with the mounting datum in the location shown in Figure 3. Do not remove the mounting datum.

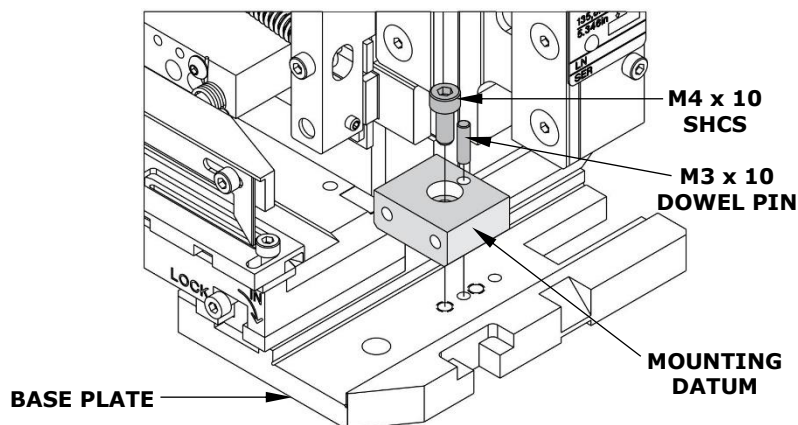


Figure 3

**Application Tooling Support**

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

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

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

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