

# SMARTFLOW®

## FasTie® Quick-Connect Ejector Tie-In System

1"HS, 1-3/8", 2" & 3" Components, Installation Instructions

US Patent No. 6,379,072

### General

FasTie Quick-Connect Ejector System “ties-in” the mold ejector plate to the press ejection system. A pneumatically-operated piston inside the coupler releases the pull stud from the press ejection system to reduce set-up and change-out times.

Fixed-length FasTie Knockout Bars may be used with the couplers and pull studs. The FasTie air manifold option distributes shop air to each coupler. The aluminum manifold supplies air to up to four couplers. Pneumatic fittings and tubing are included.



**Caution: Couplers must be in the open position before connecting with pull studs. See figure 1. Coupler damage will result from improper set-up.**

### Maintenance

Use Ultra High Temperature Synthetic Anti-Seize grease regularly on the couplers for smooth operation. Visually inspect coupler each month or each tool change for the presence of grease. Generously apply grease to pull stud end, connect the coupler to the pull stud, then release and repeat.

### Before Installation

Before clamping a mold to the injection molding machine, the machine ejector plate must be completely retracted to the “home” position.

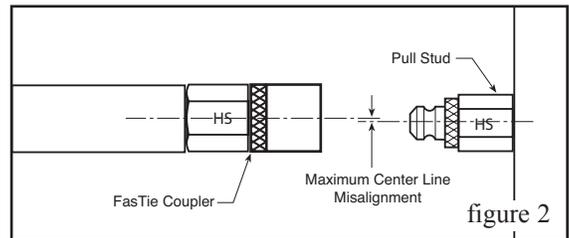
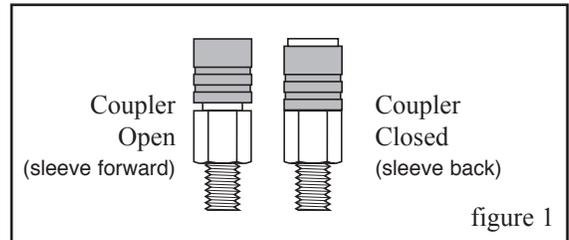
### Alignment

Per figure 2, maximum center line misalignment per coupler outside diameter is as follows.

1" HS	±3.5mm	(±0.138")
1-3/8"	±5mm	(±0.197")
2"	±6mm	(±0.236")
3"	±5mm	(±0.197")

### Multiple Knockout Bar Lengths

When using two or more knockout bars in an installation, knockout bars must be the same length within .05mm (.002") to assure even coupler operation.



### Ejector Bar Length Note:

Individual ejector bars should not exceed 24" in length to prevent sagging and excessive coupler/pull stud misalignment.

It may be necessary to use two ejector bars for extra-long ejector bar applications, one for each pull stud and coupler.

### Minimum Clearance Needed to Disengage Coupler and Pull Stud

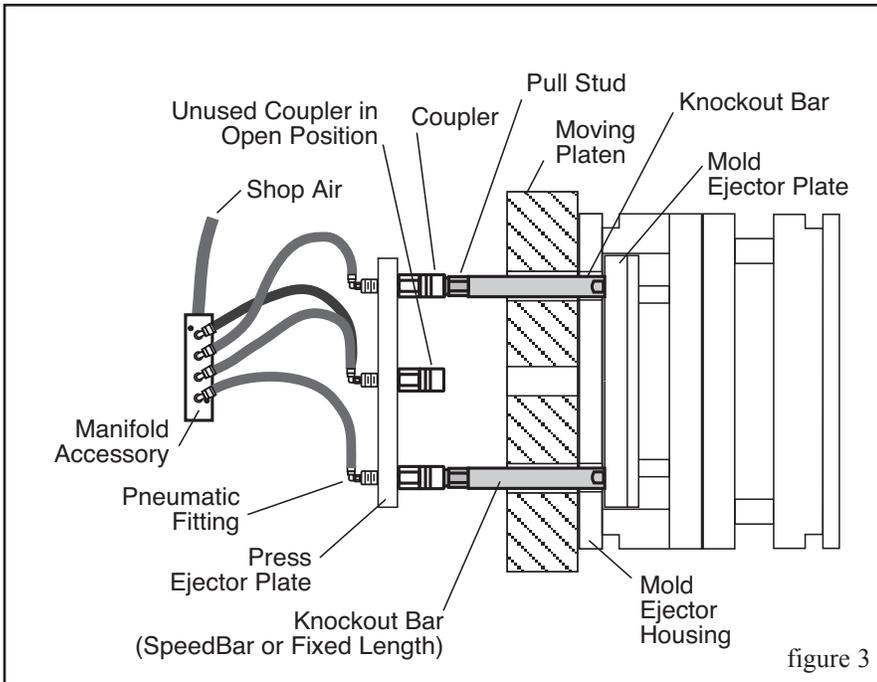
1" HS	15mm	(0.59")
1-3/8"	21mm	(0.81")
2"	25mm	(1.00")
3"	34mm	(1.34")

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## Couplers on Press Ejector Plate

for multiple molds in the same machine with different ejector patterns and different ejector strokes



The following installation instructions are for reference only. Installation may vary depending on the application and customer preferences.

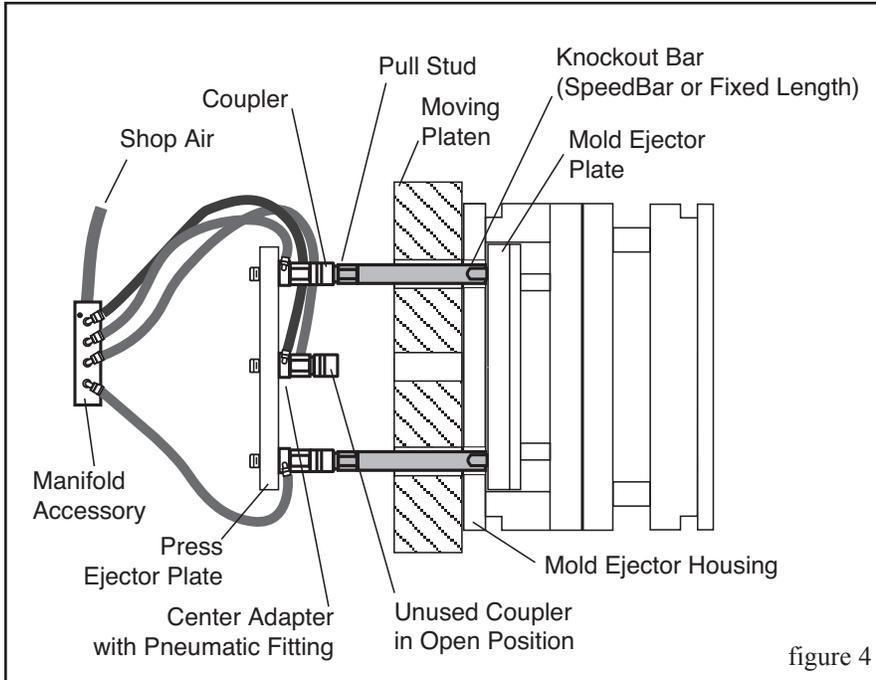
1. Install the coupler into the press ejector plate populating for the required molding machine patterns (i.e. vertical, horizontal and/or center knockout positions). Use thread-locking compound to prevent movement during use.
2. Install pneumatic fitting to the coupler per figure 3.
3. If using the manifold accessory, mount the manifold and tubing so they do not interfere with moving parts.
4. Connect shop air lines to the pneumatic fittings that feed the FasTie couplers. **Couplers must be in the open position (see figure 1) before connection to pull studs, otherwise coupler damage will occur.**
5. Install the pull stud onto the end of the knockout bar.\*
6. Insert the knockout bar assembly in the moving platen.
7. Lower the mold into position and clamp the A side (stationary side) making sure the mold is square to the machine.
8. Position the moving platen, providing clearance between the platen and the mold, for installation of the knockout bar assembly into the mold ejector plate.
9. Slowly position the moving platen against the mold, observing the coupler and pull stud. Proper center alignment and engagement are critical at this time.
10. Clamp the B side (moving side) of the mold to the platen. Open the mold to safe ejection position.
11. Check that air supply to the coupler is off. If press ejector plate and FasTie system are not set at machine zero, set Machine Ejector Back setting to match Mold Ejector Back position. Move the press ejector plate forward to connect the coupler and the pull stud.
12. Tighten nuts to the press ejector plate (if using) after the FasTie components are coupled. This helps alignment of the FasTie system.
13. Maximum allowable center-to-center misalignment of coupler and pull stud is below: (see figure 2)

1" HS	±3.5mm	(±0.138")
1-3/8"	±5mm	(±0.197")
2"	±6mm	(±0.236")
3"	±5mm	(±0.197")
14. Follow "Test Installation" procedure on page 6.

\* 1" HS FasTie only: For installation using SpeedBar® Adjustable Length Knockout bars, insert bars at step 5, taking care to insure all bars are exactly the same length.

## Couplers and Center Adapters on Press Ejector Plate

for presses with limited access to the back of the Press Ejector Plate.  
Custom molders using smaller presses will benefit from this installation.



The following installation instructions are for reference only.  
Installation may vary depending on the application and customer preferences.

1. Install the coupler with the center adapter into the press ejector plate populating for the required molding machine patterns (i.e. vertical, horizontal and/or center knockout positions). Use thread-locking compound to prevent movement during use.
2. Install pneumatic fitting to the center adapter per figure 4.
3. If using the manifold accessory, mount the manifold and tubing so they do not interfere with moving parts.
4. Connect shop air lines to the pneumatic fittings that feed the FasTie couplers. **Couplers must be in the open position (see figure 1) before connection to pull studs, otherwise coupler damage will occur.**
5. Install the pull stud onto the end of the knockout bar.\*
6. Insert the knockout bar assembly in the moving platen.
7. Lower the mold into position and clamp the A side (stationary side) making sure the mold is square to the machine.
8. Position the moving platen, providing clearance between the platen and the mold, for installation of the knockout bar assembly into the mold ejector plate.
9. Slowly position the moving platen against the mold, observing the coupler and pull stud. Proper center alignment and engagement are critical at this time.
10. Clamp the B side (moving side) of the mold to the platen. Open the mold to safe ejection position.
11. Check that air supply to the coupler is off. If press ejector plate and FasTie system are not set at machine zero, set Machine Ejector Back setting to match Mold Ejector Back position. Move the press ejector plate forward to connect the coupler and the pull stud.
12. Tighten nuts to the press ejector plate (if using) after the FasTie components are coupled. This helps alignment of the FasTie system.
13. Maximum allowable center-to-center misalignment of coupler and pull stud is below: (see figure 2)

1" HS	±3.5mm	(±0.138")
1-3/8"	±5mm	(±0.197")
2"	±6mm	(±0.236")
3"	±5mm	(±0.197")
14. Follow "Test Installation" procedure on page 6.

\* 1" HS FasTie only: For installation using SpeedBar® Adjustable Length Knockout bars, insert bars at step 5, taking care to insure all bars are exactly the same length.

## Coupler in Center Ejector Position

for presses with a center ejector, replace the cylinder bolt with a Center Ejector Bar or Center Adapter and FasTie Coupler.

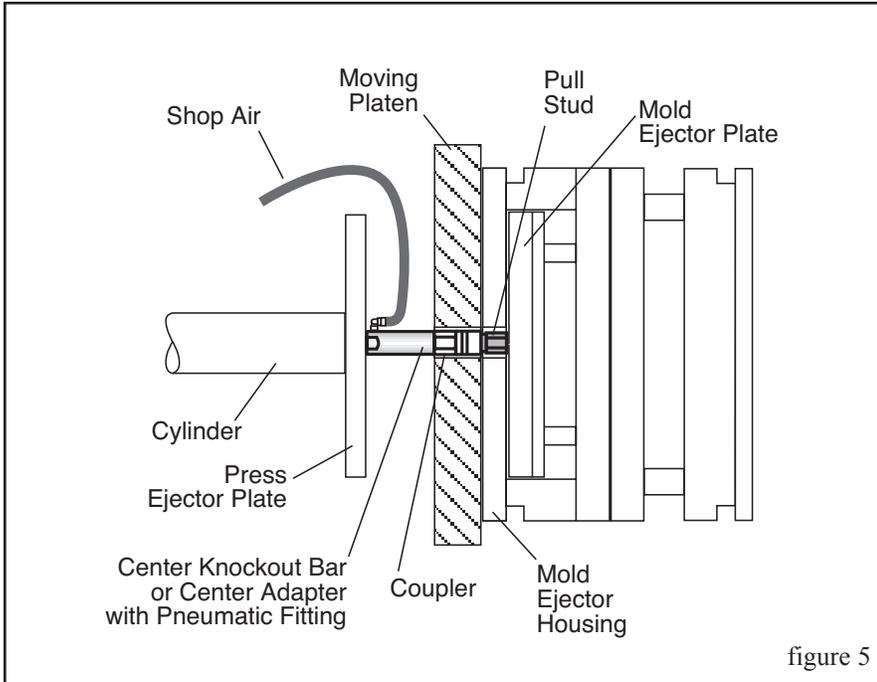


figure 5

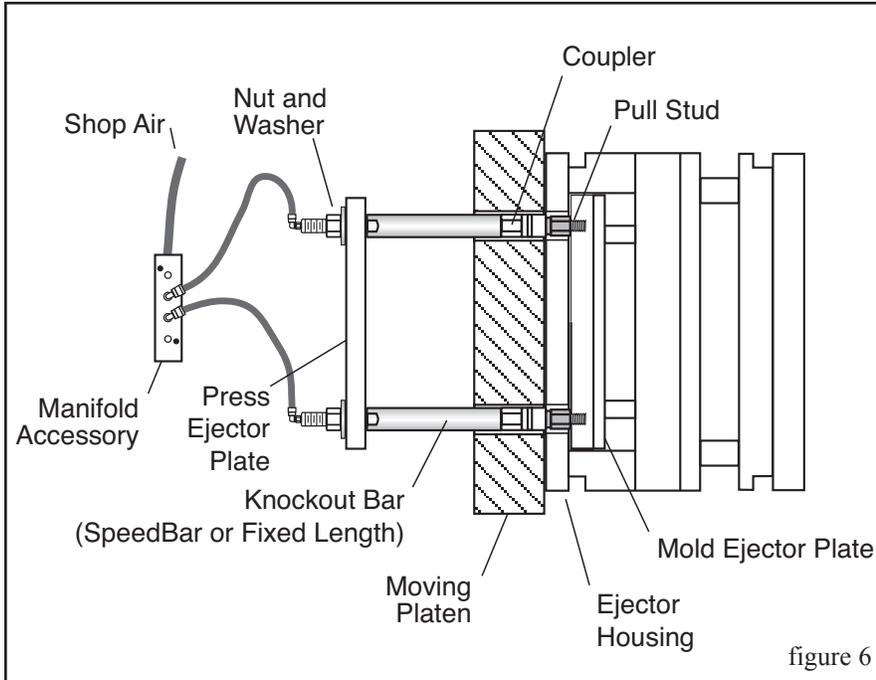
The following installation instructions are for reference only. Installation may vary depending on the application and customer preferences.

1. Install the pull stud into the mold ejector plate per figure 5. Use thread-locking compound to prevent movement during use.
2. Remove the Cylinder Bolt (if present) from the press.
3. Install the Center Ejector Bar or Adapter and FasTie Coupler Assembly through the platen and tighten into the cylinder.
4. Lower the mold into position and clamp the A side (stationary side) making sure the mold is square to the machine.
5. Connect shop air lines to the pneumatic fitting for the coupler. **Coupler must be in the open position (see figure 1) before connection to the pull stud, otherwise coupler damage will occur.**
6. Install the pull stud into the mold ejector plate.
7. Slowly position moving platen against the mold, observing the coupler and pull stud. Proper center alignment and engagement are critical at this time.
8. Clamp the B side (moving side) of the mold to the platen. Open the mold to safe ejection position.
9. Check that air supply to the coupler is off. If press ejector plate and FasTie system are not set at machine zero, set Machine Ejector Back setting to match Mold Ejector Back position. Move the press ejector plate forward to connect the coupler and the pull stud.
10. Maximum allowable center-to-center misalignment of coupler and pull stud is below: (see figure 2)

1" HS	±3.5mm	(±0.138")
1-3/8"	±5mm	(±0.197")
2"	±6mm	(±0.236")
3"	±5mm	(±0.197")
11. Follow "Test Installation" procedure on page 6.

## Couplers at the end of Ejector Bars

for multiple molds in the same machine with the same ejector pattern and ejector strokes



The following installation instructions are for reference only. Installation may vary depending on the application and customer preferences.

1. Install the coupler and the knockout bar assembly into the press ejector plate populating for the required molding machine patterns (i.e. vertical, horizontal and/or center knockout positions). Use thread-locking compound to prevent movement during use.\*
2. Install washer, nut and pneumatic fitting per figure 6. Do not tighten completely at this time.
3. If using the manifold accessory, mount the manifold and tubing so they do not interfere with moving parts.
4. Connect shop air lines to the pneumatic fittings that feed the FasTie couplers. **Couplers must be in the open position (see figure 1) before connection to pull studs, otherwise coupler damage will occur.**
5. Install the pull stud into the mold ejector plate.
6. Lower the mold into position and clamp the A side (stationary side) making sure the mold is square to the machine.
7. Position the moving platen, providing clearance between the platen and the mold.
8. Slowly position the moving platen against the mold, observing the coupler and pull stud. Proper center alignment and engagement are critical at this time.
9. Clamp the B side (moving side) of the mold to the platen. Open the mold to safe ejection position.
10. Check that air supply to the coupler is off. If press ejector plate and FasTie system are not set at machine zero, set Machine Ejector Back setting to match Mold Ejector Back position. Move the press ejector plate forward to connect the coupler and the pull stud.
11. Tighten nuts to the press ejector plate after the FasTie components are coupled. This helps alignment of the FasTie system.
12. Maximum allowable center-to-center misalignment of coupler and pull stud is below: (see figure 2)

1" HS	±3.5mm	(±0.138")
1-3/8"	±5mm	(±0.197")
2"	±6mm	(±0.236")
3"	±5mm	(±0.197")
13. Follow "Test Installation" procedure on page 6.

\* 1" HS FasTie only: For installation using SpeedBar® Adjustable Length Knockout bars, insert bars at step 1, taking care to insure all bars are exactly the same length.

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## Test Installation

### Verify Connection

1. Open the mold.
2. Activate the ejector system.
3. Observe the ejector pins. They should move forward and return. Visually inspect the FasTie couplers to verify that they are connected to the pull studs.

### Verify Release

1. Apply air to the FasTie couplers.
2. Activate the ejector system.
3. Observe the ejector pins. They should move forward, but not return.

### Reconnect Couplers

1. Ensure that the FasTie couplers are in the open position and the *air pressure is off*. See figure 1.
2. Move the ejector system forward
3. Return the ejector system.
4. Observe the ejector pins. They should be retracted

If the system is not connected properly, open the platen, disconnect the couplers and pull studs, reconnect each ejector position and re-test the installation.

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## Troubleshooting

### Symptom

Ejector pins don't move back when retracting ejector system; FasTie does not connect

### Corrective Action

- Confirm shop air is off during connection.
- Check coupler operation.
- Check pull stud and coupler alignment.
- Pneumatic valve or selector switch must allow residual air pressure to dissipate when valve is "off". Air pressure when "off" is zero.

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FasTie uncouples during ejector cycle

- Check mold position in the machine. Mold must be squarely installed and the FasTie coupler must not contact the platen.

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FasTie doesn't uncouple

- Check Knockout Bar length.
- Check that the mold is clamped squarely to the machine.
- Air pressure supply to the couplers should be 80 to 100 psi. Check air lines and fittings for leaks or breaks.
- Ensure that couplers are not under tension when disconnecting.
- Apply grease to couplers per "Maintenance" on Page 1.

If corrective action fails to correct the problem, please contact the factory.

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## Limited Warranty

Seller warrants that this product supplied will conform to the description herein stated and that the product will be of standard quality. This is the sole warranty made by Seller with respect to this product. Seller expressly disclaims any other express or implied warranties, including, but not limited to, the implied warranty of merchantability and the implied warranty of fitness for a particular purpose.

Seller shall not be liable for any cost or damages, whether direct, incidental or consequential, including, but not limited to, any injury, loss or damage resulting from the use of this product, regardless of whether any claim for such cost or damages is based on warranty, contract, negligence, tort or strict liability. The sole liability of Seller is limited to repairing or replacing this product.

This warranty shall not apply to any products that have been repaired or altered by anyone other than Seller. The warranty shall not apply to any products subject to misuse due to common negligence or accident, nor to any products manufactured by Seller which are not installed or operated in accordance with the printed instructions of Seller or which have been operated beyond the rated capacity of the goods. Seller states that the product's useful safe life is 5 years. Actual life may vary widely depending on operating environment such as temperature, pressure, and chemical exposure.