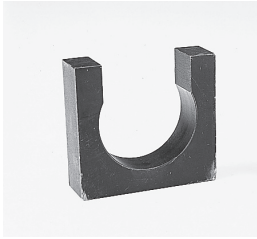


Presetting FastSeal Fittings with a Hydra-Tool

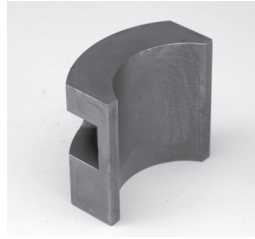
Components Required for this job:



Back-up Plate



Small Ram Insert



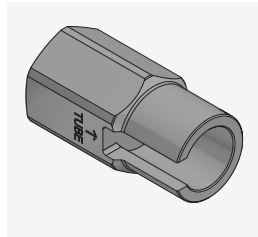
Large Piston Stop Adapter



Nut Die Set



FastSeal Body Die



Tube Marking Gauge

Step 1 - Select Tooling

| Description | Part Number |
|---------------------------|--------------|
| Ram Insert | 770108 |
| Large Piston Stop Adapter | 770107 |
| Back-Up Plate | 770102 |
| Nut Die | See Table #2 |
| FastSeal Body Die | See Table #2 |
| Tube Marking Gauge | See Table #2 |

Table 1: Tool part numbers

Select tooling from the chart below based on the size tube to be preset.

| Size | Tube O.D. (in.) | Nut Die Part No. | Body Die Part No. | Tube Marking Gauge |
|------|-----------------|------------------|-------------------|--------------------|
| 4 | 1/4 | 680370-4 | 4 TLFA BODY DIE | 4 TLFA GAUGE |
| 6 | 3/8 | 680370-6 | 6 TLFA BODY DIE | 6 TLFA GAUGE |
| 8 | 1/2 | 680370-8 | 8 TLFA BODY DIE | 8 TLFA GAUGE |
| 12 | 3/4 | 680370-12 | 12 TLFA BODY DIE | 12 TLFA GAUGE |

Table 2: Tube sizing

Step 2 - Select Tube

Select your tubing material, OD, wall thickness and pressure using Table 3.

| Low Carbon Steel Tube Walls (in) ¹ | | | | | | 304/316 Stainless Steel Tube Walls (in) ¹ | | | | | |
|---|-------|-------|-------|-------|-------|--|-------|-------|--------|-------|--------|
| Tube O.D. | 0.035 | 0.049 | 0.058 | 0.083 | 0.095 | Tube O.D. | 0.035 | 0.049 | 0.058 | 0.083 | 0.095 |
| 1/4 | 3,350 | 5,150 | 6,200 | - | - | 1/4 | 5,900 | 8,600 | 10,350 | - | - |
| 3/8 | 2,250 | 3,300 | 3,950 | 5,900 | 6,800 | 3/8 | 3,800 | 5,500 | 6,500 | 9,850 | 11,400 |
| 1/2 | - | 2,400 | 2,900 | 4,300 | 4,950 | 1/2 | - | 4,000 | 4,800 | 7,150 | 7,400 |
| 3/4 | - | - | - | 2,750 | 3,150 | | | | | | |

Table 3: Wall Thickness

¹: Tube walls shown are recommended for FastSeal. Pressure rating shown MAY be de-rated, verify application pressure with listed tube wall pressure in table before use.

Step 3 - Prepare Tube

For proper tube end preparation see the [Assembly and Installation Section Parker's Catalog 4300](#) or watch our [techConnect Tube End Prep Video](#).

CRITICAL STEP:

A heavy deburr, per Figure 1 of at least 1 mm on the tube is recommended to prevent damage to the internal O-ring. Ensure tube is clean and all chips and debris have been removed from the tube. The deburr dimension can be checked visually (roughly the thickness of a coin) or with the depth gauge on the back end of the marking tool.

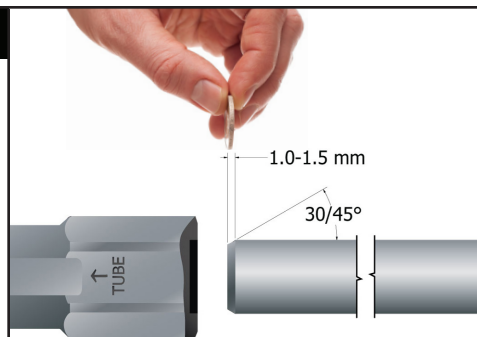


Figure 1: Recommended deburr

Step 4 - Mark the tube

Place marking tool on tube until it bottoms out. Mark around OD as shown. If marking tool is not available, use insertion depths shown in Table 4.

| Tube OD | Depth - in (mm) |
|---------|-----------------|
| 1/4" | 0.62 (16) |
| 3/8" | 0.66 (17) |
| 1/2" | 0.71 (18) |
| 3/4" | 0.79 (20) |

Table 4: Tube Insertion Depths



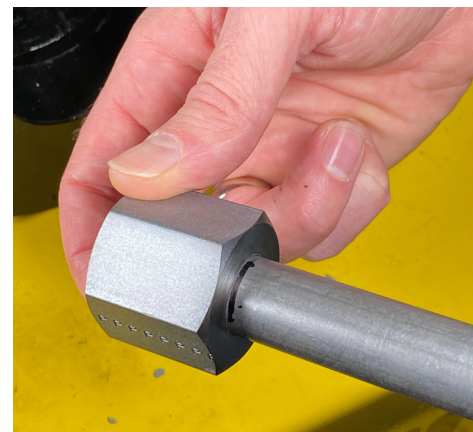
Step 5 - Lubricate the tube

Lubricate the end of the tube with hydraulic oil to help with insertion in the next step.



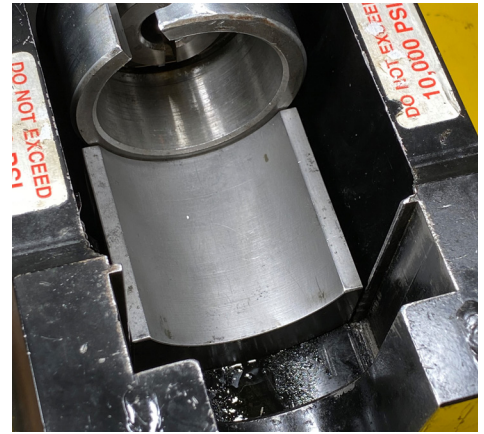
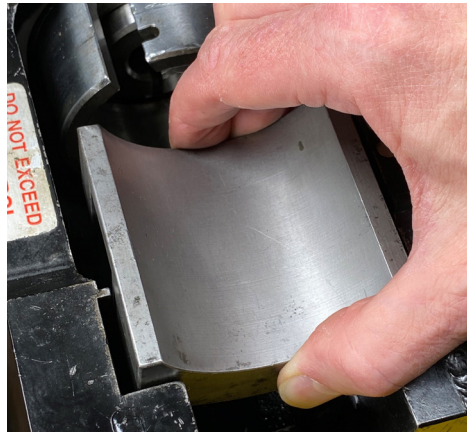
Step 6 - Insert the Tube

Insert the tube into the FastSeal nut to the tube depth mark. Twist and push tube to aid the insertion. You will feel the tube pop past the O-ring and bottom out.



Step 7 - Install Stop Adapter

Insert the Large Piston Stop Adapter into the opening in the housing of the Hydra-Tool. Orient the adapter so the notch in the adapter is aligned with the Tube Stop.



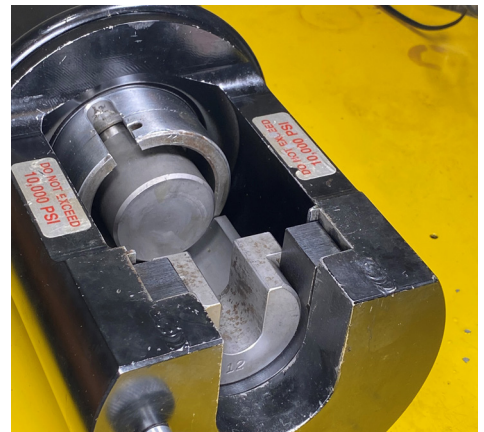
Step 8 - Install Ram Insert

Install the Small Ram Insert into the center piston of the Hydra-Tool. When inserting, rotate the Ram Insert so the roll pin engages the center piston and locks the Ram Insert in place.



Step 9 - Install Nut Support

First, drop the Back-Up Plate into the slot near the front of the machine. Then insert the nut support in the Back-Up Plate opening from the inside so that the Nut Support shoulder seats squarely in the counterbore of the Back-Up Plate.



Step 10 - Presetting Pressure

Based on the tube outside diameter and wall thickness, determine the presetting pressure from the chart.

- 1) These values are provided as a guide only and normally will produce a satisfactory bite.
- 2) The pre-setting dies are not positive stop style. Pre-setting must be done using pressures given in these charts.
- 3) For wall thicknesses other than those listed, contact the Tube Fittings Division.

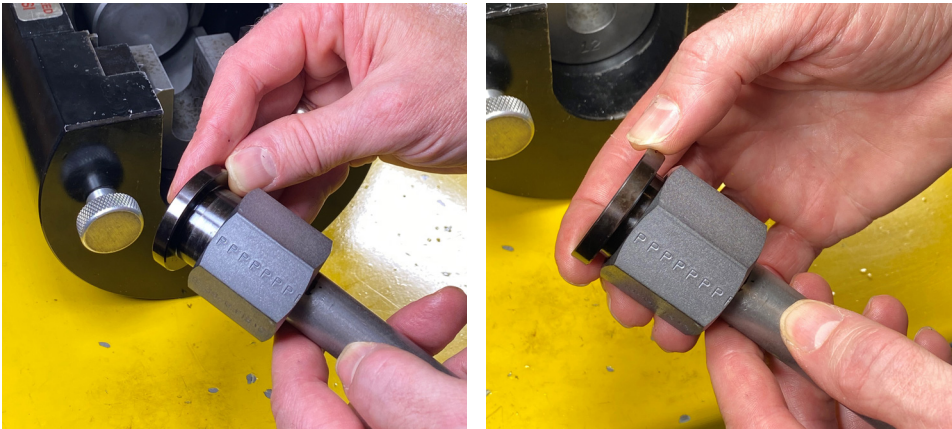
Hydra-Tool Presetting Pressures for FastSeal Fittings ^{1) 2) 3)}

| Tube Size | Wall Thickness - Steel | | | | | Tube Size | Wall Thickness - Stainless Steel | | | |
|-----------|------------------------|-------|-------|-------|-------|-----------|----------------------------------|-------|-------|-------|
| | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | | 0.035 | 0.049 | 0.065 | 0.083 |
| 1/4" | 1000 | 1000 | | | | 1/4" | 1500 | 1500 | | |
| 3/8" | | 2000 | 2000 | | | 3/8" | | 2500 | 2500 | |
| 1/2" | | 2500 | 2500 | 2500 | | 1/2" | | 3000 | 3000 | 3000 |
| 3/4" | | | 6000 | 6000 | 6000 | | | | | |

Table 5: Presetting Pressures

Step 11 - Install Body Die

Install the Body Die into the nut and push nut forward until against ferrule. The Body Die will enter the bore of the nut, and the parts will be in the correct position for presetting.



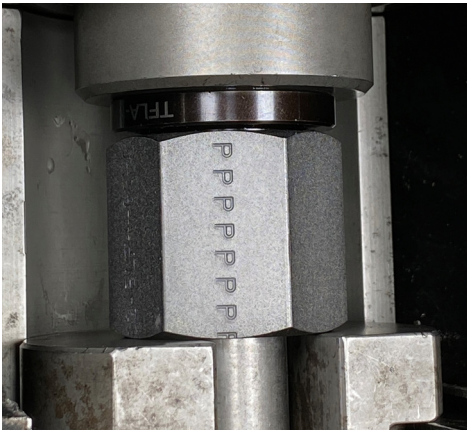
Step 12 - Position Assembly for Presetting

Place the tube within the slot in the Nut Support.



Step 13 - Preset the Ferrule

Apply hydraulic pressure to advance the piston of the Hydra-Tool. Continue operation until the predetermined pressure is reached – see table #5 above. De-energize the hydraulic power supply. The Hydra-Tool piston will retract.



Step 14 - Remove Tube and Inspect Preset

Lift tube with preset ferrule out and inspect preset. The gap closure is an important visual inspection to make after presetting the **FastSeal** nut. A “closed gap” can vary from 0-0.01” (0-0.25mm). This small gap may be caused by spring back of the material and will close when the parts are tightened at final assembly.



Loosen and back off nut to inspect the sleeve gap to ensure it has closed (see Figure 2).

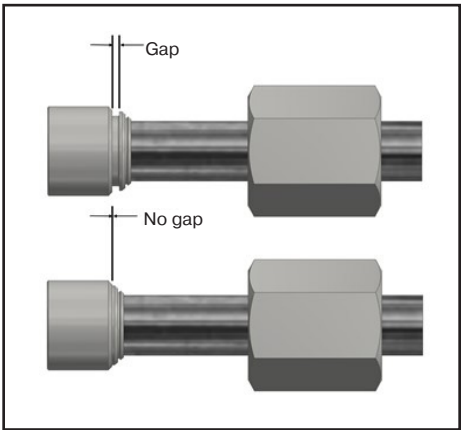


Figure 2: Gap closure inspection reference

Step 15 - Final Installation

Once the gap is confirmed closed, assemble tube to fitting body and torque to the values shown in Table 6.

| Tube OD | Torque – in-lb (Nm) |
|---------|---------------------|
| 1/4" | 220 (25) |
| 3/8" | 360 (40) |
| 1/2" | 480 (55) |
| 3/4" | 110 (150) |

Table 6: Final Assembly Torque

Troubleshooting

| | |
|---|---|
| Unsure if tube is bottomed | Use tube marking tool or insertion depths in Table 2 to mark tube prior to insertion and to identify if you have met appropriate depth when tube is inserted into nut. |
| Unable or difficult to push tube into nut | <p>Tube may be oversized or oval. Use tube making gauge to check for correct size and ovality. If tube does not fit in gauge do not use, select another tube and use gauge to verify the size and ovality before using.</p> <p style="text-align: center;">OR</p> <p>Ensure nut was not tightened more than finger tight onto fitting or mandrel body before inserting tube. Do not wrench tighten nut before tube is fully inserted this may cause bite ring to begin to preset, interfering with tube insertion.</p> |
| Tube will not push to marked depth on tube | <p>Avoid O-ring damage, DO NOT FORCE TUBE. Remove tube and ensure tube is properly deburred to at least 0.040in (1.0 mm) and is cleaned thoroughly. Inspect the tube to ensure it is round, within dimensional specs (should easily fit in tube marking gauge) and has no burrs. Ensure a small amount of oil is applied to end of tube before inserting, use slight twist when inserting.</p> <p>DO NOT FORCE, DO NOT USE A HAMMER.</p> |
| Gap not closed after presetting | If gap of more than 0.01in (0.25mm) is detected, reassemble to last marked position, tighten nut ½ additional flat, inspect gap for closure. |
| Leaks at low pressure | Internal O-ring may be damaged. To replace seal, please contact division for assistance. |
| Leaks at high pressure | Inspect the ferrule and sleeve to confirm there was no gap after presetting, tighten until gap is 0-01". Internal O-ring may be damaged, to replace contact Division for assistance. Ensure connection was tightened to proper Seal-Lok assembly torque per table 3. Confirm ORFS seal is not damaged or missing. |
| Tube moves in nut after presetting or final assembly | Preset was not done correctly. DO NOT USE CONNECTION . Remake tube assembly. |
| Tube pulls out of nut after preset | Preset was not done correctly, tube too hard. DO NOT USE CONNECTION . Check tube material, wall thickness and size. FastSeal Carbon Steel nuts are intended for use only with low carbon steel seamless or DOM tube intended for hydraulic applications (reference SAE J524/J525). FastSeal Stainless Steel nuts are intended for use only with 304 or 316 stainless steel seamless or DOM tube (reference SAE J524/J525). |
| Unsure what tubes to use | FastSeal Carbon Steel nuts are intended for use only with low carbon steel seamless or DOM tube intended for hydraulic applications (reference SAE J524/J525). FastSeal Stainless Steel nuts are intended for use only with 304 or 316 stainless steel seamless or DOM tube (reference SAE J524/J525). Use of the correct tube wall is critical to meet performance criteria. Recommended tube walls and pressure can be found in Table 1. Never mix carbon and stainless steel components and tubing. |

WARNING

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