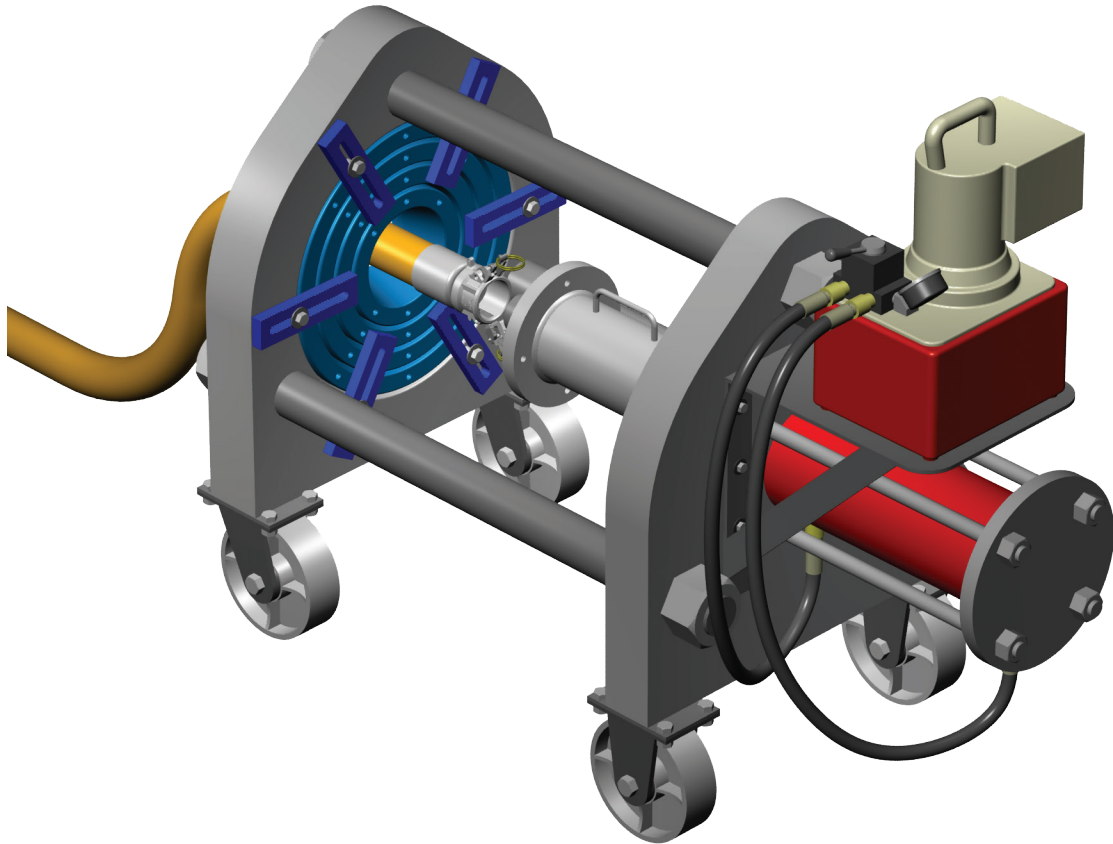




*The Right Connection®*

*Section 5*

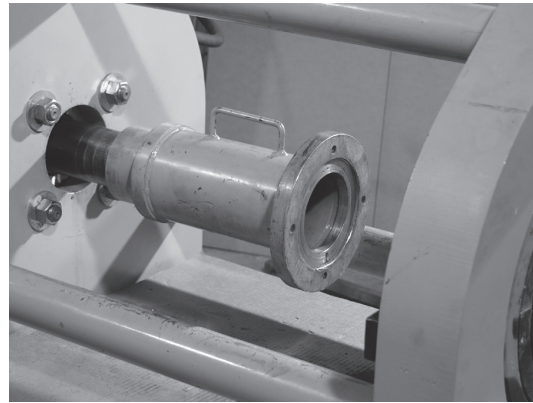
**100 Ton Ram Operating Instructions  
for  
Cam & Groove  
Holedall™ Couplings**



Dixon  
800 High Street • Chestertown, MD 21620  
ph: 877.863.4966 fax: 800.283.4966  
dixonvalve.com

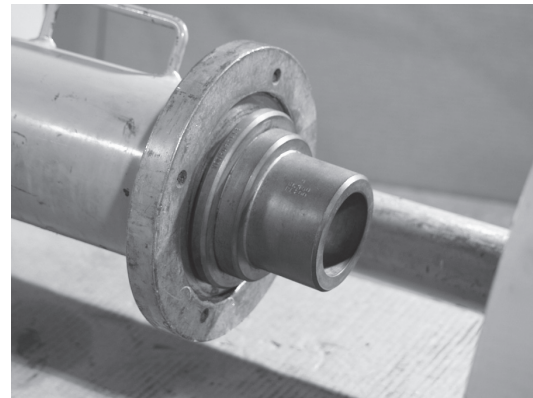
1

Install Main Pusher (**M011-065**) on cylinder rod cap. Make sure that the pusher is fully installed on the rod cap.



2

Install the Cam & Groove pusher necessary to do the size and style of coupling to be swaged into the Main Pusher (**M011-065**). Additional pushers may be required. Reference the chart at the end of this section for proper pusher selection.



3a

Install the required die holders ensuring that the seams between the die holder halves do not line up. The die holders are designed to fit one inside the other.

A guideline for selecting die holders is:

**DH6-003** ¼" - 1" I.D. hose

**M012-002** 4" - 6" I.D. hose

**M012-003** 6" - 8" I.D. hose

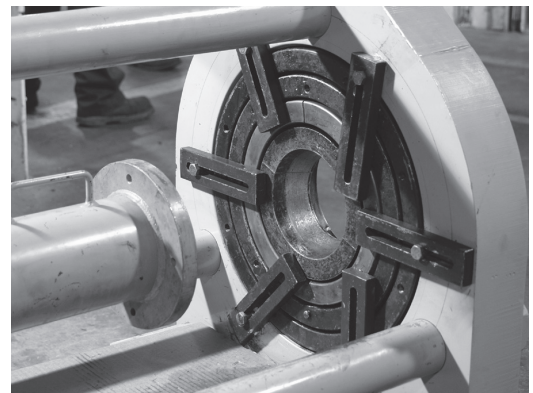
**M012-004** 8" - 10" I.D. hose

**Caution!** Never use a swaging die as a die holder!



3b

Secure the die holders with tie down bars to prevent the die holders from slipping out of the die bed unexpectedly.



4



Accurately measure the hose O.D. with a diameter tape. Each end of the hose should be measured to guarantee the correct ferrule and die selection. Select the correct ferrule and die based upon the hose free O.D. just measured from the die chart. Make sure that the hose end is cut square. If the hose is to be static grounded, follow hose manufacturers procedure for proper static grounding.

5



Align the end of the hose with the stem shoulder and mark the hose at the end of the stem

6



Place a mark on the outside of the ferrule that corresponds with the center of one of the turned over sections of the ferrule. This mark will act a guide for correct engagement with the stem collar.

7



When using the Notched Stem and Ferrule system these guidelines *must* be followed:

- A. Before stem insertion, assemble the ferrule onto the stem by sliding the turned over portion of the ferrule past the notched sections of the stem collar. Rotate the ferrule 90° (¼ turn).
- B. Before starting the swaging process, make sure that the turned over portion of the ferrule and the collar are fully engaged.
- C. For "C" style couplings (requiring spacer rings), make sure that the two ring halves meet over the turned over portion of the ferrule which should be under the cam arms.

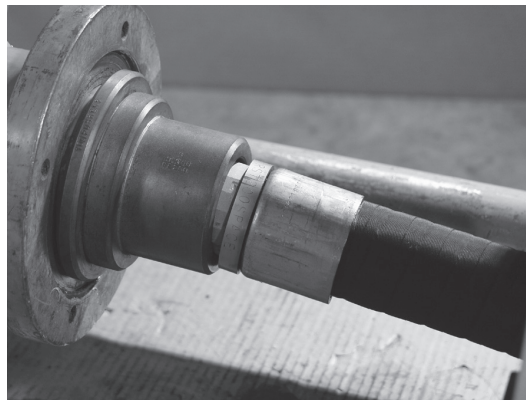
8

Cut the hose end square and if the assembly requires static grounding, follow the hose manufacturer's procedure for proper static grounding. Lubricate the hose I.D. and the O.D. of the stem with Dixon Coupling Lubricant or equivalent. Insert the cam and groove fitting with ferrule onto the hose until the ferrule is even with the mark closest to the hose end. This is the second mark made on the hose.



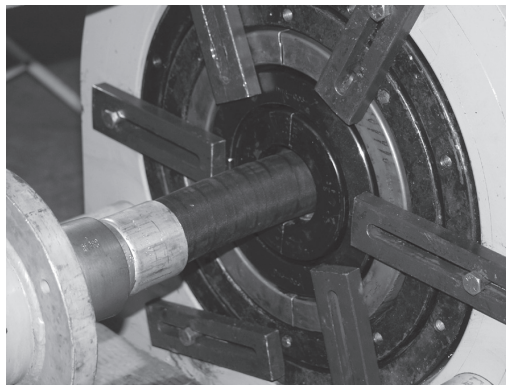
9

Bring the hose with the stem and ferrule through the die bed. Insert the coupling into or onto the pusher (depending upon coupling style). Make sure that there is sufficient room between the die holders and the end of the ferrule to comfortably insert the die halves into the die holders.



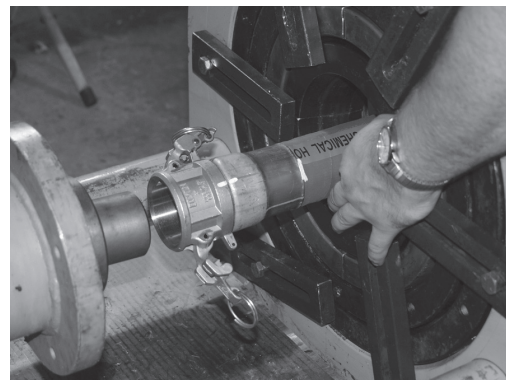
10a

Lubricate the outside of the ferrule with Crisco® (recommended) or high viscosity oil or heavy duty grease.

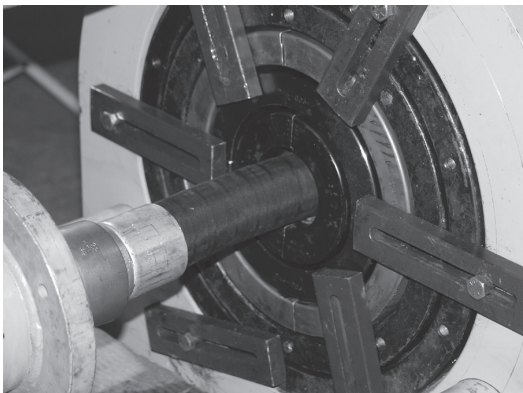


10b

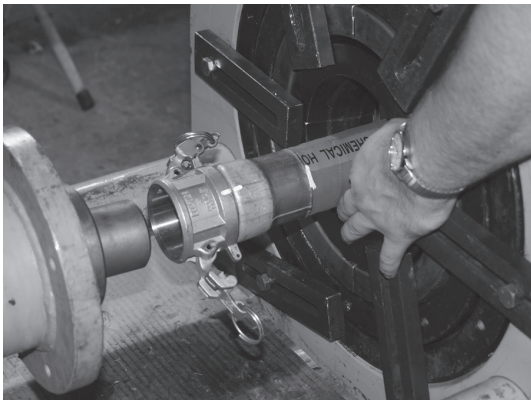
Lubricate the I.D. of both die halves with Crisco® (recommended) or high viscosity oil or heavy duty grease.





**11a**

Lifting up the hose, insert one die half under the hose. Lower the hose so that it rests on the die. Insert the other die half. Make sure that the seams of the die do not line up with the seams on the die holders.

**11b**

While holding the die in place with one hand, place one of the tie down bars over the die so that it does not come out of the die holder unexpectedly. Secure the tie down bar by tightening the bolt.

For style "C" couplings go to step 12.  
For style "E" couplings go to step 13.

For "C" style couplings requiring spacer rings:

12a

Release both cam arms.



12b

Remove the gasket from the coupler.



12c

Put the spacer rings between the ferrule and coupler head, making sure that the two ring halves meet over the turned over portion of the ferrule.

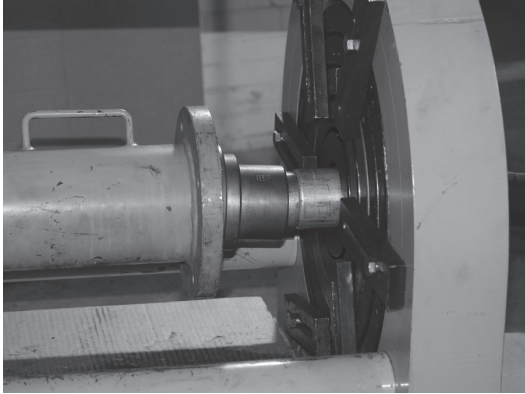


12d

Insert the proper pusher into the coupler (reference the chart at the end of this section for proper pusher selection).

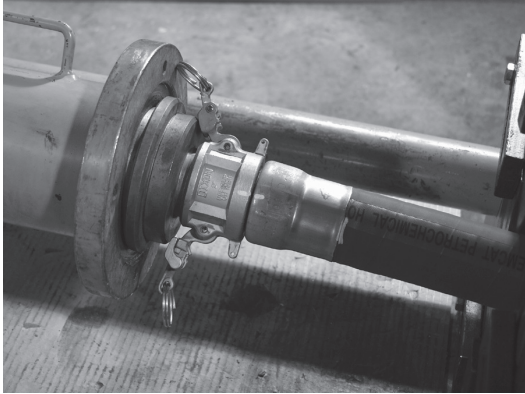


## 12e



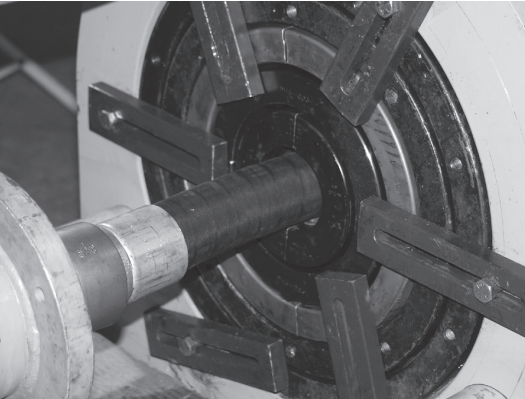
Check the ferrule engagement with the stem collar. The mark on the ferrule (from Step 6a) *must* be positioned under the cam arm.

## 12f



Move the directional control lever to the "FORWARD" position. Depress the button on the remote and advance the cylinder until the end of the ferrule is near the die opening. Using a wooden board or metal pipe, lift the ferrule up. Jog the cylinder by quickly depressing and releasing the button on the remote. This will allow the ferrule to enter the die slowly without contacting the die face. Continue jogging the cylinder until the ferrule has entered the die approximately one half inch.

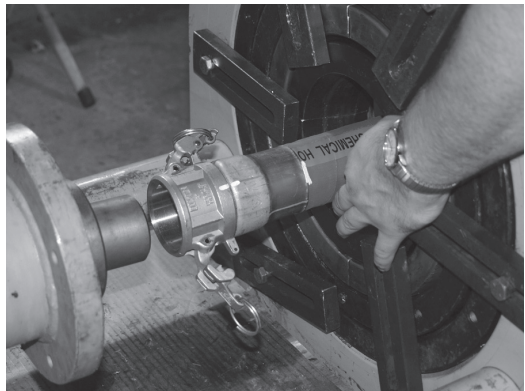
## 12g



Loosen and move any tie down bars that may come in contact with the coupler head. Depress and hold the button on the remote until the spacer rings are even with or about to contact the die face. Release the button on the remote. Return the directional control lever to the "NEUTRAL" position.

**Note:** If the gauge reads 10,000 PSI before swaging is complete, stop. The ferrule or die used for that hose end may be incorrect. Contact Dixon for further assistance.

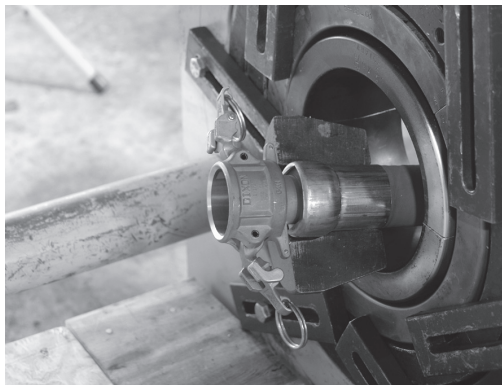
## 12h



Move the directional control lever to the "REVERSE" position. Depress and hold the button on the remote retracting the cylinder until there is sufficient room for the stem and ferrule to clear the die bed.

## 12i

Position a rubber sheet or pad under the die bed. While holding the die in place with one hand, loosen the bolt on the tie down bar and move the tie down bar so that it clears the die. *Slowly* slide the hose towards the pusher. When the die clears the die holder, one or both halves may fall to the floor. If one half remains on the ferrule, tap it with a mallet until it releases. If both halves remain on the ferrule, it may require the halves be pried apart at the seam.



## 12j

Remove the spacer rings from the coupling. Wipe off excess lubricant from hose and ferrule. Bring the hose with stem and ferrule back through the die bed. Reinstall the gasket. Close the cam arms.

**Note:** Remove spacer ring from the 1½" size only.





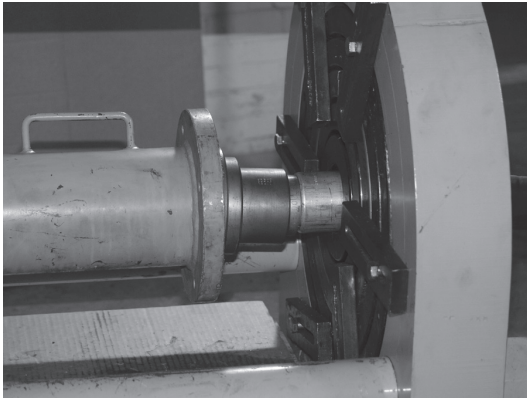
For "E" style couplings:

13a



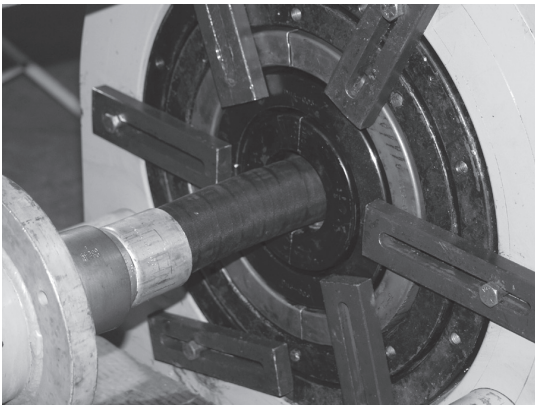
Check the ferrule for proper alignment. Ensure that the mark on the ferrule (from Step 6b) is in the center of the stem collar.

13b



Move the directional control lever to the "FORWARD" position. Depress the button on the remote and advance the cylinder until the end of the ferrule is near the die opening. Using a wooden board or metal pipe, lift the ferrule up. Jog the cylinder by quickly depressing and releasing the button on the remote. This will allow the ferrule to enter the die slowly without contacting the die face. Continue jogging the cylinder until the ferrule has entered the die approximately 1½"

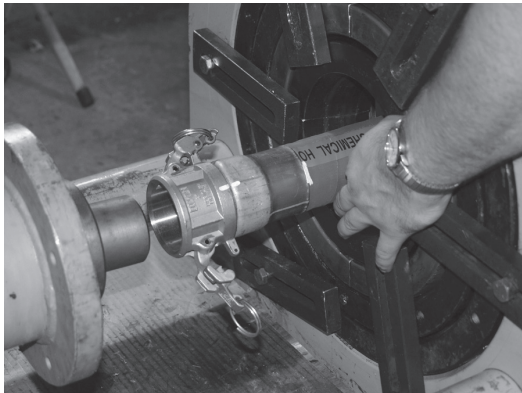
13c



Move any tie down bars from the die that may come in contact with the pusher. While holding the hose and coupling up against the pusher, depress the button on the remote. Once the ferrule has started to be reduced (approximately 1/3 the way) it is no longer necessary for the operator to hold the hose. Continue the swage until the pusher contacts the die face. When this occurs, release the button on the remote and move the directional control lever to the "NEUTRAL" position.

**Note:** If the gauge reads 10,000 PSI before swaging is complete, stop. The ferrule or die used for that hose end may be incorrect. Contact Dixon for further assistance.

13d



Move the directional control lever to the "REVERSE" position. Depress and hold the button on the remote retracting the cylinder until there is sufficient room for the stem and ferrule to clear the die bed.

**13e**

Position a rubber sheet or pad under the die bed. While holding the die in place with one hand, loosen the bolt on the tie down bar and move the tie down bar so that it clears the die. Slowly slide the hose towards the pusher. When the die clears the die holder, one or both halves may fall to the floor. If one half remains on the ferrule, tap it with a mallet until it releases. If both halves remain on the ferrule, it may require the halves be pried apart at the seam.

**13f**

Wipe excess lubricant from hose and ferrule. Bring hose with stem and ferrule back through die bed.



## Pushers and Spacer Rings for Cam and Groove

Size	Description	Part Number
1"	Type "E" Pusher Type "C" Pusher	<b>100PUSHGCRC</b> <b>100PUSHCGRC</b>
1½"	Type "E" Pusher Type "C" Pusher Spacer Ring	<b>100PUSHCG15E</b> <b>100PUSHCG15 (2 pieces)</b> <b>150CGSPACE</b>
2"	Type "E" Pusher Type "C" Pusher	<b>100PUSHCE2</b> <b>100PUSHCG2</b>
3"	Type "E" Pusher Type "C" Pusher	<b>100PUSHCG3</b> <b>100PUSHCG2</b>
4"	Type "E" Pusher Type "C" Pusher	<b>100PUSHCG4E</b> <b>100PUSHCG4C</b>

**Note:** Spacer Rings are to be used with Type "C" Couplings ONLY. DO NOT use Spacer Rings with Type "E" Couplings, or bodily injury may result.



Dixon recommends that all hose assemblies be tested as recommended by the Association of Rubber Products Manufacturers.