

# CRANE

## OPERATION INSTRUCTIONS FOR THE USE WITH GYROLOK® FITTINGS

### Hydraulic Pre-Setting Tool (HPST) Operations Manual For Model Number 3HPST

3HPST pre-setting tool was designed to initially set ferrules onto tubing prior to final make-up. Pre-setting assures correct and consistent make-ups. Final manual make-up torque is reduced approximately by 30% of what would have been required without pre-setting.



#### HPST Setup

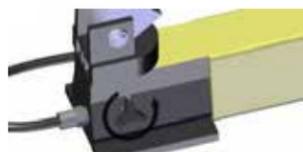
##### 1. Connect hand pump to Pre-Setting head

The hand pump is supplied with a hose connected. Therefore the free end of the hose needs to be connected to the Pre-Setting head.

1.1. Remove the hand pump and Pre-Setting head from the case and place them in a suitable location.



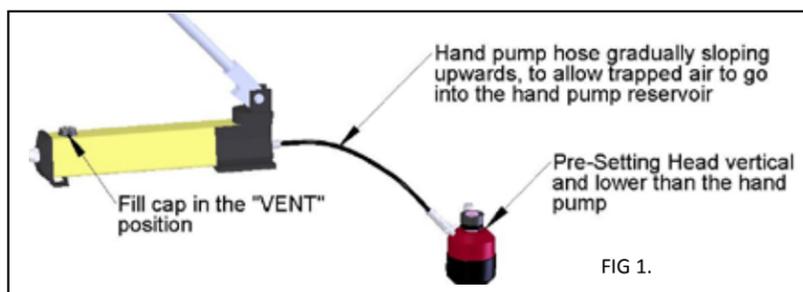
1.2. Open the release valve on hand pump by turning the handle counter-clockwise.



1.3. Remove the protective plug from the inlet connector on the Pre-Setting head, turn counter-clockwise. Keep the plug in a safe place, such as in the black case.



1.4. Connect the free end of the hand pump hose to the inlet connector on the Pre-Setting head tightening the male and female couplers together.

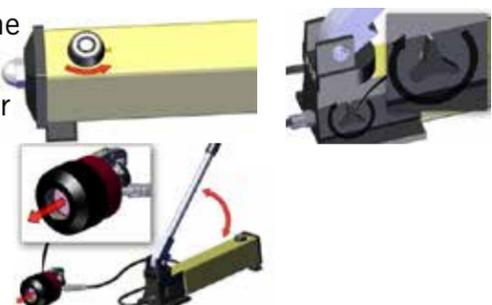


##### 2. System Bleeding (Air Removal)

Perform the System Bleeding process prior to using the tool and whenever any part of the hydraulic system has been disconnected.

2.1. Position the hand pump at a higher elevation than the Pre-Setting head; this will help in chasing any trapped air out of the hydraulic system. (See FIG 1, above)

2.2. Vent hand pump reservoir, by turning the fill cap a 1/4 of a turn to the "VENT" position and ensure the hand pump release valve is closed. Turn release valve handle clockwise. Ensure the vent end of the Hand Pump reservoir is the highest point in the system.



2.3. Operate the hand pump (pump the handle) until the piston in the Pre-Setting head is fully extended. This is achieved when the pump handle is hard to push. Do not try to pump the handle any further.

2.4. Open the release valve on the hand pump to retract the Pre-Setting head piston. This action will force any trapped air to move up into the hand pump reservoir.



2.5. Repeat the above step as necessary.

2.6. Add oil to the hand pump reservoir, if necessary. Reference hand pump manufacturer's manual for instructions

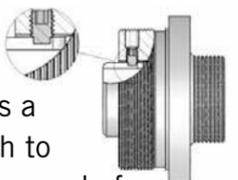
2.7. Return fill cap to the operating position ("CLOSE").



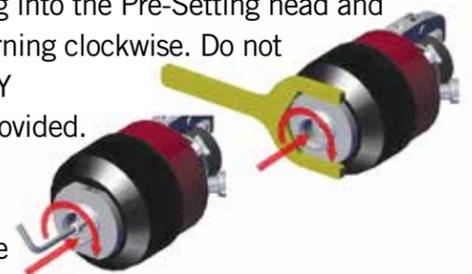
##### 3. Die and Jig Installation

Always keep the Die and Jig as a matched pair and stored in the black case when not in use.

3.1. Select the corresponding Die and Jig set to the desired tube size you wish to pre-set. Make sure the Die and Jig is a matched pair. Use a 3/32 Allen Wrench to loosen the set screw located on the large end of the jig (See adjacent figure). This ensures that the Die moves freely prior to installing the Die and Jig assembly into the Pre-Setting head unit.



3.2. Maintaining the Jig key in the Die slot, install the Jig and Die by screwing the Jig into the Pre-Setting head and tighten completely, turning clockwise. Do not over-tighten. Use ONLY open-end wrenches provided.



3.3. Screw the Die-Fixing bolt to secure the Die onto the Pre-Setting head's piston, use the 5mm hex wrench, provided.

##### 4. Indicator Nut Installation

4.1. Select the corresponding Indicator Nut for the fitting size you wish to pre-set.

A. **Black** Indicator Nut is used with size 1/2" (12mm) only fittings

B. **Silver or Grey** Indicator Nut is used with size 5/8" (14mm) and above fittings



4.2. With the Indicator Arm in the release position, screw the Indicator Nut on to the threaded piston shaft.



## 5. Tube Preparation

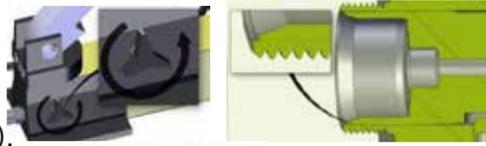
- 5.1 Ensure the tube outside diameter wall thickness and hardness is within acceptable specifications. Free from scratches, indentations and flat spots.
- 5.2 Make a square cut and remove any burrs from the end of the tubing.

## 6. Ferrule Pre-Setting Procedure

- 6.1 With the Pre-Setting head in the desired location, ensure the Indicator Arm is in the released position and the required Die and Jig set installed.



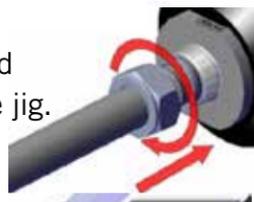
- 6.2 Open the release valve on the hand pump (turn counter-clockwise). Ensure the end of the Die is back from the end of the threaded portion of the Jig.



- 6.3 Place the Nut, Rear and Front Ferrule on to the desired prepared tubing.



- 6.4 Insert the assembly into the Die and screw the nut (finger-tight) onto the jig. Tubing that is oval or oversize will not fit, do not force such tubing.



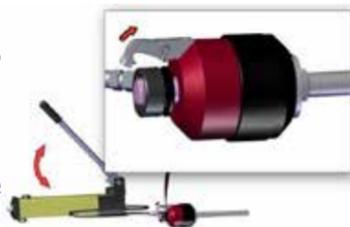
- 6.5 Close the hand pump release valve (turn clockwise).



- 6.6 Set the indicator arm in the operating position by, rotating the Indicator Nut counter-clockwise until it just captures the indicator pin on the indicator arm. Make sure the Indicator Arm can still move. Move the arm in a short movement and at the same time turn the Indicator Nut just until the arm will not move. Use the lock nut to hold the Indicator Nut in position, if desired.



- 6.7 Continue pumping until the indicator arm releases. STOP pumping immediately after the arm releases. Over pumping may cause the tube to swell and stick. Pre-Setting is now complete.



- 6.8 Open the release valve on the hand pump. Unscrew the nut and withdraw the pre-set assembly from the Pre-Setting head.



- 6.9 At this point the fitting make-up is not complete. The completion can take place in the final location (fitting).

## 7. Finalizing the Fitting Make-up

- 7.1 Take the pre-set assembly and install in the desired fitting. Finger-tighten the nut.
- 7.2 With the fitting properly supported; use a wrench to turn the nut clockwise  $\frac{1}{2}$  a turn up to size 1" (25mm) and  $\frac{3}{4}$  of a turn for sizes 1-1/4 (28mm) and above. The fitting make-up is complete.



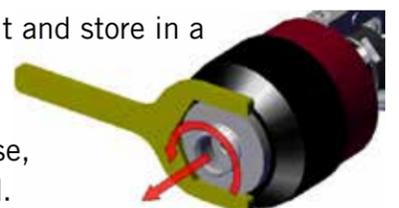
## 8. Resting Indicator Arm.

- 8.1 Make sure the hand pump release valve is in the open position. Turn the valve handle counter-clockwise.
- 8.2 Rotate the lock nut and Indicator Nut until the pin on the Indicator Arm is able to touch the face of the Indicator Nut.
- 8.3 Leave the Indicator Nut in this position and close the release valve on the hand pump, The unit is now ready for the next pre-setting operation.



## 9. Dismantle & Store Unit

- 9.1 Open the Hand pump release valve.
- 9.2 Remove the Die and Jig from the Pre-Setting head by first unscrewing the Die-Fixing bolt, using the 5mm Hex wrench provided.
- 9.3 Remove the Die-Fixing bolt and store in a safe place. Unscrew the Jig along with the Die, turning it counter-clockwise, using the wrench provided.
- 9.4 Disconnect the hand pump hose from the female coupler on the Pre-Setting head by loosening the coupler collar.
- 9.5 Plug the uncoupled end of Pre-Setting head with the protective plug removed and stored earlier.
- 9.6 Store clean components and accessories in the black case.
- 9.7 Lay the black case down (horizontally), when possible, during storage.



**CRANE**

CRANE INSTRUMENTATION & SAMPLING Inc.  
405 Centura Ct.  
Spartanburg, SC 29305, USA  
Tel: 1-864-574-7966  
PO Box 4866, Spartanburg, SC 29305-4866 USA

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