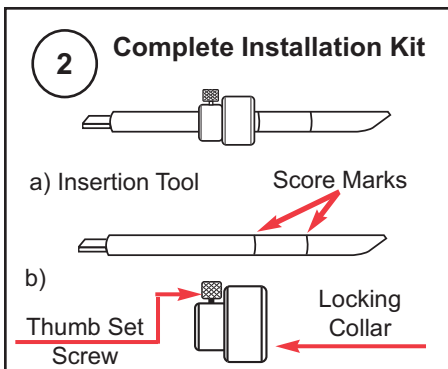
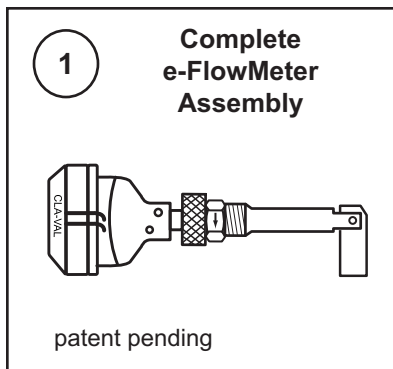




# X144 e-FlowMeter

## Quick Start Installation & Removal Instructions

### X144 e-FlowMeter Included Hardware



#### Parts List

- 1) X144 e-FlowMeter Assembly with 30 foot cable
- 2) Installation Kit containing:
  - a) Insertion Tool
  - b) Locking Collar with Thumb Set Screw (a and b come assembled)

#### Installation Kit Part Numbers:

Small (2.5" - 6" + 8" reduced Port): 208450-21K  
 Large (8" Full Port - 16"): 208450-20A

### Step-By-Step X144 e-FlowMeter Installation Instructions

**1**

Isolation Valves

flow

CLA-VAL

**Step 1: Take necessary safety precautions**

- Isolate the control valve using main line isolation valves
- Bleed pressure from valve before removing body plug
- Remove an inlet body plug

**NOTE:** If both inlet body tapings are used for the pilot system, consult factory for correct modification instructions.

**2**

**Step 2A:**  
Loosen Knurled Lock Nut on e-FlowMeter Assembly

Sensor/Head Assembly

sensor tip

Measurement Cylinder

Threaded Swivel Insert

**Step 2B:** Pull apart. Straighten Measurement Cylinder by hand. Set aside Sensor/Head in safe location, protecting sensor tip

**3**

Thumb Set Screw

Locking Collar

**Step 3A:** Screw Locking Collar on straight threads. Insert angled end of provided tool as shown, until it stops

Thumb Set Screw

**Step 3B:** Tighten Thumb Set Screw

**4**

tape not supplied

**Step 4:** Apply Teflon® tape to NPT Threads

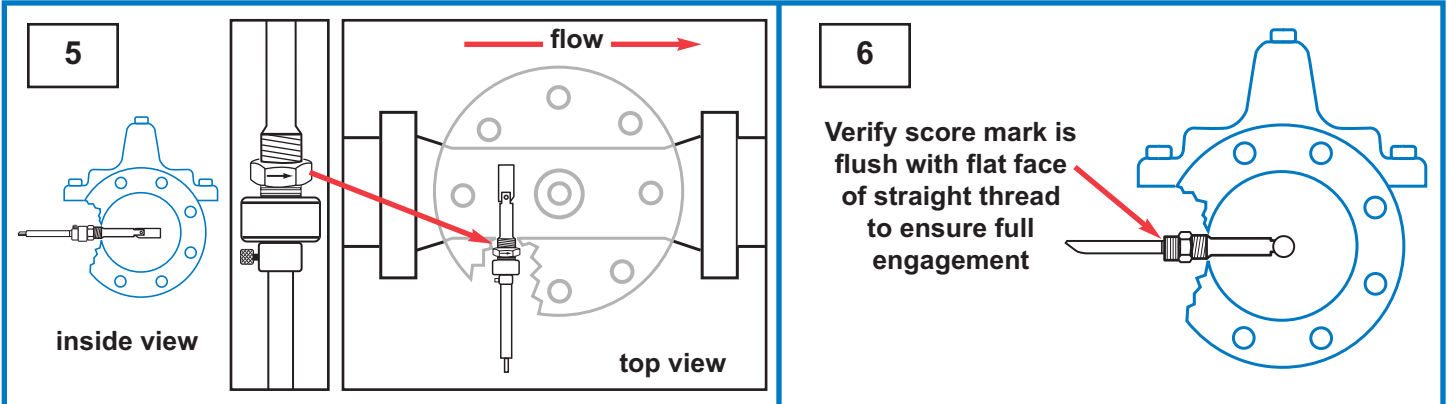
- Check threads on valve
- Use thread chasing tool (not supplied), if necessary



# X144 e-FlowMeter

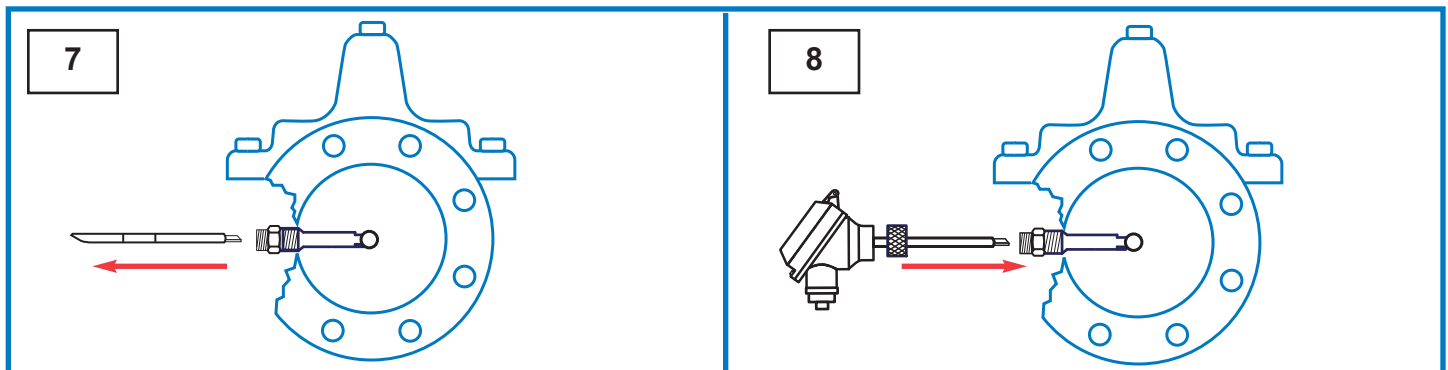
## Quick Start Installation & Removal Instructions

### Step-By-Step X144 e-FlowMeter Installation Instructions (continued)



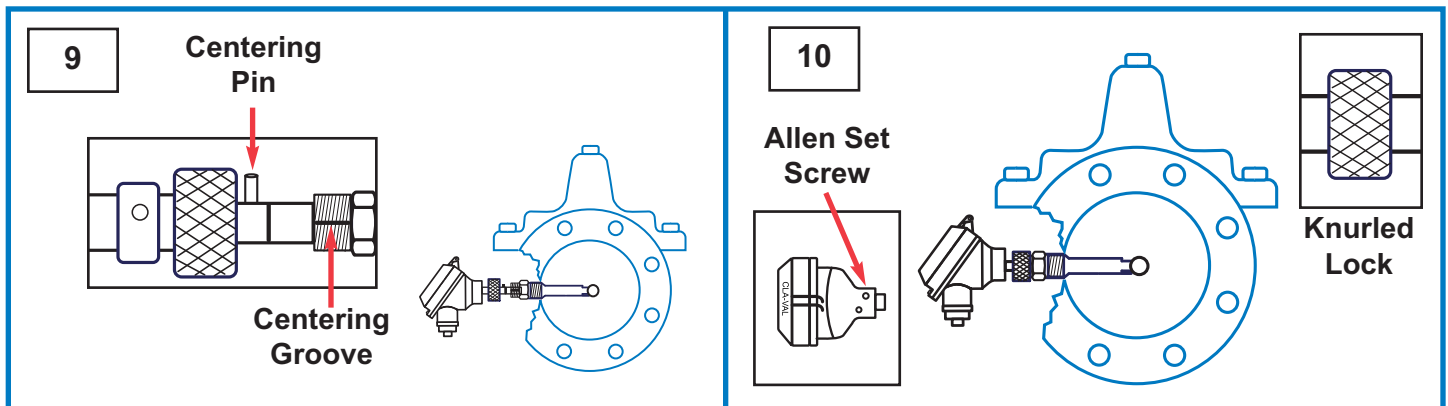
**Step 5:** Insert straightened Swivel Insert/Measurement Cylinder Assembly into valve, orient arrow on wrench flat to point downstream

**Step 6:** Loosen Thumb Set Screw. Remove Locking Collar from tool. Remove tool and re-insert opposite end into Swivel Assembly. Engage the tool and push firmly to orient Measurement Cylinder 90° into flow path



**Step 7:** Remove tool from Threaded Swivel Insert

**Step 8:** Insert tip of e-FlowMeter Sensor/Head Assembly into Threaded Swivel Insert



**Step 9:** Line-Up Centering Groove on straight threads with Centering Pin; push to seat o-ring

**Step 10:** **HAND TIGHTEN** Knurled Lock onto straight threads. Tighten Allen Set Screw with M3 Allen Wrench to lock Sensor Head Assembly.

Proceed in accordance with Wiring Diagram

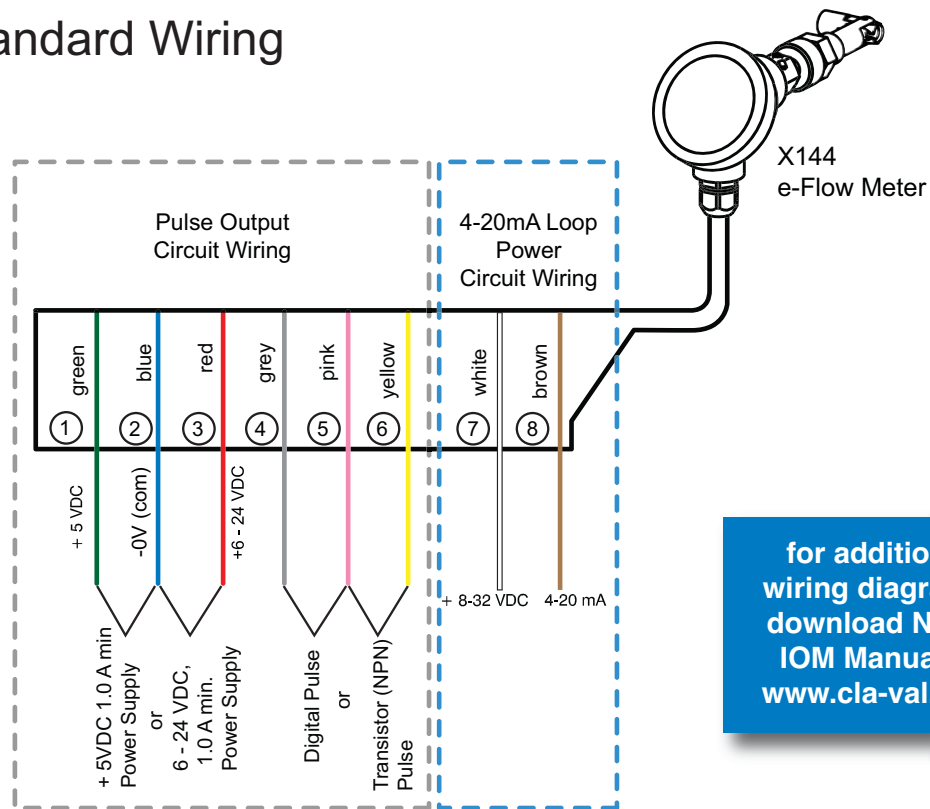


# X144 e-FlowMeter

## Quick Start Installation & Removal Instructions

### Standard Wiring

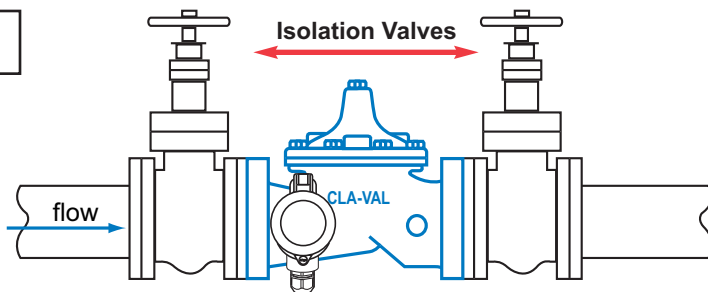
**CAUTION:**  
Do not connect  
Pulse Output Circuit  
and 4-20mA Loop  
Power Circuit  
Wiring simultaneously.  
**Damage will occur.**



for additional  
wiring diagrams,  
download N-144  
IOM Manual at  
[www.cla-val.com](http://www.cla-val.com)

### Step-By-Step X144 e-FlowMeter Removal Instructions

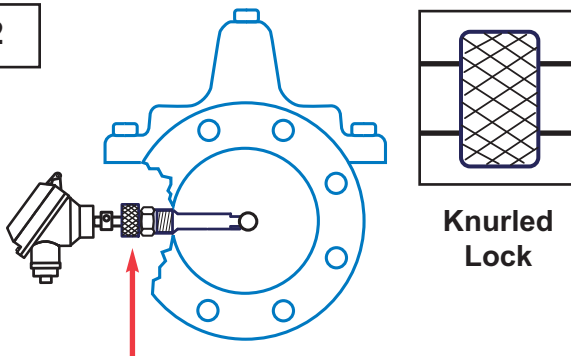
1



#### Step 1: Take necessary safety precautions

- Isolate the control valve using main line isolation valves
- Bleed pressure from valve before removing the e-FlowMeter
- Disconnect power to all electronic devices on valve, including e-FlowMeter

2



- Step 2:** After isolating the valve, bleeding pressure and disconnecting electronic devices, hand loosen the Knurled Lock from straight threads

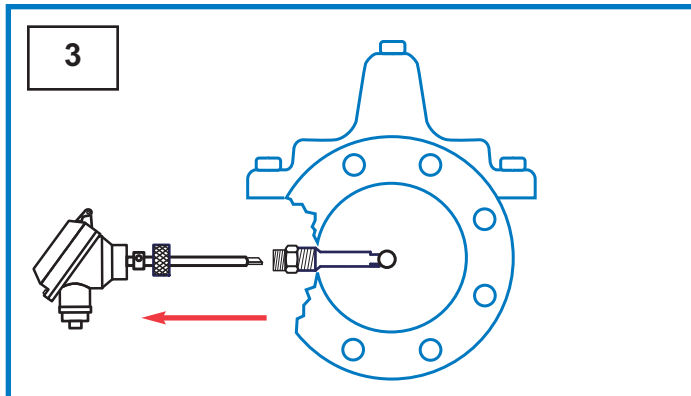
call 800.942.6326 for assistance  
or log-on to  
[www.cla-val.com](http://www.cla-val.com) for more information



# X144 e-FlowMeter

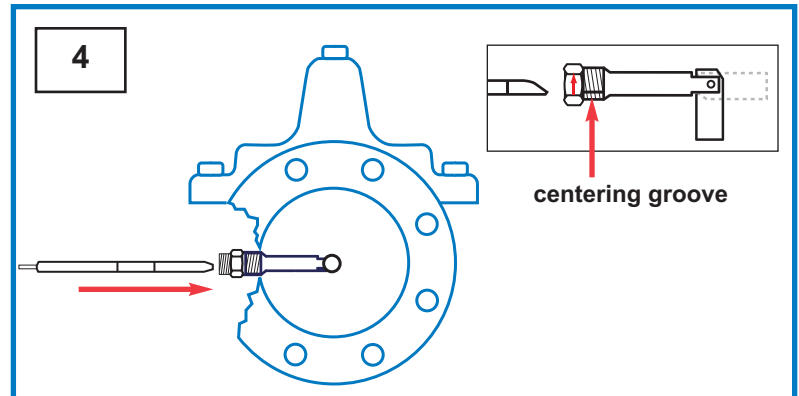
## Quick Start Installation & Removal Instructions

### Step-By-Step X144 e-FlowMeter Removal Instructions (continued)



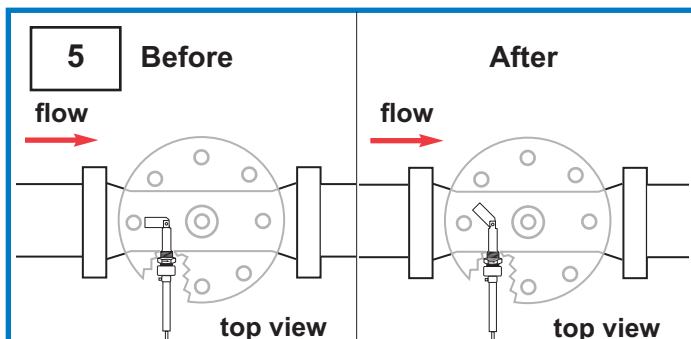
#### Step 3:

- Remove the e-FlowMeter Sensor/Head Assembly by pulling straight outward, being careful not to hit the sensor tip on the Threaded Swivel Insert tube
- Set Sensor/Head Assembly aside, taking care to protect the sensor tip



#### Step 4:

- Orient the Installation Tool so that the bevel is facing downstream, away from the centering groove as shown in detail drawing, and insert into the Threaded Swivel Insert



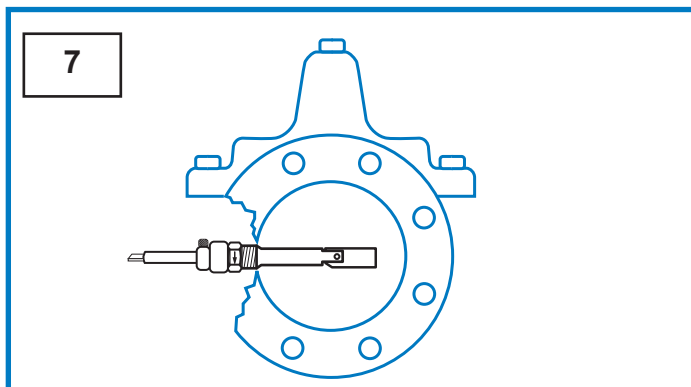
#### Step 5:

- Once inserted into the Threaded Swivel Insert tube, the Installation Tool will engage the top face of the Measurement Cylinder and force it to the 45° position, as shown above



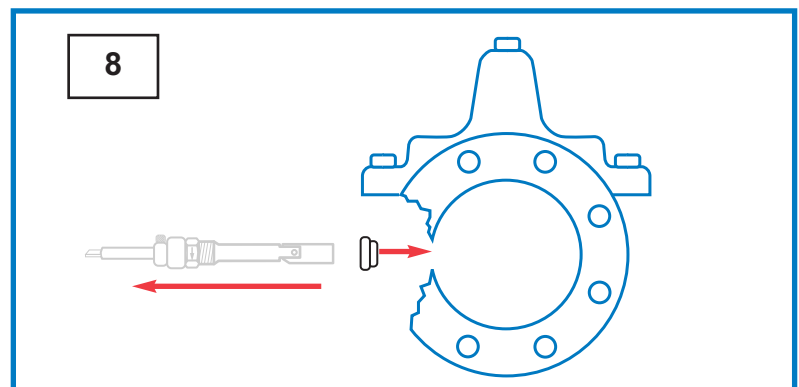
#### Step 6:

- Slide Installation Tool straight out, then rotate 180° so that the bevel is facing upstream of the valve, which is now facing the same direction of the centering groove, see above
- The lip of the Installation Tool will engage the inside of the Measurement Cylinder as shown in photo



#### Step 7:

- Once engaged, use light force to straighten the measurement cylinder, and then secure the Installation Tool in place with Locking Collar in locked position



#### Step 8:

- Remove Threaded Swivel Insert from the valve tapping with the Measurement Cylinder straightened
- Insert body plug into tapping while servicing the e-FlowMeter