



# Vacuum Regulator Mounting Technical Document

Hydro Instruments offers an assortment of mounting options for its vacuum regulators. These mounting options facilitate easier and safer installation of the vacuum regulator whether it's mounted to an upright cylinder, ton container, pressure manifold or directly on the wall. This document showcases these mounting options offered by Hydro Instruments.

## Yoke Overview

The vacuum regulators yoke assembly is a clamping mechanism that secures it to a gas cylinder valve. Cylinder valves and the containers they're installed into come in varying shapes and sizes. Knowing which yoke assembly to use is vital to proper and safe vacuum regulator installation.

| Type  | Description  |
|-------|--|
| US    | Standard yoke. Primarily used in the United States of America.               |
| USH   | Standard yoke with a handle. Primarily used in the United States of America. |
| UN    | Universal yoke. Primarily for international use.                             |
| UN-PG | Universal yoke for vacuum regulators with integral pressure gauge.           |
| UN-OP | Universal yoke for vacuum regulators with offset plate.                      |
| ES    | European Style   |
| TH    | Thailand   |
| TH-PG | Thailand yoke with integral pressure gauge.                                  |

## Yoke Slide Bars

The yoke slide bar is the part of the yoke that physically contacts the rear of the cylinder valve. The slide bar is contoured to the shape of the valve that it will be used with to provide maximum surface contact and create a secure connection.

## Yoke Half-dog Bolt

The half-dog bolt is the screw mechanism that compresses and secures the yoke slide bar to the cylinder valve. These are most commonly turned and tightened using a twisted cylinder wrench, but some half-dog bolts for use with upright cylinders will have a built in handle that allows the operator to secure the vacuum regulator to the cylinder valve.

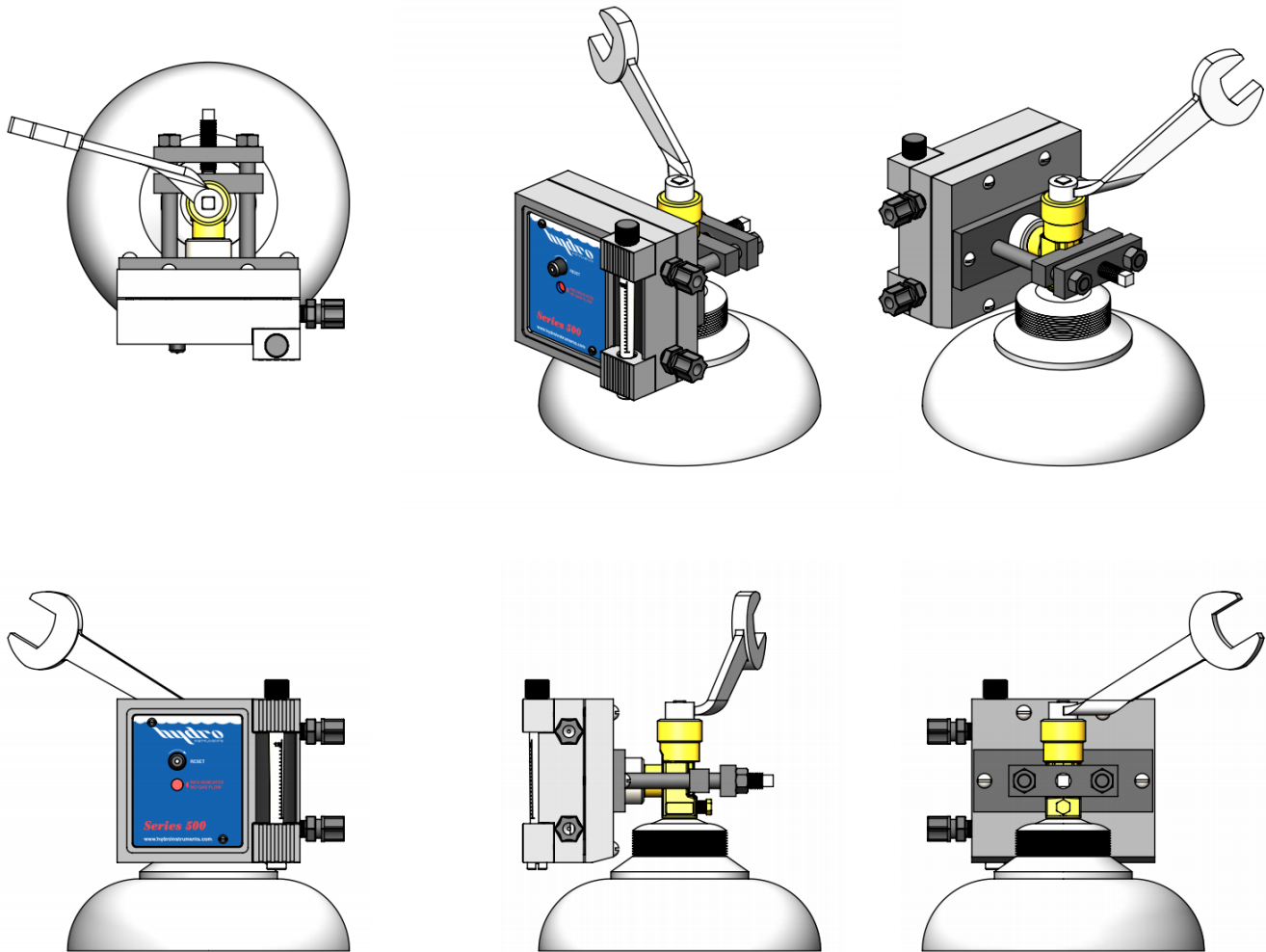
*Note that vacuum regulators that mount with the ES (European Style)—Non-Yoked Threaded Capture Nut do not use a half-dog bolt.*

## Lead Gaskets

A lead gasket is used to seal the vacuum regulator to the cylinder valve. A new, unused and undamaged lead gasket of appropriate size and thickness must be used when mounting the vacuum regulator. More information on lead gaskets can be found in Hydro Instruments Technical Document—Lead Gaskets.



## US—Yoke Assembly Standard yoke.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 750
  - Series 800
  - Series 900
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

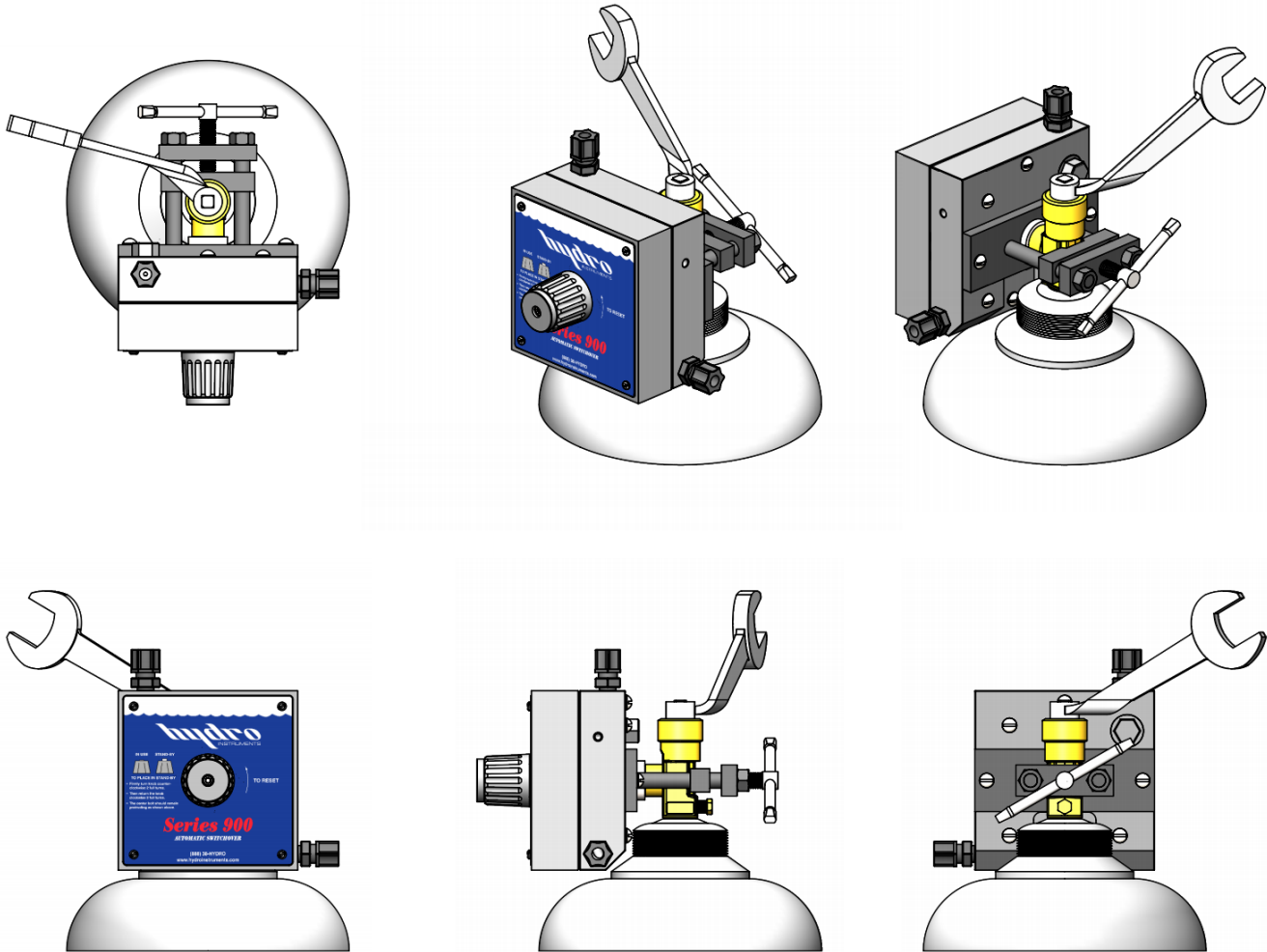
Use LG-100 lead gasket to mount to cylinder.

### ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.

## USH—Yoke Assembly with Handle

Standard yoke using YM-109H half-dog with handle.



### NOTES:

1. Series 900 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 750
  - Series 800
  - Series 900
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

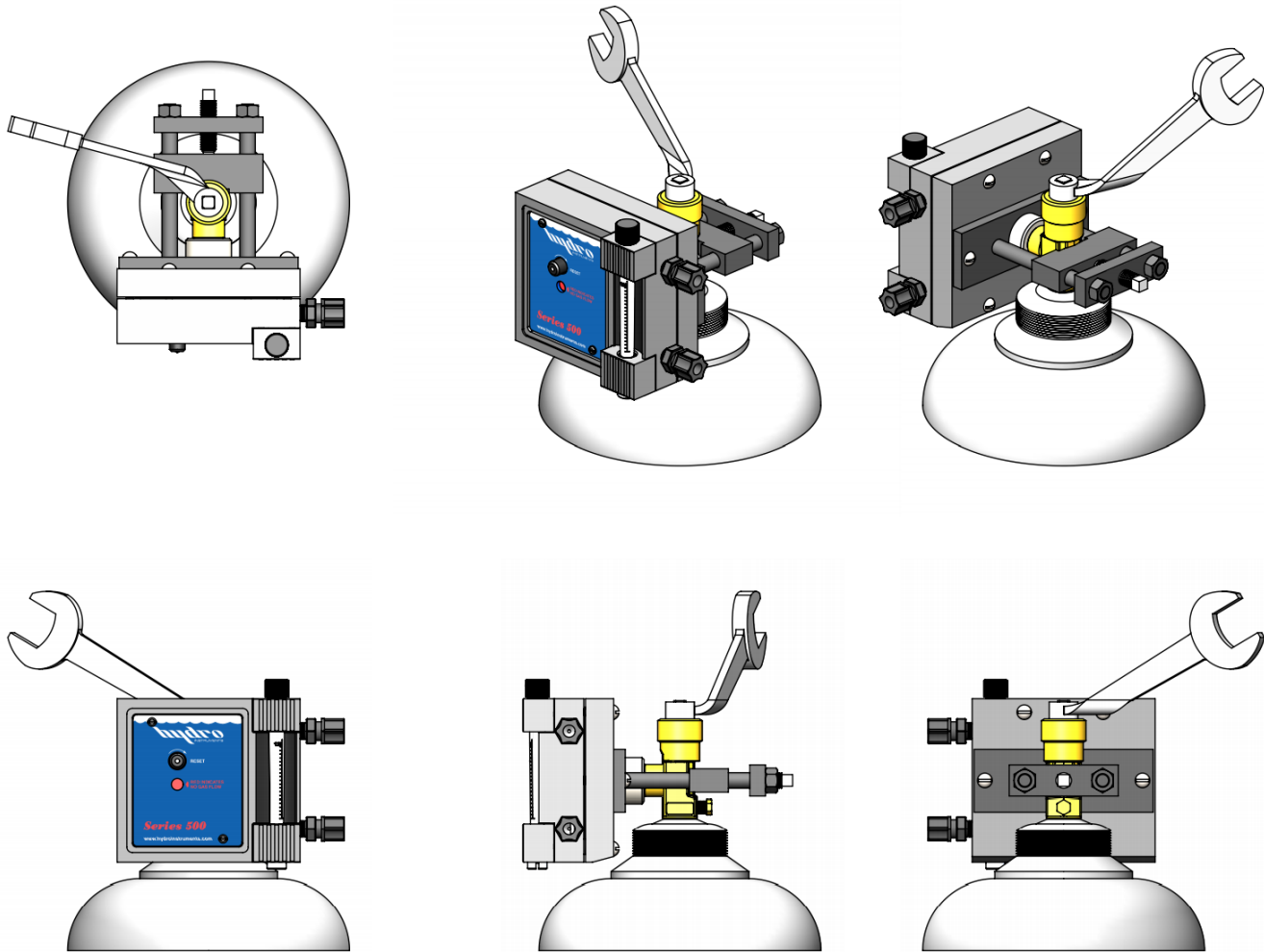
Use LG-100 lead gasket to mount to cylinder valve.

### ACCESSORIES:

This yoke does not require any tools to install.

## UN—Universal Yoke Assembly

Universal yoke. Primarily used internationally.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 750
  - Series 800
  - Series 900
3. For the country of Turkey, vacuum regulator yoke assemblies will have a slightly different slide bar to accommodate Turkish valves.
4. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

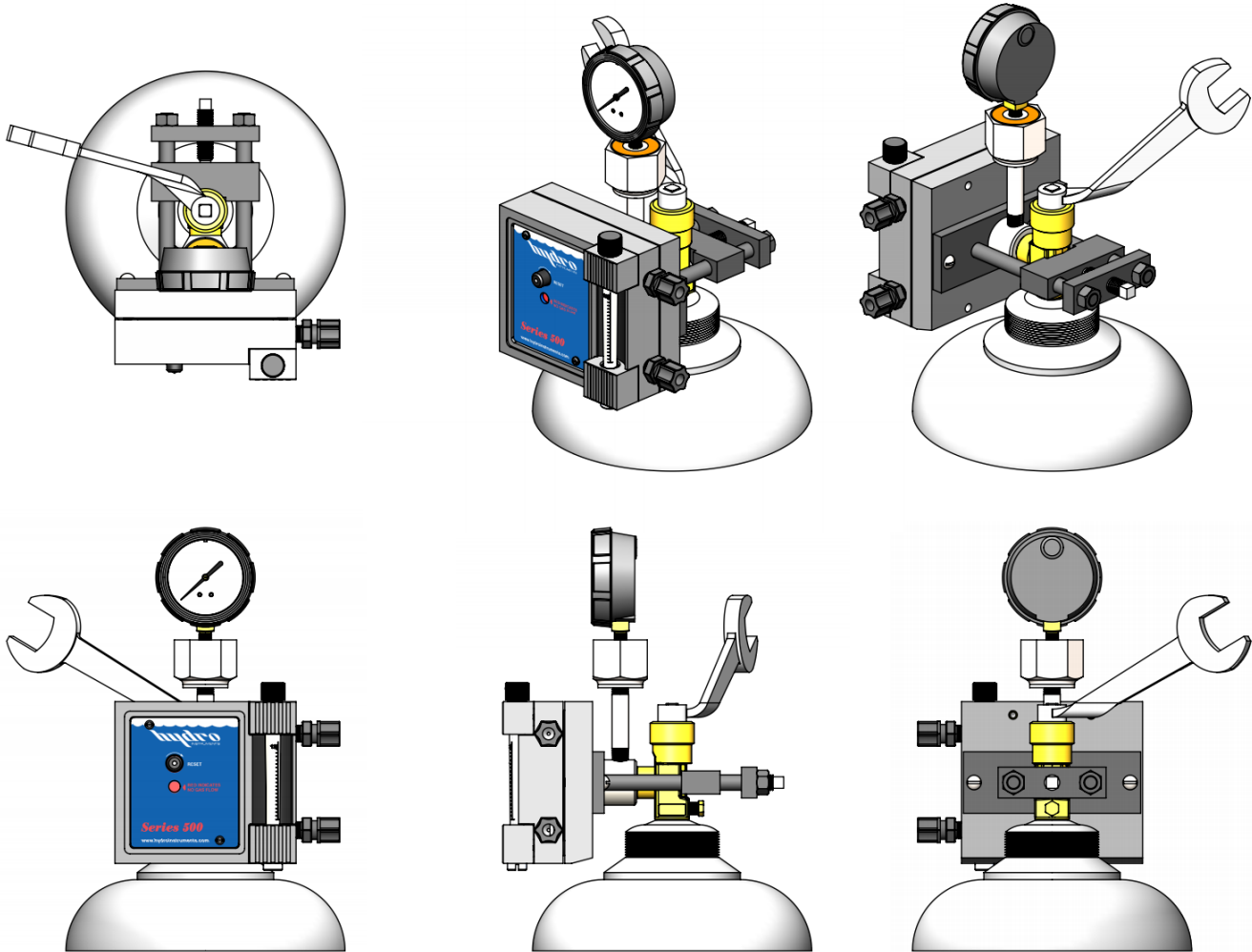
Use LG-100 lead gasket to mount to cylinder valve.

### ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.

## UN-PG—Universal Yoke Assembly with Pressure Gauge

Universal yoke with diaphragm protected compound gauge.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:  
Series 200  
Series 500  
Series 750
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

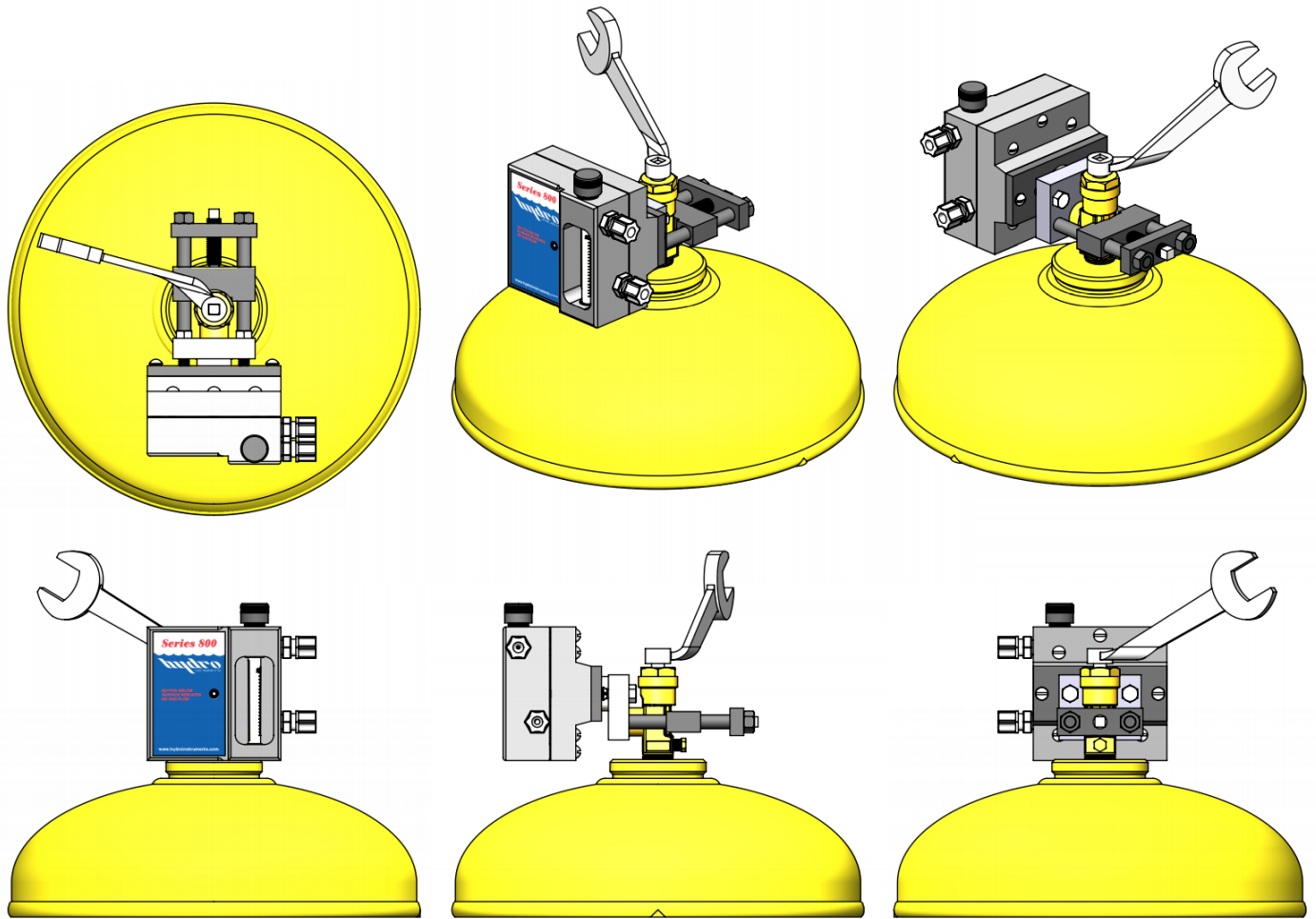
Use LG-100 lead gasket to mount to cylinder valve.

### ACCESSORIES:

1. This yoke requires the use of a twisted cylinder wrench, part no. 635H.
2. Diaphragm protected compound gauge is part no. PVL-300-EW.

# UN-OP—Universal Yoke Assembly with Offset Plate

Universal yoke with Offset Plate.



## NOTES:

1. Series 800 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 750
  - Series 800
  - Series 900
3. Please contact Hydro Instruments with any questions regarding feature selection.

## INSTALLATION:

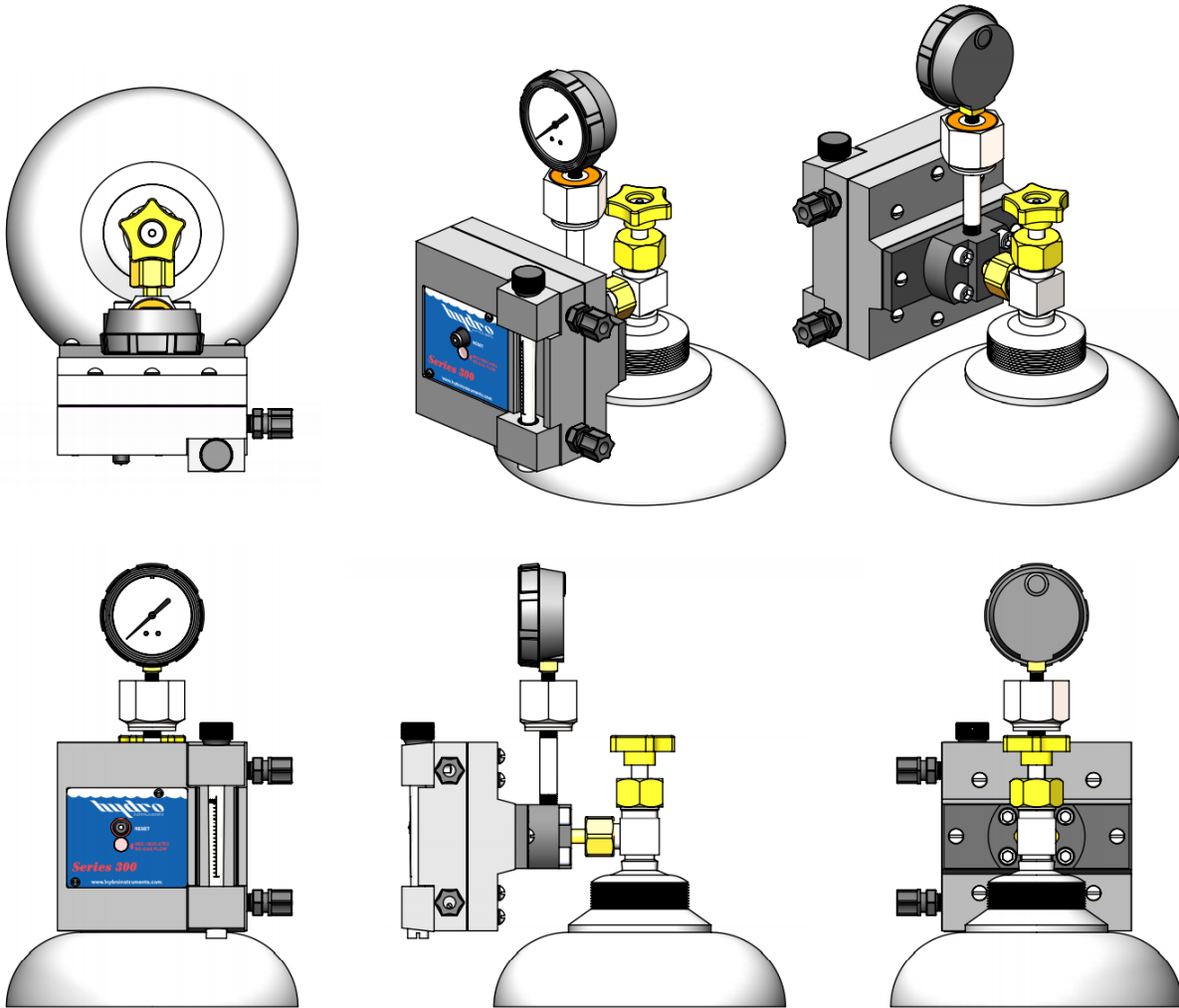
Use LG-100 lead gasket to mount to cylinder valve.

## ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.

## ES (European Style)—Non-Yoked Threaded Capture Nut with Pressure Gauge

Threaded capture nut threads directly onto cylinder valve outlet.  
Assembly can incorporate a diaphragm protected compound gauge.



### NOTES:

1. Series 300 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:  
Series 300  
Series 800  
Series 900
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

Use LG-100 lead gasket to mount to cylinder valve.

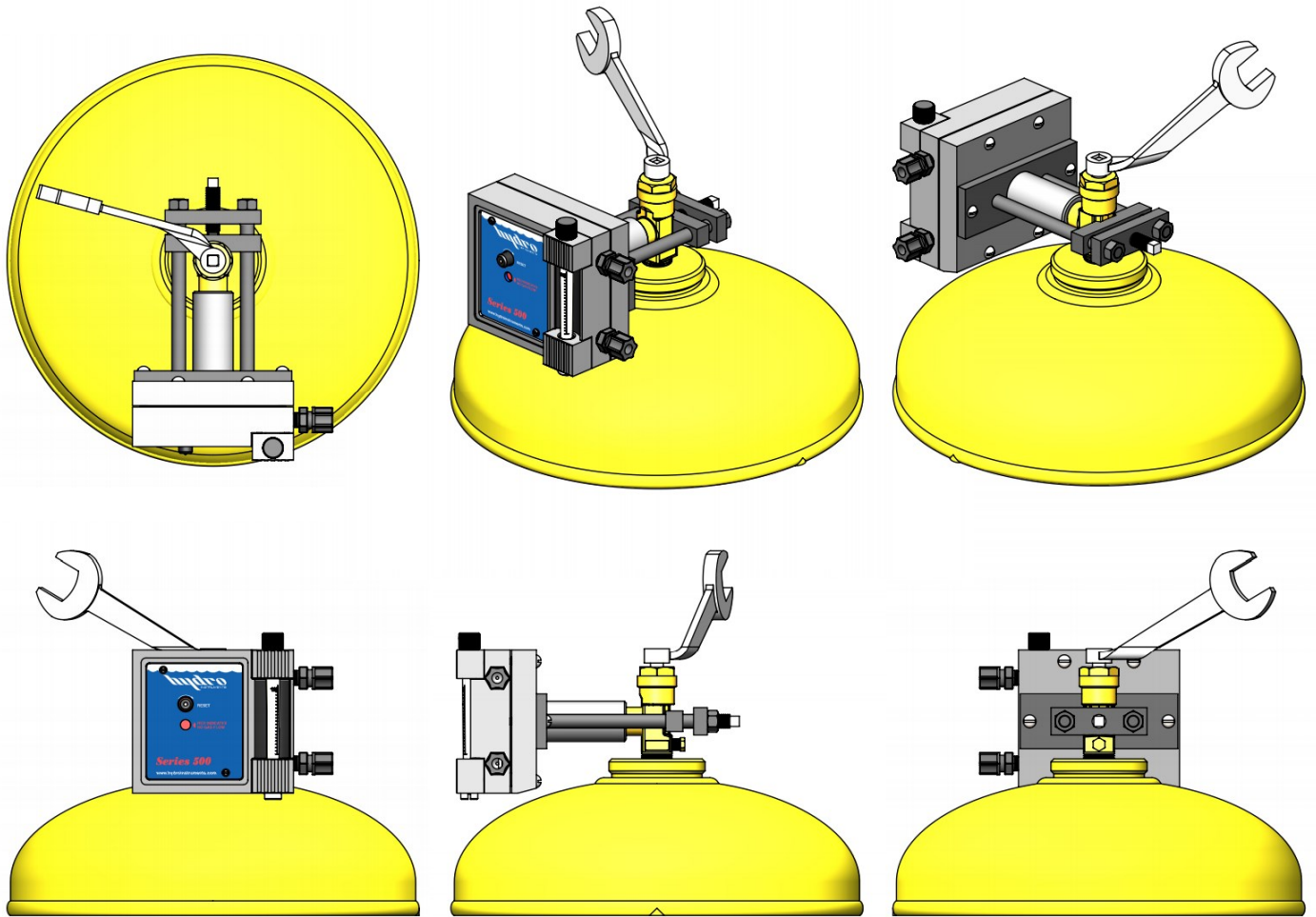
### ACCESSORIES:

This mounting style requires the use of a twisted cylinder wrench, part no. 635H.



## TH—Thailand Yoke Assembly

Yoke used in Thailand.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 500
  - Series 750
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

Use LG-100 lead gasket to mount to cylinder valve.

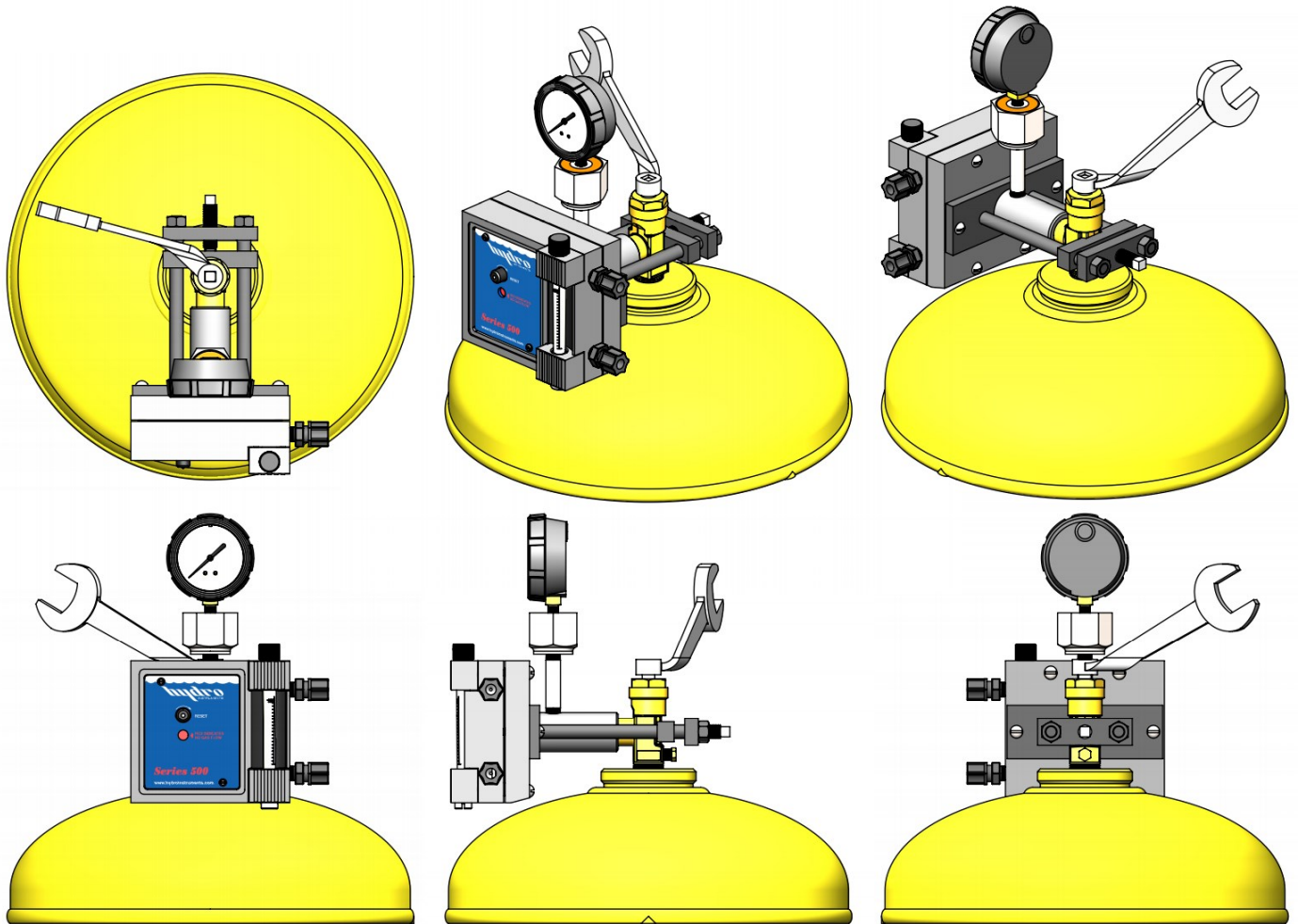
### ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.



## TH-PG—Thailand Yoke Assembly with Pressure Gauge

Yoke used in Thailand with diaphragm protected compound gauge.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 500
  - Series 750
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

Use LG-100 lead gasket to mount to cylinder valve.

### ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.

## Ton Container Mounting Vacuum Regulators

A ton ironworks assembly is used to mount the vacuum regulator directly to a ton containers gas valve. This eliminates the need for pressurized lines (i.e. pressure manifolds).

| Type | Description   |
|------|---|
| US   | Ton ironworks with a standard yoke. Primarily used in the United States of America.             |
| UN   | Ton ironworks with a universal yoke. Primarily for international use.                           |
| AW   | Actuator mounting ton ironworks. For use with emergency shutoff actuator systems.               |
| PVL  | Ton ironworks with integral diaphragm protected pressure gauge. Option for all ironworks types. |

### Yoke Slide Bars

The yoke slide bar is the part of the yoke that physically contacts the rear of the cylinder valve. The slide bar is contoured to the shape of the valve that it will be used with to provide maximum surface contact and create a secure connection.

### Yoke Half-dog Bolt

The half-dog bolt is the screw mechanism that compresses and secures the slide bar to the cylinder valve. These are most commonly turned and tightened using a twisted cylinder wrench, but some half-dog bolts for use with upright cylinders will have a built in handle that allows the operator to secure the vacuum regulator to the cylinder valve.

### Drip-Leg

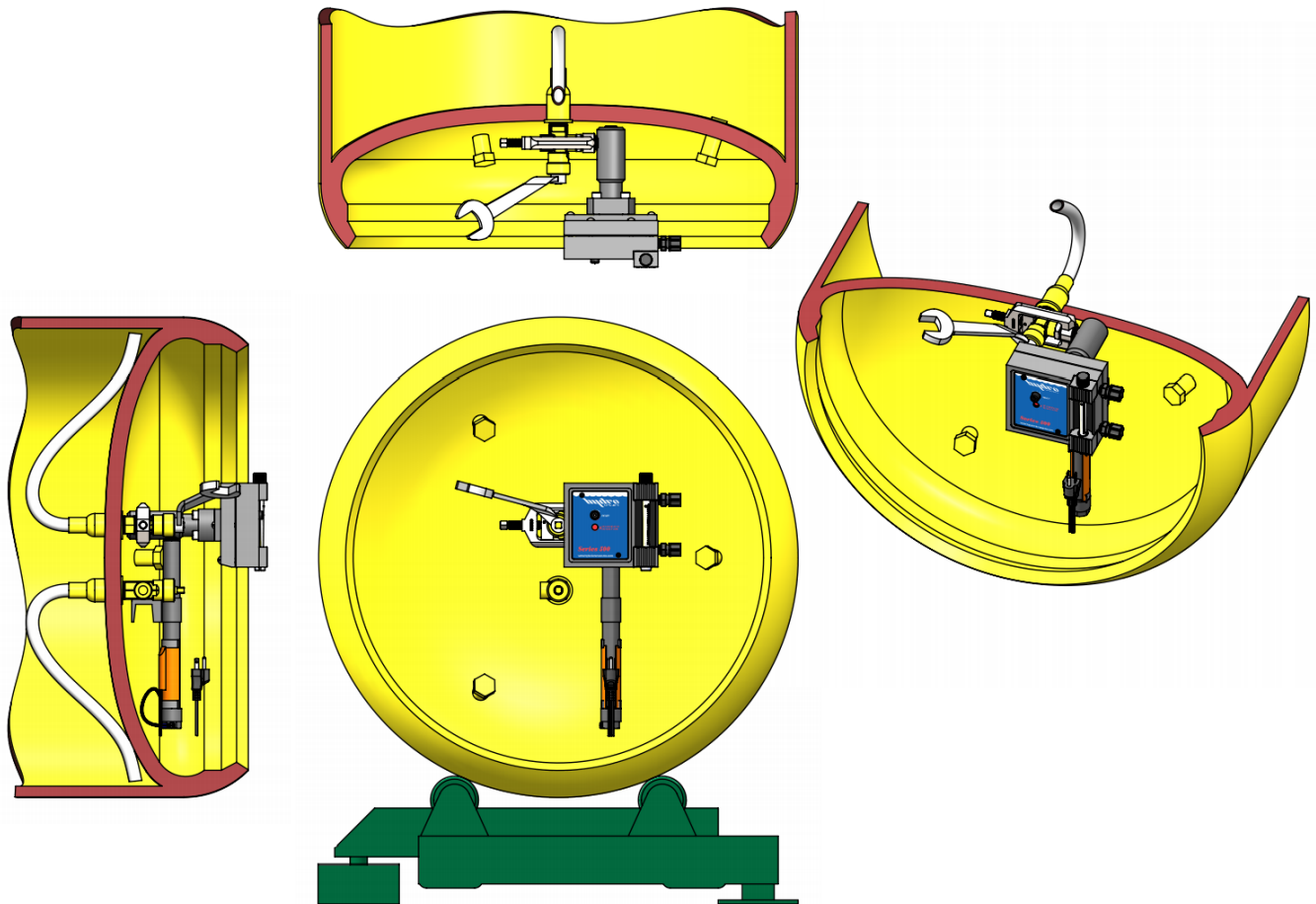
The ton container mounting vacuum regulators ton ironworks assembly incorporates a Monel drip-leg with 25W heater. This is needed to capture and vaporize liquid chlorine that becomes trapped in the ton containers gas valve education pipe.

## Lead Gaskets

A lead gasket is used to seal the vacuum regulator to the cylinder valve. A new, unused and undamaged lead gasket of appropriate size and thickness must be used when mounting the vacuum regulator. More information on lead gaskets can be found in Hydro Instruments Technical Document—Lead Gaskets.

## Vacuum Regulator with Ton Ironworks

Vacuum regulator mounts directly to the ton container gas valve.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 700
  - Series 900
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

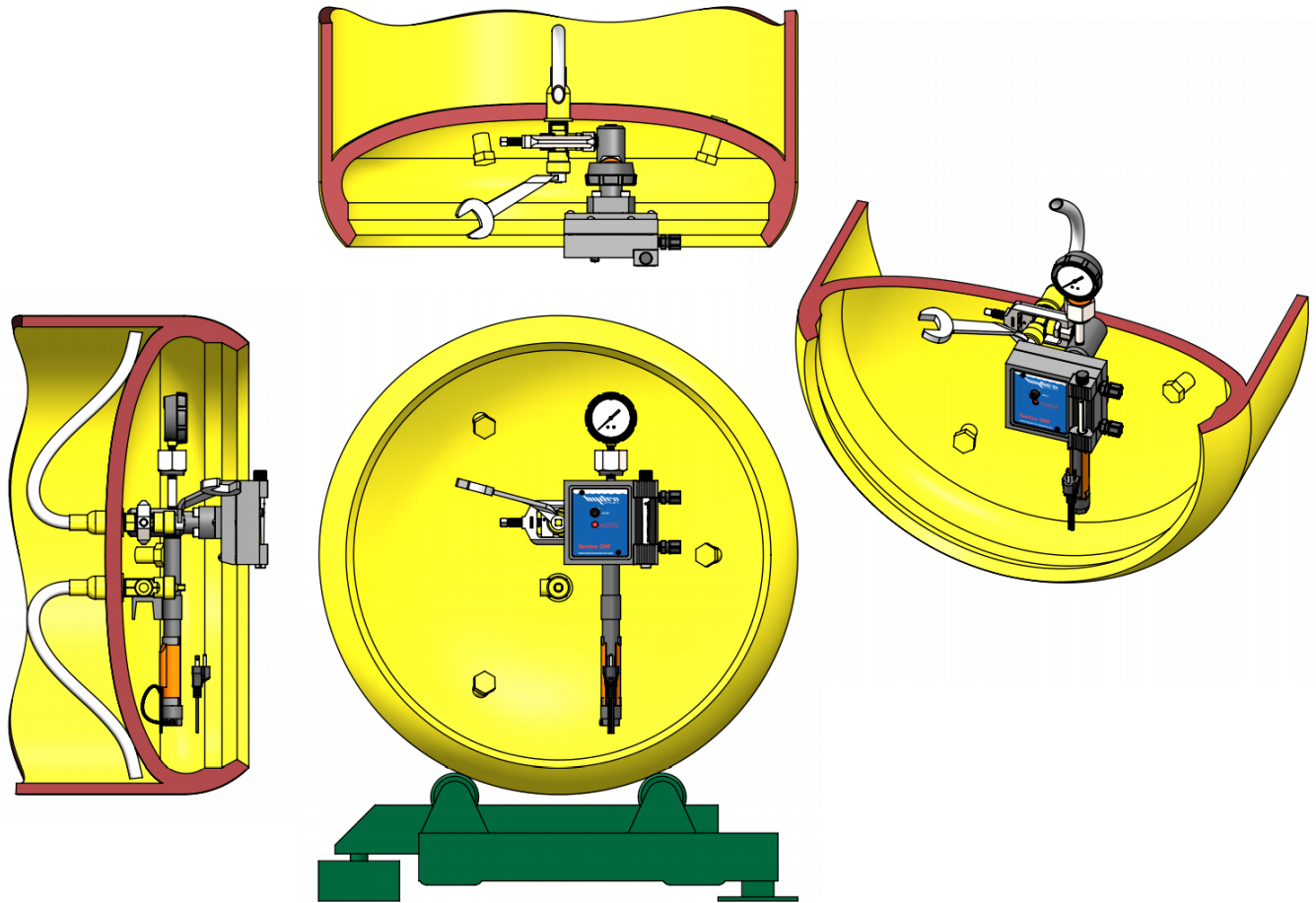
Use LG-100 lead gasket to mount to cylinder valve.

### ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.

## PVL—Ton Ironworks with Pressure Gauge

Ironworks with integral diaphragm protected compound gauge.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 700
  - Series 900
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

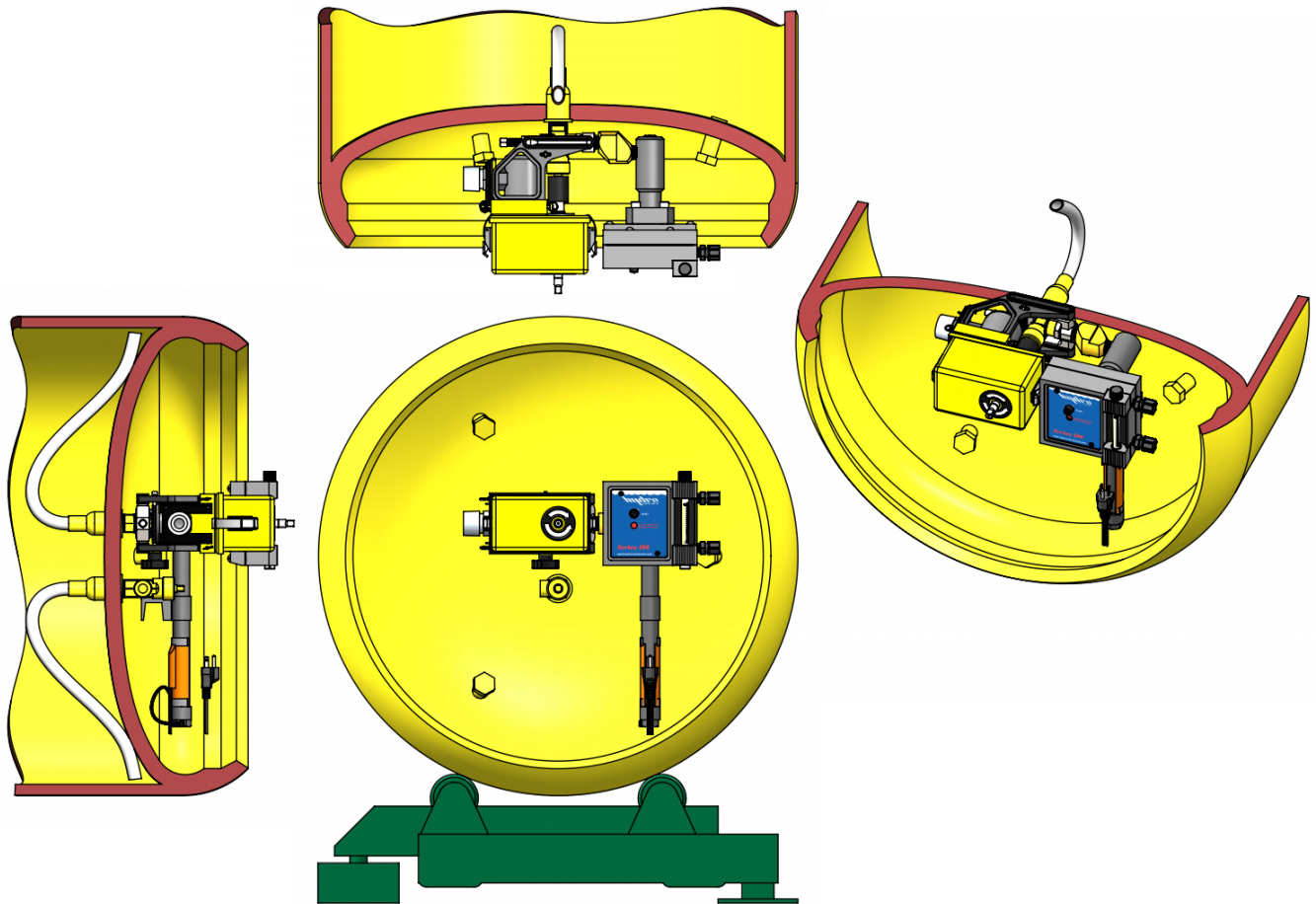
Use LG-100 lead gasket to mount to cylinder valve.

### ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.

## AW—Actuator Mounting Ton Ironworks

Ironworks has YAH-319 eccentric extender added for use with emergency shutoff actuators.



### NOTES:

1. Series 500 vacuum regulator used in example above.
2. This yoke is applicable to all upright cylinder mounting vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 700
  - Series 900
3. Please contact Hydro Instruments with any questions regarding feature selection.

### INSTALLATION:

Use LG-100 lead gasket to mount to cylinder valve.

### ACCESSORIES:

This yoke requires the use of a twisted cylinder wrench, part no. 635H.

## Wall Mounting Vacuum Regulators

Some Hydro Instruments vacuum regulators have the option to be mounted to the wall. These vacuum regulators are commonly used with pressure manifolds, drawing gas out of multiple upright cylinders or ton containers. The wall mounted vacuum regulators have several inlet options to accommodate varying designs of the pressure manifold.

| Type                       | Description  |
|----------------------------|--|
| High Capacity              | Series 3000 high capacity vacuum regulators  |
| Standard (Cylinder)        | Inlet assembly has an A-345 flex connector adapter for connecting a single upright cylinder.   |
| Standard (Ton Container)   | Inlet assembly has an integral drip-leg with A-345 flex connector adapter for connecting a single ton container.                                     |
| Manifolded (Cylinder)      | Inlet assembly uses an AH-1461 manifold union to couple directly to a pressure manifold with multiple upright cylinders attached.                    |
| Manifolded (Ton Container) | Inlet assembly has an integral drip-leg with AH-1461 manifold union to couple directly to a pressure manifold with multiple ton containers attached. |

### Manifold Union

The AH-1461 manifold union is a 2-bolt flange, lead gasket sealed assembly that joins together two sections of a pressure manifold. The AH-1461 manifold union has 3/4" FPT connections.

### Drip-Leg

When using a wall mounted vacuum regulator for ton container gas withdrawal the pressurized piping must be equipped with a drip-leg and heater to vaporize any liquid chlorine that may enter the line.

## Flex Connectors

Flexible connectors provide an adjustable and conformable path to attach one or more upright cylinders or ton containers to a pressure manifold or wall mounted vacuum regulator and are available in different lengths to accommodate space requirements.

The Hydro Instruments flexible connectors are fabricated using 3/8" copper tubing which allows good flexibility without compromising wall thickness, safety and are cadmium plated to resist corrosion in harsh environments.

### Flex Connector Adapter

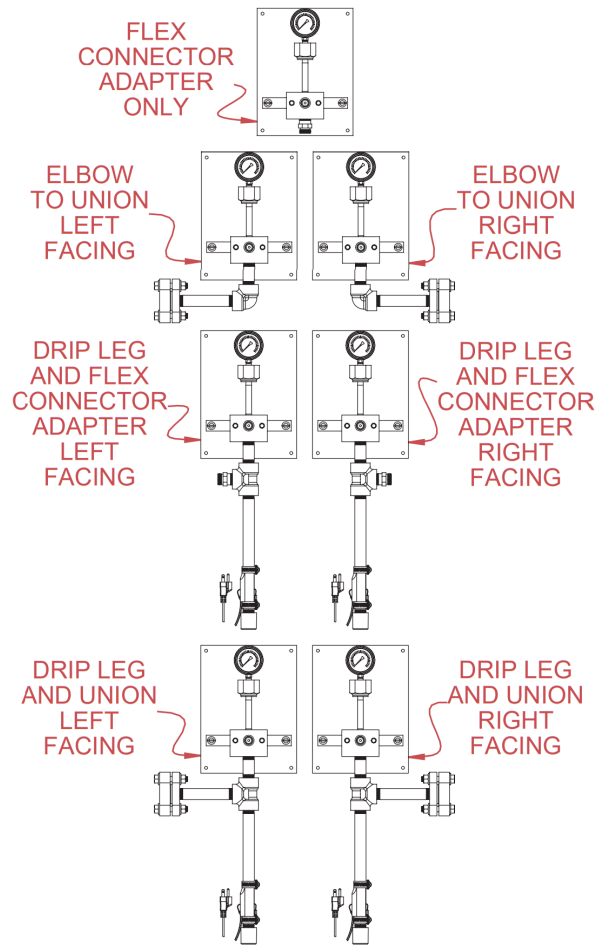
The A-345 is a CGA660 x 3/4" MPT adapter used to mate flexible connectors to a manifold or to the pressure inlet of a wall mounted vacuum regulator.

# Wall Mounting Options

All inlet options for wall mounted vacuum regulators.



## WALL MOUNT INLET OPTIONS



### NOTES:

1. This mounting option is applicable to vacuum regulators from:
  - Series 200
  - Series 300
  - Series 500
  - Series 750
  - Series 800
  - Series 900
2. Please contact Hydro Instruments with any questions regarding feature selection.

### ACCESSORIES:

1. Wall mounting options using the A-345 flex connector adapter require a flex connector.  
Available flex connectors:
  - 4 ft. = FX-04
  - 6 ft. = FX-06
  - 10 ft. = FX-10
  - 16 ft. = FX-16
2. Flex connectors require the use of a twisted cylinder wrench, part no. 635H.