

# FIRST RESPONDER



## TWO-PIECE PLUNGER

### IDEAL FOR

#### Reducing shut-in times to maximize production.

If you have a high volume gas and liquid well, our Two-Piece Plunger, *First Responder*, is the first choice in the well's life cycle. It can reduce or even eliminate shut-in times, while maximizing production. This plunger makes more trips with faster fall times, delivering continuous fluid removal. It often helps wells achieve a significant increase in daily production.



*PCS Ferguson's ball and sleeve plunger.*

### HOW IT WORKS

The ball and sleeve are held in the lubricator by the separator rod and latch. When the latch opens, the combination of the differential pressure and the rod hold the sleeve, while the ball falls towards the bottom of the well. When the differential pressure decreases, the sleeve begins to follow.

When the sleeve reaches the bottom hole bumper spring, it joins the ball and forms a seal. Pressure builds, causing the ball and sleeve to travel together while lifting fluid to the surface. When the plunger reaches the lubricator, the separator rod extends through the sleeve, knocking the ball down the tubing and the cycle repeats.

### APPLICATIONS

- Flowing wells
- High gas or liquid volume
- Wells in the beginning stages of liquid loading

### ADVANTAGES

- Controlled fall speeds reduce wireline expenses
- Little or no shut-in time allows optimal production
- Multiple configurations accommodate a wide range of production rates

Tubing Sizes	O.D. Sizes
2 3/8"	1.880, 1.900
2 7/8"	2.335, 2.345

### SLEEVE SPECS

- 4140 Steel
- API fishneck standards
- 6" and 9" lengths

### BALL MATERIAL OPTIONS

- Zirconia
- Stainless Steel
- Cobalt
- Tungsten Carbide

# Utilizing the well's own energy to cost-effectively remove liquids and extend the economical life of the well.

## About the Name, First Responder

First Responder has a two-part meaning:

**First** refers to the plunger's application. Typically it is the first plunger used in the well's life cycle.

**Responder** refers to PCS Ferguson's unrivaled customer service.

## About Plunger Lift Applications

The graph below presents the life of a well and shows the different plunger types that are used for each stage of the well's life. The First Responder is put in at the beginning of the well's life cycle.

Keep in mind, this graph should only be used as a baseline. All wells are different, which means there are exceptions to this guideline.

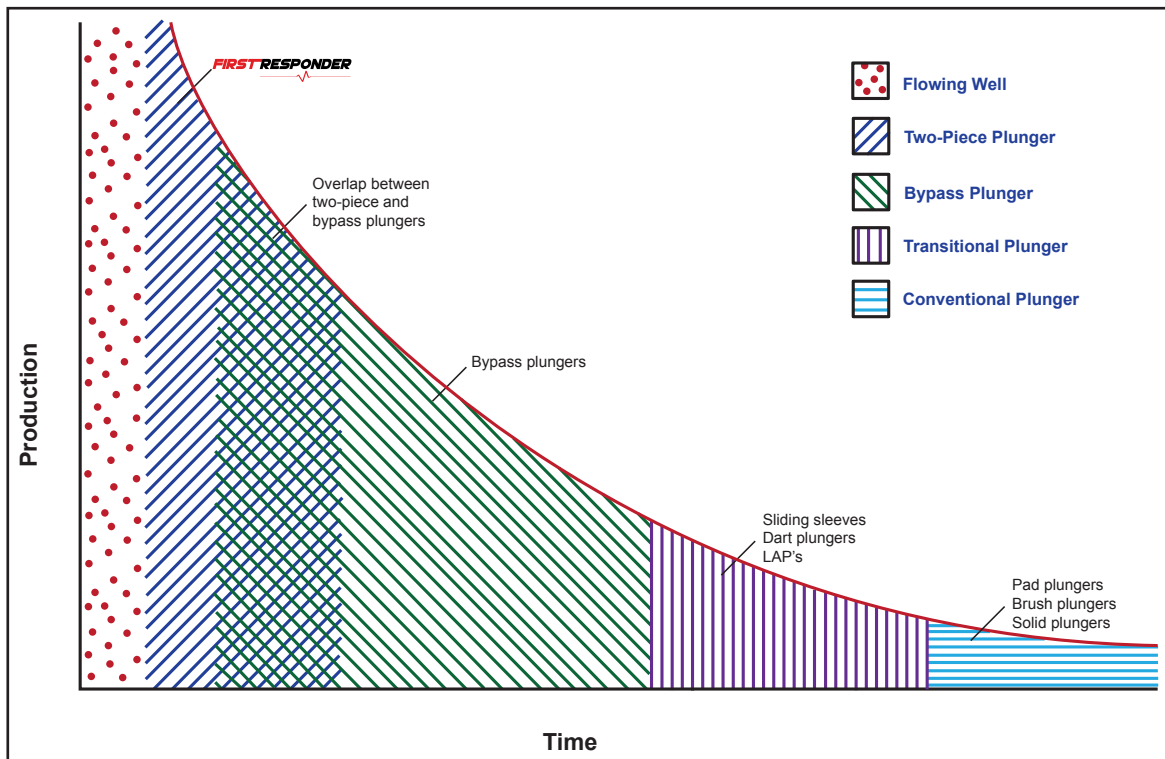
## Benefits of Plunger Lift

- Increased production with minimal cost
- Quick and easy implementation
- Low capital and operating expenses
- Unrivaled expertise, service, training, and line out assistance
- Largest selection of custom-engineered equipment addressing the full range of well conditions
- Highest quality manufacturing processes and materials

## Plunger Lift Economics

Requiring low capital investment and minimal operating expense, plunger lift provides an excellent return on investment, producing production gains that can offset the cost of the system in as little as a few weeks and almost always within a few months.

Plunger Application for Well's Life Cycle



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