the future of fueling is now

FLOWTECH FUELING

HYDRAU-FLO®

Non-pressure Fueling System

Safety Solutions for Liquid Filling

- Significantly reduce fuel costs
- Increase equipment productivity
- Improve operator safety
- Minimize environmental impacts

Hydrau-Flo® Fueling System

Common problems with conventional pressurized fueling systems:

Overfilling & Spillage – at 60 gallons per minute, every second of spillage equates to a gallon of diesel wasted and released into the environment.

Tank Damage – a tank is pressurized up to 14 psi every time it is fueled, requiring frequent tank repair or replacement. This creates significant costs including equipment down time, materials and labor.

Common problems with conventional pressurized fueling systems:

- Prevents lost revenue due to fuel spillage
- Enables faster fueling rates allowing for increased production
- Removes the risk of tank rupture reducing maintenance costs
- Eliminates fire hazards due to fuel accumulation from overfilling
- Improves personnel safety by reducing exposure to diesel
- Decreases environmental impacts and costly remediation expenses

FLOWTECH FUELING

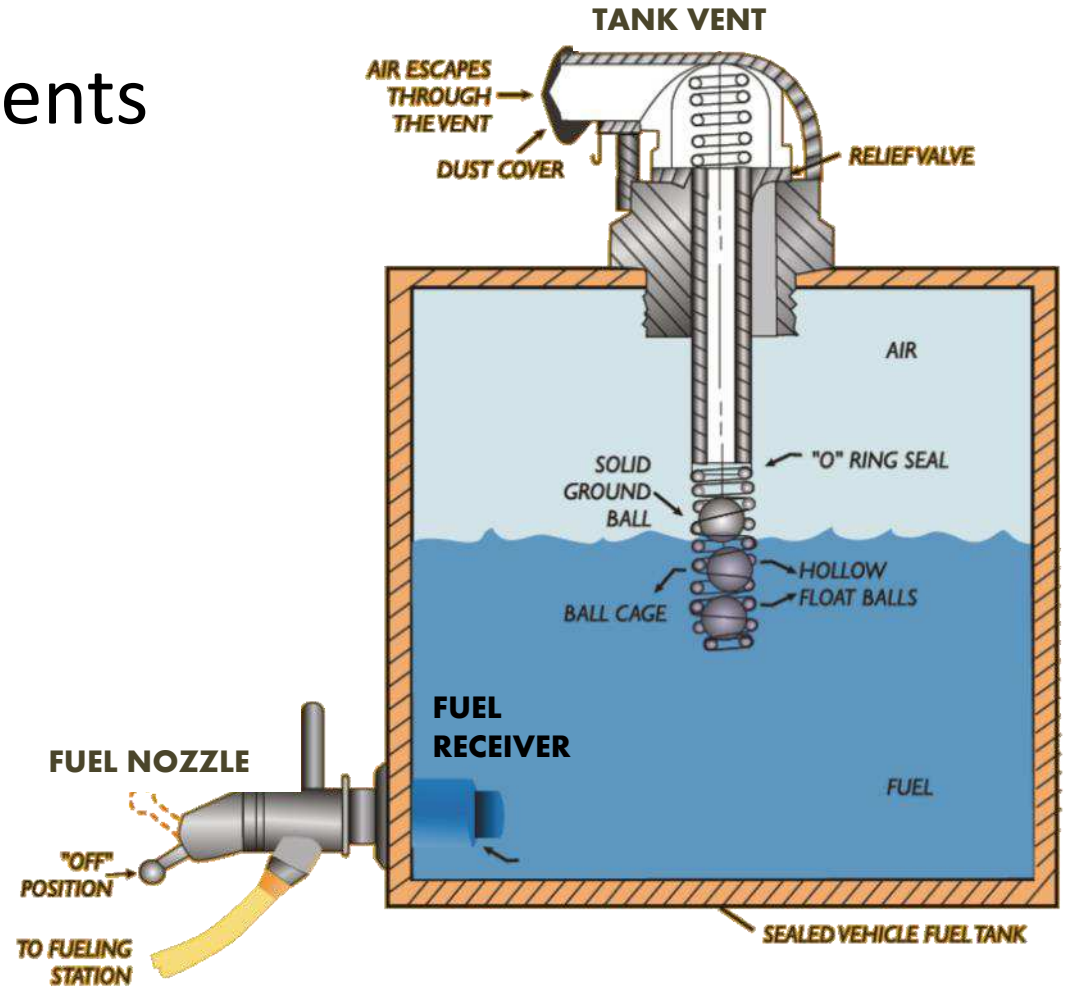
proven solutions for the mining industry

Pressurized Fueling

(currently the industry standard)

System Components

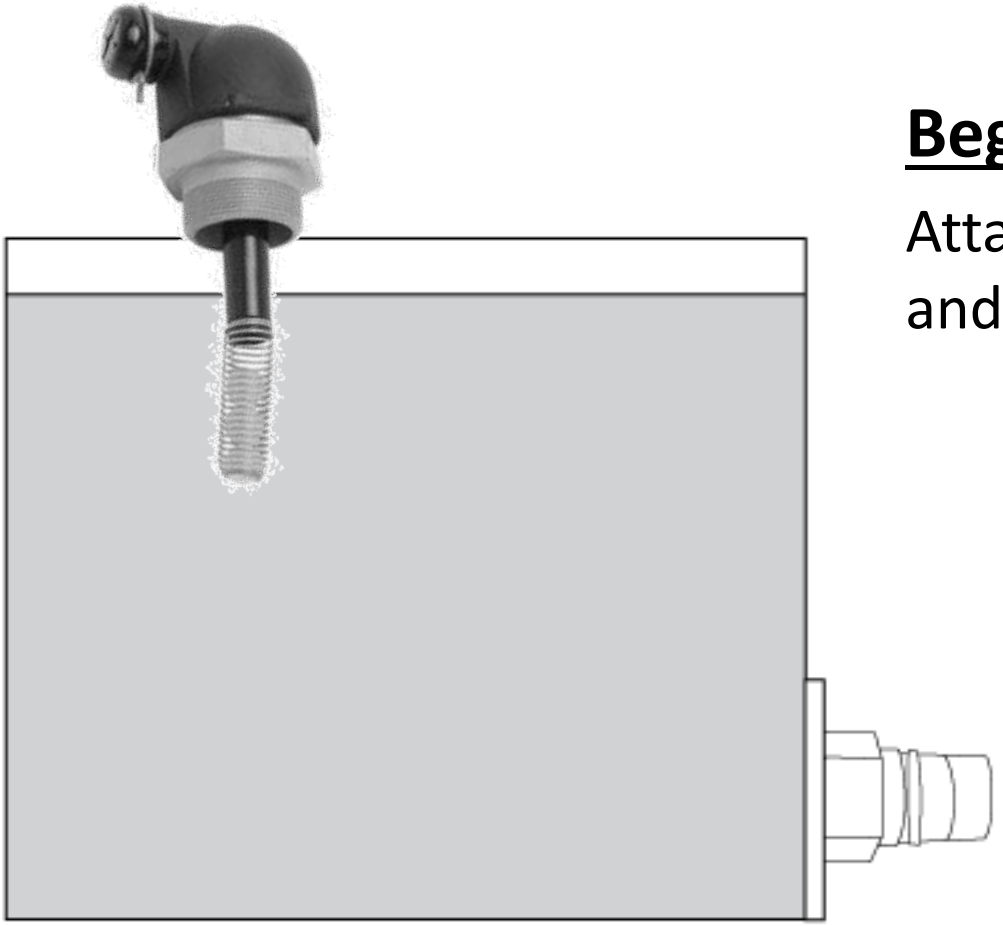
1. Fuel Nozzle
2. Fuel Receiver
3. Tank Vent



Disadvantages of pressurized fueling

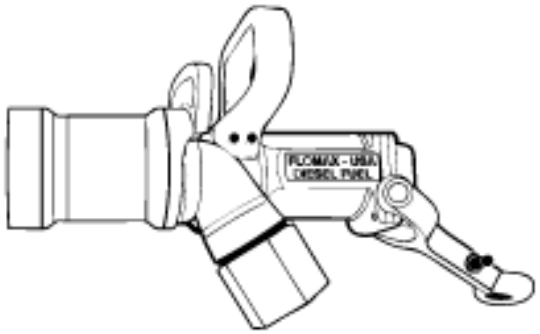
- System relies on 10 – 14 psi tank pressure to shut off fuel nozzle
- Overriding the system causes fuel spillage and extreme tank pressurization leading to prolonged tank damage and the possibility of tank failure
- Fuel spillage endangers operator safety while fuel accumulation creates a fire hazard and unsafe work conditions
- Over time, vast quantities of fuel is spilled on the ground negatively impacting the environment by contaminating soil and water

Pressurized Fueling Procedure

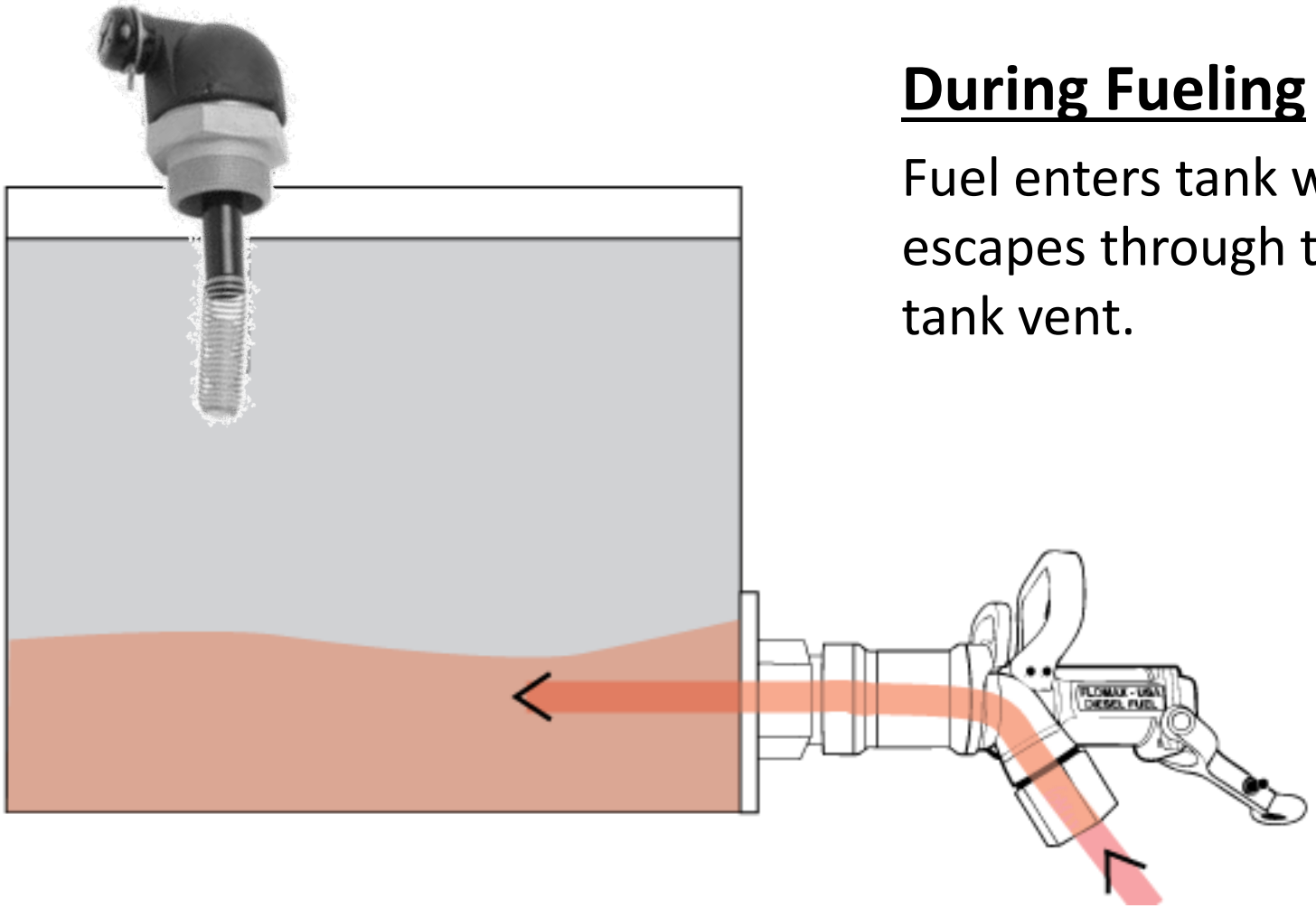


Begin Fueling

Attach nozzle to fuel receiver and turn on nozzle.



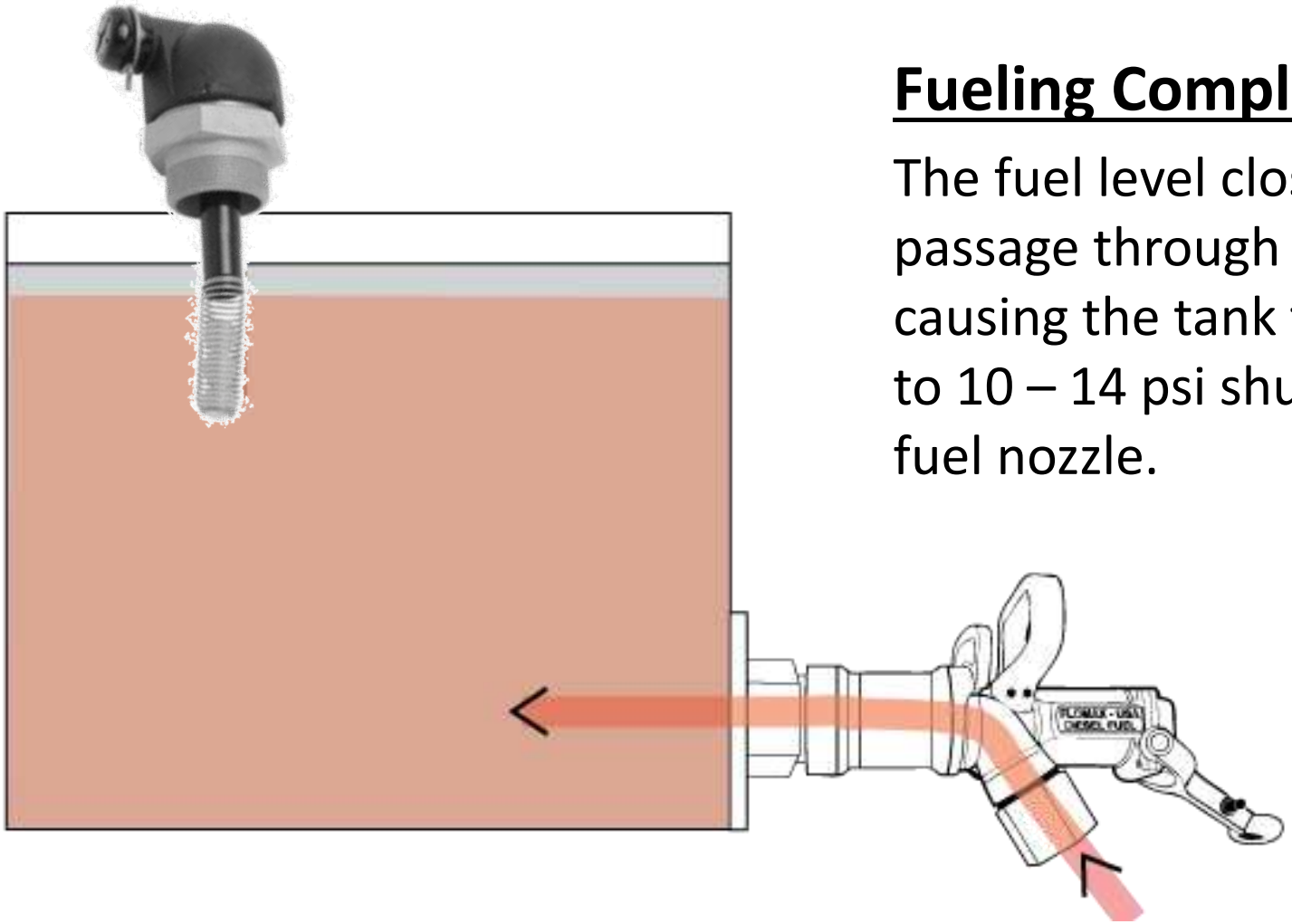
Pressurized Fueling Procedure



During Fueling

Fuel enters tank while air escapes through the standard tank vent.

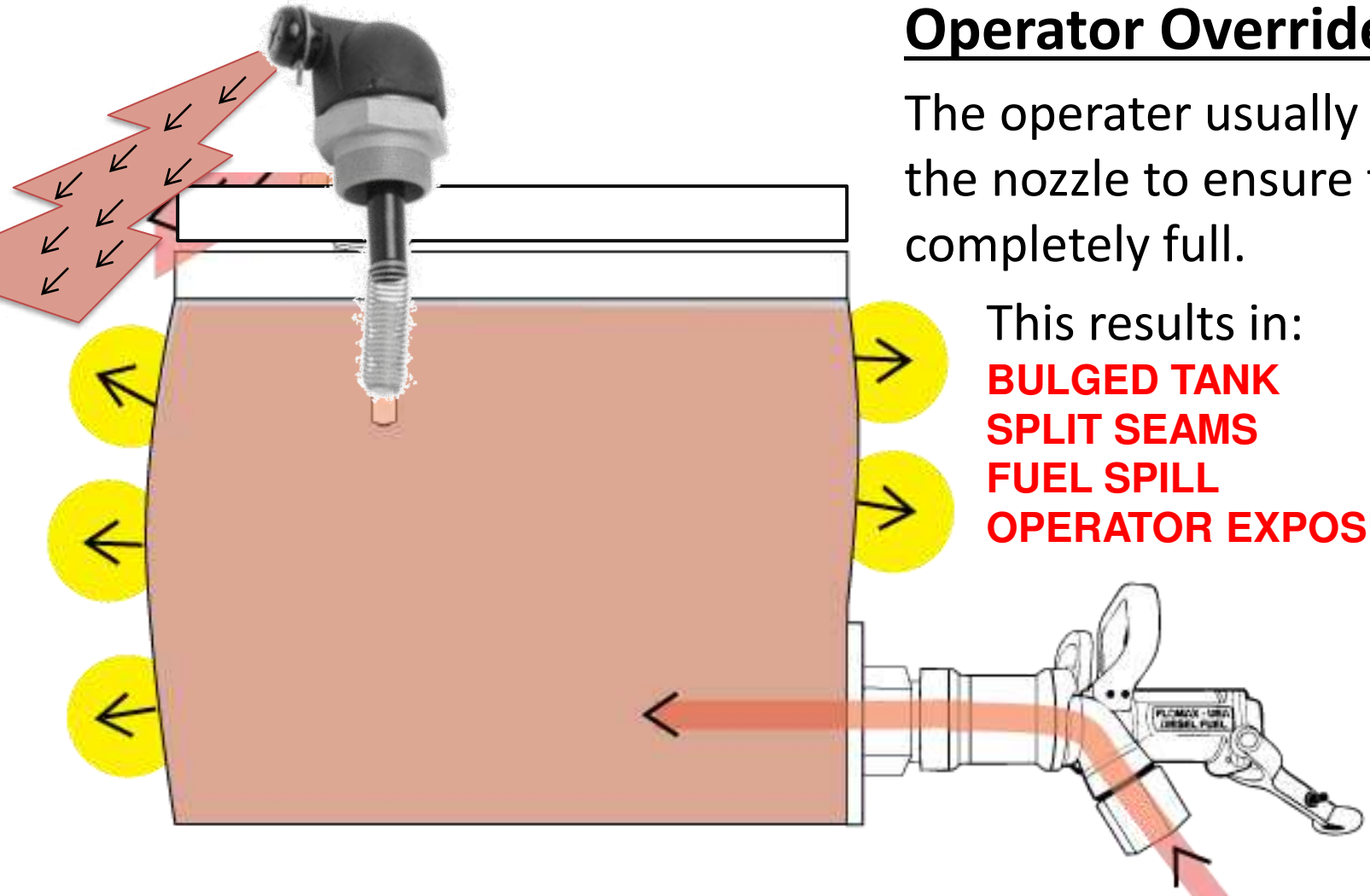
Pressurized Fueling Procedure



Fueling Complete

The fuel level closes the air passage through the vent causing the tank to pressurize to 10 – 14 psi shutting off the fuel nozzle.

Pressurized Fueling Procedure



Operator Override

The operater usually reactivates the nozzle to ensure the tank is completely full.

This results in:

BULGED TANK
SPLIT SEAMS
FUEL SPILL
OPERATOR EXPOSURE

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Non-pressure Fueling System

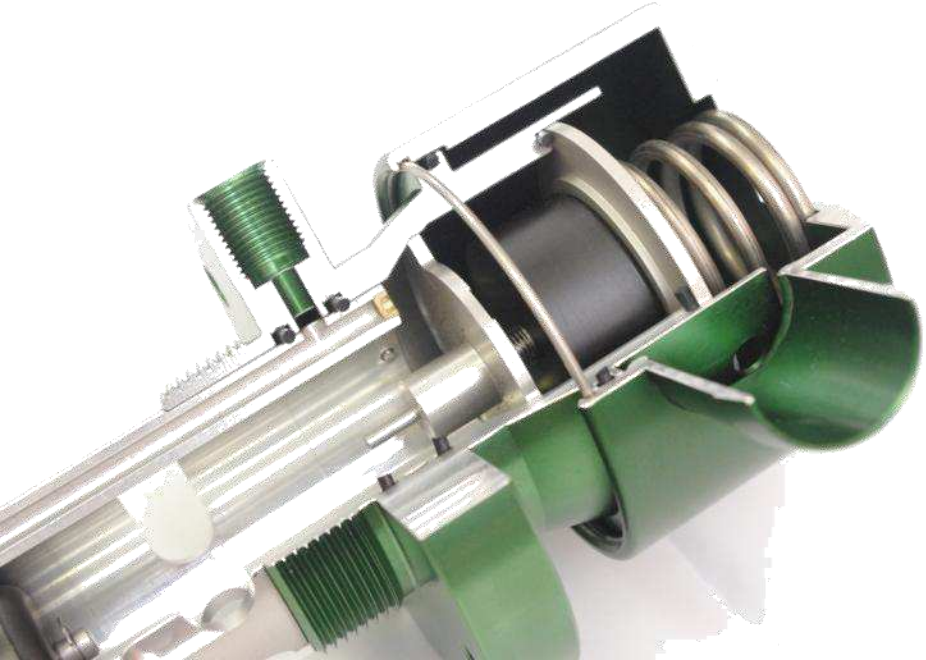
Safety Solutions for Liquid Filling

The standard components of the system are:

- Float Control Valve
- Fuel Inlet Valve
- Fuel Receiver with Cap
- Pilot Hose & Breather Hose with fittings (not pictured)

Float Control Valve (FCV)

- Constructed of aircraft grade aluminum
- The FCV is installed in the top of the fuel tank
- Air is vented from the tank out of the top of the float
- Provides a reliable nozzle shutdown once maximum fuel level is achieved without pressurizing the fuel tank
- FCV cannot be overridden



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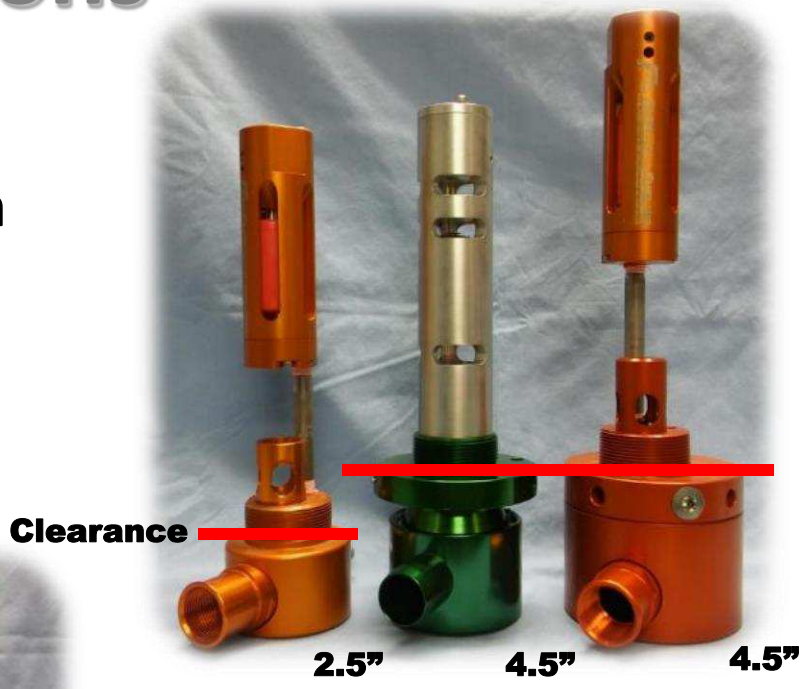
FCV Options

- Roll over & anit-surge protection to prevent spillage from vehicle motion
- Low tank clearance solution
- Adjustable max fill level settings



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FCV with Integrated Breather Filter

- Desiccant filter removes particulates down to 2 microns from the air entering the fuel tank
- During refueling a slit valve vents the tank while preventing the air and fuel vapor exiting the tank from contaminating the filter
- Filter is encased in the FCV to improve cleanliness and eliminate the need for a remote mounted filter

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Fuel Inlet Valve (FIV)

- Constructed of aircraft grade aluminum
- The FIV can be installed anywhere between the fuel point and the tank
- Unique design allows for direct flow into the tank, minimizing foaming
- Capable of handling up to 225 gpm @ 40 psi (direct flow)
- Simple yet durable design ensures long lasting, reliable operation

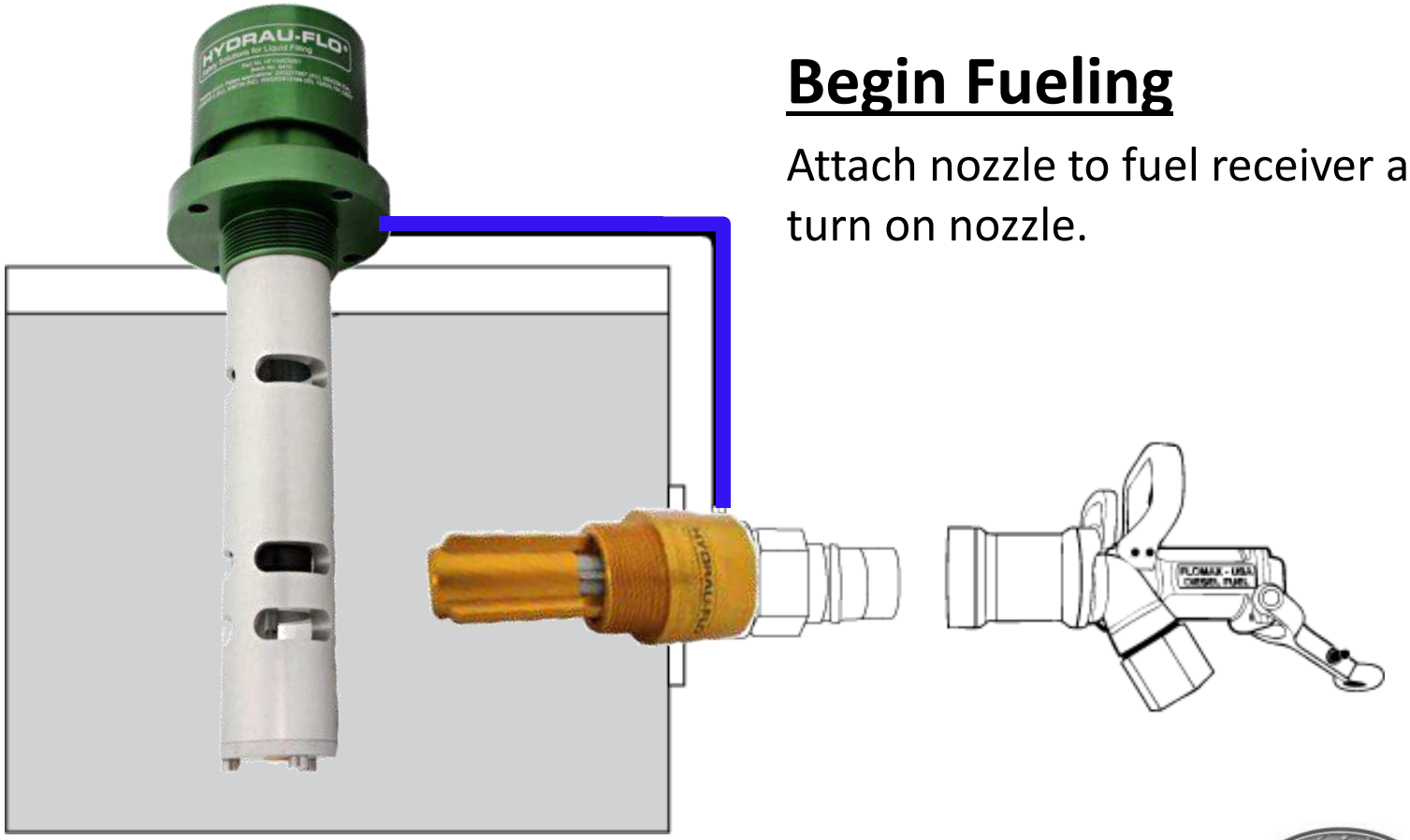
FLOWTECH FUELING

Pilot Hose Assembly

- The pilot hose is the hydraulic link between the float control valve and the fuel inlet valve
- External mounting is recommended to allow installation and maintenance without draining the fuel tank
- Pilot hose can be secured to the tank using magnetic anchors or reinforced by utilizing a steel braided hose
- Internal mounting is also available
- Replacement hose must have 3/8” ID and be diesel compatible

FLOWTECH FUELING

How Fueling Works with HYDRAU-FLO®

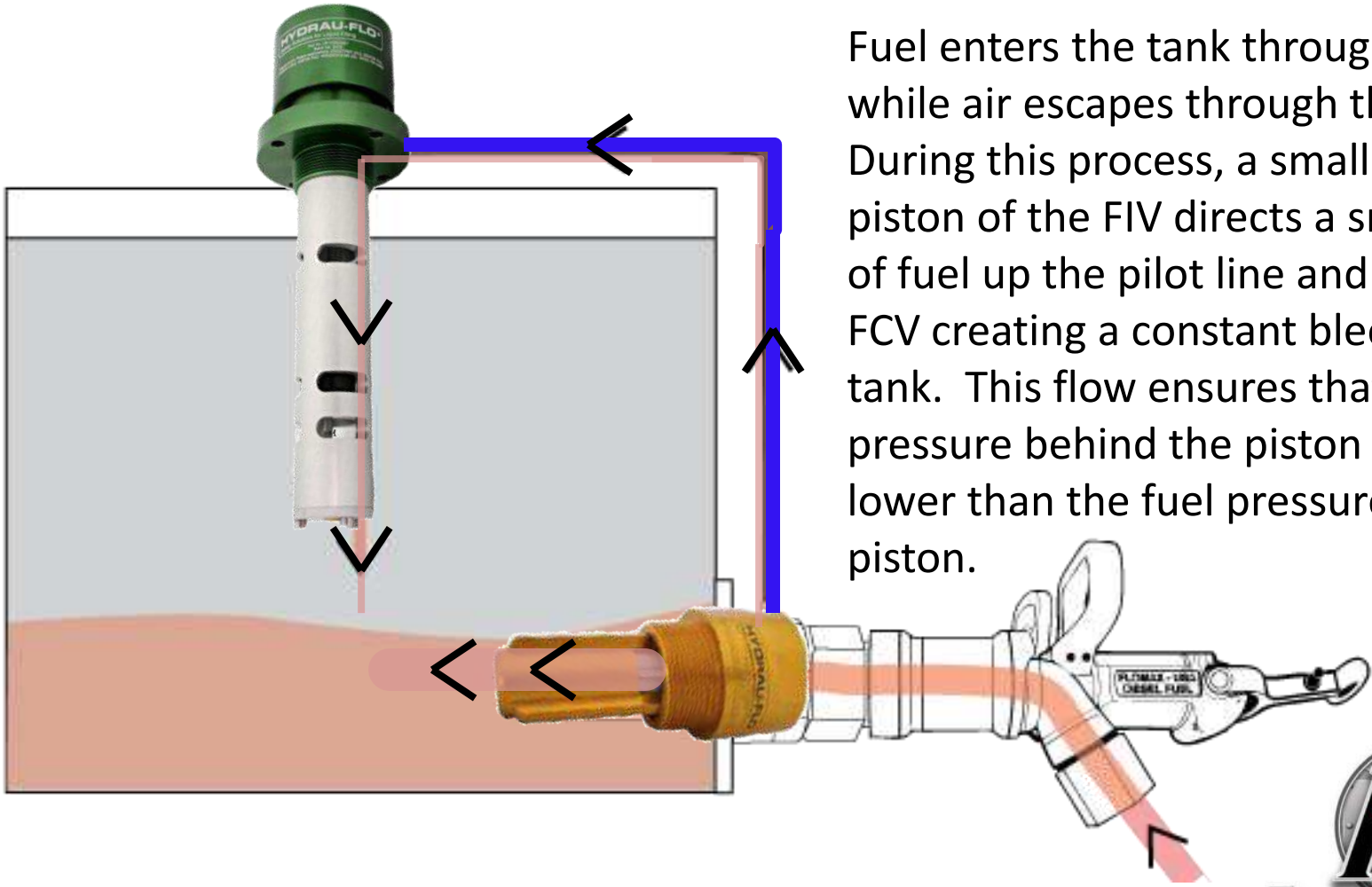


Begin Fueling

Attach nozzle to fuel receiver and turn on nozzle.

FLOWTECH FUELING

How Fueling Works with HYDRAU-FLO®

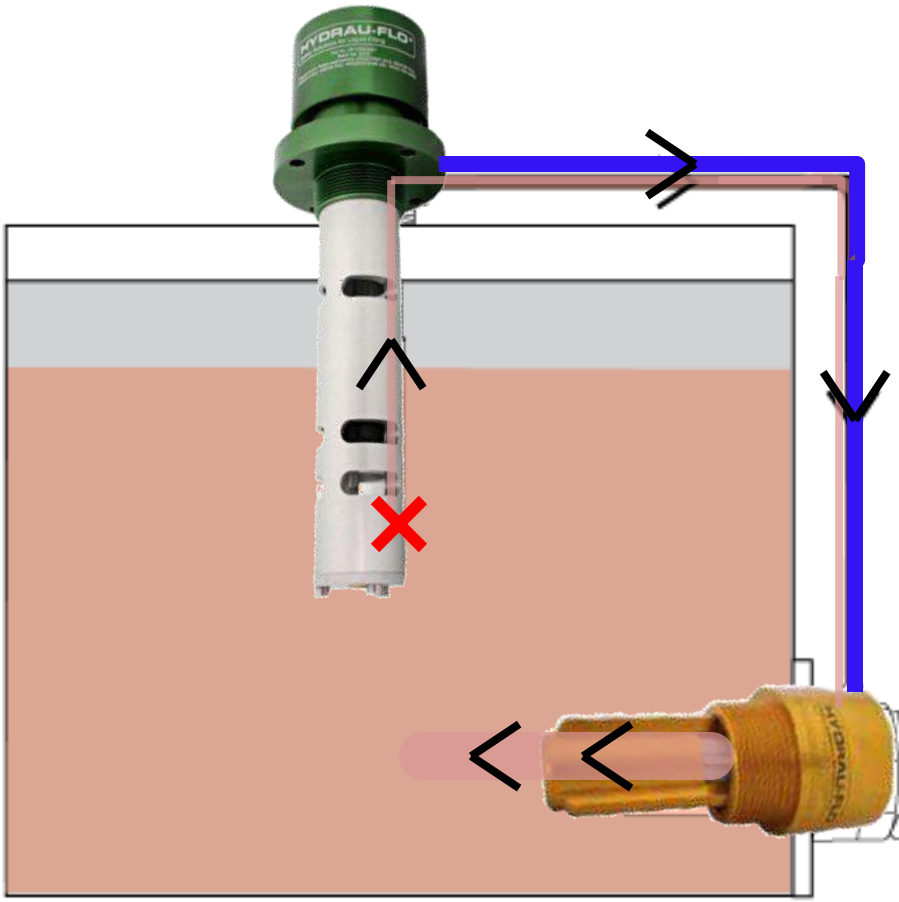


During Fueling

Fuel enters the tank through the FIV while air escapes through the FCV. During this process, a small orifice in the piston of the FIV directs a small stream of fuel up the pilot line and through the FCV creating a constant bleed into the tank. This flow ensures that the fuel pressure behind the piston remains lower than the fuel pressure opening the piston.

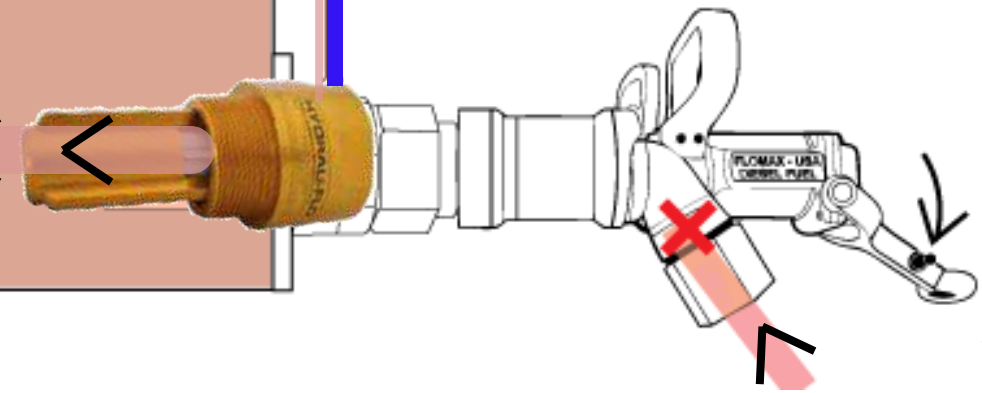
FLOWTECH FUELING

How Fueling Works with HYDRAU-FLO®



Fueling Complete

When the fuel level in the tank reaches the maximum fill point the FCV closes, blocking the bleed from the pilot line into the tank. This equalizes the fuel pressure on both sides of the piston in the FIV. This hydraulic balance allows the spring behind the piston to close the FIV which causes the fuel nozzle to shut off. The tank is not pressurized and the operator can not override valve.



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FlowTech Fueling

HYDRAU-FLO®

Non-pressure Fueling Systems

Installed on every make & model in mining today!







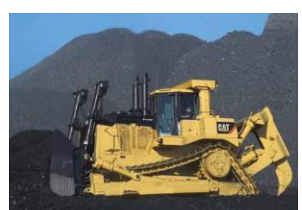








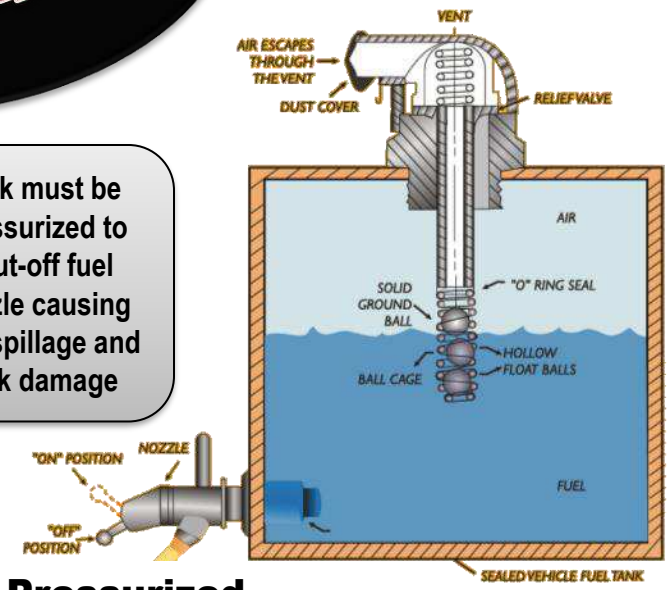


the "Competition"

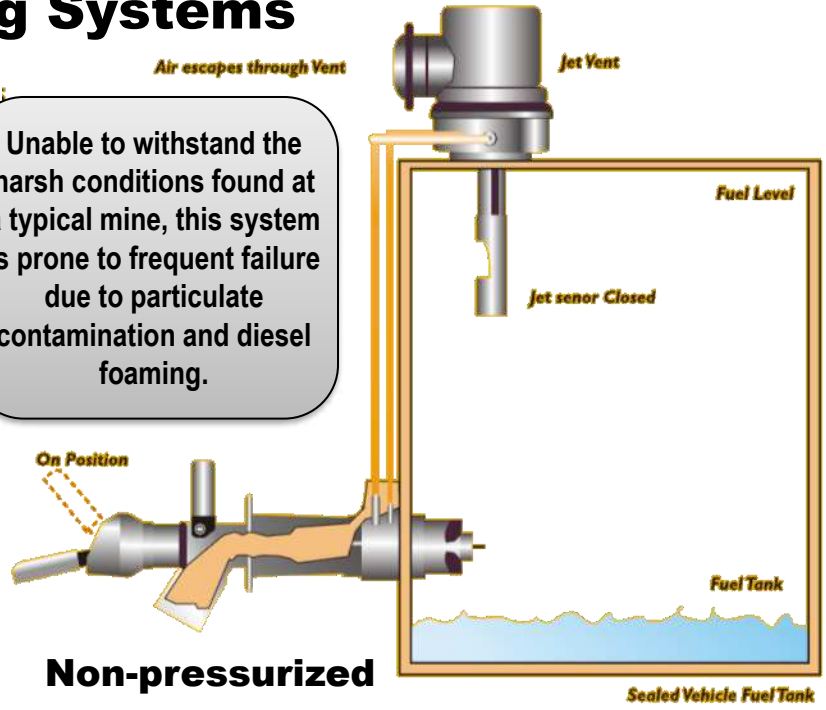
Wiggins® Fueling Systems

Tank must be pressurized to shut-off fuel nozzle causing fuel spillage and tank damage



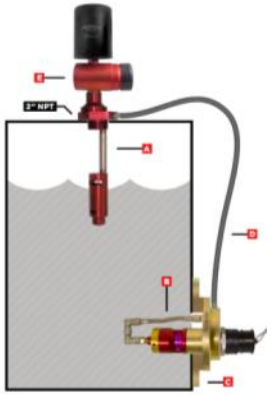
Pressurized

Unable to withstand the harsh conditions found at a typical mine, this system is prone to frequent failure due to particulate contamination and diesel foaming.

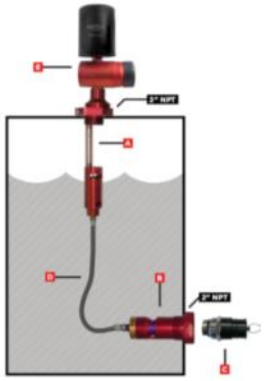


Non-pressurized

Fast Fill® Systems



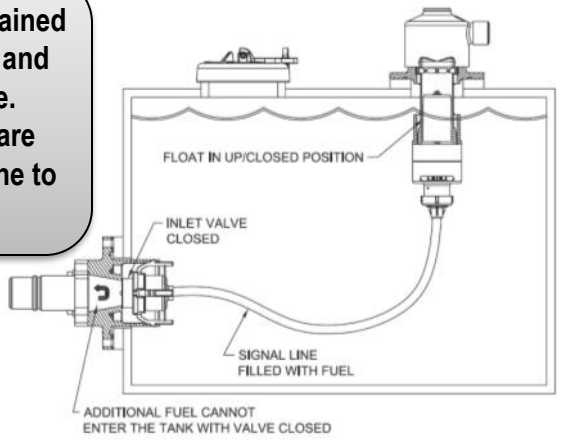
Both systems require draining the fuel tank for installation and maintenance. Limited installation options make it difficult to install on many makes and models.



External **Internal**

CAT® Fueling System

Tank must be drained for installation and maintenance. Components are plastic and prone to failure.



Internal

Installation in half the time with the FLOWTECH Tool Kit

FLOWTECH FUELING

Customer List

FlowTech customers currently using the Hydrau-Flo® Fueling System include:

- **Peabody Energy**
  - North Antelope Rochelle Mine
  - Caballo Mine
  - Rawhide Mine
  - El Segundo Mine
- **Westmoreland Coal Co.**
  - Kemmerer Mine
  - Absaloka Mine
- **Port of Portland - Dredging**
  - Portland, OR
- **Arch Coal Co.**
  - Black Thunder Mine
- **Newmont Mining Corp**
  - Cripple Creek & Victor Gold Mine
- **Alpha Natural Resources**
  - Eagle Butte Mine
  - Belle Ayr Mine
- **Kiewit Mining Group**
  - Buckskin Mine
  - Walnut Creek Mine
  - San Miguel Mine
- **SSR Mining**
  - Marigold Mine
- **Thompson Bros Construction**
  - Fort McMurray, AB Canada
- **Western Fuels Wyoming**
  - Dry Fork Mine
- **Black Hills Power Corp.**
  - Wyodak Mine
- **North American Coal Corp.**
  - Coteau Mine
  - Coyote Creek Mine
  - Sabine Mine
  - Red Hills Mine
  - Bisti Fuels
  - Falkirk Mine
- **American Colloid**
  - Colony, WY
- **Freeport -McMoran**
  - Bagdad Mine
  - Climax Mine
- **Halliburton – BMP**
  - Colony, WY
- **Cloud Peak Energy**
  - Cordero Rojo Mine
  - Antelope Mine
  - Spring Creek Mine

customer satisfaction guaranteed

Trust the experts in Non-pressure Fueling

FLOWTECH FUELING

has installed over 1000 non-pressure fuel systems since 2007, preventing more than 6 million gallons of diesel spillage and providing its customers over 19 million dollars in fuel savings!

results matter