Pioneers of Unified Fuel Management

Banlaw Products and Applications

BANLAW
UNIFY YOUR FUEL SUPPLY

Overview

- **Banlaw are specialists in refuelling hardware, fuel management and facilities maintenance**
- Over **30 years experience** in Manufacturing Refuelling Systems and Hardv
- Exports to more than 30 countries
- Registered patents, trademarks & copyright
- **Innovative R&D program**
- QA Certification to AS NSZ ISO 9001:2008
- Mechanical, electrical & IT capabilities

Certified System™
Quality
ISO 9001
SAI GLOBAL

Total Solution - Banlaw designs, tests, manufactures, installs & supports all of our products

Banlaw's Head Office

BANLAW
UNIFY YOUR FUEL SUPPLY

Pioneers of Unified Fuel Management

banlaw.com

Banlaw Factory

Banlaw Factory – Machining Centre

Banlaw Factory – Machining Centre

Banlaw Factory – Assembly Area

Key Markets

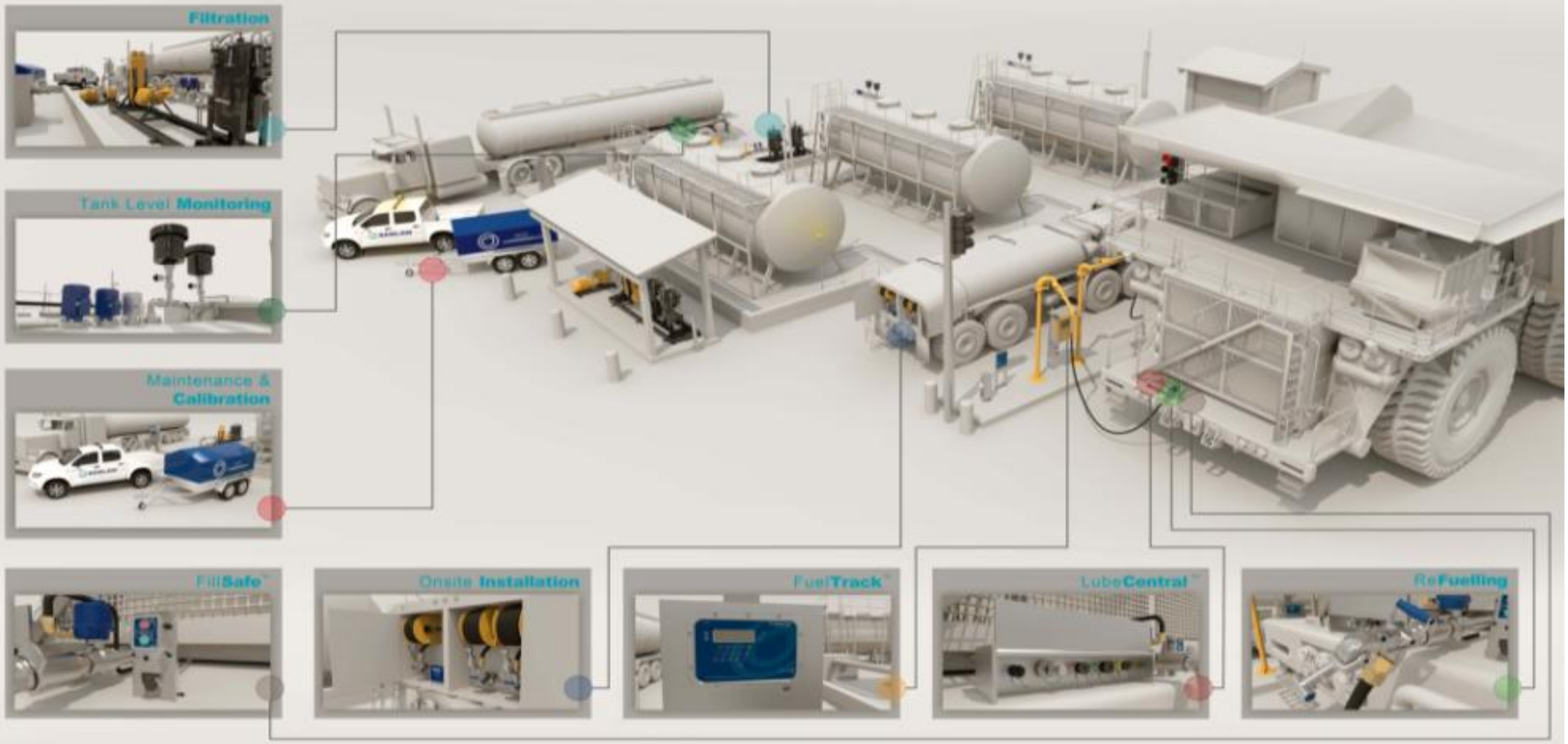
Banlaw products are aimed at the following end user markets…

- Mining and Quarrying
- Rail Logistics
- Port and Bulk Handling Facilities






One Stop Solution

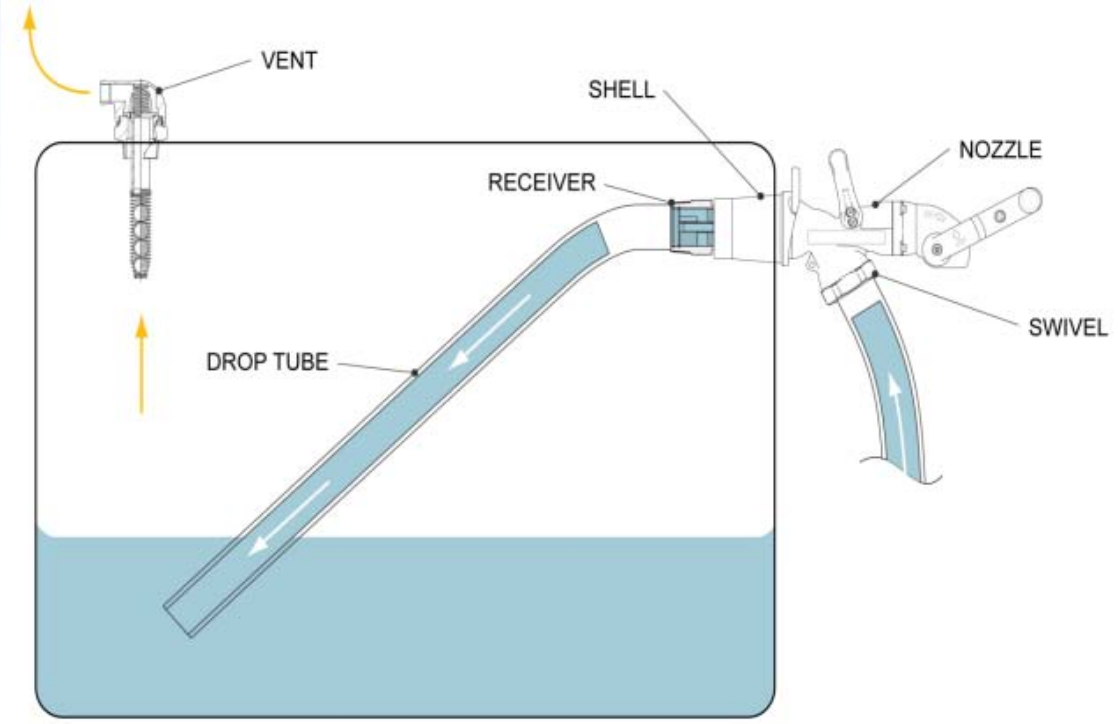


ReFuelling

- ❑ Nozzles
- ❑ Receivers
- ❑ Vents

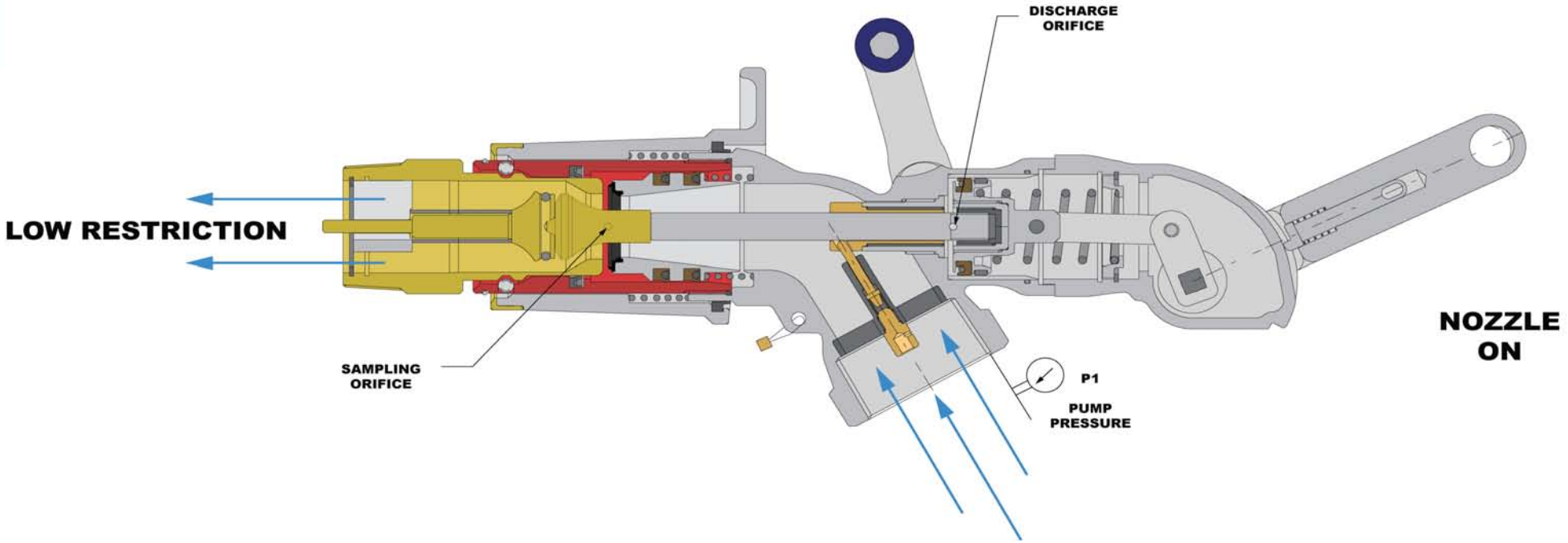
Diesel Refuelling System – How It Works

1. Fuel flows freely through nozzle and receiver into tank, whilst air freely exits tank through vent.
2. Once the fuel level reaches the vent balls they rise on the fuel and seal the vent. Pressure then builds in the tank to 55kpa (16psi) and triggers the nozzle to shut off.



ReFuelling

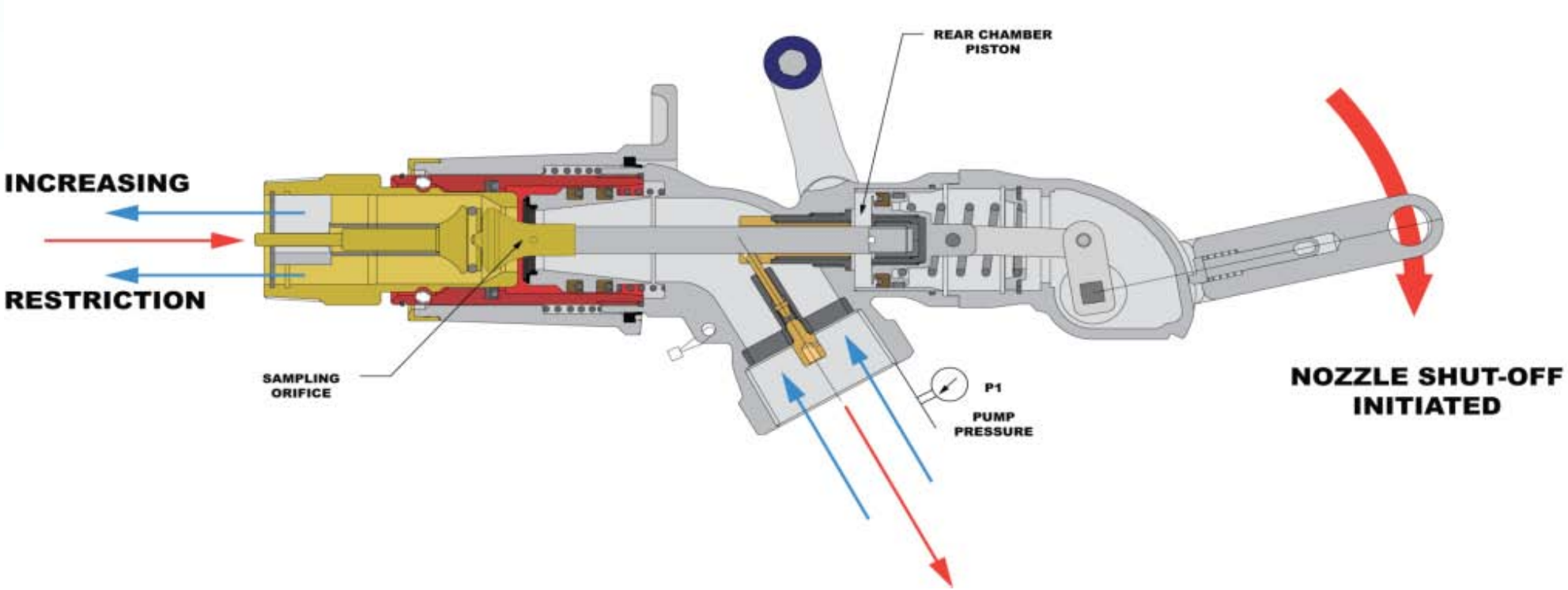
Normal Flow Conditions



Fuel flows freely through nozzle and receiver into tank, whilst air freely exits tank through vent.

ReFuelling

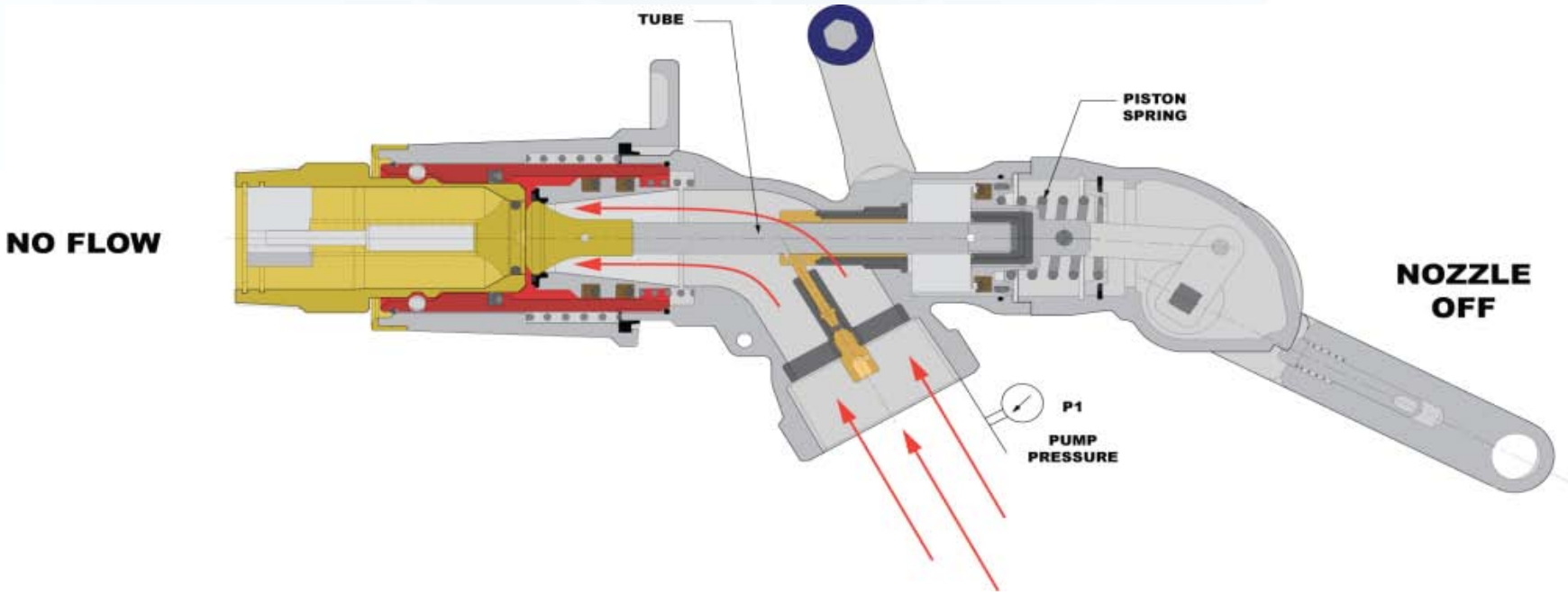
Nozzle begins to shut-off



Pressure rises in the tank. This increasing pressure is also passed back through filling line and through nozzle.

ReFuelling

Nozzle shuts-off



Nozzle automatically shuts off once certain pressure is reached – dependent on nozzle & receiver spring settings. Tank gradually depressurises through vent

ReFuelling

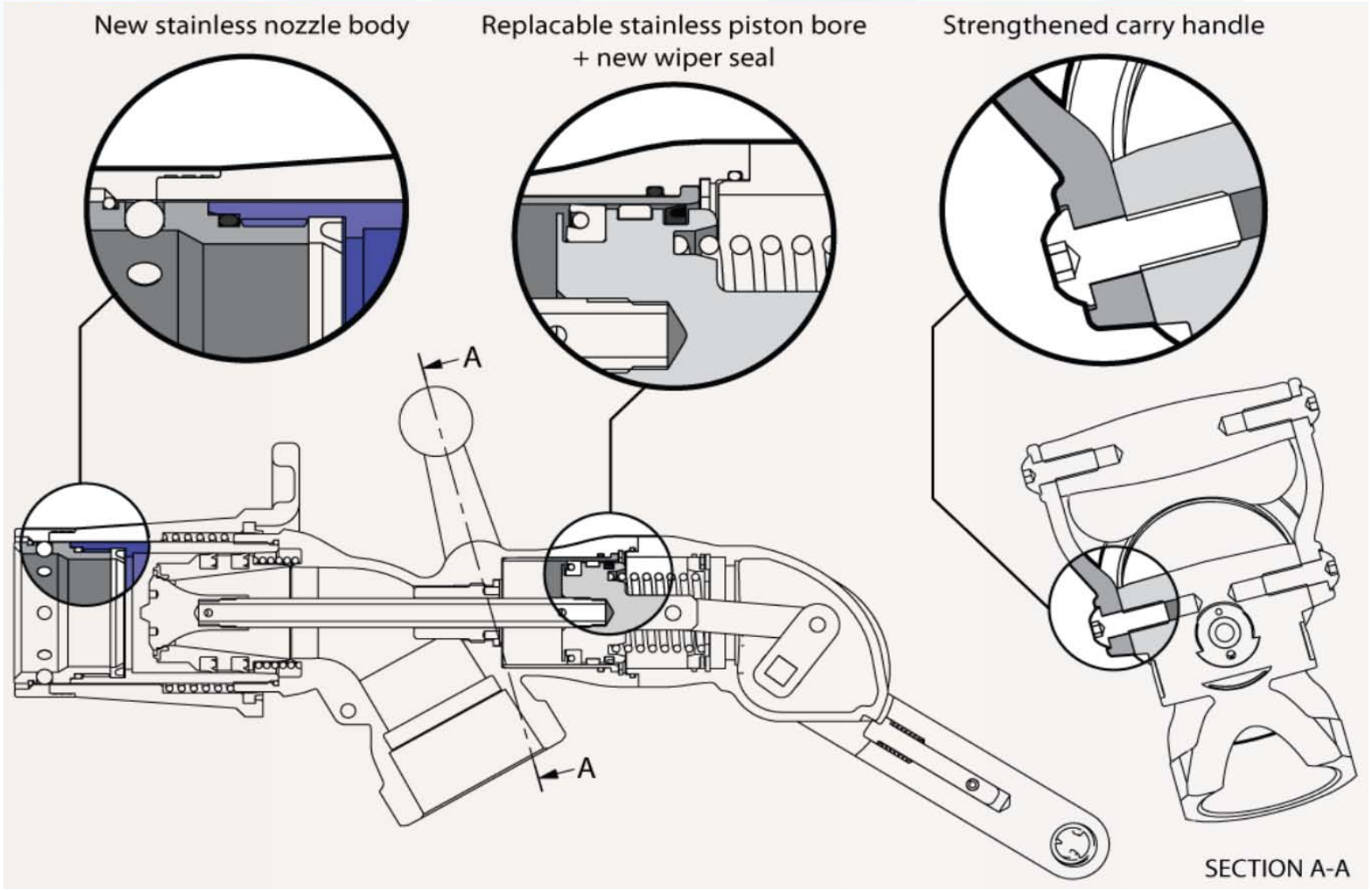
Dry-Break Refuelling Nozzle

- **Aluminium** and **stainless steel** construction to provide a light weight and durable product.
- **800LPM** (211GPM) and **1000LPM** (264GPM) models available.
- **5 available nozzle shut-off (spring) settings.**
- U-seals used for all dynamic sealing roles.
- Proven and dependable **ball lock latching mechanism.**

- Ergonomic design – less strain to handle.
- Individual **serial number** allowing traceability of each nozzle.
- Option to become a **Nozzle Repair Agent**.
- Option of auto identification to suit Banlaw FuelTrack.

ReFuelling

Dry-Break Refuelling Nozzle



Test Rig

Every new and serviced Banlaw refuelling nozzle is tested prior to release, with results being recorded as part of the company's quality procedures

Banlaw Fuel Receiver & Dust Cap

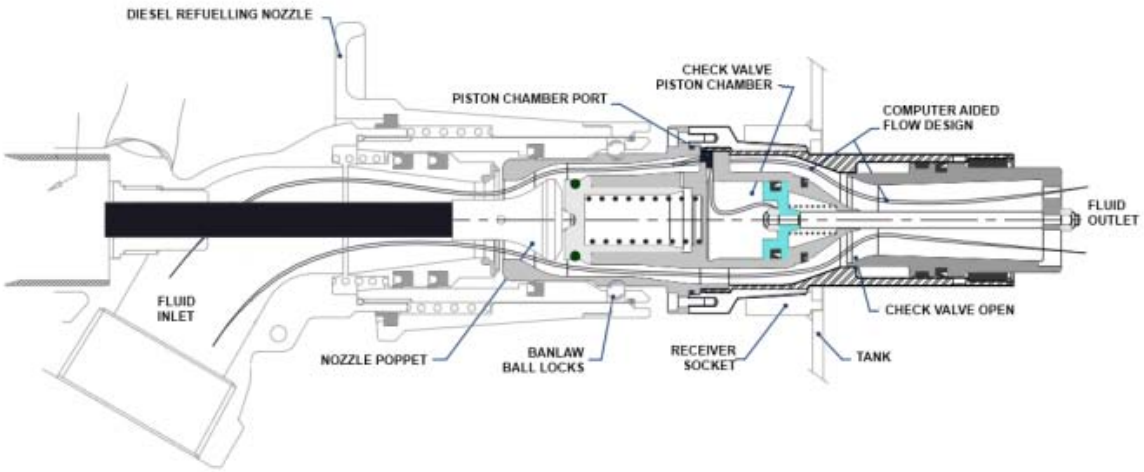
Dry-Break Receiver

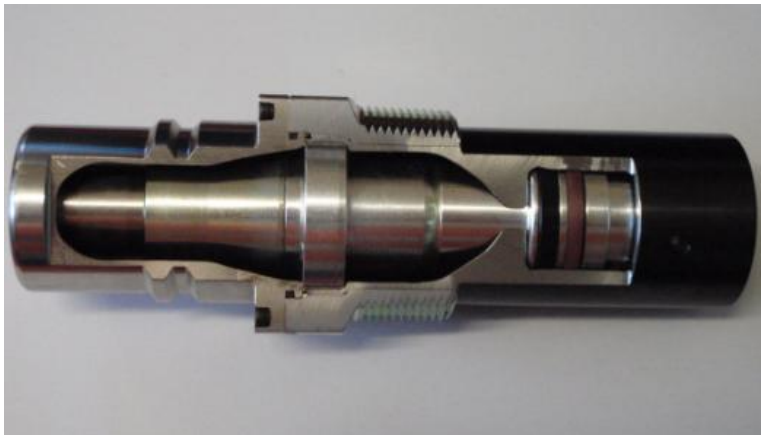
- Two models available - **800LPM** (211GPM) and **1000LPM** (264GPM).
- **4 available spring settings** to vary nozzle shut-off pressure.
- Robust **stainless steel construction** to outlast our competitors alloy models.
- Option of model incorporating Check Valve to prevent backflow of fuel from tank whilst changing out receiver.
- Option of auto identification to suit Banlaw FuelTrack™ FMS.

ReFuelling

Check Valve/Anti Theft Receiver – BCVR23

- Prevents back-flow of diesel through Receiver
- Front body can be replaced without removing receiver assembly
- Operates from 100-500LPM (26-132GPM) with no increased incidence of premature nozzle shut-off. Maximum recommended flow rate – 650LPM (172GPM).
- Check valve mechanism cannot be overridden by any known means
- Reduces spills during change outs and eliminates theft via receiver





ReFuelling

Banlaw Tank Vents

"Quick-Fill" Tank Vent

- ¾" nominal bore throughout vent for airflow
- Single vent to achieve <800LPM (211GPM)
- Reliable O-ring seals to provide extended vent life
- Choice of 2 pressure relief settings;
- 49kPa (7.1psi) – **Green** Cap
- 110kPa (16psi) – **Red** Cap
- Option of 10µm (nom.) filtered model
- Option of standard & extended length models
- Option of 2" NPT or Cat/Komatsu flanged mounting

Filter Vent
BP125A

Standard Vent
AUS25A

ReFuelling

Ultra-Fine Filtered Tank Vent

- Internal check valves to route all **incoming airflow through filter** and all **exhaust airflow bypassing filter** element – maintains filter integrity and improves service life.
- Accepts as standard fitment Stauff SGB-120 3µm (abs) air filter element.
- Supplied with filter condition indicator.
- **800LPM (211GPM) air flow capability** – both inflow & outflow.
- Two pressure relief settings available: 49kPa (7.1psi) & 110kPa (16psi).
- Standard 2” NPT (M) mounting.
- Option of standard & extended length models.

ReFuelling

Nozzle Holster

- Secure & clean storage of refuelling nozzle
- Option of fixed stand for fuel bays and smaller service truck styles
- Improved support of nozzle during stowage reduces internal wear and damage to nozzle and hose
- Option of FuelTrack™ system health check function
- Option of drive-away deterrent system kit with stop / go lights or flashing beacon

ReFuelling

LubeCentral™

- ❑ Lubrication
- ❑ Classic Range
- ❑ Flush Face Range

Lubricant Contamination Facts

- 60-70% of lubricated equipment failure is attributable to contamination – i.e. Water, Particles, Coolant.
- A proactive maintenance strategy aims to eliminate the root cause of breakdown and is based on the control of conditions. Reactive maintenance has no control over breakdowns and costs.
- The quality and Beta Ratio of Filters determines your level of risk.
- Cross-contamination will occur if the same fluid couplings are used for different fluids commonly filled or dispensed from the same point.
- An effective contamination program must begin at the supply & continue to involve storage, transfer/handling & in-service monitoring & control.
- Maximising the working life of lubricants significantly reduces waste, purchase & disposal costs, & benefits the environment.

LubeCentral™

Oil & Coolant Servicing

Classic Range

- Traditional industry compatible dry-break fluid couplings and accessories
- Reliable ball-lock latching mechanism
- Robust steel construction

Flush Face Range

- Unique range of colour-coded couplings eliminates cross contamination of lubricants
- Only mating pairs will connect to each other
- Flush-face design and push-to-connect
- Reliable ball-lock latching mechanism
- Robust steel wearing parts

LubeCentral™

Some LubeCentral™ Users

- Xstrata
- Newcrest
- Rio Tinto
- Peabody
- YanCoal

LubeCentral™

RIO TINTO

IPT Phase II
TOWARDS EXCELLENCE IN HYDROCARBON MANAGEMENT AT MTW

Kidney Loop Filters delivering cleaner oil to equipment

Two Kidney Loop Filter where received and put to good use at MTW. One is dedicated to 60W Differential Oil and the second for the final drives synthetic oil.

The pictures show the Differential Oil Filter in operation and one of the training sessions on how to use it.

The results have been very good:

- Before Filtration
  - Particle count = 43,800
  - ISO4406 Level = 20/13
- After Filtration
  - Particle count = 2,484
  - ISO 4406 level = 17/13

Currently MTW change this oil every 2000 hrs. With the introduction of the Kidney Loop filters the oil will be changed on condition with the following savings per 2000 hrs truck operation:

- 740 litres @ $2 per litre = $ 1,580

Before (right containers) and After (left containers) photo showing the result of the filtration of the synthetic oil of the wheel motor for the 787 Leibherr truck

RIO TINTO

IPT Phase II
TOWARDS EXCELLENCE IN HYDROCARBON MANAGEMENT AT MTW

Contamination Control

As part of the contamination control program, 130 red BANLAW colour coded fittings have been installed to mobile plant to distinguish engine oil from other lubricants minimising cross contamination.

The program will continue with installation of colour coded fittings covering all the oil and grease points. Already installed are:

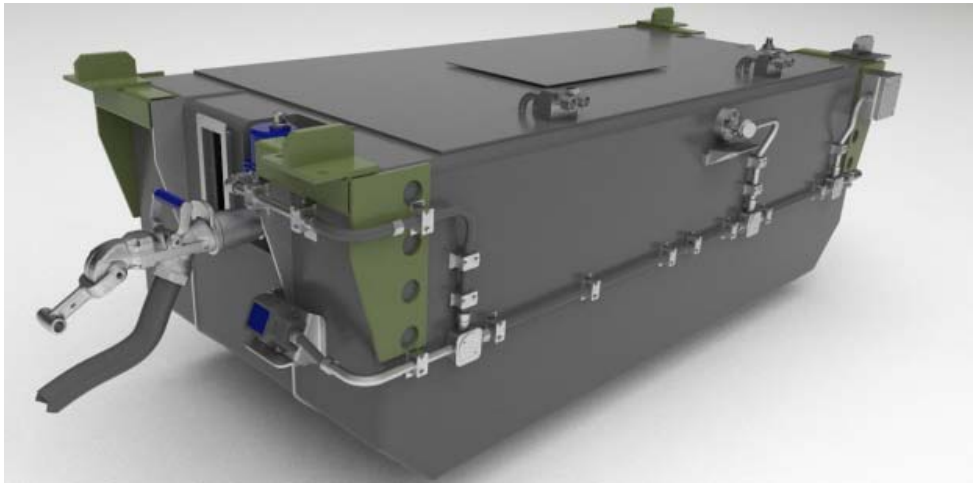
- Yellow, Engine oil sample point
- Blue, Hydraulic oil sample point
- Purple, Transmission oil sample point
- Black, others

FillSafe™

- Non Pressurised Refuelling
- No Overfill, No Spill
- High Flow Rates

Fast Refuelling – Zero Pressure

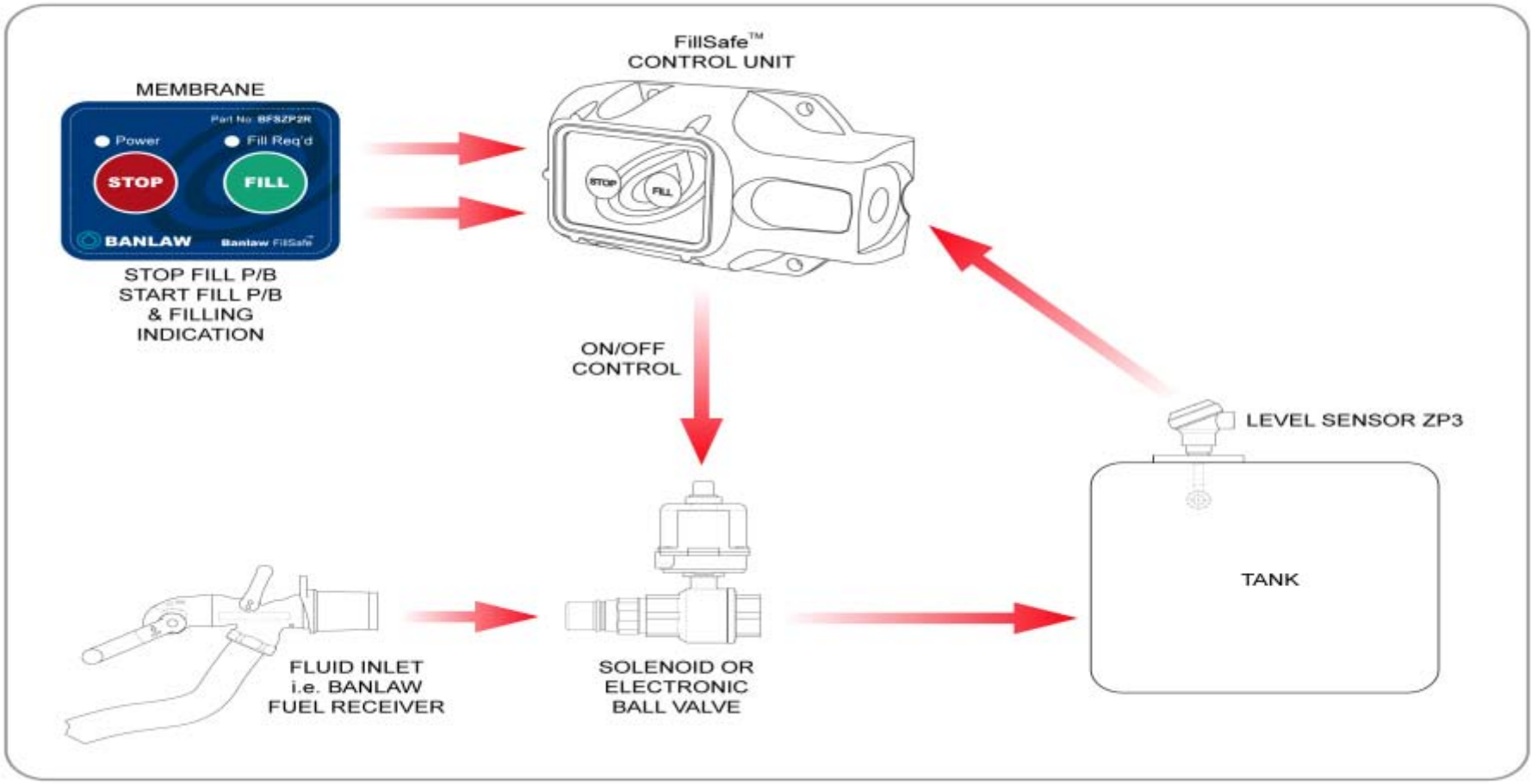
- Ensures **zero overfill, zero tank pressure** and with **zero spillage** during refuelling in any environment.
- Rates of **more than 1000 litres (264 gallons) per minute** can be achieved with no increase in tank pressure.
- Can readily accommodate various fluid types – eg: diesel, oil or coolant.
- The system relies on a float switch and control box to control the inward flow of fuel into the tank.



- **Eliminates the pressure build up** in the tank during each refuel without the need to change over refuelling hardware or altering the fuelling process on site.
- **No risk of the fuel tank rupturing** due to over pressurising of the tank
- **LED indication advises the operator** if the tank requires fuel or not – eliminating the need for checking of the tank.

FillSafe™

ZP2R Mode of Operation



FillSafe™

ZP2R Pushbuttons & Indicators

The Power **RED LED** should be on at all times indicating power is available and the ZP2R is operational.

The **GREEN LED** has three (3) modes:

- **Steady ON** - Fuel level is below the sensors & the valve is CLOSED.
- **Flashing** - Fuel level is below the sensors & the valve is OPEN.
- **OFF** - Fuel level is above a sensor & the valve is CLOSED.
- Light is also OFF when no power is available i.e. **RED LED** OFF.

- The **FILL** push button enables the tank to refuel

- The **STOP** push button stops refuelling

FillSafe™

ZP2R Operational Steps

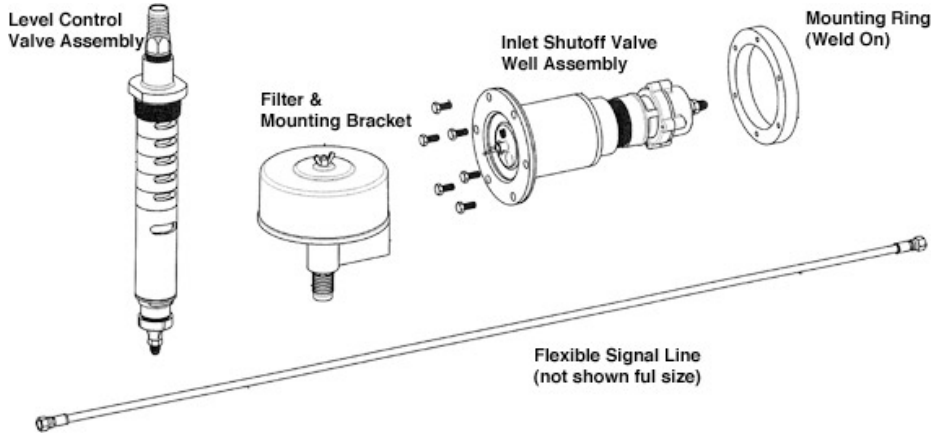
1. At any stage the STOP button can be pushed to stop the refuelling process and shut the control valve.

1. If refuelling is required the **Fill Rqd. GREEN LED will be ON**, press the **GREEN FILL** button to enable the refuelling process.
2. When the **GREEN FILL** button is pressed the **Fill Rqd. GREEN LED** will start to flash indicating the control valve is open and the system is ready to receive fuel.
3. Connect the refuelling nozzle to the receiver and turn the nozzle on.
4. The **GREEN LED will continue to flash** until the fuel tanks safe full level is reached. At this point the **GREEN LED** turns off and the control valve is closed stopping the refuelling process.
5. The dry break nozzle will automatically shut off, and it can now be disconnected from the receiver and placed back in the storage position.
6. Refuelling is complete.

FillSafe™

150 GPM Non-Pressurised Refuelling System Kits

Mechanical Non-Pressurised Refuelling Systems based on aerospace technology, allowing the fuel tanks to be filled at rates up to 150 GPM without pressurizing the tanks. These systems can be used on metal, composite, or fabric bladder tanks. The system consists of three primary components; the receiver, inlet shut-off valve, and level vent assembly.



System Features

- Flow rates up to 150 GPM (570 LPM)
- Positive shut off prevents manual override
- Meets directive 97/23/EC and does not pressurize tank
- No spills or burst tanks
- Ground level connections
- Meets with industry standard nozzles and 2” NPT receivers
- Shut off acts as a check valve when servicing receivers
- Receiver can be replaced without draining tank
- Zero or low pressure systems can be used with thin wall or plastic fuel cells
- This kit is offered with four different signal line lengths.

FillSafe™

Thank you!

Any Questions?