

Banlaw FuelTrack™ and Banlaw ReFuelling™

Thank you for purchasing this high quality Banlaw product. Please read through and understand the information in this Product Data Sheet (PDS) BEFORE installation or operation of the product to avoid accidental personal injury or property damage.

1 PRODUCT DESCRIPTION

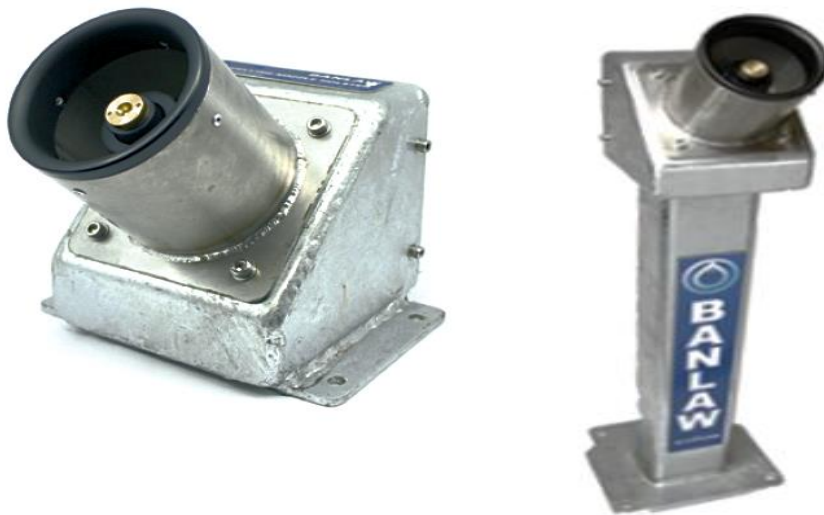


Figure 1 - Nozzle Holsters - "Short" Holster (left) and "Tall" Holster (right)

Banlaw's nozzle holsters are designed to provide a secure means for the storage of a dry-break refuelling nozzle when not in use. Banlaw nozzle holsters also incorporate a passive ID "chip" to allow integration into the Banlaw FuelTrack™ or (Banlaw ResTrack™) asset management systems and a proximity sensor (switch) to facilitate a drive-away deterrent system.

The ID capability provides capacity to enable an "auto ID" system health check within Banlaw's FuelTrack Management System. System health checks can be performed each time the nozzle is placed back in the holster.

The proximity sensor accepts a voltage of 5 to 60Vdc and provides a reliable means of detecting when the refuelling nozzle is installed within the holster. This sensor can be integrated into a drive-away deterrent system, such as a boom gate, flashing light, audible alarm, etc.

Manufactured predominantly from HDG steel and stainless steel, the robust construction of the holster withstands the harsh operating environments in industries such as mining and construction. Whether installed at fixed (stationery) refuelling location or onboard a mobile service vehicle, a Banlaw nozzle holster reduces wear and tear on the nozzle.



The content of this document is not meant to override or substitute any applicable Statutory, Regulatory, Customer/Site, etc. Health Safety (WHS) and Environment (HS&E) requirements.

All works should only be performed by trained, qualified and competent personnel who are aware of the hazards associated with the constituent components of this installation in addition to the “system” as a whole. Failure to comply with these practices may result in death, serious bodily injury, loss of equipment and environmental damage.

A risk assessment (job hazard analysis - JHA) should be conducted PRIOR to the start of any works or actions within this document. Whilst every effort has been made to ensure the execution of this document represents no HS&E hazard, Banlaw takes neither responsibility nor liability for the consequences and damages that may occur in the execution of works within this document.

Persons conducting or otherwise involved with the execution of the works within this document and project have an obligation to ensure that all HS&E requirements are known and understood, and subsequently followed at all times.

1.1 Key Features

Banlaw Nozzle Holsters incorporate the following key features:

- Provides a dedicated and secure means of securely storing a dry-break refuelling nozzle when not in use, providing the following key benefits;
 - **Minimises contamination ingress into the nozzle**, thus decreasing wear and tear and contamination of the fuel stream.
 - Helps to keep the nozzle, dispensing hose, loading arm and other fuel dispensing equipment out of human and plant equipment thoroughfares, therefore reducing the potential damage of the equipment and safety concerns such as slips, trips and falls.
- The “23” series holsters suit all Banlaw 800 series nozzles in addition to equivalent third-party nozzles. The “43” series holsters suit all Banlaw 1000 series nozzles.
- Holsters suit both Banlaw FuelTrack (auto ID) and non-FuelTrack nozzles.
- Available in “short” or “long” styles to suit a variety of applications – refer Figure 1. Can be installed at fixed refuelling points or onboard mobile service vehicles;
 - **“Short”**; does not include the stand.
 - **“Long”**; includes the stand.
- **Integrated passive electronic ID “chip”** to allow system health checks within a Banlaw FuelTrack™ or Banlaw ResTrack™ asset management system. The health check specifically tests and verifies the proper functionality of the auto ID circuit connected to the Banlaw “auto ID” Nozzle, where such faults as a short circuit or open circuit can occur.
- **Integrated passive proximity sensor** to detect when the nozzle is either installed or removed from the holster. This sensor may be incorporated into a drive-away deterrent system to minimise the probability of a vehicle drive-away – i.e. movement of the plant equipment prior to the nozzle being disconnected.

- A **drain port** allows the drainage of liquid fuel and water (e.g. rain and washdown water) to a safe catchment for treatment and disposal. Connected to a ½" (DN12) hose, the drainage of this liquid to a catchment reduces the incidence of diesel fuel contaminating the area surrounding the holster, providing safety and environmental benefits.
- **Robust construction** to withstand harsh operating conditions – e.g. mining - in temperate and arctic climates.
- **Banlaw service kits** available to replace the “front end” of the holster if damaged or faulty.

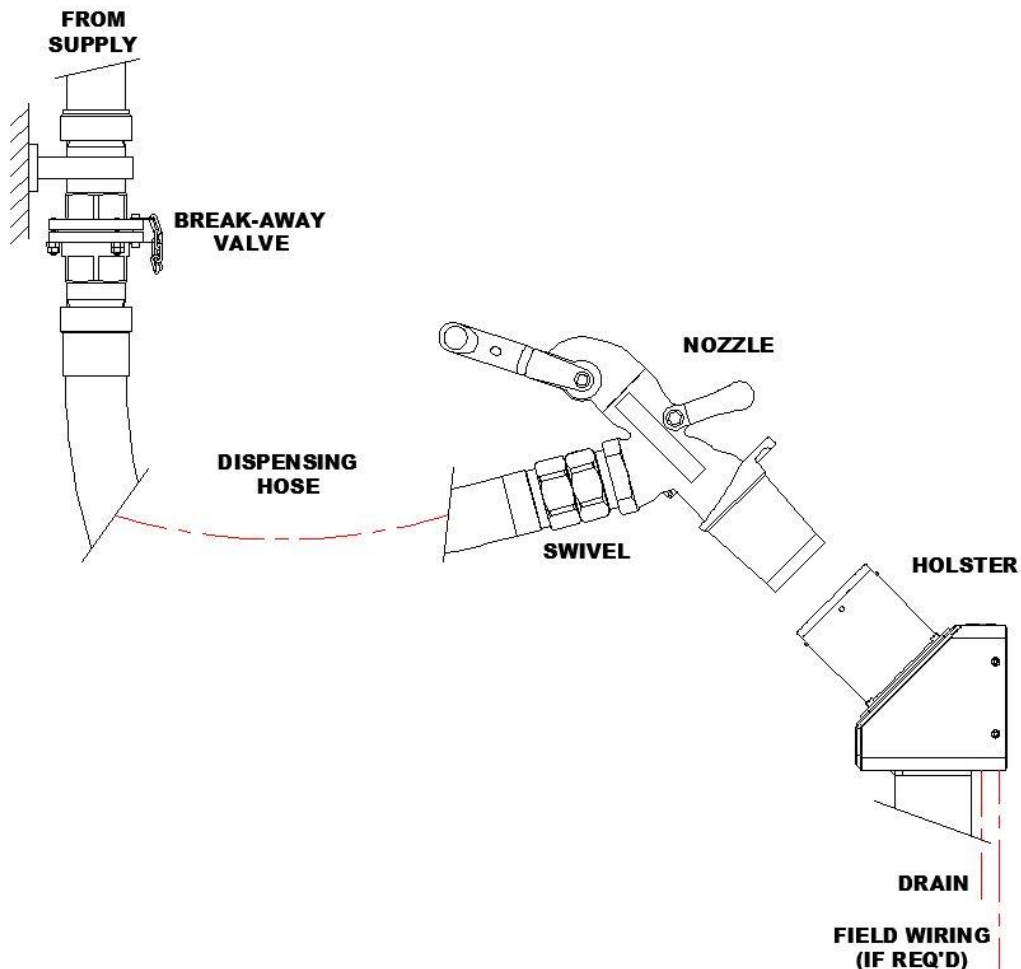


Figure 2 - Example of a Refuelling System - Nozzle shown Out of Holster

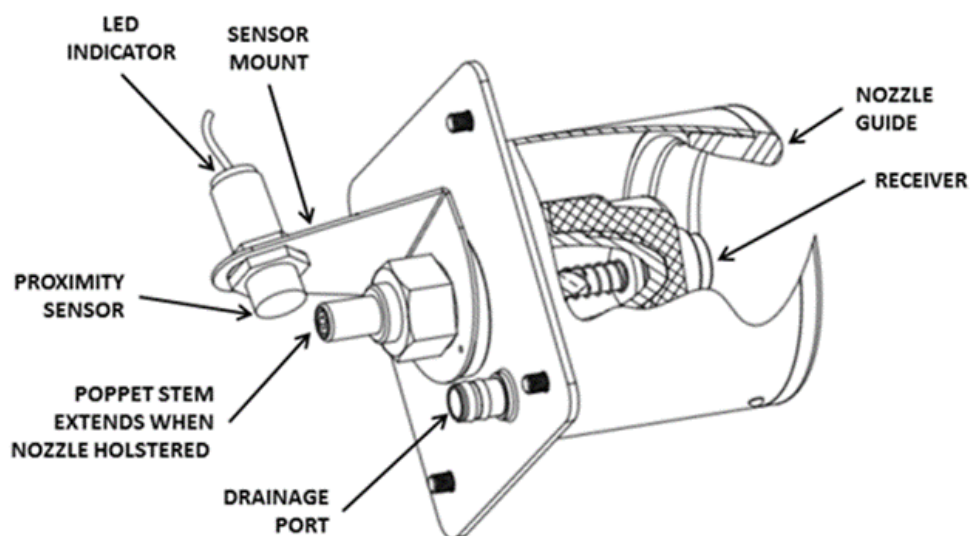


Figure 3 - Holster Kit and Key Features

1.2 Holster Function

A Banlaw Nozzle Holster provides a secure and fixed location for storing a dry-break diesel refuelling nozzle when not in use. Figure 4 illustrates the front end of a Holster and its key features and components. Figure 5 shows the interior of the Holster, particularly the Proximity Sensor. Figure 6 shows the Poppet Shaft within the Sensor range.

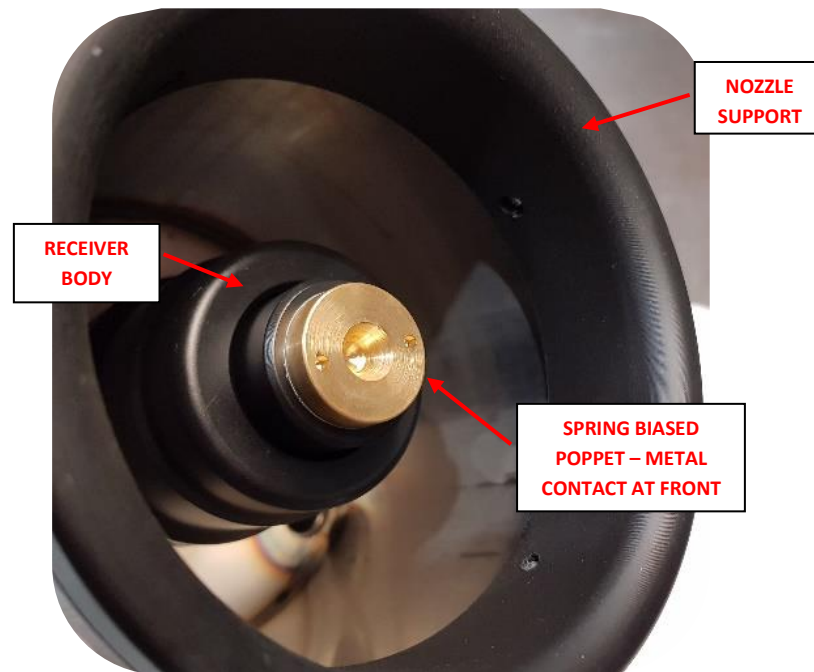


Figure 4 - Front End of Holster

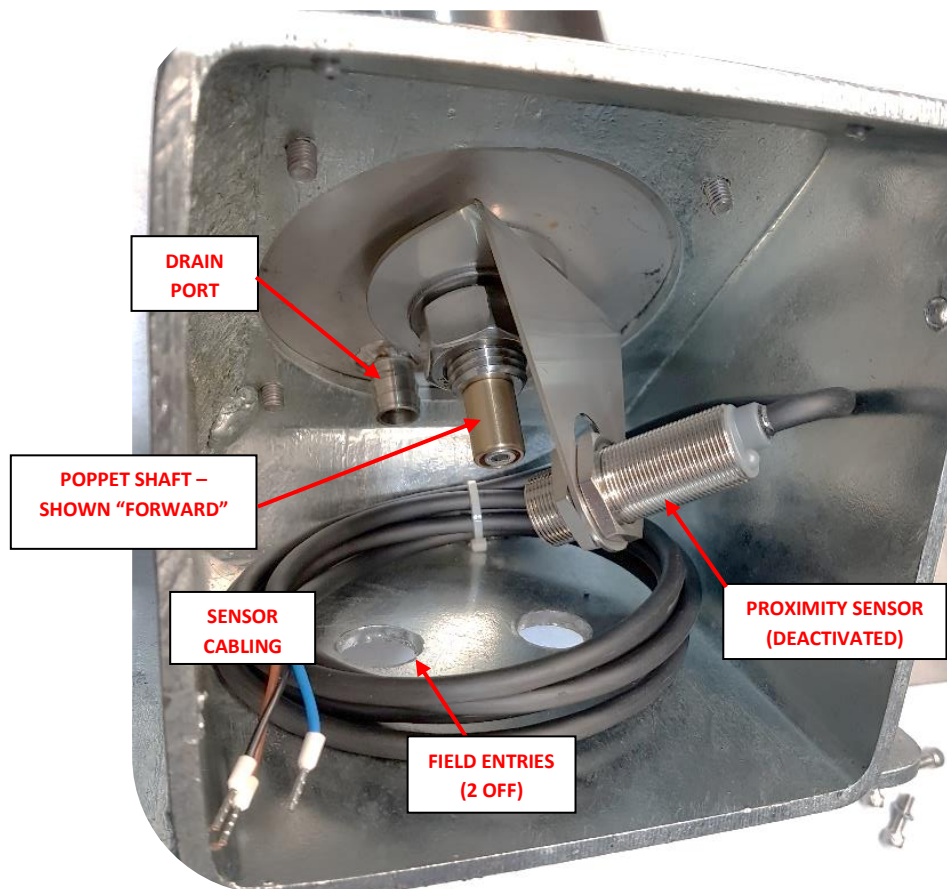


Figure 5 - Interior of Holster (Rear Cover Plate Removed)

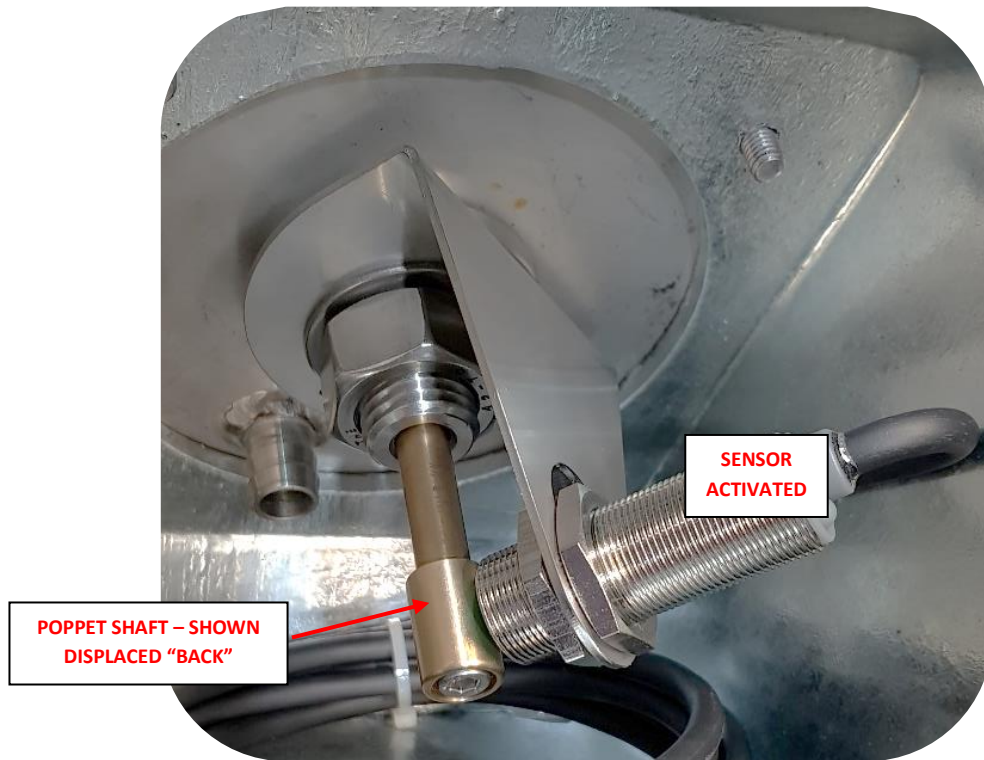


Figure 6 - Spring Biased Poppet Stem “Across” Sensor

1.3 Holster Operation

Connecting and disconnecting a Nozzle from a Holster is the same basic procedure as when connecting and disconnecting the Nozzle from a Receiver.

Figure 7; Ensure Nozzle Operating Handle is latched in the “OFF” (closed) position.



Figure 7 - Preparing the Nozzle for Placement into the Holster

Figure 8; Retract (pull back) Nozzle Actuator and align Nozzle concentrically with Holster.

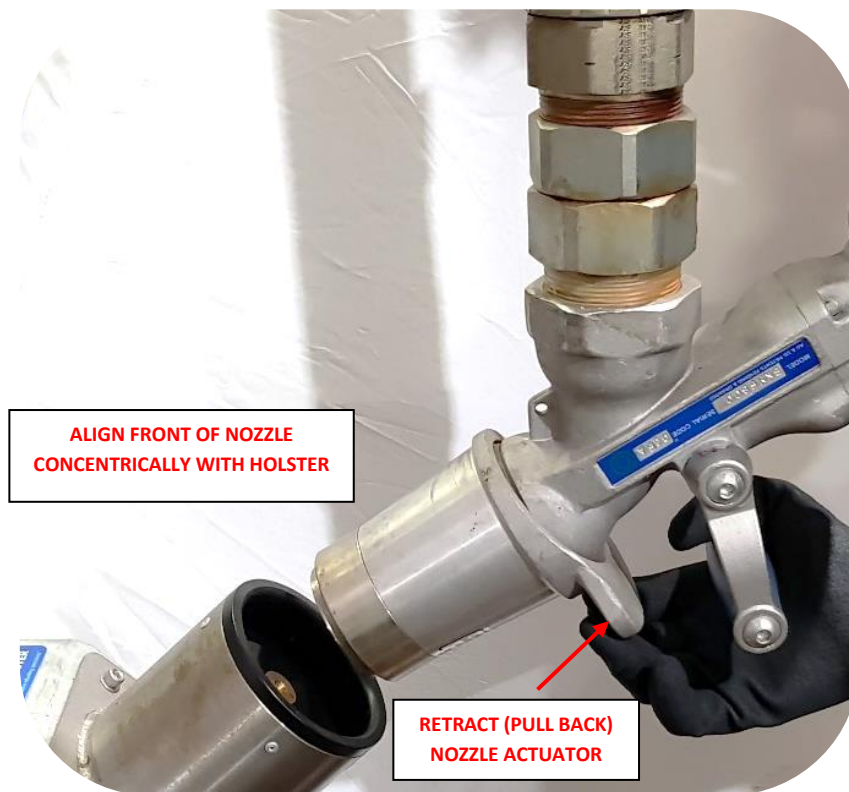


Figure 8 - Retract Nozzle Actuator

Figure 9; Hold Nozzle Actuator back, and in one movement, push Nozzle securely into Holster.

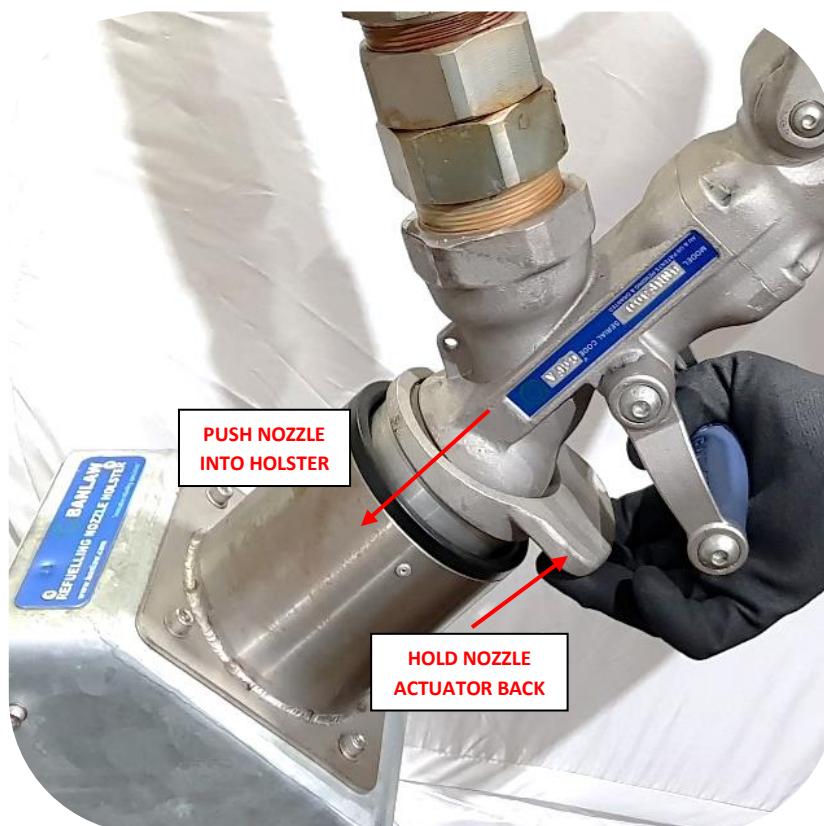


Figure 9 - Nozzle Placed into Holster

Figure 10; Release Nozzle Actuator to engage (connect) Nozzle ball locks with Receiver within Holster. Pull back slightly on Nozzle to ensure a secure connection. If Nozzle **disconnects**, repeat steps from Figure 7 to Figure 10. No attempt should be made to turn the nozzle “ON” (open) – as this may cause a small amount of pressurised fuel to be discharged from the front end (outlet) of the nozzle. The nozzle should instead remain latched in the “OFF” (closed) position.

To **remove** (disconnect) the Nozzle from a Holster, simply retract the Nozzle Actuator and pull Nozzle from Holster.

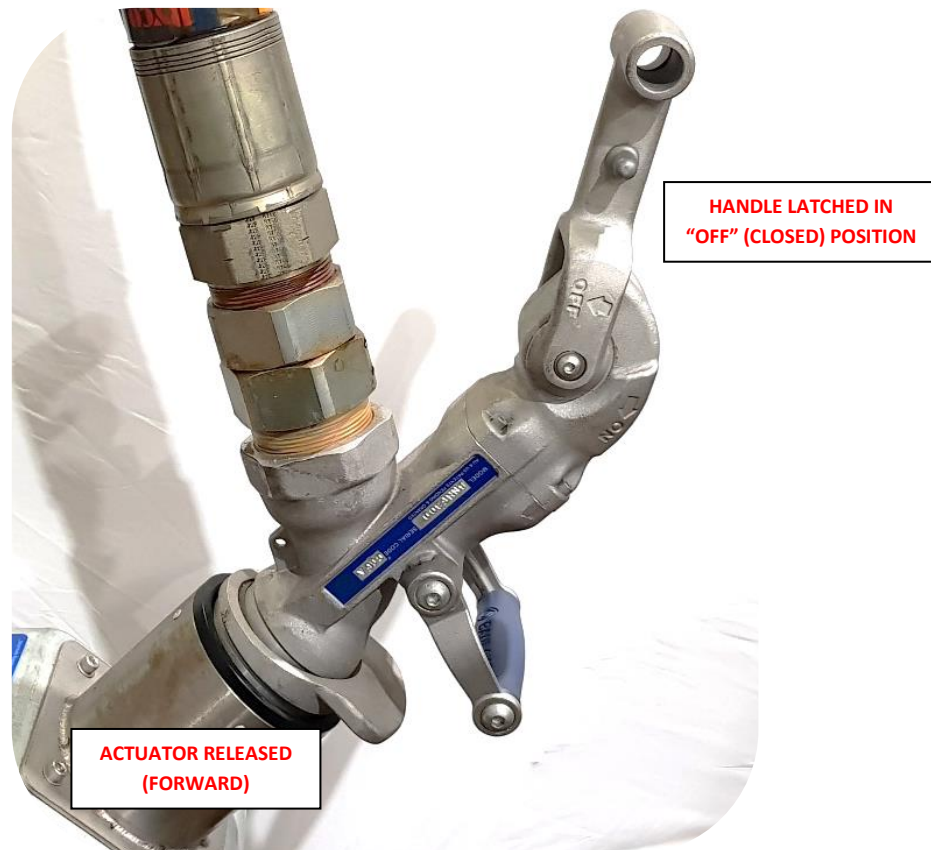


Figure 10 - Nozzle Engaged with Holster

1.4 Part Numbering including Service Kits

PART No.	DESCRIPTION
BFTNH201A	“Tall” holster – suits Banlaw 800 series and equivalent third-party nozzles
BFTNH202A	“Tall” holster – suits only Banlaw 1000 series nozzles
BFTNH203A	“Short” holster – suits Banlaw 800 series and equivalent third-party nozzles
BFTNH204A	“Short” holster – suits only Banlaw 1000 series nozzles
BFTNH23KIT	Front end kit (sub-assembly) to suit BFTNH201A and BFTNH203A
BFTNH43KIT	Front end kit (sub-assembly) to suit BFTNH202A and BFTNH204A

Table 1 - Nozzle Holster and Holster Kit Part Numbers

2 IMPORTANT RESTRICTIONS ON THE USE OF THIS PRODUCT



1. The safe installation and subsequent operation of a Banlaw product relies on the completion of all necessary **“due diligences”** for the assessment of the Banlaw product(s) being suitable for the intended application(s). Such an assessment is best achieved through the cooperation of the supplier/OEM (Banlaw) and the customer or end-user. Once such an assessment deems the Banlaw product(s) to be suitable, the customer or end-user shall ensure effective **“change management”** applies should any prominent or influential aspect of the application (upon which the initial assessment was based) be subject to change and may affect the ongoing suitability (i.e. safety and proper function) of the Banlaw product.
2. The proximity sensor installed with Banlaw Nozzle Holsters is **not** certified (i.e. approved or suitable) for use within a **hazardous zone** (i.e. potentially explosive atmosphere). No attempt shall be made to install or operate this sensor within such an area.



1. The (installed) location of a Nozzle Holster should provide a means of maintaining the nozzle, dispensing hose, loading arm and other fuel dispensing equipment out of human and plant equipment thoroughfares, e.g. walkways and roads.
2. Please ensure that any electrical systems connected to the proximity sensor within a holster have been designed and installed by competent personnel and comply with all applicable regulatory standards.
3. The drainage port (i.e. hose barb) within the holster should be connected to a hose or pipe to convey liquid fuel and water (i.e. rain and washdown water) to a designated spillage catchment (e.g. sump or vessel), away from potential ignition sources and thoroughfares. Any catchment should be regularly drained and suitably maintained.
4. The proximity sensor within a Banlaw nozzle holster does **not** have a Safety Integrity Level (SIL rating) and is therefore unsuitable for use within a Safety Instrumented System (SIS).
5. Any electrical circuit into which the proximity sensor is connected shall provide adequate protection against the specifications of the sensor from being breached.

3 PRODUCT SPECIFICATIONS

Operating Temp. Range °C (°F)	-40°C (-40°F) to 85°F (185°F)
Principal Material Composition	Galvanised (HDG) steel, stainless steel, Acetal, brass, Viton
Drainage Port	Suits ½" (DN12) hose (diesel compatible)
Sensor Operating Voltage (U _B)	10 to 60Vdc
Sensor Operating Current (I _L)	0 ...200mA
Sensor Insulation Voltage (U _{BIS})	60V
Sensor Voltage Drop (U _d)	≤ 2V
Sensor Switching Function	Normally Open (N/O)
Sensor Output Type	PNP (3 wire)
Sensor Ingress Protection Rating	IP68 / IP69K
Sensor Switching State Indicator	LED (yellow)
Approximate Mass	"Short" Holsters; 5.8kg (12.8kg) "Tall" Holsters; 14.6kg (32.2lbs)

Table 2 - Banlaw Nozzle Holster Specifications

The **Proximity Sensor** installed with the Banlaw Nozzle Holsters and Service Kits is manufactured by **Pepperl+Fuchs** (P+F). The specific P+F Sensor part number is **NBB8-18GM50-E2-M**. Specific Installation, Configuration, Approvals and Certificates for the Sensor are available on the P+F website.

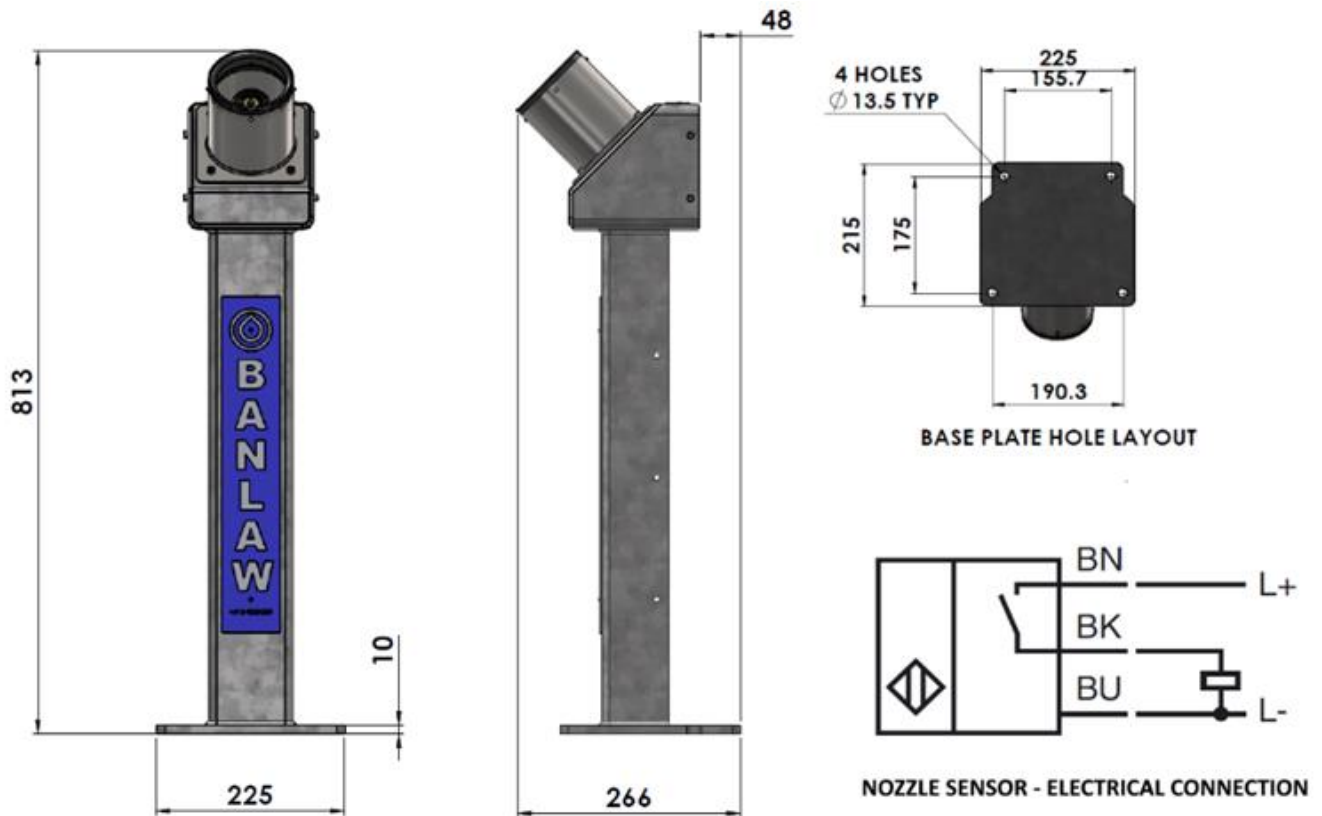


Figure 11 - "Tall" Holster Overall Dimensions

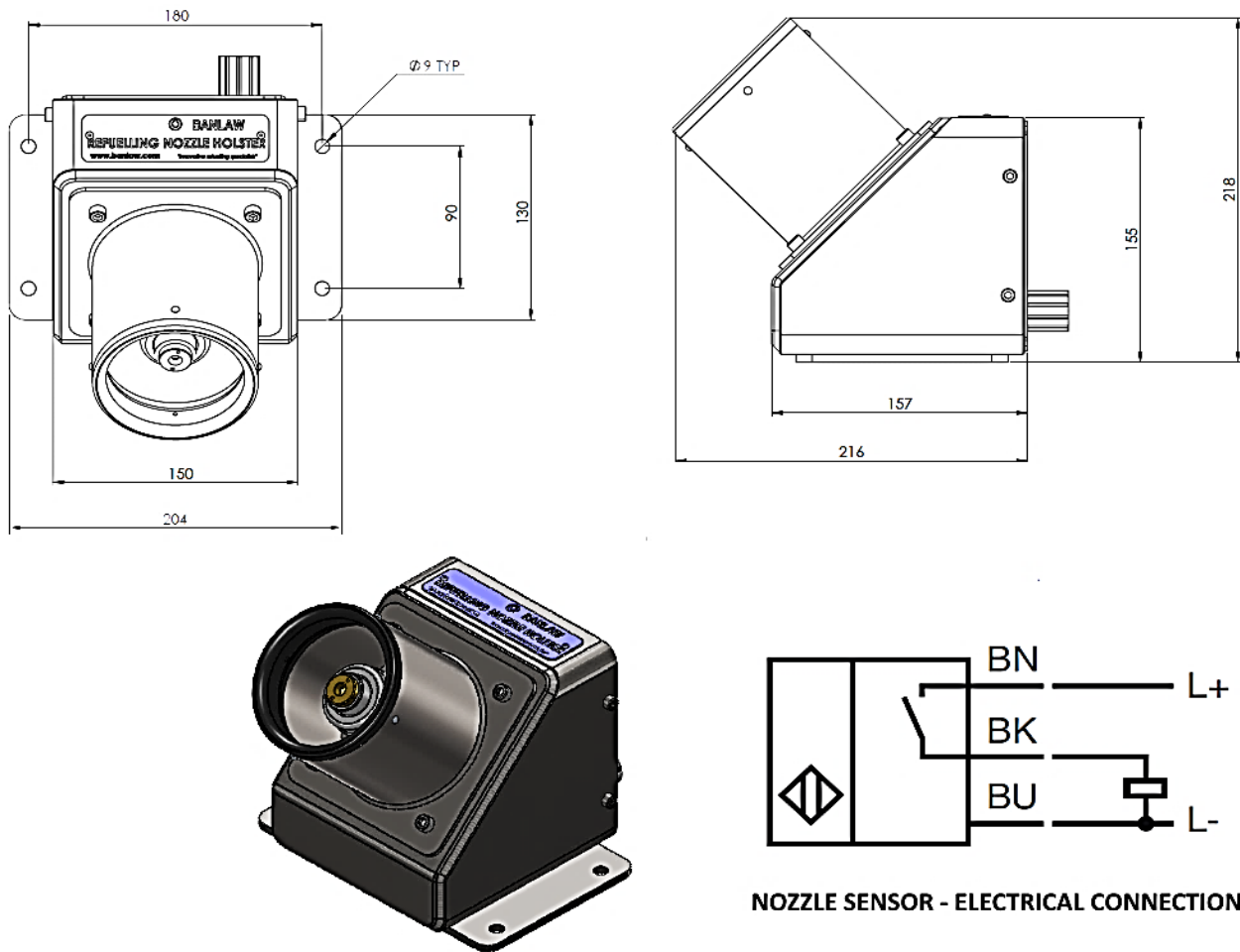


Figure 12 - Short Holster Dimensions (mm) and Wiring Diagram

Figure 13 illustrates an important specification of Holsters, specifically the dimension ($14\text{mm} \pm 0.5\text{mm}$) from the front face of the spring-biased Poppet to the surrounding face of Receiver Body. Changes to this dimension may indicate a fault with the Holster – refer section 6. This reference dimension applies to all Holsters.

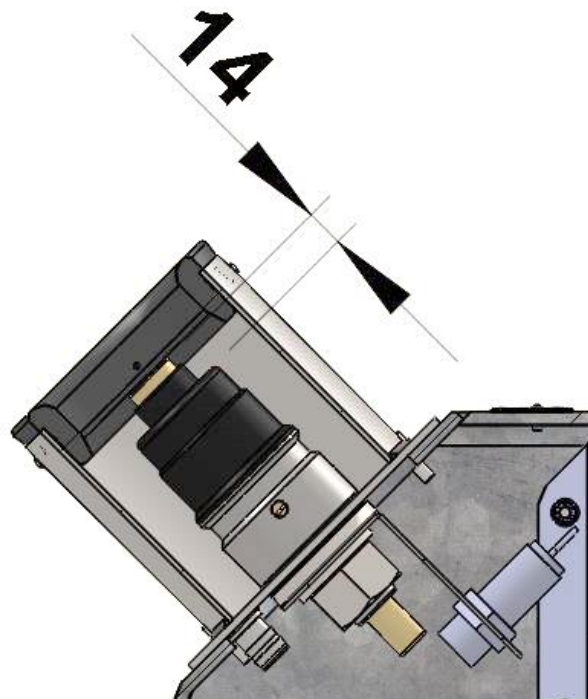


Figure 13 - Distance (mm) from Front of Poppet to Receiver Body

4 INSTALLATION GUIDELINES

This Installation Guide is general and is not meant to replace or override installation guidelines that arise out of a *due diligence* assessment of a Banlaw product for a specific (intended) application.

The installation methodology for Banlaw Nozzle Holsters will vary depending on the specific location and system requirements. There are however several guidelines to follow to ensure successful implementation.

- The holster must be located so that, when the nozzle is in the holster, the top of the loading arm is not protruding into a vehicle thoroughfare.
- When installing the holster, please ensure that it is positioned so that it can be safely and ergonomically accessed by refuelling operators.
- “Tall” Holsters should be secured to a level and stable concrete or metal foundation, and secured using appropriate fasteners, e.g. M12 or ½” bolts. “Short” Holsters should be secured to a secure horizontal foundation using M8 or 5/16” bolts.
- When installing Nozzle Holster Service Kits, ensure that the hose barb drain is orientated at a **low point** to allow any spilt diesel or rainwater collected in the front of the holster to effectively drain away.
- Ensure that the ½” (DN12) drainage hose barb is connected to a hose and is routed to a safe and designated liquid hydrocarbons (or contaminated water) catchment.
- The Nozzle proximity sensor forms only a single part of a complete system. Electrical systems shall be designed and installed by competent professionals and comply with all applicable regulatory standards.
- The proximity sensor may be used to provide a control voltage input to a site’s drive-away deterrent system or to trigger other events.
- For installations within extreme cold climates, the Holster **should be installed under cover** to prevent the ingress of snow and ice into the holster. The same recommendation may also apply to installations with relatively high rainfall, or with higher airborne particulates (e.g. dust). This will limit the degree of contamination within the front of the holster, improve the ease by which the nozzle is attached to the holster, and minimise the degree of waste through the drain port.

5 MAINTENANCE

The Banlaw Holsters are of robust construction to withstand harsh operating environments however the front end of a Holster will be subjected to wear and tear. Accelerated wear and tear will occur through abuse and excessive contamination ingress into the Holster. Once the front end of a Holster is damaged or otherwise faulty, the **front end should be replaced with a Banlaw Holster Service Kit** – refer Figure 3 and part numbers in section 1.3.

The drain port and attached drain hose/line should be routinely checked for blockages, and the drain discharge port maintained in a safe and proper spillage containment area.

The front end of the Holster incorporates a spring-biased reciprocating centre portion (i.e. poppet), whose proper action (travel) may be impeded by contamination ingress and damage due to impact. It is recommended all reasonable means are provided to minimise the ingress of contamination into the front end of the Holster.

6 TROUBLESHOOTING

When a Nozzle Holster is not used with a Banlaw FuelTrack™ (or Banlaw ResTrack™) fuel and asset management system (FMS) or the Proximity Sensor is not used, the Holster is essentially a passive (non-electrical) mechanical device. This troubleshooting guide covers the following Holster applications;

- A passive (simple) mechanical device.
- Used within a Banlaw FuelTrack or ResTrack system for the purposes of dry-break nozzle auto ID system “health checks”.
- The proximity sensor is connected into a drive-away deterrent system, or for some other purpose to identify whether a Nozzle is installed within the Holster or not.

PROBLEM	PROBABLE CAUSE AND SOLUTION
Banlaw FuelTrack (or ResTrack) Nozzle Auto ID “health check” is not functioning when Nozzle installed within Holster	<ul style="list-style-type: none"> • Fault within the auto ID circuit external (separate) to the Holster. Verify the status (health) of the circuit and rectify any fault. Return Nozzle into Holster and verify health check functionality. • Faulty i-Button (passive ID chip) within the Holster (poppet). Install new Banlaw Holster Service Kit. • Lack of electricity continuity between metal contact at centre of Holster Poppet and the metal Retainer within the Nozzle; <ul style="list-style-type: none"> ○ Contamination build-up on either/both metal contacts – clean contacts and test continuity. ○ Full reciprocating travel of Holster Poppet is impeded. Manually depress Poppet against the Spring and release to ensure it returns fully “out” (forward). The centre metal contact should extend at least 14mm (0.55”) out from the surrounding stationary black plastic (acetal) cylindrical face – refer Figure 13. If travel is impeded, try removing any visible contamination or other possible cause. If unsuccessful, install new Banlaw Holster Service Kit. • Short circuit within the Holster. Test electricity continuity using an Ohms meter (e.g. multi-meter) with the <u>positive</u> (+) terminal on the poppet metal contact and the <u>negative</u> (-) terminal on the metal chassis of the Holster. The reading should be an open circuit (or Mega Ohms). If a short circuit, install a new Banlaw Holster Service Kit. • Ensure negligible contamination (including water, snow, ice, etc.) build-up within the front region of the Holster. Install an appropriate cover over the Holster to minimise contamination ingress and ensure drain port is clear.

PROBLEM	PROBABLE CAUSE AND SOLUTION
Drive-away deterrent or other system connected to the Holster's proximity sensor is malfunctioning	<ul style="list-style-type: none"> • Verify the electrical circuit connected to the Sensor is healthy. • Remove the rear cover plate of the Holster and; <ul style="list-style-type: none"> ○ Inspect/test the wiring connected to the Sensor. Rectify any fault. ○ Ensure Sensor "face" is clean. ○ Verify the central metal shaft attached to the reciprocating Poppet passes within 6.5mm (1/4") of the Sensor face. If not, adjust the Sensor position relative to the shaft. • When the Nozzle is installed within the Holster, the Poppet and attached metal shaft are displaced back past the Sensor face. When the Sensor "switches" – i.e. detects the shaft – the LED on the opposing end of the will be lit (i.e. ON). If not, the Sensor may be faulty – replace Sensor or install a new Banlaw Holster Service Kit.
Difficult to install or remove Nozzle from the Holster	<ul style="list-style-type: none"> • Contamination within the front of the Holster obstructing Nozzle – remove contamination. If required, install an appropriate cover over the Holster to minimise contamination ingress. • Central spring-biased Poppet within Holster is restricted in its full movement. Inspect and rectify problem. If faulty, install new Banlaw Holster Service Kit. • Black plastic (acetal) "ring" surrounding front end of Nozzle in Holster is distorted or damaged and obstructing the Nozzle. Install new Banlaw Holster Service Kit. • Improper procedure for installing and removing Nozzle – refer section 1.3. Ensure operators are trained. Improper procedure may result in abuse of the Nozzle and Holster, causing damage and potential safety hazards. • Full reciprocating travel of Holster Poppet is impeded. Manually depress Poppet against the Spring and release to ensure it returns fully "out" (forward). The centre metal contact should extend at least 14mm (0.55") out from the surrounding stationary black plastic (acetal) cylindrical face – refer Figure 13. If travel is impeded, try removing any visible contamination or other possible cause. If unsuccessful, install new Banlaw Holster Service Kit.
Liquid within the front end of the Holster fails to drain away	<ul style="list-style-type: none"> • Verify the drain port and attached drain hose/line is not blocked. Also ensure no point of the drain hose/line is above the level (height) of the drain port within the Holster. • Confirm the front end is orientated with the drain port at the low point. If it is not, reorientate the front-end subassembly relative to the housing.

END OF DOCUMENT



BANLAW – UNIFIED FUEL MANAGEMENT

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