



**THE PyroUHP  
Navistar QRV**

***Transitional Attack Tools™***



**PyroUHP  
Navistar QRV**

## PyroBlitz Transitional Attack Quick Response Vehicle (QRV)

The heart of any PyroUHP firefighting vehicle is our advanced transitional attack system featuring our patented dual piercing-fire control technology. This technology allows today's firefighter to make an aggressive interior attack on a fire from a safe, exterior position.

Pyrouhp has packaged this system into a compact, yet rugged, highly effective quick response vehicle (QRV) to create a new standard in firefighting vehicle capability.

### Chassis

Navistar International CV with the following features:

- GVWR: 19,500 lbs. (7,500 kg)
- Engine: 6.6 V8 Turbocharged Diesel
- PTO – Transmission-mounted, Right Side
- Fire/Rescue prep package

### Body and Compartment Specifications

#### Rescue Body Design and Construction Specifications

The apparatus body shall be all aluminum construction. The body shall have seven (7) exterior compartments. After fabrication in a body fixture, the unit shall be mounted on the specified chassis.

The apparatus body shall be constructed of aluminum extrusions and .125" Type #5052-H32 alloy aluminum plate specifically designed for fire and rescue applications. The body shall be designed and engineered specifically for emergency vehicles and shall be built to meet the duty cycle for fire and rescue services. A body using modified stamped aluminum bodies designed for commercial purposes other than emergency response shall not be acceptable.

The apparatus body shall be welded construction for maximum strength and integrity for the entire life of the apparatus. The sub-body structural aluminum extrusions shall be integrated with the exterior body radii and sheet metal for a reinforced type body construction. The structural extrusions shall be Type #6061 and heat tempered to T-6 hardness. The aluminum shapes shall be designed with a force fit interlock system that shall eliminate any vibration or separation when sheets are inserted and welded to the structural members. All compartment seams shall be sealed with TremPro #644 sealant.

#### Body Sub-Structure

The body sub-structure shall consist of 2" x 3" x .125" structural #6063-T6 aluminum tubing located on 16 inch centers and four (4) full-width of the body between compartment walls. The body sub-frame shall be welded to the fabricated aluminum body sheets.

#### Body Mounting

The light rescue body shall be mounted to the chassis frame using Grade 8 bolts, coil springs, and UHMW plastic isolators system; which shall allow for flexing of the chassis frames. This mounting method shall provide the greatest combination of strength and flexibility, allowing for maximum body life and quick removal of the apparatus body from the chassis.

Six (6) .188" thick x 4" custom fabricated steel mountings shall be installed on chassis frame



sidewalls; using four (4) 5/8" x 2" bolts for each mounting to the chassis. The body shall have six (6) 3/8" x 3" aluminum angles welded to the 3" tubular aluminum sub-frame assembly; with four (4) installed ahead and two (2) installed aft of the rear axle.

Between the body aluminum sub-frame and the lower steel chassis mountings shall be six (6) 3/4" thick wear pads of ultra-high weight plastic (UHMW) isolators. These units shall be installed between the six (6) steel chassis mountings and aluminum body mounting points.

The body shall then be secured to the chassis mountings with six (6) Grade 8 5/8" x 6" bolts. Six (6) 1,220 inch-lbs. steel compression springs shall be installed on these mounting bolts to allow for flexing of the body to chassis mounting.

### **Roof Surface**

The roof surface shall be constructed of .125" thick aluminum diamond plate which shall comply to applicable sections of NFPA standards.

### **Exterior Body and Compartment Construction**

The exterior body fabrication shall be constructed of Type #5052-H32 heat-treated .125" smooth aluminum plate. The floor, ceiling, and sidewalls shall be of body construction that shall be integral, which shall be self-supporting and welded construction.

Fabrication shall be off the chassis and assembled on a fixture and then installed on the chassis frame. The body fixture shall hold the body side panels in place, with exterior and interior aluminum sheets and welded to the sub-frame extrusions for extra reinforcement.

### **Interior Compartment Construction**

Interior compartments walls, floors, and ceilings shall be constructed of .125" Type #5052-H32 alloy smooth aluminum plate. Compartments shall be of all welded construction with continuous welding in critical structural areas and 3" strip welding on 6" centers in non-critical areas.

### **Compartment Floor Construction**

The compartment floors shall be .125" #5052-H32 aluminum with a "lip free" and sweep out construction, which shall permit easy cleaning of the compartments. The compartment floors shall have .125" aluminum 2" x 4" hat-sections welded on the underside of body for reinforcement.

## **Wheel Well Panel Construction**

Wheel well panels shall be painted .125" aluminum and bolted in place. All seams on the frame side of the body shall be welded and caulked to prevent moisture from entering the compartment. The rear wheel wells shall be radius cut for a streamlined appearance.

## **Wheel Well Liners**

Wheel well liners designed to protect the body from impact resulting from road debris thrown by the tires shall be installed. The wheel well shall be provided with ABS plastic full fender liners that shall be formed so as to eliminate pockets that might trap and collect road dirt.

## **Rear Wheel Fenderettes**

Polished stainless steel fenderettes shall be installed at each rear wheel opening. The fenderettes shall be positioned outside of the wheel well panel to cover the tire area that extends past the body. The fenderettes shall be secured with threaded fasteners.

## **Fuel Fill Access – Left Side**

A Cast Products model #FG2103 fuel fill cover shall be installed on left side of the wheel well area. The cover shall be constructed of bead-blasted aluminum and shall be vertically hinged on the forward side. The fuel cover flange shall be constructed of polished stainless-steel.

## **Rub Rails**

The sides of the lower body area fore and aft of the wheel well area shall be provided with 3" x 1.5" x .250" extruded aluminum rub rails, with end caps or angle corners. The rub rails shall be equipped with red and white DOT type reflective striping.

## **Protective Covering – Front Body**

The entire front of the apparatus body shall have a protective covering installed. The covering shall be constructed of aluminum tread plate material.

## **Front Corners – Protective Covering**

The front corners of the apparatus body shall have stainless steel material installed.

## Rear Body Panel

The rear of the exterior body panel shall be a smooth 0.90" aluminum surface for the application of chevron stripping.

## Rear Corners – Protective Covering

The rear corners of the apparatus body shall have protective covering of stainless steel material installed.

## Ventilation Louvers – Exterior Compartments

The exterior body compartments shall be equipped with 3.5" diameter louvers mounted inside of each compartment; to permit the passage of moisture or hazardous vapors into and out of compartments.

## Roll-Up Compartment Door Specifications

The specified compartments shall be equipped with custom-built Hansen International Inc. roll-up door(s). The doors shall be produced by an ISO-9001 certified company and tested to at least 100,000 cycles. The door shall have a serial number label and shall carry warranty of seven (7) years.

### Door Construction

The door shall be constructed of double walled and concave hard anodized aluminum extrusion laths with a "satin" exterior surface. Each door slat shall have dimensions of 1.365" in height, 0.310" deep, 0.038" wall thickness. The "interlocking joint knuckle" extrusion design shall have an integral dual durometer extruded synthetic spacer seal to reduce noise and prevent weather or debris intrusion in a closed position. Each door lath shall have interlocking and nested polymer slide guides. Slide guides shall be punch dimpled to prevent 'metal to metal' contact and shall be replaceable. Sides of the door openings shall be equipped with single piece 0.069" hard anodized aluminum extruded vertical guide channels.

### Operating Components

The easy opening door shall be equipped with a pre-tensioned internally lubricated counterbalance spring contained within a 0.060" x 4" diameter aluminum door roller tube and supported with a .625" diameter steel center shaft. The roller assembly and shaft shall be supported with two (2) pre-assembled and adjustable mounting plates of 0.060" zinc plated steel. The mounting plates shall have dual synthetic

molded roller wheels that shall support the door above the guide channels as it is fed onto the roller tube counterbalance for storage. The door curtain assembly shall be attached to the roller tube counterbalance with woven nylon straps with quick detach steel mounting clips.

### Door Handle and Latching

The heavy duty lift and door handle bar assembly shall be constructed with two (2) 0.060" hard anodized aluminum extrusion panels. The lift handle bar assembly shall have four (4) roller wheels to reduce friction and ease opening of door. The handle assembly shall be equipped with a 2" horizontal full width shelf with anti-slip ribbing on top to assist door closing. The shelf shall have two (2) riveted heavy duty rubber bumpers to prevent a metal to metal impact with the overhead drip rail. The latch bar shall consist of a full width .750" diameter stainless steel tube handle with centrally located knurled anti-slip sections and 1.25" hand clearance between handle and the door surface.

### Weather Resistance

The top door drip rail shall be a hard anodized aluminum extrusion and shall contain a full width strip of weather seal to minimize water ingress along the top of the door. Guide channel seals shall be replaceable and constructed of UV resistant rubber with automotive style flocking material for smoothness of operation. The bottom of the door curtain shall have an additional full width UV resistant rubber seal.

Six (6) roll up doors shall be installed.

## Rear Step

An 10" deep step shall be provided at the rear of the apparatus body, bolted in place and easily removable for replacement or repair. The tailboard shall be constructed of aluminum diamond plate non-slip surface in compliance with NFPA standards. The maximum height of the step assembly shall be no more than 24" from the ground when the apparatus is in the loaded condition. A label shall be provided warning personnel that riding on the rear step while the apparatus is in motion is prohibited.

## Handrail – Rear Step

Two (2) extruded aluminum non-slip handrails, approximately 48" in length, shall be provided and mounted on the rear of the apparatus, one (1) on each side of the body.

## Compartment Dimensions

### Left Side Body Compartments

#### Compartment #L-1

The left side forward compartment shall have the approximate dimensions of 35.5" wide x 58" high x 23" deep. The compartment shall have a inside width 33.5" wide with a 50" high x 29" width door opening.

#### Compartment #L-2

The left side wheel well compartment shall have the approximate interior dimensions of 44" wide x 34.5" high x 23" deep. The compartment shall have a inside width 44" wide with a 26.5" high x 44" width door opening.

#### Compartment #L-3

The left side rear side compartment shall have the approximate dimensions of 35.5" wide x 56" high x 23" deep. The compartment shall have a inside width 33.5" wide with a 48" high x 29" width door opening.

### Right Side Body Compartments

#### Compartment #R-1

The right side forward compartment shall have the approximate dimensions of 35.5" wide x 58" high x 23" deep. The compartment shall have a inside width 33.5" wide with a 50" high x 29" width door opening.

#### Compartment #R-2

The right side wheel well compartment shall have the approximate interior dimensions of 44" wide x 34.5" high x 23" deep. The compartment shall have a inside width 44" wide with a 26.5" high x 44" width door opening.

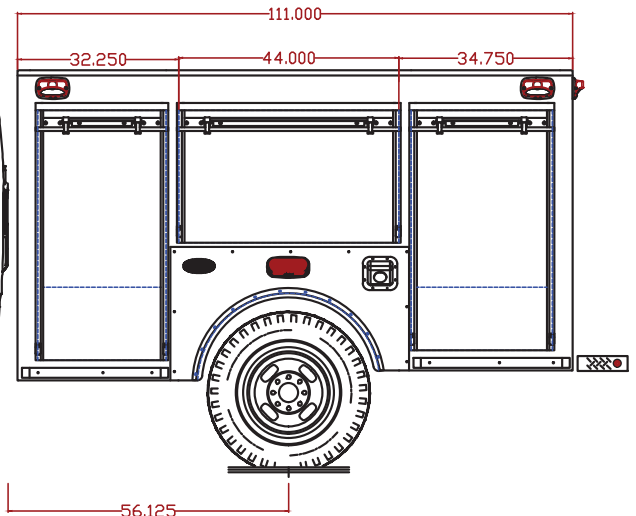
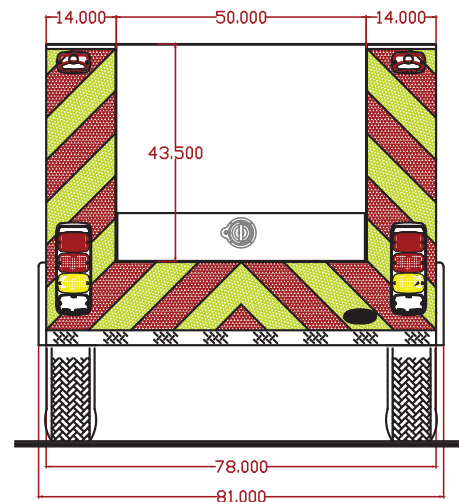
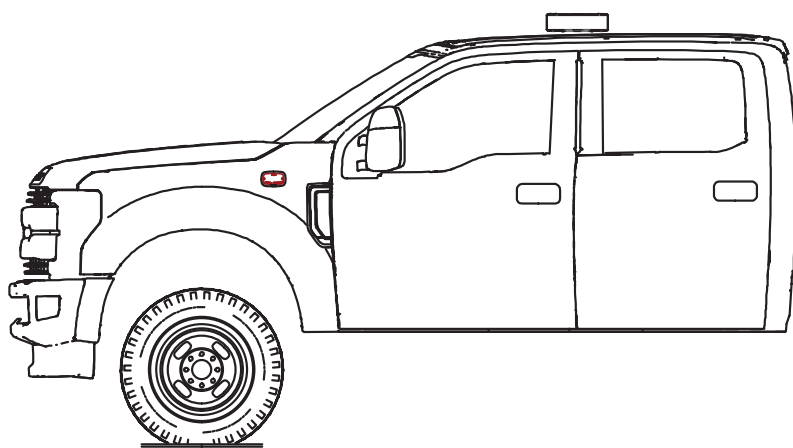
#### Compartment #L-3

The right side rear side compartment shall have the approximate dimensions of 35.5" wide x 56" high x 23" deep. The compartment shall have a inside width 29.5" wide with a 56" high x 25" width door opening.

### Rear Compartment

#### Open Rear Compartment #RR-1

The open rear compartment shall be located above the frame rails and have dimensions of 50" wide x 29" high x 115" deep.



## Equipment Mounting

### Adjustable Tracking – Compartment Equipment Mounting

Adjustable aluminum equipment mounting tracks shall be installed inside the compartments with channels on the left and right walls. The tracks shall be positioned to provide support for equipment mounting. The length of the tracks shall be sized to allow for optimum use of the compartment interior.

### Adjustable Shelves

Six (6) adjustable shelves shall be constructed of .125" thick Type #5052 smooth aluminum plate, one (1) mounted in each compartment. Each shelf shall have an aluminum angle reinforcement and 2" vertical lip perimeter.

### Compartment Grating

All exterior lower compartment floors shall be fitted with removable interlocking vinyl Turtle Tile grating. This material shall be resistant to heat, cold, ultra-violet radiation, mechanical impacts, chemical actions and is corrosion resistant. Color: black

### Body Painting Specifications

In preparation for painting, the body will be DA sanded and care will be taken to remove any reasonable surface blemishes, scratches, divots or marks that may appear post painting. Additionally, any surface marks that are not satisfactorily removed through DA sanding will be filled with automotive body filler to enhance surface preparation and post painting appearance.

The driver and passenger sides of the body shall be painted, as follows:

Manufacturer: PPG

Materials:

- a) F3963 Pigmented wash primer
- b) F3970 Urethane Primer
- c) Delfleet Evolution FBCH Polyurethane Basecoat
- d) Delfleet Evolution Urethane Clear
- e) Delfleet Evolution FBC is a Polyurethane 3.5 VOC Basecoat designed to produce ultimate durability with the wet look appearance. The clear coat is a premium-quality urethane. The clear coat offers gloss and durability features.
- f) The body shall be wet sanded, buffed and polished.
- g) Single color:

### Interior Compartment Finish

The interior wall, floor and ceiling surfaces of the body compartments shall be unpainted aluminum. The interior of all body compartments shall be an aluminum DA finish. Care shall be taken in the manufacturing process to minimize blemishes. All joints and seams will be sealed with TremPro 644 RTV silicone tinted metallic silver.

### Wash and Prep of Completed Vehicle

The apparatus cab and body shall be washed and prepared for final purchaser inspection and acceptance.

### Cab and Body Striping

The cab and body shall have a straight reflective stripe applied horizontally. The stripe shall be a 4" minimum in width and be applied horizontally around the cab and body in accordance with applicable NFPA standards. The purchaser shall specify the color and location of the stripe.

### Rear Body – Chevron Striping

The 50% of rear body surfaces shall have Orafol 6" wide reflective red and amber striping installed. The Chevron style stripe shall be applied at a 45-degree angle, pointing towards the center upper portion of the rear apparatus.

### Electrical

- Trailer plug – Round 7 pin/ 4 way Flat on rear
- Tail Lights – LED Oval (4 Red, 2 White)
- Marker Lights - DOT Approved LED

### Warning Package

- Optical and audible warning package
- Warning Lights – LED
- (2) Front facing grille mounted
- (2) Front cab side - mounted front fender area
- (2) Rear Side Body
- (2) Rear Facing
- Light Bar - width of cab
- LED compartment lighting
- Siren with speaker – 100 watt

## **Water and Foam Tanks**

### **Water Tank**

- 300 US gallons ( 1140 liters)

### **Foam Cells**

- Class A/B 20/30 US gallons (190 liters)

The tank shall have a water capacity of 300 gal. (1900 L) and 50 gal. (190 L) Class A/B foam cells.

The tanks shall be constructed of polypropylene material. This material shall be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from ½ in (12 mm) to 1 in (25 mm) as required. Internal baffles are generally 3/8" (9.5 mm) in thickness.

The booster and/or foam tanks shall be of a specific configuration and is so designed to be completely independent of the body and compartments. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" (9.5 mm) polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. The walls shall be welded to the floor of the tank providing maximum strength as part of the tank's unique floor design. Tolerances in design allow for a maximum variation of 1/8" (3.1mm) on all dimensions.



## PyroUHP Transitional Attack System

The heart of any PyroUHP firefighting vehicle is our advanced transitional attack system featuring our patented dual piercing-fire control technology.

### Scope and General Design Requirements

A dual combination firefighting system shall be provided which shall be provided for firefighter safety:

- a) A multi-purpose firefighting system which shall be provided for firefighter safety by offensively attacking fire and fire gases from a 'defensive position'.

Utilizing the transitional attack fire-fighting method, ultra-high pressure piercing, and cooling the fire-fighting system shall allow the operator to attack fire from a safe exterior position without the firefighter entering a situation prone to dangers such as backdraft and/or flashover.

The nozzle shall pierce the outer structure with ultra-high pressure water and aggregate enabling an exterior attack on the involved aircraft or structure. Once the outer surface or structure is penetrated, the system shall continue to inject ultra-high pressure water into the thermal layer which cools the interior, thus dropping temperatures in a matter of seconds.

The system shall be extremely effective on compartmental areas including aircraft of various types, other areas where firefighting activities are difficult and dangerous to access. The system shall have the ability to attack the fire in its' three dimensional gaseous phase, greatly reducing the potential for flash over or back- draft conditions. The system shall also have a unique ability to pierce and cut when necessary and controlled by the nozzle operator.

- b) A second firefighting ultra-high pressure system to allow the operator to attack fire from a safe position and for quick knock-down of certain defined fires. The system shall be extremely effective in fire attack operations with limited water supplies.

### Components and Module Design

The firefighting system shall consist of:

- Hydraulic drive package (Pump, Motor, Reservoir, Cooler, Control Valve)
- Water pump: Ultra-High Pressure positive displacement piston pump
- Reels: Two (2) high pressure reels and attack hose
- Nozzles:
  - One (1) piercing UHP nozzle with wireless control
  - Two (2) pistol grip high pressure nozzle with manual control
  - One (1) 40 GPM Akron bumper turret. (optional)
- Abrasive vessel and injection system

The aggregate abrasive product shall not rust and shall be environmentally safe, allowing the unit to be kept loaded indefinitely and ready for use at all times.

The major components shall be assembled on a removable assembly with integral hydraulic drive motor. The entire system shall be designed for installation by a professional mechanic using normal tools into a fire emergency vehicle with an OEM supplied PTO.

### Piercing and Cutting Capability

The system shall be capable of penetration through the following material:

- Concrete with thickness up to 2" inches (50 mm)
- Concrete block walls
- Steel surfaces with thickness up to 1/2" inch (12 mm)
- Aluminum surfaces with thickness up to 1" inch (25 mm)
- Wood material and plywood with thickness in 1/2" to 4" inches range (12 mm to 100 mm)
- Composite materials with thickness up to 4" inches (100 mm)



## Performance Capabilities and Applications

- a) The firefighting system shall be tested and proven to be highly effective in the following capabilities:
  - Piercing
  - Cutting
  - Access
  - Containment
- b) In addition, the system shall have the following attributes and operation features:
  - Hydraulic drive for quick and dependable start-up under varying temperature and altitude conditions.
  - Completely forward deployable and self-contained unit for local installation by technicians.
  - Simple operator interface that requires limited training levels.
  - Use of abrasive material shall be non-corrosive allowing the unit to be ready for instant deployment in a pre-loaded state.

The unit shall include a fully contained automatic manifold induction system, which shall not require any valves downstream of the abrasive feed line.

## Performance Capabilities – Ultra-High Pressure

The ultra-high pressure firefighting system shall be tested and proven to be highly effective in the following scenarios:

- Wildland, grass, and brush fire applications
- Automobile and truck fires
- Limited structural fires
- Confined or concealed space fires
- Limited aircraft fire fighting and rescue operations
- Limited industrial fires
- Shipboard and marine firefighting
- Military firefighting applications
- Container fires

## Modular Mounting

The fire-fighting system shall be packaged in a modular framework consisting of a control panel module, a water pump/hydraulic motor module, and an abrasive vessel module. The mounting assembly shall be powder coated and shall be designed to contain the specified major components of the system.

## Ultra-High Pressure Fire Pump Specifications

The fire-fighting system shall be equipped with a heavy duty ultra-high pressure plunger type positive displacement fire pump.

This PUMP MODULE is available in different configurations:

- Diesel driven drop-in portable unit.
- Gasoline driven drop-in portable unit.
- Vehicle-mounted PTO unit.
- Various centrifugal pump head options ranging between 100 and 300GPM.
- ULTRA HIGH PRESSURE ranging between 20 and 30GPM.
- Selectable bumper turrets.
- Selectable spray bar nozzles.
- Selectable foam system.
- Drafting capability.
- Pump and Roll capability.

## FLOW RATES

GPM	LPM	@	PSI	BAR
274	1037	@	50	3.4
220	833	@	100	6.9
112	424	@	150	10.3
20	80	@	1450	100
30*	120	@	1450	100

## OPTIONS

- Additional pump end options available.
- \*Optional 30GPM UHP pump option.

## Hydraulic Drive System Specifications

The hydraulically driven ultra-high pressure water pump, lance, and firefighting tool shall be controlled by a PTO. The hydraulic drive motor shall be engaged via a load sensing / pressure compensating hydraulic pump which will activate when water flow in the fire pump circuit is sensed. This allows the variable speed hydraulic drive pump to spool up to maximum flow regardless of engine speed with high idle being the starting point.

If the water flow condition in the water circuit is stopped it will the pump will be put into standby mode until the water flow begins again. As soon as water begins to flow again through the UHP fire pump, the demand on the hydraulic drive pump will return the system to pumping the full rated hydraulic pump capacity regardless of engine speed.

Hydraulic drive system shall consist of the following components:

- Hydraulic Motor
- 4 gallon (15 L) Hydraulic Reservoir
- Hydraulic Cooler
- Thermostat
- Variable Speed Hydraulic Pump
- Hydraulic control valves
- PTO

The system shall be capable of delivering full rated output at apparatus high idle rpm.

### Hydraulic Pump

A PTO driven hydraulic pump shall be supplied for the system. The load-sense hydraulic drive pump flow shall meet the requirements necessary to drive the water pump at its rated capacity.

### Instructions and Labeling

A fire-fighting pump instruction nameplate and necessary warning labels shall be installed on the assembly.

### Panel Light

The pump control panel shall be provided with an LED 12V light.

### Pump Control Panel

The panel shall be labeled and installed to be easily visible from the operator's position. The following instruments and controls shall be installed:

- Override water "on" push button
- Override abrasive "on" push button
- Override safety control button
- Control panel light
- One (1) UHP pressure gauge
- Bumper turret optional
- Foam Proportioning

### Plumbing

The fire-fighting system shall be plumbed with high pressure hydraulic type hose, plumbing and fittings. This shall include double wire braided high pressure hoses of various sizes, zinc plated steel hose ends, and zinc plated steel hydraulic fittings. The threads shall be male and female NPT, JIC and SAE O-ring style in various sizes. Rigid plumbing shall be in zinc plated steel piping with pipe fittings of zinc plated steel.

### Bypass Unloader Valves

The ultra-high pressure plumbing system shall include two (2) bronze adjustable by-pass unloading valves set for the proper working pressure of the system. The valves shall unload the excess pressure to the intake side of the pump.

### Pressure Safety Valve

The ultra-high pressure plumbing system shall include one (1) pressure safety relief valve which shall relieve water pressure to atmosphere; set at a slightly higher pressure than the unloading valve.

### Intake Filter

A 1-1/2" (50 mm) water filter with 32 mesh screen shall be installed in the water supply line to the fire pump. The filter shall be accessible for cleaning the screen.

### Electrical Wiring

Necessary low voltage automatic circuit breaker protection shall be provided where required. Wiring shall be stranded copper automotive type, sized for the appropriate electrical load. Exposed wiring shall be protected with convoluted split plastic loom; such looms shall be mechanically secured. Wiring shall be run in protected areas or enclosed in metal panels where subject to mechanical injury. Electrical connections and termination of wiring shall be within weather proof plastic enclosures with waterproof strain reliefs and connectors.

### Water Tank Supply Line

A 1.50" (50 mm) water tank to fire pump line shall be installed as follows:

- a) From the fire pump to the water filter shall be a 1.50" (50 mm) flexible transparent hose.
- b) One (1) 1.50" (50 mm) electrically operated tank to pump valve.

### Selector Switch

A selector switch shall be installed on the pump panel to select ultra-high pressure water discharge to either the piercing hose reel or high pressure fire-fighting reels.

# LTAC—Spec Sheet

## General Information

The LTAC unit has been designed to convert any UHP pump into a penetrating nozzle. With an extremely small footprint and no installation process required, any UHP-equipped truck can be converted on the fly with Piercing technology—allowing rapid deployment and tremendously increasing fire fighter safety.

The Dual Attack System allows for penetration of almost any structure within 30 seconds using the Piercing Lance. If the supply line to the Lance is no longer required it can be used to convert into a Blitz attack line by a single fire fighter

## Components

The LTAC is a modular designed unit that can be added to any UHP unit, converting it into a highly capable penetrating Lance system.

## General Information

### (Minimum Flow Requirement)

Lance Pressure: 2200 PSI (150 bar)

Flow Rate: 10 GPM (38 L/min)

Water Droplet Size: .0059" (150 micron)

Water Velocity: 150 mph (240 km/h)

Water Throw Distance: 80 feet (25m)

Module Size: 21" x 17" x 24" (533 x 432 x 610 mm)

Weight: 100 lbs (45 Kg)

Safety Margin: 4:1

Hose: one 1/2" hose, length 20 feet (6m)

## Control System

2.4 MHz Wireless System

## Supply Line Hose

Supply hose lengths can vary between 150 to 1000 feet (45.7m to 304.8m)

## Abrasive and Abrasive Vessel

1 gallon (3.8 L) Abrasive Vessel

## Charging Circuit LTAC

- Dellran battery tender International 100-240V ~ 50/60 Hz, 12V- 1.25 Amp.
- Microprocessor Controlled Automatic Battery Charger.

## Battery Pack LTAC

Duracell Ultra 12 V Sealed Lead Acid 8AH AGM Battery with F2 terminals



## Charging Circuit Lance

Charge voltage range 10VDC to 30VDC at 2 amp

## Battery Pack Lance

Type: 3.7 Volt 3400mAh, 18650 Li-ion Rechargeable Integrated Overcharge/discharge protection circuit built into the battery.

## Lance

- Rechargeable battery integral to main Lance body chargeable via docking station.
- Abrasive flow digital counter to indicate abrasive flow duration.
- Telescopic Lance barrel with two section adjustable barrel section to adjust between short and extended Lance configurations on the fly.
- Ruggedized Antenna fully integrated into Lance carry handle.
- Lance Tripod fitted to adjustable rail on Lance barrel end.
- Safety system on Lance trigger mechanism.
- Top rail for allowing quick mounting of accessories.
- Lance shoulder strap for ease of using during ladder operations.

## Wireless Transmitter 2.4 GHz

Nozzle is equipped with an enclosed manifold area which houses a micro-switch for each function (primary water flow trigger and abrasive material flow switch).

A wireless transmitter sends command signals back to the pump assembly micro-processor electronic control center. The nozzle wireless transmitter is battery powered with an operating time of no less than one day of continuous use.

### **Abrasive Material**

Twenty (20) one (1) gallon (3 L) plastic containers of Pyro-Shot abrasive material shall be supplied. The abrasive material shall be inert non-metallic material that will not rust, damage the environment, or damage the operator's protective clothing.

### **Electric Rewind Hose Reels – Ultra-High Pressure**

Two (2) ultra-high pressure steel hose reels shall be installed with a maximum capacity of 200' of 3/4" hose per reel. The reels shall have a leak proof ball bearing swing joint, electric 12V rewind provisions. The reel system shall be designed for a 2,000 PSI (135 bar) working pressure. The reels shall be painted red.

Each reel shall be equipped with a locking pin assembly.

The two (2) high pressure hose reels shall each be supplied by a 1/2" (12 mm) hydraulic type wire braided flexible hose line.

Two (2) push button electric rewind controls shall be installed (one near each hose reel). The wiring from the hose reel electric box shall be protected with conduit or loom.

Each hose reel shall be electrically powered from the main power box. This box shall house the reel solenoid, circuit breaker and electrical wiring for the rewind control circuit and electric rewind motor power supply. The electrical supply shall be sized for the reel motor for both positive and ground cables. The electrical supply wiring shall be supplied from the main electrical supply box for high pressure pump skid or module to each reel.

Two (2) stainless steel hose roller assemblies shall be supplied with reels for protection of the hose during hose removal and rewind operations.

### **Reel Mounted High Pressure Hose**

Two (2) 200 foot (60 m) lengths x 3/4" (19 mm) hose shall be installed with threaded couplings. The hose shall have a working pressure of 3,125 psi (215 bar).

### **Wireless Ultra-High Pressure Piercing Nozzle**

The wireless ultra-high pressure piercing nozzle shall provide a hand operated trigger control for remote operation of water and aggregate flow. The system shall incorporate remote controlled communications using a wireless transmitter/receiver. In addition to this system, the unit shall include an 'override' system whereby both the water flow and abrasive flow can be controlled by a second operator at the pump panel utilizing "dead- man" control override switches.

For piercing operations both trigger and toggle switch shall be actuated, which shall remotely open the water valve and abrasive control valve. The nozzle shall include:

1. One (1) trigger to control the flow of water from the ultra-high pressure water pump unit. The trigger mechanism shall control the flow of water at a rate of 10 GPM (40 LPM). The trigger shall incorporate a mechanism to prevent accidental activation when in the détente position.
2. One (1) switch to control the flow of abrasive material from the storage vessel.
3. Piercing operation:
  - The nozzle tip shall be placed against the surface to be pierced.
  - Initially the operator shall activate the toggle switch and pull the trigger for combined flow of water and abrasive material flow at extremely high velocity.
  - The nozzle shall quickly cut a small hole through the material.
  - After the material is penetrated, the operator shall de-activate the abrasive switch toggle and shall continue the flow of ultra-high pressure water into the hazardous area.

### **Nozzle Design**

The nozzle barrel shall have an internal diameter of 1" (25 mm) which shall extend through the nozzle body. The rigid hollow barrel extends between the rear inlet and nozzle tip.

An ergonomically designed shoulder support shall be mounted to the rear nozzle barrel area and positioned to provide additional support to an operator. The forward nozzle barrel shall have an integral grab handle to allow the operator to safely and accurately direct the fluid flow against a surface. The nozzle shall also be equipped with a three prong offset fixture with a splash plate to protect the operator from spray-back of fluid and debris during the cutting operations.





The following unique features will be integral to the nozzle design:

- Rechargeable battery integral to main lance body chargeable via docking station.
- Abrasive flow digital counter to indicate abrasive flow duration.
- Telescopic Lance barrel with two section adjustable barrel section to adjust between short and extended Lance configurations on the fly.
- Antenna fully integrated into Lance carry handle fully ruggedized.
- Lance Tripod fitted to adjustable rail on Lance barrel end.
- Dual safety system on Lance trigger mechanism.
- Top rail for allowing quick mounting of accessories.
- Lance shoulder strap for ease of using during ladder operations.

A replaceable nozzle tip shall be mounted at the forward end of the nozzle barrel. When the nozzle is activated the abrasive material and high pressure water shall exit the nozzle tip in a focused water jet capable of cutting through various materials.

After penetration, the ultra-high pressure water shall continue through the nozzle projecting a jet stream having water droplets of appropriate size and velocity to effectively knock-down a thermal column within a closed space.

### Wireless Transmitter

The nozzle shall be equipped with an enclosed manifold area which shall house a micro-switch for each function (primary water flow trigger and abrasive material flow toggle switch).

A wireless transmitter shall send command signals back to the pump assembly micro-processor electronic control center. The nozzle wireless transmitter shall be battery powered with an operating time of no less than one day of continuous use.

The nozzle shall be also equipped with an emergency manual override system at the power unit panel with switches to activate abrasive and water flow. This shall enable use of the system should transmission be lost due to excessive RF interference or "out-of-line-of-sight" deployment of the hose line.

## **Blitz Nozzle – Ultra-High Pressure**

Two (2) 20 GPM (80 LPM) ultra-high pressure pistol grip fog nozzles shall be provided for the high pressure fog reels.

## **UHP Akron Electric Bumper Turret – Ultra-High Pressure** (optional)

One (1) 40 GPM remote control electrically operated bumper turret will be supplied and fitted to the front bumper and be operated from within the cab during pump and roll application.

## **PyroFoam Foam Pump System**

The system shall be equipped with a Class A/B PyroFoam Direct Injection Foam System.

The system shall consist of a 12/24v DC Gear Type Foam Pump. It shall have a variable speed control with calibration from 0.1% to 6.0% proportioning rate. It shall be capable of accurately proportioning all Class A and most Class B concentrates over the rated capacity of the foam system.

The system shall have an On/Off control, integral means to flush with plain water and an automatic shutoff in the event the water flow is shut down or the foam supply is low on concentrate to prevent the foam pump from running dry or losing prime.

The system shall inject concentrate on the suction, (low pressure), side of the UHP water pump. It shall be plumbed to prevent contamination of the water supply tank with foam concentrate and/or foam solution.

## **Water Inlet with Pressure Relief Valve**

One (1) 1-1/2" (38 mm) water inlet that can be used for suction intake (drafting) or a pressurized intake shall be installed to supply the fire pump from an external water supply. A double female swivel with removable screen with plug and a hand primer shall be provided.

## **Factory Testing Prior to Shipment**

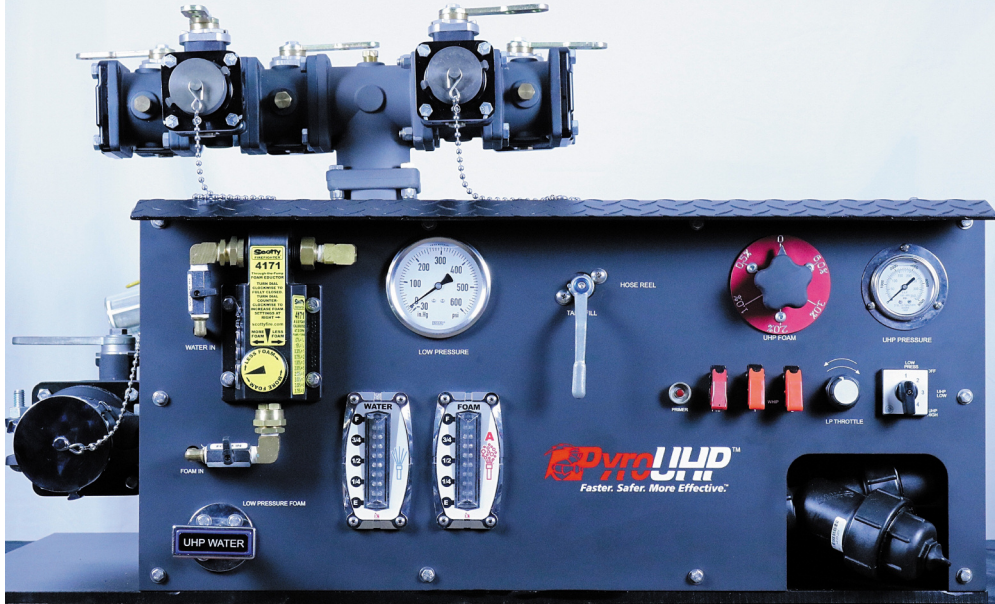
The entire pump and the plumbing system shall undergo a complete factory test.

## **Warranty**

The PyroUHP ultra-high pressure type firefighting system components shall be covered by a one (1) year parts and labor warranty. The installation portion of the warranty shall be covered by the final stage assembler.

## **Technical Manual**

The ultra-high pressure firefighting system shall be supplied with a detailed technical manual covering operation, maintenance, and spare parts. This manual shall have various levels of warnings and caution notices provided. Paper and digital copies will be supplied with the apparatus.



## PyroUHP Dual Flow Pump

The PYROUHP DUAL FLOW PUMP is available in vehicle-mounted and portable configurations, dedicated to Structural and wildland/urban interface operations. The various models are powered by either Briggs and Stratton Vanguard, Kubota diesel engines or driven via Power Take off (PTO) hydraulic drive system allowing full pump and roll capability.

Combining both pressure and volume, it is ideal for dual attack line operations, remote water transfer and structure protection. The PYROUHP DUAL FLOW delivers UNIQUE performance in that it covers the entire spectrum between classic flow and UHP and is alone in its class offering superior performance at minimal operating costs. Unlike other pumps, the PYROUHP DUAL FLOW pump module is hydraulically driven providing highly efficient and dependable performance.

### Applications

- Structural Initial Attack (Rapid Intervention Vehicles RIV).
- Wildfire/Urban Interface operations TYPE 6.
- Stand-alone Slip-on units
- Water transfer
- Simultaneous Dual attack Operations.
- Additional pump end options available.
- \*Optional 30GPM UHP pump option.

### Features and Benefits

- Quick-release clamp and detachable pump end for ease of maintenance and minimal equipment downtime.
- Quick-release clamp and detachable pump end allowing various pump head options.
- Unique blister resistant mechanical rotary seal to prolong pump end longevity
- Sealed bearing to eliminate pump end greasing in the field
- Hydraulic drive assembly for reliable, low maintenance performance.
- Aluminum alloy pump components and anodized parts for lighter weight and greater resistance to corrosion.
- Ultra-High-Pressure capability with optional 20 or 30GPM flow-rates.



## Williams Hydrochem System

The Powder Keg Dry Chemical Skid from WILLIAMS FIRE & HAZARD CONTROL represents a powerful tool in a small, convenient package used to combat pressurized fuel fires. The package is designed to be mounted in a compartment of a fire truck.

The system is packed with 75 lbs (34 Kg) of PKW™ dry chemical powder and powered by conventional 4,500 PSI air-pack bottles that can be easily replaced or recharged. The vessel is refillable with PKW.

At the heart of this package is a Hydro-Chem™ nozzle. When combined with a pressurized water/foam source, this system can extinguish a fire at ranges not possible with conventional equipment.

The unit can provide Dry Chem flows of 5 or 7 lbs/second (2.3 or 3.2 Kg/second), and water/foam solution rates of 60, 95, or 125 GPM (227, 360 or 473 Lpm).

PKW is a highly specialized siliconized Purple-K that is one of the most effective dry chemicals used to extinguish flammable and/or combustible liquid fires. It is proven even more effective when used in conjunction with The Hydro-Chem™ Handgun Technology to extinguish pressurized or three dimensional liquid fires. WILLIAMS FIRE & HAZARD CONTROL PKW is a potassium bicarbonate-based dry chemical containing chemical additives. The agent is free-flowing, water repellant, non-abrasive and, when used as a fire extinguishing agent, produces no toxic effects.

Its distinctive, deep purple color provides the firefighter with the ability to stay on target when the dry chemical is projected to the fire within the water/foam solution stream. The result, when combined with Hydro-Chem™ Technology, is the ability to achieve a quicker “knockdown”, in addition to using less chemical to complete the job.