

# Under Pressure

## Ultra-High Pressure Fire Suppression System Requires Ultra-Durable Equipment

HMA Fire produces industry leading Ultra High Pressure (UHP) mobile fire apparatuses. UHP systems deliver microscopic water droplets at an extremely high velocity, always 1100 psi or higher. Using this method to extinguish fires is highly effective. With a low-pressure fire suppression unit, as little as 10% of the water is actually used for extinguishing flames, while the other 90% falls away completely wasted.

In testing conducted at the Air Force Research Lab at Tyndall Air Force Base, HMA Fire's UHP system extinguished a fire in half the time using 80-90% less water, when compared to a standard low pressure fire suppression system. With UHP, small water droplets provide more surface area to extinguish a fire. These droplets also convert to steam quicker, which displaces oxygen – the fire's main fuel source. UHP systems can also emit a layer of foam on a fuel fire when using the appropriate foam type. This acts as a barrier between the fuel and the fire to prevent re-ignition.

With this technology, HMA Fire can offer superior capabilities, creating custom UHP systems for on- and off-road vehicles, ATVs, brush trucks, skid units or retrofit packages for existing vehicles like pick-up trucks and full sized fire trucks. More mobile vehicles are ideal for wildland fires and situations where high performance with limited water resources is a must. Other applications include ARFF, colleges, campuses,

warehouses, parking facilities and anywhere roadways are restricted.

### Problem

Every UHP system requires a hose reel to handle high pressure water flowing through long hoses. "Finding a durable hose reel is extremely important to our systems," explains Bill Carroll, HMA Fire general manager. Without hesitation HMA Fire looked towards Hannay Reels for a high-quality hose reel that could handle the force a UHP system exerts.

### Solution

Hannay Reels is the leading manufacturer of durable hose and cable reels for both OEM and aftermarket applications, offering thousands of standard models along with a wide range of custom design capabilities. Superior manufacturing processes, consistent quality, excellent customer service and unmatched value provides customers around the world in a variety of industries high-quality reels built to last. This formula has solidified Hannay's reputation for helping companies around the world improve the productivity, efficiency and safety of their operations since 1933.

Carroll explained that HMA Fire utilized Hannay Reels since the start of production. "When I first started I was thrilled we were using Hannay because I was familiar with the brand and very satisfied with the overall



### Customer

HMA Fire

### Location

Madison, Wisconsin

### Customer Challenge

Need durable hose reels for UHP system

### Hannay Solution

EF Series withstands 1500 psi, accepts foam without corroding



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– Bill Carroll, General Manager  
HMA Fire



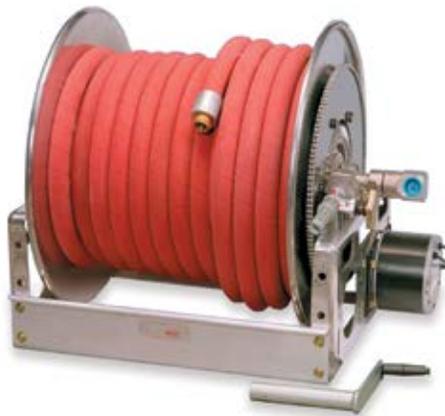
**Hannay Reels®**  
The reel leader.

product,” said Carroll. “We like to install products that firefighters themselves use, and since Hannay Reels is very well known in the fire industry with a strong reputation for providing top of the line products, it was just a natural choice,” said Carroll.

They choose to stick with Hannay Reels because of the company’s flexibility in making modifications to their products to meet their needs. “We give them a list of parameters for a certain vehicle or job and they meet every single one without problem,” said Carroll.

### Example

HMA Fire recently began creating off-road utility vehicles designed to extinguish fires in areas where a traditional truck can’t fit. These self-sustaining units are completely mobile, equipped with a water and foam tank for flammable or combustible liquids. “Because the system only pumps at 20 gallons/minute as compared to a regular low pressure unit, which pumps at a minimum of 100 gallons/minute, we can safely store 100 gallons of water. That’s more than enough to extinguish fires with UHP,” explained Carroll. “If we installed a low pressure system on a portable unit like this, there wouldn’t be enough water to put any sort of a fire out. Most of the time our customers come to us with this problem – they need to put fires out quickly but since these fires can be in a remote area, they have a very limited supply of water. That combination is hard to find.”



With all these system components, there is limited space left on the vehicle, so it’s important to have a reel that can precisely fit into a small space that’s left. “We give Hannay parameters and specifications for every reel we order to ensure it precisely fits and operates under the conditions we indicate,” said Carroll. HMA Fire clarifies that all reels must withstand 1500 psi and accept foam without corroding so stainless steel internal construction is a must.

Plus the overall structure has to be durable to prevent collapse and rewind damage. A less solidly built unit would not be able to withstand higher pressures as the hose is wrapped around the reel’s drum. Internal mechanisms could collapse, loosen the chain and ultimately lead to rewind failure.

Hannay Reels provides HMA Fire with hydraulic hose reels in low- and standard-profiles for off-road utility vehicles next to the UHP pump and motor. These reels provide fast rewind with a chain and sprocket drive powered by an electric motor and an adjustable spring drag brake that slows or locks the reel in place. A 4-way roller guide ensures fast payout and easier rewind which contributes to reduced response times, increased hose capacity and faster cleanup.

### Results

HMA Fire has delivered these off-road utility vehicles to customers all over the world. A customer in Dubai just ordered this vehicle for desert fire suppression and 10 units were recently shipped to Mexico. In addition, the United States Army and Navy also requested units for use in forward operating bases and tent cities in Afghanistan where standard vehicles are too large to fit and unable to tread through heavy sands. “We have over 80 similar units to this one operating in fields all over the world and have not heard any negative feedback, so we can honestly say that our customers are satisfied and happy with the product we deliver,” said Carroll.

HMA Fire continues to come back to Hannay Reels on all their projects because of the superior service. “They treat us exceptionally well. It’s just an automatic choice, if I need a reel I can easily call them up and it’s here right away. We’ve had to expedite a lot of our orders because of some issues on our end, and those needs were always accommodated. They bring the product straight to us with no hassle at all.” Carroll also explained that the company has explored other reel manufacturers but never drifted from Hannay Reels. “For the money spent, they truly are the best value because I know I’m getting a top quality product that both myself and my customers can rely on,” concluded Carroll.



Each cabinet housed four different lubrication reels, which dispensed anti-freeze, hydraulic oil, engine oil and gear oil.

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