



Built for Danger
Designed to protect



Fire Fighting Robotic System

A New Class of Fire Response.



- Enter the Hazard.
- Protect the Force.
- Control the Fire.

PeK FFRS is designed and manufactured based on clearly defined core operational requirements. It delivers **mobility**, **autonomy**, and **industrial-scale suppression** in one integrated platform.

Core Operational Requirements



■ Mobility & Transportability

- < 2.5 t platform
- B+E transport class
- Helicopter capable



■ Immediate Time-to-Action

- < 60 seconds to suppression
- No hose pre-assembly
- Autonomous initial intervention

■ Autonomous Hose Management

- Integrated drum system
- Movement under charged hose
- Hydrant refill capability



■ Dual-Mode Water Architecture

- 1,500 L onboard water
- External hydrant integration
- Dynamic foam ratios (1:10–1:100)

■ Stability & Control

- Low center-of-mass architecture
- Gravity-stabilized tank system
- Elevated sensor positioning



■ Operational Architecture

- FPV control
- Ground Control Station
- Remote streaming
- Swarm-capable deployment

■ Survivability & Thermal Protection

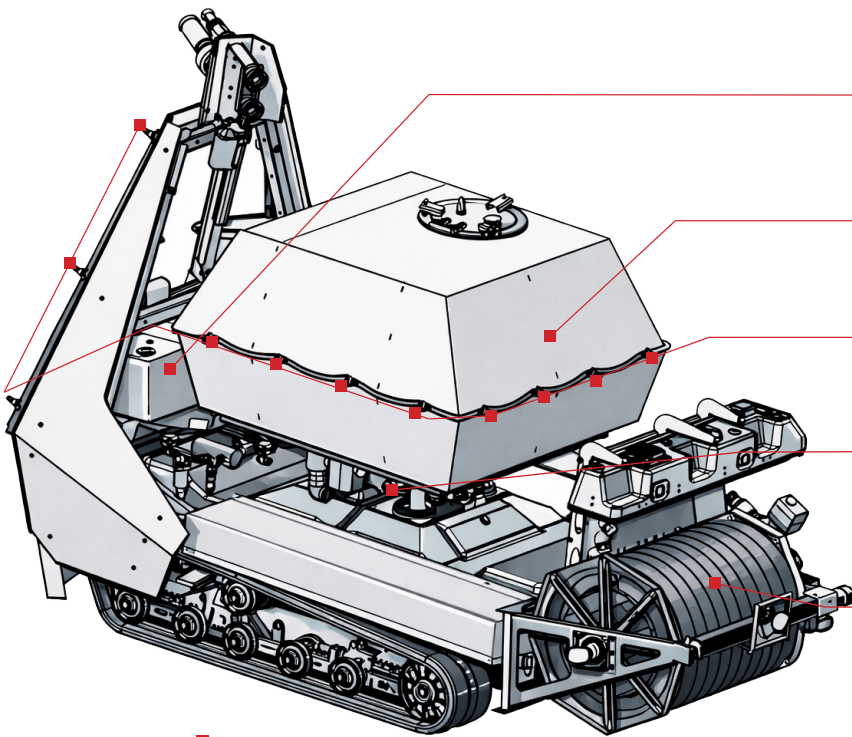
- Electric drivetrain
- Oxygen-independent operation
- Frontal Steel shield, double-layer
- 360° mist cooling

When Human Entry Is No Longer an Option

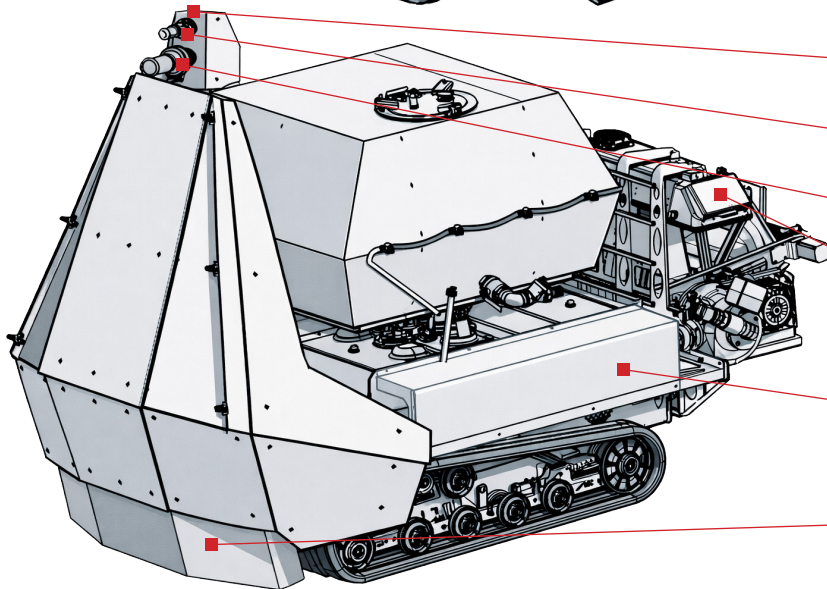
- Industrial explosions
- Fuel depots
- Ammunition storage
- Chemical facilities
- Electric vehicle battery fires
- Structural collapse risk.

In these environments, the first minutes define the outcome — yet they are the most dangerous for personnel.





- **Foam Tank**
 - 170 L capacity
- **Water Tank**
 - 1,500 L capacity
- **Front & Side nozzels**
 - 360° mist cooling
- **Stabilization System**
 - low center-of-mass stability
 - gravity-based tank stability
- **Autonomous Hose**



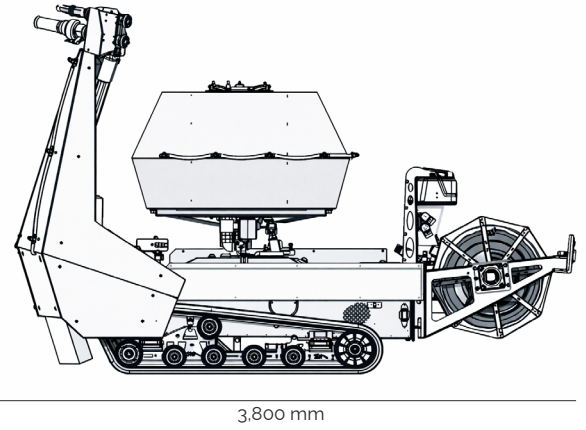
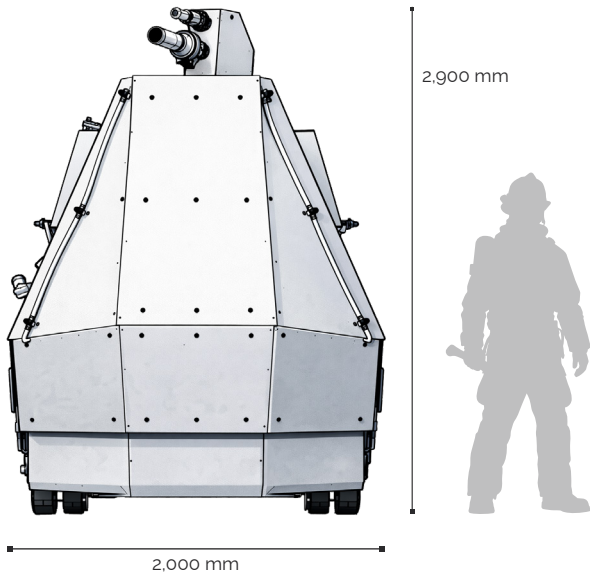
- **Aiming Camera**
- **Water Nozzle**
- **Foam Nozzle**
- **Display**
 - remote contro unit
- **Housing**
 - concentrate pump
- **Flame Resistant Tissue**

Personnel Protection as a Priority

- **Remote operation up to 1,000 meters from the control unit**
- **Zero personnel exposure during initial suppression**
- **Dual-spectrum vision system**
 - Thermal imaging for fire detection through smoke
 - Full HD situational awareness camera

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■ General

Length	3,800 mm
Width	2,000 mm
Transportation weight	up to 2,700 kg
Platform	Steel-reinforced rubber tracks
Ground Pressure	approx. 58 kPa

■ Water & Foam System

Water Tank Capacity	1,500 L
Foam Tank	170 L
Flow Rate	up to 340 L/min
Operating Pressure	up to 16 bar
Throw Distance	up to 30 m
Refill Time	8–12 minutes (hydrant supply)
Supply Line Connection	50 mm Storz coupling

■ Electrical System

Battery	50 kWh Lithium Iron Phosphate (LiFePO4)
System Voltage	48V DC
Mission Duration	up to 6 hours (in action)
Recharge Time	<ul style="list-style-type: none"> • Standard: up to 8 hours • Fast charge: approx. 3 hours

■ Mobility

Maximum Transit Speed	4.0 km/h
Operational Suppression Speed	1.0–2.0 km/h
Slope Capability	up to 25° (~46%)

■ Command & Control

Control Range	up to 1000 m (line-of-sight)
Dual Frequency Link	<ul style="list-style-type: none"> • 5.8 GHz digital • 845 MHz backup telemetry
Thermal Camera	640 × 480 LWIR
HD Camera	1920 × 1080

The Solution: FireFighter



- Immediate remote fire suppression
- Stand-off tactical positioning
- Reduced personnel exposure
- Extended operational reach
- Electric vehicle battery fires
- Continuous suppression under extreme thermal stress

FireFighter acts as a force multiplier, extending operational capability while preserving human life.



Application Scenarios

■ Pre-Positioned Protection (“Wall-Mounted” Concept)

- Installed near critical infrastructure.
- Filled, charging-connected, ready within 60 seconds.
- FPV or Ground Control operated.
- Enables early suppression without personnel exposure.



■ Police / Civil Protection Operations

- Suppression of incendiary devices
- Fire containment during civil disturbances
- Crowd-control water projection (if legally permitted)
- Urban-safe electric drivetrain



■ Unit Reinforcement (“Unit Following”)

- Connected to water line.
- Operates as a robotic support asset within a firefighting unit.
- Autonomous hose management ensures maneuverability.
- Enables active firefighting while firefighters focus on tactical tasks.



■ Perimeter / Barrier Mode

- Foam barriers and water curtains.
- Temperature reduction before flame front arrival.
- Suitable for WUI, industrial sites, ammunition and fuel storage.



Electric

Fully electric platforms designed to operate reliably in smoke, heat, and oxygen-depleted conditions.



Protective

Engineered to remove personnel from immediate danger while maintaining real operational capability.



Autonomous

Intelligent control systems that enhance response speed, coordination, and unit capacity.

■ **PeK Civil Defence is a specialized division of PeK Automotive d.o.o., focused on the development of advanced electric and autonomous systems for high-risk and mission-critical environments.**

Building on deep expertise in electric drivetrains, traction systems, autonomous control, and industrial-grade robotics, PeK Defence designs platforms that operate where human presence is limited, dangerous, or impossible.



NATO **DIANA**
Defence | Innovation | Adaptation



Gospodarska
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PeK
civil defence

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Designed to protect

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