FEATURES & CAPABILITIES

ICP NEWTECH
ULTIMATE SOLUTIONS

AVENGER FIRE

AVENGER FIRE CORE CAPABILITIES

PRIMARY FEATURES

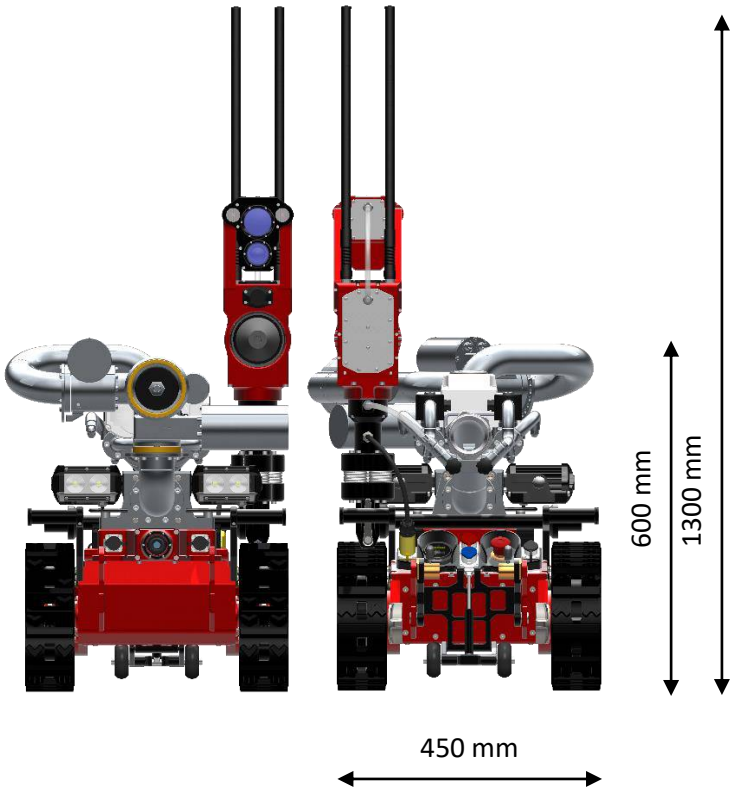
- Outstanding capabilities for mobility and mounting CBRN sensors
- Four (4) I/O Ports for cameras, sensors and detection devices
- Wide tracks and stance control feature
- Ascends / descends stairs up to 35
- Variable speed control
- Three standard cameras
- Two-way directional audio communications
- Compact storage for transportation
- Two sets of three 12V sealed lead acid (SLA) batteries
- Typical operating time of 4+ hours (dependent upon mission activity)
- Anodized aluminum chassis and Camera Stalk Assy providing base coat corrosion resistance with paint finish.
- Ingress Protection IP66 (ROV), IP53 (Console)
- Water cooling
  - external sprayer system for chassis
  - communication tower water cooling
- Ethernet and CANBUS architectures both running through the entire system, for data streams controlling, mobility and redundancy
- Capable of towing in excess 100 kg
- Weighs approx. 122 kg (batteries included) for ease of transport in smaller vehicles

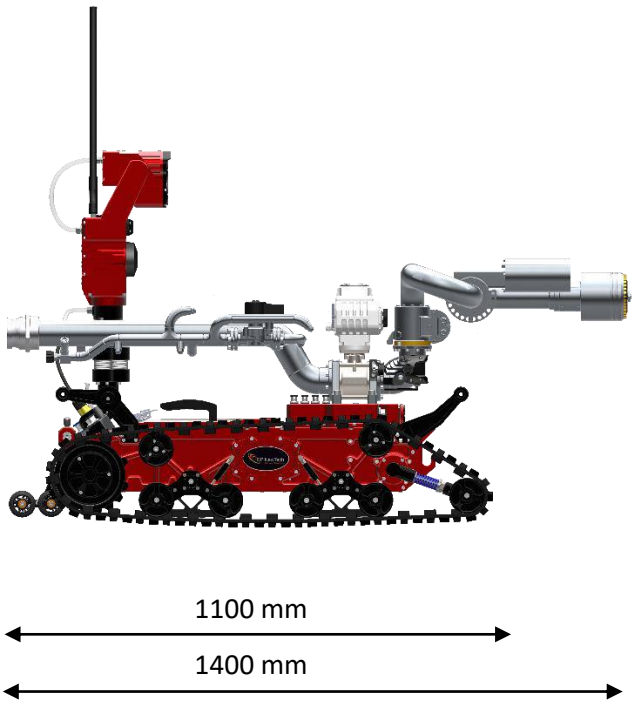
MODULAR DESIGN

Avenger Fire uses a modular system architecture for compatibility with future enhancements and for ease of maintenance. Select modules include:

- Vehicle Control Unit
- Embedded PC
- Stalk Communication Mast
- On-Board Cameras
- Command Console
- Force 50 BLDC Robotic Nozzle
- Water Cannon Control Unit
- 2" Electric Actuated Ball Valve
- Machine Fire protection via cooling nozzle system

PSYHICAL PROPERTIES

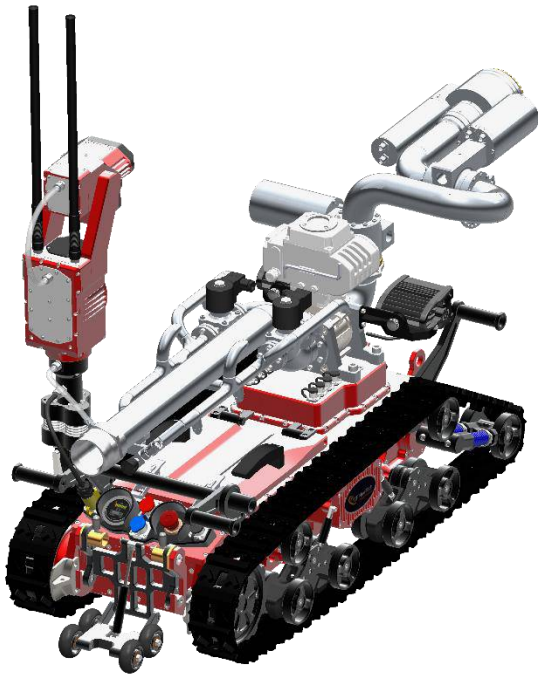




AVENGER FIRE CORE CAPABILITIES

DRIVE, SPEED & CLIMBING

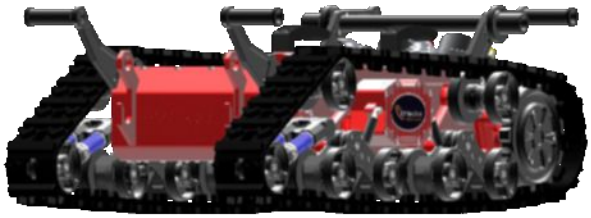
- Innovative in-line track system to eject debris from the tracks while in motion
- Two high torque BLDC (Brushless Direct Current) motors, with brakes that release only when power is applied
- Variable speed up to at least 8 km/h (5 mph)
- Drive system incorporates a gas suspension system for reduced vibration
- Low centre of gravity, back fitted anti-flip and high-torque motors provide excellent climbing abilities: ascend and descend inclines greater than 35

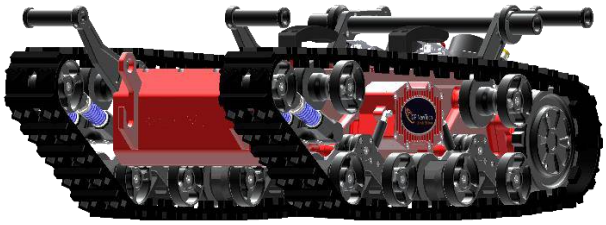


STANCE CONTROL

New variable-position track Stance Control:

- Raised Position for climbing stairs or raised obstacles
- Lowered Position for greater stability, and descending stairs
- Driving Position for maximizing track tension
- Maintenance Position for changing tracks
- Tracks can be adjusted to any position between 'Raised' and 'Lowered' to aid with mobility





CAMERAS & ILLUMINATION

- 3 cameras included: 2 optical and 1 thermal Several optional cameras available
- Drive Camera – day/night low lux camera, it also includes built-in IR illumination
- Stalk Camera – combination of optical and thermal module in one body
    - High resolution 35x optical zoom camera,
    - Thermal module 30/25fps @ 1920 x 1080 resolution, advanced fire detection algorithm.
    - 2 high-intensity dimmable LEDs; 500 Lumens

OPTIONAL CAMERAS

- Auxiliary Camera
  High resolution, IP Camera with low lux sensor for operating in low light condition
- Rear drive camera

AUDIO SYSTEM

A directional two-way audio (intercom) system for communicating with people near the robot

WIRELESS SYSTEM

FDM-6600 MIMO PtMP wireless transmission system based on TD-LTE wireless communication standard, OFDM and MIMO technologies.

Line of Sight: Up to 1000m
Non-line of Sight: Up to 300m

AVENGER FIRE CORE CAPABILITIES

COMMAND CONSOLE

Command Console controls the drive track movement, water cannon, cameras and optional devices, as well water-cooling system. Console can view multiple cameras, thermal imagers and display or send data from multiple sensors to a secondary computer system.
The Command Console is housed in a Panasonic 'Toughbook 55' laptop, weighs approx. 2.5 kg for ease of mobility.

Secondary Camera | Features may vary | Thermal Camera

Primary Camera Feed

HAND CONTROL

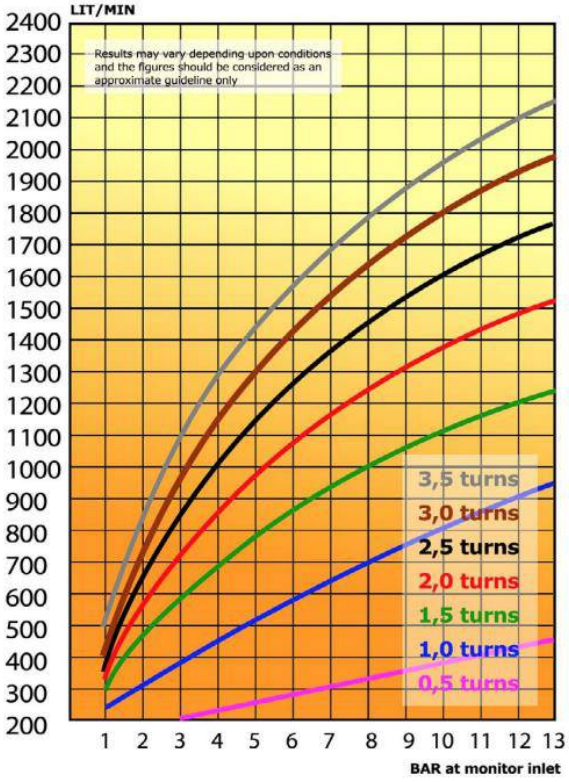
Two video game type hand controllers included allowing more natural operation of the ROV drive and water cannon control.
Quick Start Controller permits direct controller-to-ROV communication for basic ROV positioning
Console Controller permits controller-to-console communication for deployment at up to full wireless range.
Weighs only 0.21kg (0.46lb)

TYPICAL CONSOLE FEATURES

- Graphical User Interface (GUI)
- Touch-screen interface
- Screen displays any 3 camera views (primary, secondary & thermal)
- Full screen display (single camera)
- Digital zoom
- Saves captured photos, video and audio files to hard drive for analysis and evidence recovery
- Displays status of console battery, RF signal,
  drive mode, and drive current
- Specialized control panels
- Drive control
- Lights control
- Radio link control
- Accessory control
- Latitude/Longitude Positional Information
- Internal short-range antenna and external long range relay station
- Independently tested to military standards for harsh conditions
- Supports Windows 10, and several interface ports: USB, HDMI, LAN and audi

AVENGER FIRE CORE CAPABILITIES

F FORCE 50/INTEG 50 FLOW CHART

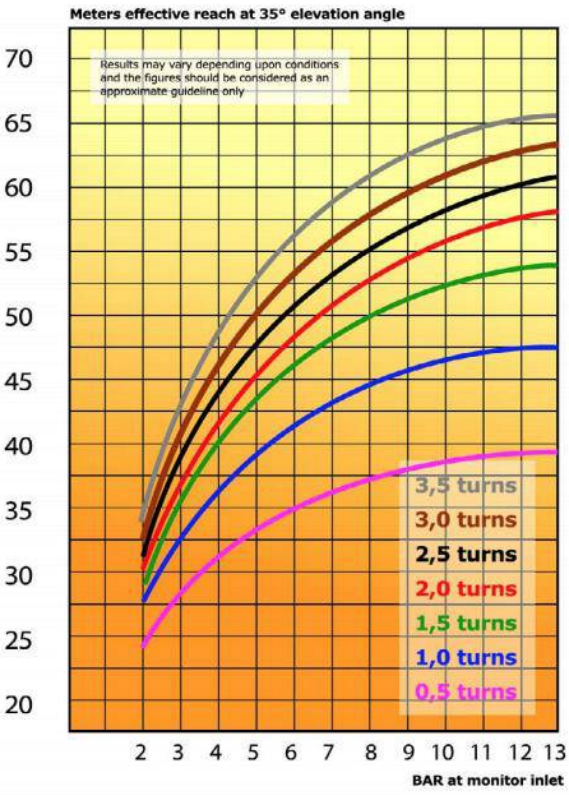


FORCE 50 2” ROBOTIC NOZZLE

Manufactured at state-of-the-art, ISO certified facilities, the Force 50 is the pinnacle of elegant, Swedish design, engineering, manufacturing & efficient performance, with the highest quality materials and featuring industrial-robot-type brushless (BLDC) motors, there is no finer robotic nozzle on the market.

- Heavy duty industrial robotic nozzle
- 2” BSP connection for variety of nozzle tip options
- Stainless steel 316L pipe and worm-gears
- Industrial robotic brushless DC motors (BLDC)
- Laser-welded IP68 motor enclosure
- M12 fully sealed IP67 multi-connectors
- Position feedback accuracy better than 1/100□
- Up to 38□/sec rotation speed
- Over 360□Horizontal Movement (set any range by software)
- Over 180□Vertical Movement (set any range by software)
- 50 mm internal pipe diameter
- Virtually maintenance-free; never requires re-greasing
- Light weight: ≈ 19 Kg (42 lbs.)
- Max Flow: 2000 lpm @ 10 bars (530 US gallons @ 145 psi; 120 m3/hr)
- Max Reach: 65 meters
- Connection by 2” male BSP or flange (ANSI, DIN, JIS)

FORCE 50/INTEG 50 REACH CHART



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