KRUSHNA™ FIRE FIGHTING ROBOT

MODEL: KRUSHNA™ ROBOT ATR
APPLICATION: MULTIPURPOSE ATR REMOTE VEHICLE
BRAND MAKE: CLUB FIRST

Highlights:

- *Remote controlled & autonomous navigation ATR (optional)*
- *Auto home, obstacle avoidance, mission planning (optional)*
- *HEAT, GAS,OPTICAL SENSORS*
- *Rc range up to 3000 km*
- *1 ton payload capacity*
- *10 ton vehicle towing capacity (high drag capacity)*
- *Multiple hot attachments platform*
- *Up to Two fire water monitor up to 6000 LPM can be attached*
- *Fire flam proof*

Key parameter:

- *The KRUSHNA ATR have top speed 10 km/h*
- *ATR design for heavy duty and all terrain work*
- *180 mm width heavy duty spiral iron core wire rubber track*
- *Track belt suspension*
- *Bldc 1200w heavy duty motors*
- *Thermal & optical imagine PTZ camera*
- *Rc 2000 meter range*
- *Heat and over load protection*

- *Efficiency exhaust protection*
- *1000 kg payload capacity*
- *280 kg drag capacity (up to 10 ton vehicle)*
- *Climb to possible stairs and elevations 20MM /30˚*
- *Fast charging system*
- *All-terrain vehicle technology*

Technical specification:

robot chassis: *3 mm chassis, 1.5 mm dual ss 316/ms powder shell*

Shell material: *1.5mm thick ss 316/ms for heavy duty work*

Dimension: *(1665 x 890 x650) l x w x h in mm (Robot chassis only)*

Total weight: *450 kg*

Working Temperature: *--20°~+95° Up to 500˚ in Self Cooling*

Climbing Slope Angle*: ≤45˚*

Climbing Stairs Angle: *≤30˚*

Fire Monitor:

- *Remote Controlled monitor 1800-6000LPM*
- *Flow Cap @ Up to 10 Kg/Cm2*
- *Vertical Movement +25 to 85 Degree*
- *Horizontal movement ±180 Degree*
- *Both ATV and Monitor controlled with single Remote controlled*

Sr. No.	Particular	Findings As per Actual Sample	Measurement Unit
Robot chassis Parameters MAKE: CLUB FIRST			
1	Dimension: Length X Width X Height	1665 x 890 x650(MM)	Millimeter
2.	Weight	450 KG	Kilo Grams
3.	Maximum Speed	10 KM/H	KM/H
4.	Payload Capacity	1000 Kg	Kilo Grams
6.	Pulling Capacity - a vehicle at neutral gear position	10 Ton	Ton
7.	Drag capacity for two numbers of Charged hose of 63MM each	225 Meter	Meter
8.	Slope Climbing Capacity	45 Degree	Degree
9.	Vertical Obstacle Height	350 MM	Millimeter
10.	Stairs Climbing Capacity	20 CM with 30 Degree Angle	Centimeter/ Degree
11.	Battery Type	LiFePO4 Battery Pack	LI-ION

12.	*Battery Capacity*	*48 Volt 72 AH*	*Volt -AH*
13.	*Rubber Track (Width X Thickness)*	*180MM X 30MM*	*Millimeter*
14.	*Motor Power Rating*	*1200W, 48V*	*Watt*
15.	*Battery Endurance*	*6-8 Hrs*	*Hours*
16.	*Ground Clearance of chassis*	*230 MM*	*Millimeter*
17.	*Turning Radius*	*840 MM*	*Millimeter*
18.	*Fog Light*	*200 W led, 2 numbers*	*Watt*
19.	*Maximum back Force*	*300 Kg*	*Kilo Grams*
Remote Controller Parameters			
1.	*Transmission Operational Range*	*5000 Meter*	*Meter*
2.	*Video Transmission Range*	*4000 Meter*	*Meter*
3.	*Transmitter Weight including Battery*	*600 Grams*	*Grams*
4.	*Display Size*	*5 Inch*	*Inch*
5.	*Dimension of Transmitter unit without antenna L X W H*	*217 X 106.6 X 31*	*Millimeter*
Water Monitor MAKE: CLUB FIRST			
1.	*Water discharge capacity*	*Up to 6000 LPM @ 10Kgcm Pressure*	*Liter Per Minute*
2.	*Lancing Distance*	*Up to 90 Meter @ 10 KGCM Pressure*	*Meter*
3.	*Horizontal Movement*	*± 180 Degree*	*Degree*
4.	*Vertical Movement*	*+25 Degree to 85 Degree*	*Degree*
5.	*Pipe Dimeter*		
6.	*Shell Thickness*	*1.5 MM*	*Millimeter*
7.	*Inlet Size*	*63MM*	*Millimeter*
8	*Angle of fog mode*	*110 degree*	*Degree*
Thermal Camera			
1.	*Resolution*	*1280 X 720 Pixel ,1920 X 1080 Pixel*	*Pixel*
2.	*Camera Detection Range*	*Vehicle: 4000M, Human: 1640 Meter, Fire: 2000 Meter*	*Meter*
**	*Weight of Complete Robot*	*450 Kg*	*Kilo Grams*

Sustainability Parameters		
1.	*Chassis Body Shell Material*	*Stainless Steel SS 316 Grade / 1.5 MM thick*
2.	*Track Belt Material*	*Rubber Track with Iron Core*
3.	*Siren Hooter (controlled by Remote Control)*	*Emergency Siren 113 DB at 1 Meter Distance*

4.	*Automatic Self cooling Sprinkler System that covers complete unit including track belt (controlled by Remote Control)*	*8 MM SS Artery*
5.	*Sensors*	*Heat, Optical, GAS Detector, Encoders, LIDAR, IMU,METAL Proximity, Humidity*
6.	*Motor/Drive Controller Make: Club First*	*65 Amp 48 Volt , 70 Amp Peak (1 Second) , MPU 6050, Gyro based Straight line following Algorithm, and on axis Angular 360 Degree Movement capability*
6.	*Remote Control (with straps to carry) Functional operations in single unit (same Remote Control)*	*Robot- Forward, Backward, Angular, On axis rotation Water monitor- Up, down, on axis, fog mode, jet mode, Horizontal (+ -)180 Degree, +25 to 85 Degree Vertical Movement, LED fog Light, Siren Hooter, Sprinkler valve, camera video feedback*
7.	*Robotic Water Monitor Make: CLUB FIRST*	*Stainless Steel, SS 316 grade, 1.5 MM shell thickness*
8.	*Inlet*	*Two BIS articulated elbow type to negotiate the bend and entangling of 63 mm hose, integrated with non-returning valve along with shut off mechanism.*
9	*Robot Operational Parameter*	*4 Hrs at 500 Degree Celsius Temperature*
10	*Drive Controller*	*ARM 2.6 Quadrate microcontroller*
11	*RC Controller*	*2 HDMI Video Input, 4X Cortex A53, GPU: 4 Core Mali- T860 eMMC: 4 GB Video Latency: 110MS, Frequency 2.4 Ghz*
12	*Drive Mechanism*	*Deferential drive and each drive powered with 1200W BLDC Motor individually*

Testing Method

1.	*Explosion Proof (ATEX)*	*II G Ex(d,e) II C T 6 Gb*
2	*Robot Chassis & Water Monitor*	*IP 66*
3	*Battery*	*UN*
4	*Thermal Imaging Camera*	*IP 67*
5	*Temperature Range*	*500 Degree with Self cooling*