



KiTech Hydrogen Systems Pte Ltd

For a greener world.



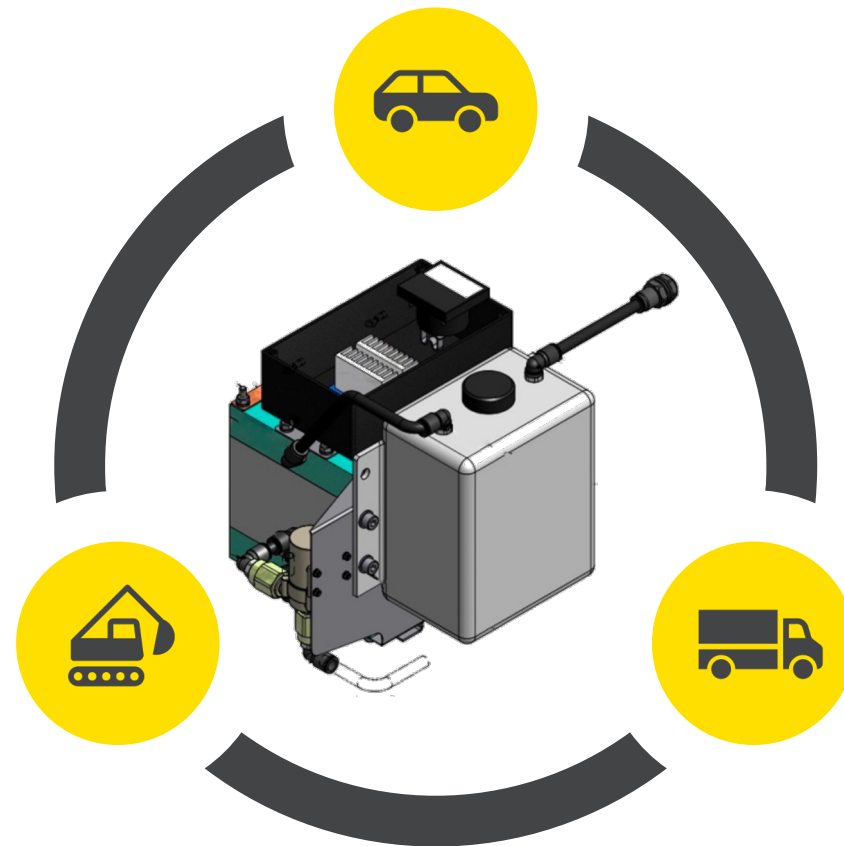
Knox Hydrogen Fuel Systems from KiTech

KNOX 20 (K20) HYDROGEN FUEL SYSTEM

For below 4 Liter engines

KNOX 40 (K40) HYDROGEN FUEL SYSTEM

For 7 to 10 Liter Engines



KNOX 30 (K30) HYDROGEN FUEL SYSTEM

For 4 to 7 Liter Engines

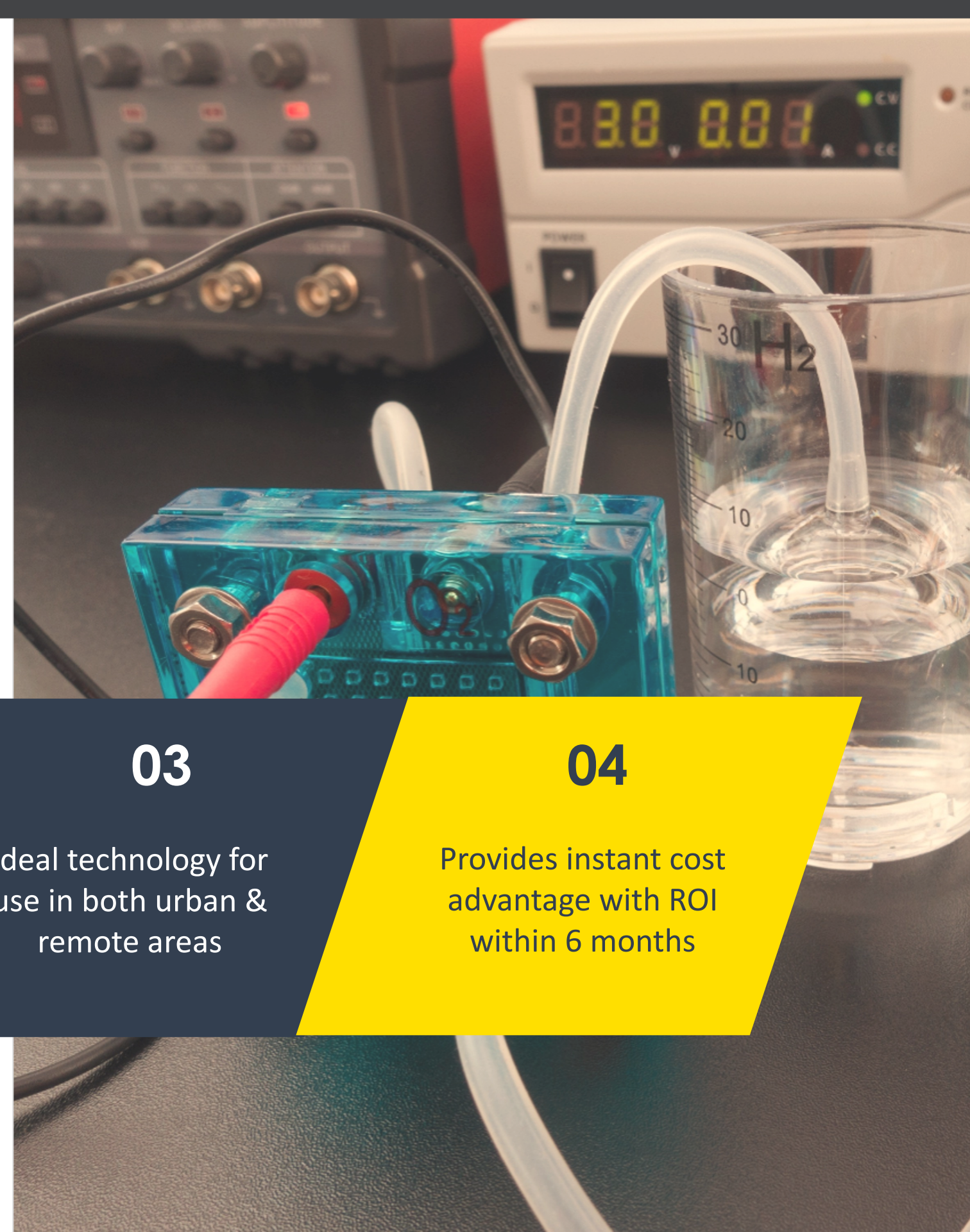
Save Fuel, Save Money, Save Environment – in 4 hours



Who are we

Ki Tech's vision is to improve the environment and save money for all fossil fuel users like vehicles, marine, generators and more. We have developed, tested and deployed the product in Australia for thousands of vehicles with excellent results.

We plan to take this invention to the world with continuous improvement and better Hydrogen as a hybrid Fuel through R&D for various applications.



01

Technology for near zero emissions for IC engines

02

Saves environment by reducing carbon footprint

03

Ideal technology for use in both urban & remote areas

04

Provides instant cost advantage with ROI within 6 months

Let us understand various **Hydrogen Systems**



HYDROGEN FUEL SYSTEM

- ✓ A system to generate Hydrogen & Oxygen by electrolysis of distilled water under controlled conditions.
- ✓ Hydrogen generated is injected in the Air Intake of vehicles that helps better fuel combustion & instantly improves fuel efficiency and reduces emissions.
- ✓ Hydrogen is not stored, but generated while vehicle is running, therefore very safe.



HYDROGEN CELL

- ✓ A Fuel cell is an electrochemical cell consisting of catalysts like Platinum that consumes Hydrogen & Oxygen to generate water and energy. This energy is converted in electricity by the cells.
- ✓ Hydrogen needs to be stored in tanks and passed through these cells.
- ✓ The electrical energy generated by Hydrogen Cells powers battery on the vehicle which essentially is an electric vehicle.



HYDROGEN ENGINES

- ✓ Such engines use hydrogen as a fuel in the same manner as a CNG driven engine.
- ✓ Hydrogen needs to be stored in tanks and uses controlled hydrogen burning in the engine to move the vehicle.
- ✓ The technology is very nascent and expensive for consumer market.

Why **Hydrogen Fuel System** and not **Hydrogen Cell**



HYDROGEN
AS HYBRID FUEL
Inexpensive &
Now



HFS - Needs only Distilled Water & battery power to operate

HC - Needs stored Hydrogen that is expensive to store and generate



HFS - Easily fit on any vehicle running on any fossil fuel giving instant savings

HC - Needs a new vehicle and ecosystem that is still far from reality



HFS - 10 to 40% Fuel saving & average 70% emission reduction instantly

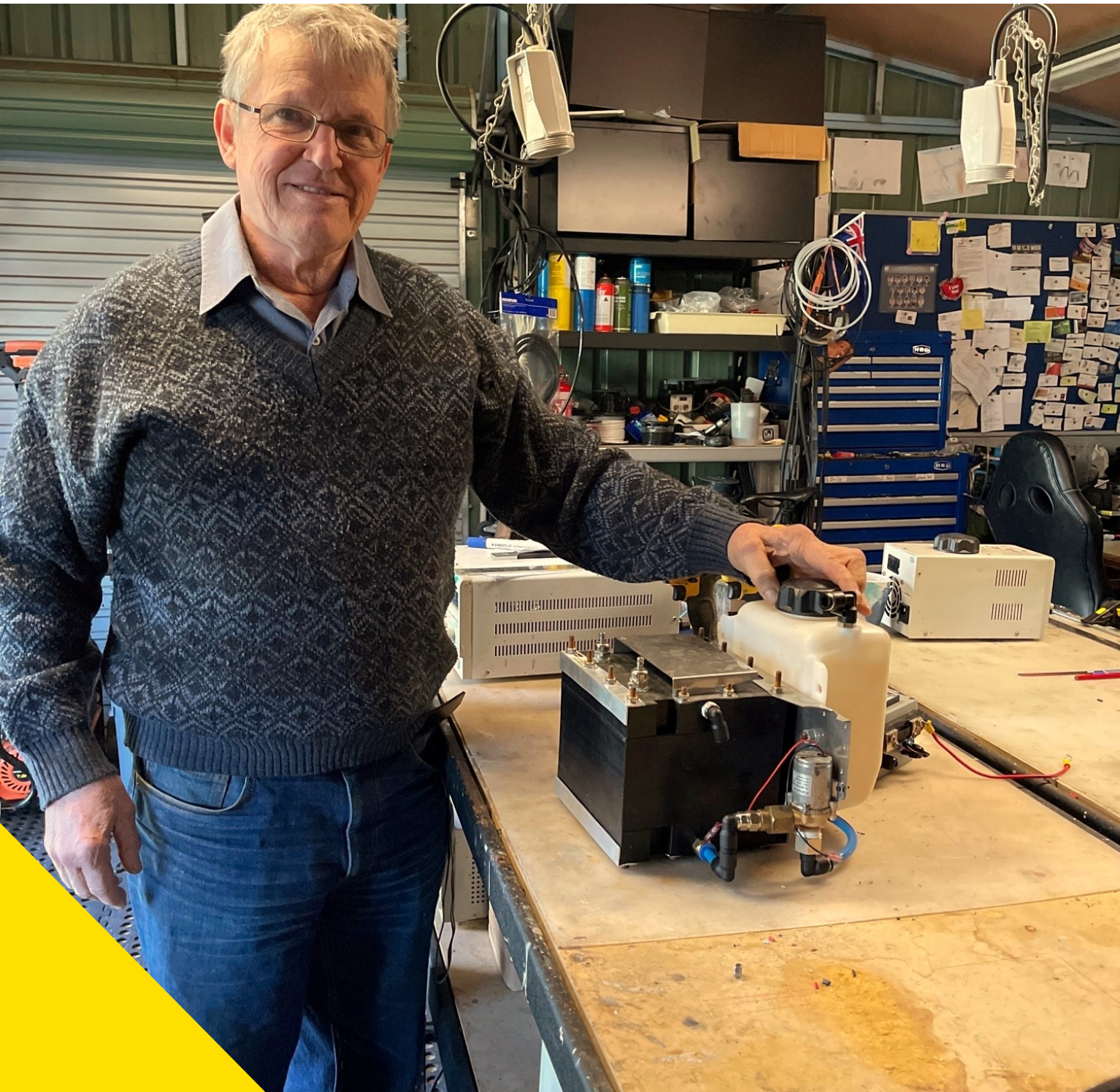
HC - Need new infrastructure and expensive vehicle before savings can be achieved.



300 MILLION Vehicles globally can benefit with this technology in a short time

Huge investment and time needed before we see any benefits, but can we wait that long?

How is Ki Tech **solving** current **challenges**



Ki Tech has developed Hydrogen Fuel System (HFS) technology to improve emission and fuel consumption on existing fossil fuel vehicles without needing to change the engine



Hydrogen Fuel System (HFS) technology that has been developed, tested and deployed since last eight years in Australia. This technology -

- ✓ Does not store Hydrogen; rather generates it while in operation
- ✓ Reduces the consumption of fossil fuel by more than 20%
- ✓ Reduces Harmful emissions by more than 70%
- ✓ Improves engine efficiency, power and life



Hydrogen Fuel System (HFS) as a technology does not need years of development or expensive Hydrogen generation, storage & supply ecosystem setup

Key Scientific data

Emission reduction & fuel savings are dependent on two key factors

1. Driving method
2. % of HHO pushed in the engine

While driving factor is dependent of the driver, terrain and vehicle condition, minimum 25% HHO to that of the engine capacity is needed to make impact in emission control.

25 to 75% will give average fuel savings of 5 to 12% *

100% HHO will give average of 20-25% Fuel saving*

150% HHO will give average of 25 to 35% Fuel savings*



01

Minimum HHO in engine to be 25% of Engine capacity to make any impact

02

100% HHO will give 20-25% Fuel savings & keep engine clean

03

150% plus HHO will give 25 to 35% Fuel savings.

04

In smaller engines, fuel savings will be more than larger engines

*All data are estimated. Lab correlation of the savings data under progress.

Knox 20 Electrolyser – Product Details



K20 also called Knox 20 is a Hydrogen Fuel system that is capable of producing average 4 Liters of HHO/ min after approximately 60 minutes of charge.

Knox 20 Technical specs-

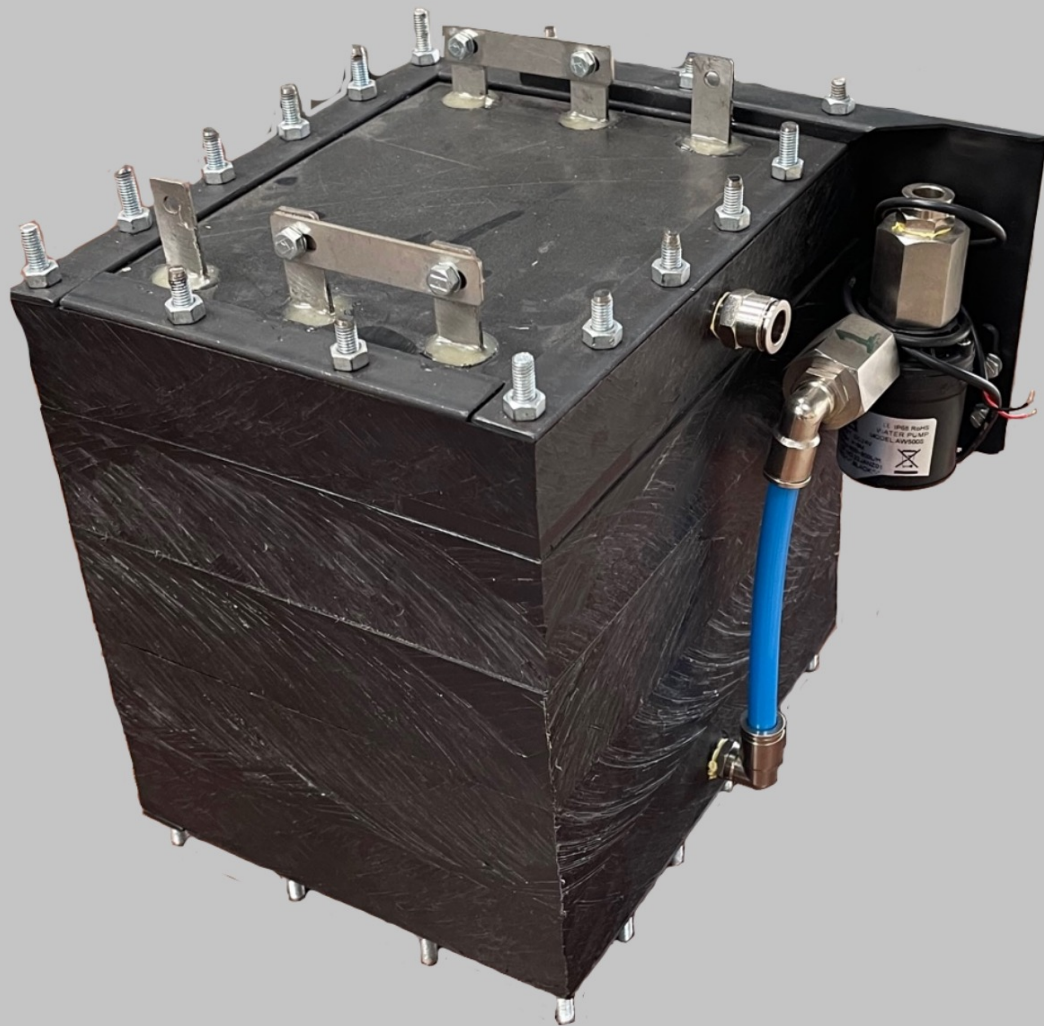


- ✓ 10x10 cm Stainless steel plates (32 Plates)
- ✓ Total of 5 Cells (2 Double & 1 Single)
- ✓ Producing 2 to 4 liters of Hydrogen/ min
- ✓ Input – 12 to 13.6V Vehicle battery power
- ✓ Current – Starting 10 Amps to 40 Amps cutoff
- ✓ Operates with KOH Solution with distilled water only (4 gm/Lit) with full cell and 2/3rd of water tank full.
- ✓ Recommended operation – Less than 8 hours at one stretch.
- ✓ Peak water temperature under 70 Deg C.



System must be installed by approved installers. All products sold by authorized dealers only. Product Warranty of 1 year.

Knox 30 Electrolyser – Product Details



K30 also called Knox 30 is a Hydrogen Fuel system that is capable of producing average 7 Liters of HHO/ min after 60 minutes of charge.

Knox 30 Technical specs-

- ✓ 15x15 cm Stainless steel plates (32 Plates)
- ✓ Total of 5 Cells (2 Double & 1 Single)
- ✓ Producing 3 to 6 liters of Hydrogen/ min
- ✓ Input – 12 to 13.6V Vehicle battery power
- ✓ Current – Starting 18 Amps to 50 Amps cutoff
- ✓ Operates with KOH Solution with distilled water only (4 gm/Lit) with full cell and 2/3rd of water tank full.
- ✓ Recommended operation – Less than 8 hours at one stretch.
- ✓ Peak water temperature under 70 Deg C.



System must be installed by approved installers. All products sold by authorized dealers only. Product Warranty of 1 year.

Knox 40 Electrolyser – Product Details



K40 also called Knox 40 is a Hydrogen Fuel system that is capable of producing average 10 Liters of HHO/ min after 60 minutes of charge.

Knox 40 Technical specs-



- ✓ 20x20 cm Stainless steel plates (32 Plates)
- ✓ Total of 5 Cells (2 Double & 1 Single)
- ✓ Producing 5 to 8 liters of Hydrogen/ min
- ✓ Input – 12 to 13.6V Vehicle battery power
- ✓ Current – Starting 23 Amps to 60 Amps cutoff
- ✓ Operates with KOH Solution with distilled water only (4 gm/Lit) with full cell and 2/3rd of water tank full.
- ✓ Recommended operation – Less than 8 hours at one stretch.
- ✓ Peak water temperature under 70 Deg C.

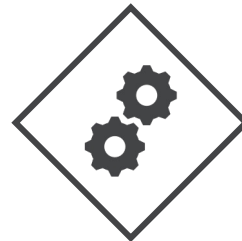


System must be installed by approved installers. All products sold by authorized dealers only.
Product Warranty of 1 year.

Our **value** proposition

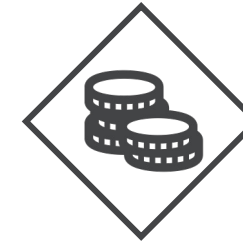
TECHNOLOGY

Our technology helps existing engines running on any kind of fuel & vehicle to become more efficient by using specially designed Hydrogen Fuel systems

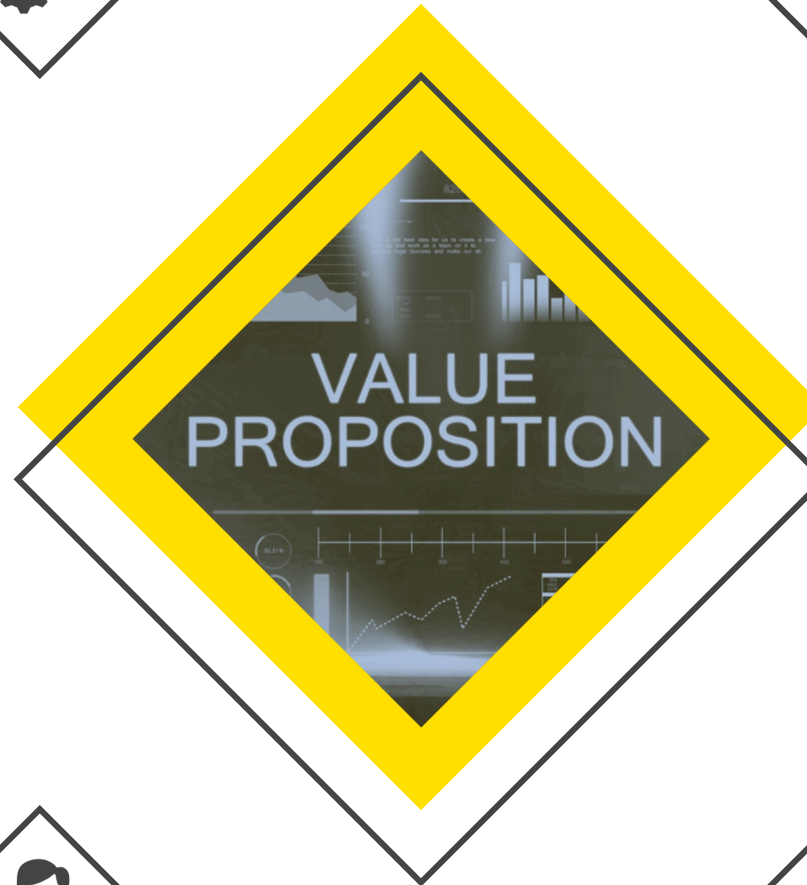


COST ADVANTAGE

Our technology provides instant cost advantage through reduced fuel consumption and engine maintenance with typically 6 to 12 months in getting the ROI



VALUE PROPOSITION



RESEARCH & DEVELOPMENT

Our core emphasis is on Research & Development to develop & improve Hydrogen-based fuel systems in making Hydrogen adoption a highly viable energy alternative & supplement



EASY ADOPTION

Technology developed by us doesn't require changing any existing energy infrastructure or building a new one



FUEL SAVING

10% to 37% savings on any fuel used.
(Test data in progress on all new models)*

BETTER ENGINE POWER

Up to 40% more power.

LOW ON MAINTENANCE

Uses distilled water only. Very few moving parts.

QUICK TO INSTALL & START SAVING

Install within 4 hours on your vehicle and start saving on fuel instantly.

BETTER EMISSION CONTROL

More than 60% lower emissions of exhaust gases. (Tests being done with new models for validation)*

HIGHLY SAFE

Does not store but generates Hydrogen on the run, that is immediately consumed. Can be put on or off with the engine using a simple switch.



The Ki Tech team has developed a Technology that uses electrolysis to separate Hydrogen from distilled water and injects the generated Hydrogen in Air Intake of the engine. Our Fuel Enhancer Technology induces intelligence in engine to use the mix of Fuel and Hydrogen optimally, thereby improving fuel efficiency, emission and power of the engine.

This entire system is fitted on the vehicle and operates in seamless conjunction with the engine using distilled water and battery power from the vehicle.

The System has been developed, tested and is in limited commercial use in Australia over last almost 8 years. Further R&D is needed to make it more efficient, support easy installation and cover wider range of engines.

PATENT OBTAINED - P2061AU01

Australian Government IP Australia
12 January 2018

Notice of acceptance for your patent application

Delivering your patent using eRequest
Phone: 1800 881 510
International: +61 2 6363 2888
1800 881 510 (toll free)
1800 881 510 (toll free)

Armour IP
PO Box 3099
Broadway Nedlands WA 6009
Australia

Application number: 2012261768
Applicant name: Gavan Knox
Your reference: P2061AU01

Dear Applicant,

Your patent application has been examined and was accepted on 3 January 2018. The accepted specification incorporates the following amendments:

5104 amendments up to and including item number: 2

The total number of claims at acceptance has been reported as: 9

What you need to do now

- Check your details – attached to this letter are the details of your application at acceptance. Some of these details may be displayed on the Certificate of Grant. Please review your details to ensure that they are correct.

What will happen next

- An invitation to Pay (ITP) the acceptance fee will be issued to you – this fee will include an additional component if the number of claims exceeds 20.
- Advertisement of acceptance – a notice of the acceptance will appear in the Supplement to the Australian Official Journal of Patents on 25 January 2018.

Your progress

- Filed: Application is filed
- Examination: Application is being examined
- Acceptance: Application is accepted (within an examination period of 2 months)
- Grant: Patent is granted (within 2 months of acceptance)
- Continuation/Removal: New information is required (within 2 months of acceptance)

Need help?
Talk to Alex, our virtual assistant
For further information on this topic, visit our website
Make an enquiry or provide feedback on our website

Did you know? Less than 2% of accepted standard patent applications are opposed

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Your acceptance summary

Standard patent details

Patent number: 2012261768
Title: Hydrogen Generation
Your reference: P2061AU01
Number of claims at acceptance: 9

Applicant and inventor details

Applicant name(s) and address(es) (as it will appear on certificate/s):
Gavan Knox
Inventor name(s): Knox, Gavan

Agent details

Agent Name: Armour IP
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Broadway Nedlands WA 6009
Australia
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Broadway Nedlands WA 6009
Australia

Prior art details

Prior art documents: WO 2011035432 A1

Priority details

Number	Date	Country
2011905248	16 December 2011	AU

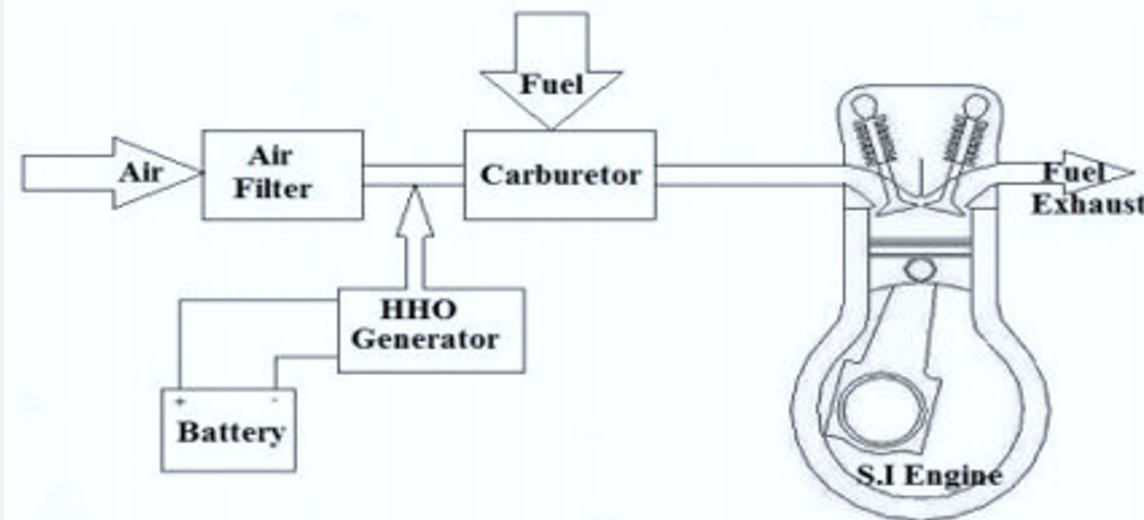
International classification

C25H 1/06 (2006.01)

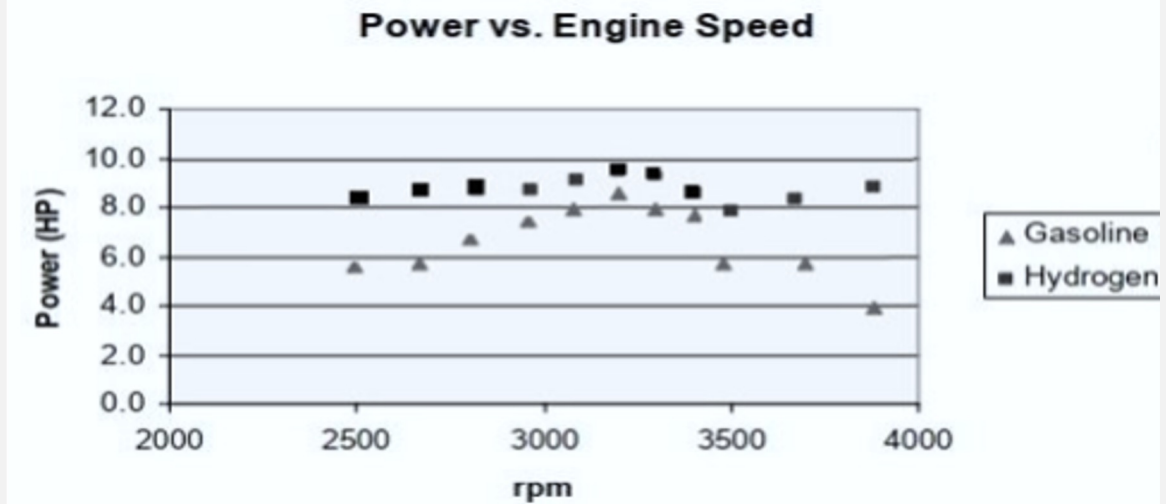
Patent Filed in 2012 and improved 15 times during testing till 2020

Performance – Hydrogen in IC Engines

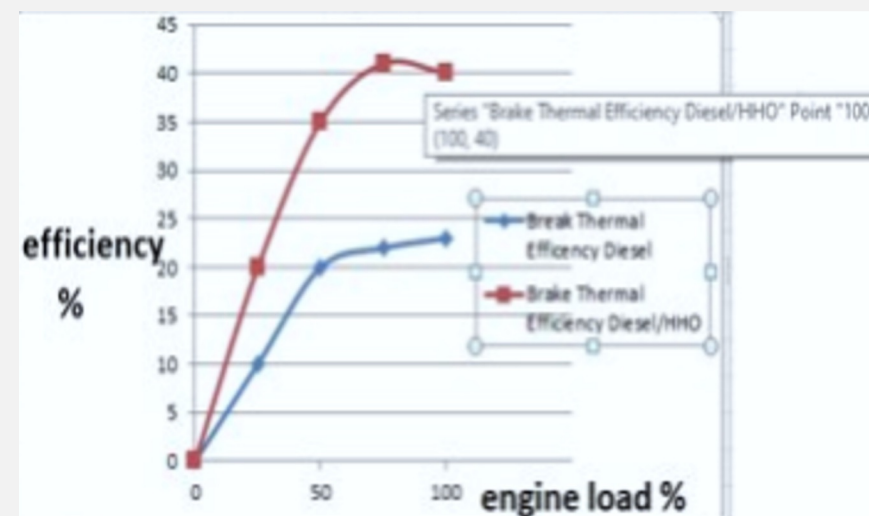
SCHEMATIC DIAGRAM FOR HFS WITH IC ENGINE



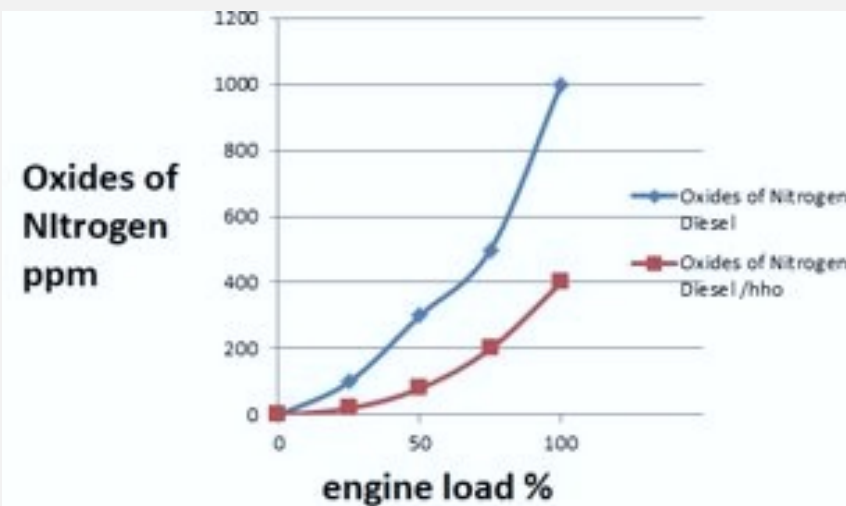
20 TO 50% BETTER POWER EFFICIENCY



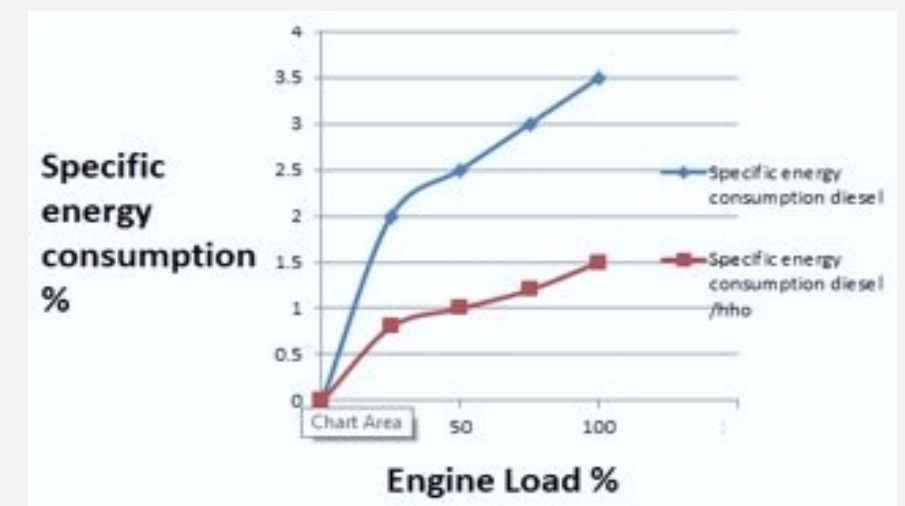
MORE THAN 40% BETTER LOAD EFFICIENCY



MORE THAN 60% BETTER EMISSION CONTROL



MORE THAN 70% BETTER ENERGY UTILIZATION



R&D Focus, the key enabler for future expansion

SYSTEM FOR ALL VEHICLE SIZES

Making Hydrogen Fuel systems for every vehicle & applications possible with high ROI (Marine, Locomotive, Mining)

DATA & TRACKING

Fuel systems keeping track of carbon footprint reduced and fuel saved added with smart vehicle tracking

HYDROGEN FOR HEALTH

Designing Hydrogen systems for better health and wellbeing

STATE OF ART LABS

Keep providing our scientists the best labs and use cases to enable Hydrogen systems of future

HYDROGEN POWER SYSTEMS

For generating power from Hydrogen for various applications like electric vehicles and Power generators

HYDROGEN GENERATORS

Systems for generating & storing hydrogen that can be used for various applications

CARBON CREDITS & DECARBONIZATION

Scope to commercialise carbon credits & decarbonization





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Karunjit Dhir

Director – Sales & Marketing
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KiTech Hydrogen Systems Pte Ltd
A Kuber Ventures Company



Singapore | India | Australia

For a greener world.