Profile Status: Published

Technology Offer

Super dense, small weight internal combustion engine

Summary

A UK SME has developed a compact internal combustion engine with significantly reduced weight compared to conventional internal combustion engines. It uses a patented modification of the two and four stroke Otto cycle that allows for one cylinder of the new engine to deliver almost the same power as two cylinders in a conventional Otto cycle engine. The company is looking for license or technical cooperation agreement with vehicle and other original equipment manufacturers.

Creation Date	02 August 2016
Last Update	23 January 2018
Expiration Date	04 August 2018
Reference	TOUK20160802001
Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/5886a7d8-fd49-4359-b99f-0578152d1a6f

Details

Description

A UK engineering and licensing company which has developed a range of licensable technologies is offering a light-weight, super compact internal combustion engine ready for deployment in various vehicles and other equipment - cars, motorbikes, aircraft, boats as well as construction, moving, agriculture and garden equipment. The reduced weight of the new engine translates into considerable reduction in fuel consumption and the overall weight of the vehicle on which it is mounted, ultimately increasing its performance. The new engine weighs 40 to 50 % less than conventional internal combustion engines, however it keeps the same shape and structure making it easy to manufacture and mount.
To suit the client's requirements the company can easily scale up the engine's size and power on made-to-order basis and include following state of the art features:
- Water cooling;
- Fuel injection;
- Closed sump;
- Total dry sump lubrication system including oil lubrication injection and suction to needed parts;
- Revolutionary piston cooling technology;
- Supercharging and turbo on request;.
- Twin sparking;
- Emissions control.

The company is looking to supply second-tier original equipment manufacturers (OEM) in the automotive, aircraft, industrial and agricultural equipment industry via license or technical cooperation agreements.

Advantages and Innovations

Compared to conventional four or two stroke internal combustion engines of comparable size and mass, this novel engine:
- exhibits a significantly improved power to mass ratio (power density);
- has a 50% shorter crankshaft;
- has a smaller flywheel and approximately half the associated rotating mass;
- has a much smaller engine block;
- needs a much lighter car frame to hold the engine;
- has better fuel efficiency due to less mass and less rotational mass;
- shows that non petrol and non-diesel engines can have a power density higher than conventional petrol and diesel engines;
- the engine's parts easily fit into an established piston engine design.

In addition, existing internal combustion engine assembly lines can be readily adapted for the manufacture of the new engine because apart from the double-action-piston itself, all other parts of the engine design are conventional and substantially known.

Stage of Development

Available for demonstration

IPR Status

Secret Know-how

Profile Origin

Private (in-house) research

Keywords

Technology

02002009	Machine Tools
02003003	Component integration
02009010	Lightweight construction
02009012	Automotive engineering

Market

08003001	Machine tools, other metal working equipment (excl. numeric control)
08003006	Power transmission equipment (including generators & motors)

NACE

C.28.1.1	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
C.28.3.0	Manufacture of agricultural and forestry machinery
C.29.3.2	Manufacture of other parts and accessories for motor vehicles

Network Contact

Issuing Partner

ASTER - SOCIETA CONSORTILE PER AZIONI

Contact Person

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Open for EOI : Yes

Dissemination

Send to Sector Group

Automotive, Transport and Logistics

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English

Client Country

United Kingdom

Partner Sought

Type and Role of Partner Sought

The company is looking to work with second-tier OEMs (SME or larger) from all industries that use conventional internal combustion engines of any power range (from chainsaw and

lawnmowers up to heavy haul equipment) willing to manufacture the new engine under license agreement or to enter into technical cooperation agreement with the license holder.

Type and Size of Partner Sought

SME 11-50,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Technical cooperation agreement

Attachments

Profile Status: Published

Technology Offer

Mica capacitors

Summary

A German SME offers tailor made developed mica capacitors used in professional applications where precision and high reliability are important. The products are used for research and development purposes by universities as well in industrial applications like automotive, space or electro mobility. The company is looking for partners for technical cooperation agreements.

Creation Date	08 February 2017
Last Update	27 February 2018
Expiration Date	09 September 2018
Reference	TODE20170208001
Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/c03cbd41-85e7-469c-aabe-ac6f161ed077

Details

Description

The SME is active in the production of mica capacitors. Mica as a dielectric has special properties: low dissipation factor, high dielectric strength and high temperature stability. Therefore MICA capacitors are suitable at extremely temperature conditions.
The company offers to their customers special services: measurements, tests, burn-in and screening of single pieces or complete batches.
They are looking for partners like universities or companies which need tailor made capacitors. Targeted type of cooperation are technical cooperation agreements.

Advantages and Innovations

The Mica material used in the capacitors is a potassium-aluminium-silicate of especially constant crystalline structure named "Muscovite, quality ruby clear". Before processing all mica foils are controlled up to the maximum theoretical limit of dielectric strength in order to guarantee constant product quality.

An excellent stability is reached without significient gaps between dielectric and electrode as the result of applying and burning in of exactly defined silver electrodes on both sides of using of naturally aged thin mica plates. Therefore there is a high stability of capacitance and temperature coefficient. Stack technique for single mica foils and the frontal contacting ensure a special low-induction. In order to use the optimal charcateristics of mica as dielectric a special vacuum impregnation and the cleading with approved synthetic resins is necessary. This provides besides high insulation also mechanical and climatical strength.

The various designs of the capacitors are qualified according the most German and international standards.

Stage of Development

Already on the market

IPR Status

Design Rights

Profile Origin

Private (in-house) research

Keywords

Technology

01002001	Micro and Nanotechnology related to Electronics and Microelectronics
01002003	Electronic engineering

Market

03004003	Other electronics related equipment

NACE

C.27.9.0	Manufacture of other electrical equipment
C.29.3.1	Manufacture of electrical and electronic equipment for motor vehicles

Network Contact

Issuing Partner

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Open for EOI : Yes

Dissemination

Send to Sector Group

Automotive, Transport and Logistics

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

0

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English
German

Client Country

Germany

Partner Sought

Type and Role of Partner Sought

The company offers their customers special services: measurements, tests, burn-in and screening of single pieces or complete batches.
They are looking for partners like universities or companies which need tailor made capacitors for technical cooperation agreements.
Commercial Agreement with tech assistance.

Type of Partnership Considered

Technical cooperation agreement

Attachments

Profile Status: Published

Technology Offer

Silver salts for energy-efficient organic reactions like isomerization, dehydrogenation, cracking and coupling

Summary

A Slovenian research institute together with a Polish university offers technology for optimisation of organic reactions. This is achieved by innovative preparation of silver salts and hydrates as reagents for organic reactions (isomerization, dehydrogenation, cracking and coupling). The technology is ecological and energy-efficient. Companies from petrochemical, chemical, pharmaceutical and environmental sector are sought for licence or technical cooperation agreement.

Creation Date	19 July 2017
Last Update	25 July 2017
Expiration Date	25 July 2018
Reference	TOSI20170707001
Public Link	https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/4eeafc1e-5a70-477f-a42e-a1bd9cb39123

Details

Description

Modifications of organic compounds such as isomerization (including cyclization and ring opening) dehydrogenation (including aromatization), cracking (breaking of C-C bonds) and coupling (formation of C-C bonds) are common reactions in petrochemical, chemical and petrochemical industry. These are also important in treating wastes consisting toxic hydrocarbons and their derivatives, or hazardous materials, such as persistent organic pollutants, carcinogenic polyaromatic hydrocarbons, industrial wastes, wastes from nuclear industry, and other.

Some of the reactions of major industrial importance are listed below:
- isomerization of light alkanes
- isomerization of light paraffin
- dehydrogenation of propane to propene
- dehydrogenation of aliphatic hydrocarbons
- dehydrogenation of propane
- thermal cracking

Researchers of the Slovenian institute in cooperation with researchers of the Polish university have developed an effective method to modify the molecular structures of organic compounds, including isomerization, dehydrogenation, cracking and coupling of organic compounds in a simple synthesis reaction, which result in breaking and/or the formation of new carbon-carbon bonds. This is accomplished by using silver salts and hydrates e.g. silver sulphate as reagent,

allowing processing of these reactions in the simple one-pot synthesis (i.e., direct one-step synthesis). The research group has developed an effective process for the electrochemical synthesis of the silver salts of high purity. The process of silver salts synthesis is schematically depicted in the attached photo.

The researchers are looking for companies from chemical, petrochemical, pharmaceutical and environmental sector, who are interested in licence or technical cooperation agreement. In the case of licence agreement, the companies are supposed to include the silver salts and hydrates technology in their industrial process. If the company is interested in further development of the technology, researcher partners would enter into technical cooperation agreement with such company.

Advantages and Innovations

The main advantages of the presented method are:

- Organic reactions are energy-efficient: The cross-coupling technic enables reactions to be carried out at room temperature (instead of at elevated temperatures) over a number of organic compounds.
- Organic reactions are simplified: The cross-coupling reactions proceed without first being modified or activated – there is no need for modification or activation of starting materials.
- Silver salts are of very high purity
- Synthesis of silver salts of the invention allows the reuse of the reduced silver products: This enables cyclic use of this material.
- Synthesis of silver sulphate does not produce any hazardous chemicals
- Hydrates of the silver salts are water resistant: at the same time they retain all desirable characteristics of silver compounds (i.e., high redox potential, chemical inertness in contact with hydrocarbons, etc.). This is significant advantage, because facilities are able to use the silver salt hydrates as chemicals under normal conditions in an air atmosphere containing moisture.

Stage of Development

Available for demonstration

IPR Status

Patent(s) applied for but not yet granted

Profile Origin

National or Regional R&D programme

Keywords

Technology

03004002	Inorganic Substances
03004006	Organic Substances
03004010	Special chemicals, intermediates
05001005	Petrochemistry, Petroleum Engineering
10004006	Sludge Treatment / Disposal

Market

05007002	Pharmaceuticals/fine chemicals

08001017	Industrial chemicals
08001019	Speciality/performance chemicals
08004004	Other pollution and recycling related

NACE

M.72.1.1	Research and experimental development on biotechnology
M.72.1.9	Other research and experimental development on natural sciences and engineering

Network Contact

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Open for EOI : Yes

Dissemination

Send to Sector Group

Materials

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

1949

Already Engaged in Trans-National Cooperation

Yes

Languages Spoken

English

Client Country

Slovenia

Partner Sought

Type and Role of Partner Sought

Type of partner:
Sought are companies from chemical, petrochemical, pharmaceutical and environmental sector.

Role of partner:
In the case of license agreement implementation of silver salt technology to the reactions of organic compounds.
Cooperation in the industrial sized scale-up of the process and joint development during the pilot phase in the case of technical cooperation agreement.

Type and Size of Partner Sought

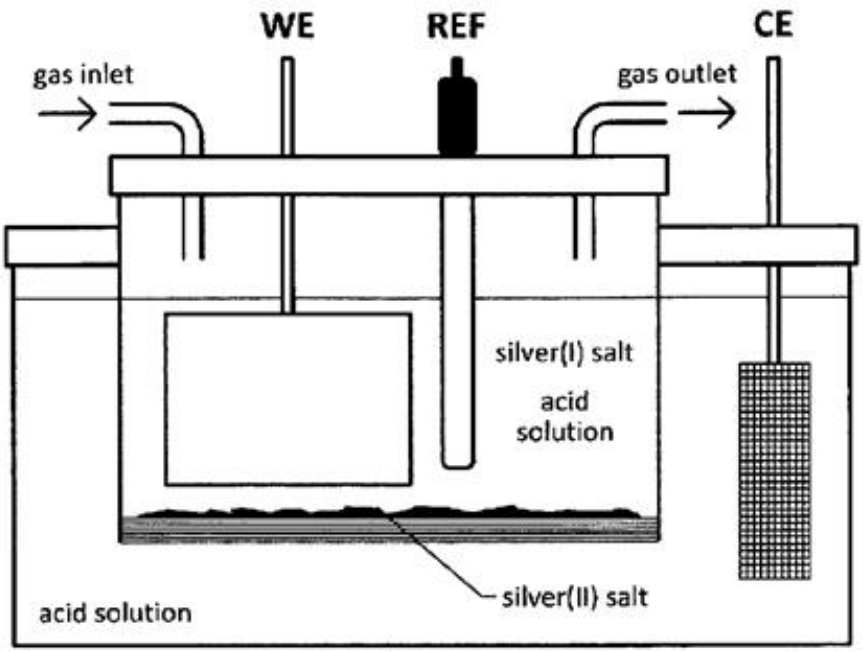
SME 11-50,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

License agreement
Technical cooperation agreement

Attachments

pic.png


WE
REF
CE
gas inlet
gas outlet
silver(I) salt
acid solution
silver(II) salt
acid solution