

# CHEMICAL ELECTRIC HYBRID PROPULSION STAGE WITH ELECTROPUMP

### **Technological benefits**

### Originality of the exchange

Exchange of electrical energy between the electric propulsion section and the chemical propulsion section

### Optimisation of the benefits of both types of propulsion:

Association between chemical and electric propulsion to benefit from the advantages of both types of propulsion:

- chemical: rapid transfers
- electric: Isp very high

### **Invention overview**

Proposal for a propulsion stage combining electric propulsion and chemical propulsion.

Exchange ensured via an alternator operating in motor and generator

Exchange ensured via an electrical power distribution management module, supplying power to various items of equipment in the chemical section

## Electric thruster Explanatory scheme

Chemical

propulsio

Electrical engine

Fast Rechargea battery

Flectric

#### **Commercial benefits**

### Improved mission performance

Optimisation of mission duration and payload weight

Complexity of the system limited

### Saves time and gains power

Combining the respective benefits of electric and chemical propulsions to save time and gain power

### **Potential applications**

Applications et valorisation de technologies spatiales

Upper stage of the launch vehicle

au service de l'industrie

Space tug

TRL: 6

CNES/distribution Airbus DS - Traitement V. Martin

PMAD

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