

DFD-Dense Fluid Degreasing

A new eco-innovative technology

DFD-Dense Fluid Degreasing manufactures innovative cleaning and degreasing machines for mechanical parts. With these machines, jointly developed with Cetim, the company makes the most of the specific properties of supercritical carbon dioxide (CO₂) in a cost-efficient manner for industrial manufacturers.



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OUR CUSTOMER

Corporate name

DFD-Dense Fluid Degreasing

Activity

DFD designs and manufactures supercritical CO₂ cleaning and degreasing machines and provides supports during the entire service life of its machines.

Turnover

€160K in 2016, €900K to €950K in 2017

Workforce

7 persons

During the Industrie-Lyon 2017 trade fair, DFD-Dense Fluid Degreasing received the Eco-efficiency Innovation Award. This French start-up, based in the Savoie region, recommends replacing chlorinated solvents with supercritical carbon dioxide (CO₂). As a matter of fact, at a temperature above 31°C and a pressure of 74 bars, this gas becomes supercritical and dissolves oils and greases on metal or polymer substrates.

Joint development

"I convinced Cetim and CEA to join my project, with also Bpifrance for the funding

of our R&D program," says DFD-Dense Fluid Degreasing CEO Dominique Rossignol. *"The joint development of our supercritical CO₂ cleaning machine with Cetim took concrete form between 2013 and 2015 with the outlining of the project, the providing of skills, the usage design, the ecodesign of the machine and Cetim's financial contribution of €160,000."* A market survey was then carried out with approximately sixty mechanical engineering companies, and a dozen of these companies agreed to carry out a large number of hydrocarbon and particle removal tests between 2013 and 2016. This led to the drafting of specifications

and the development of a demonstrator launched in April 2015 and, finally, to marketing : *"In November 2015, Eclide Microdécolletage ordered its first machine, whose commissioning was scheduled to take place in September 2016,"* says Dominique Rossignol. This cleaning process is mainly used in various sectors such as mechanical engineering, watchmaking, luxury goods, implantable medical devices made of metals, polymers or fabrics, the aviation industry, etc. Other applications are also coming up: recycling of plastic materials, cleaning of precious metals and, very soon, dry cleaning of clothes, etc. And Dominique Rossignol to conclude : *"We have become solvent hunters, whether these are chlorinated, water-based or petroleum-based."*

Cetim's asset

To promote this green technology, Cetim provided its mechanical engineering knowledge and its HSE (Health,



Safety and Environment) related skills. Cetim's teams brought to DFD design

tools and offered its support to meet the requirements of industrial manufacturers.