

## **Application No. 873: Ferrofluid fountain**

Author: Florian Eppel, Würzburg, Germany

### **DEATH MAGNET moves ferrofluid**

As part of a workshop at grammar school, Mr Eppel was assigned the task of developing an interactive display for a permanent exhibition illustrating physical processes. Inspired by ferrofluid sculptures, he decided on a project using ferrofluid. An interactive ferrofluid fountain came into being, which perfectly demonstrates the characteristics of this fascinating liquid. This ferrofluid fountain has been on display at the Röntgen Grammar School (Röntgen-Gymnasium) since 2016 and can be viewed on the ground floor.

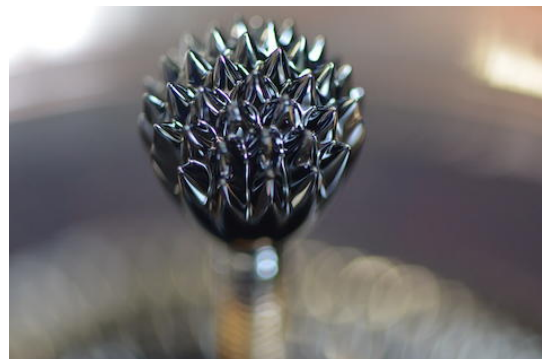
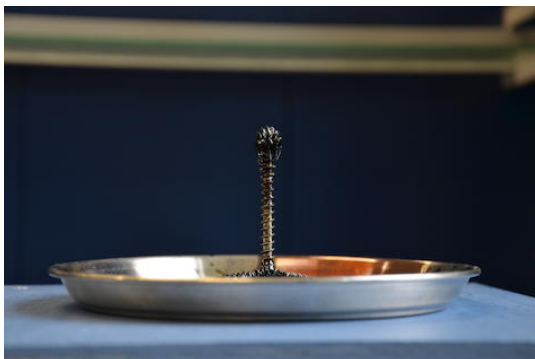
The centrepiece of this ferrofluid fountain is a small lifting platform (also called lab jack) which can be used to manoeuvre a DEATH MAGNET ([www.supermagnete.ch/eng/Q-51-51-25-N](http://www.supermagnete.ch/eng/Q-51-51-25-N)) with an unbelievable adhesive force of 100 kg towards the ferrofluid. Mr Eppel secured the magnet between two acrylic sheets, so it doesn't shift unintentionally. He bolted one of the two sheets directly to the platform of the lab jack. The DEATH MAGNET took his place on the head of the bolt located in the centre. Mr Eppel then positioned the second acrylic sheet on top of the magnet and connected it to the acrylic bottom sheet using 4 threaded screws.



The lifting platform fits into a homemade wooden frame. To prevent the lifting platform from accidentally toppling over, Mr Eppel bolted it to the bottom of the wooden frame. An aluminium bowl is located on top of the upper wooden panel and has a threaded bolt attached on the inside. As a final step and to complete the ferrofluid fountain, Mr Eppel added the ferrofluid ([www.supermagnete.ch/eng/M-FER-10](http://www.supermagnete.ch/eng/M-FER-10)) to the aluminium bowl – a total of 32 bottles, each containing 10 ml of ferrofluid. The bowl with the bolt was only a prototype. Later, Mr Eppel replaced it with a metal cone with tapered thread. He had it specially made for his project at the school's workshop. But the prototype is already quite impressive! The video posted below shows the remarkable shapes the ferrofluid takes on when a magnet is near.

*Note from the supermagnete team:*

An electromagnet can also be used for the ferrofluid fountain, as this YouTube video ([www.youtube.com/watch?v=jmaRKHBN2vc](http://www.youtube.com/watch?v=jmaRKHBN2vc)) posted by the University Duisburg-Essen clearly shows. If you are looking for inspiration for other projects using ferrofluid, you will find them on our website under "customer projects with ferrofluid" ([www.supermagnete.ch/eng/projects/ferrofluid](http://www.supermagnete.ch/eng/projects/ferrofluid)).



YouTube Video: [www.youtube.com/watch?v=G2-uloOcmQ8](http://www.youtube.com/watch?v=G2-uloOcmQ8)



### Articles used

M-FER-10: Ferrofluid 10 ml ([www.supermagnete.ch/eng/M-FER-10](http://www.supermagnete.ch/eng/M-FER-10))

Q-51-51-25-N: Block magnet 50.8 x 50.8 x 25.4 mm ([www.supermagnete.ch/eng/Q-51-51-25-N](http://www.supermagnete.ch/eng/Q-51-51-25-N))

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