



Some technologies improve products.

Others transform entire industries.



www.nemesysunit.com

From idea to platform

The development of Nemesys technology is not the story of a single device. It is a gradual journey from the first functional model through patent protection and independent measurements to the public presentation of the prototype and new partnerships.

“May the future reveal the truth
and judge everyone
by their work and results.”

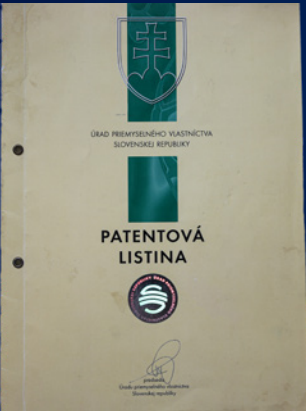
Nikola Tesla, 1905



The next phase
of development
begins.
It can be created
together with you.

Patented and independently measured

The patent defines the technical solution. Laboratory and comparative measurements show how the prototype behaves under specific operating conditions. Together, they provide a basis for further expert validation.

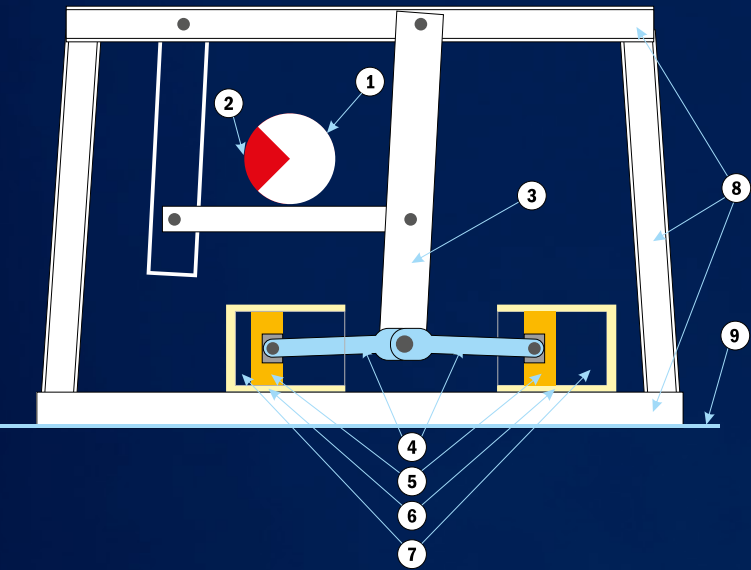


Patent No. 288877
Title: Vibration Compressor
Inventor and owner: Pavol Nemeš
Application number: 100-2019
Filing date: 2 September 2019
Publication: 10 March 2021
Patent protection: 2021
International Patent Classification: F04B 1/00, F04B 9/00, F04B 17/00

What does the patent protect?

The patent protects the design of a vibration compressor in which a vibration motor with an eccentric weight transfers motion to a system of pistons and opposing cylinders. Their movement alternately draws in and discharges the working medium.

The core of the solution is not a specific device, but the way the vibration motor's motion is transferred to a system of opposing pistons. The patented principle provides a technical basis for different designs and performance classes.



- 1. **Vibration motor** - Drives the entire system.
- 2. **Eccentric weight** - Generates a changing force through rotation.
- 3. **Vertical transmission arm** - Transfers the motor's motion to the piston connecting rods.
- 4. **Piston connecting rods** - Connect the arm to the pistons and transfer the motion.
- 5. **Compressor pistons** - Perform reciprocating motion inside the cylinders.
- 6. **Compressor cylinders** - Guide the pistons and form the outer part of the working system.
- 7. **Working chambers** - Alternate between intake and discharge of the medium as the pistons move.
- 8. **Frame structure** - Supports the mechanism in a pivoting or fixed mounting.
- 9. **Fixed floor mounting** - Secures the entire device in place.



Patent No. 288877
Official record at the IPO SR

The patent protects the principle.
Measurements show how it performs in practice.

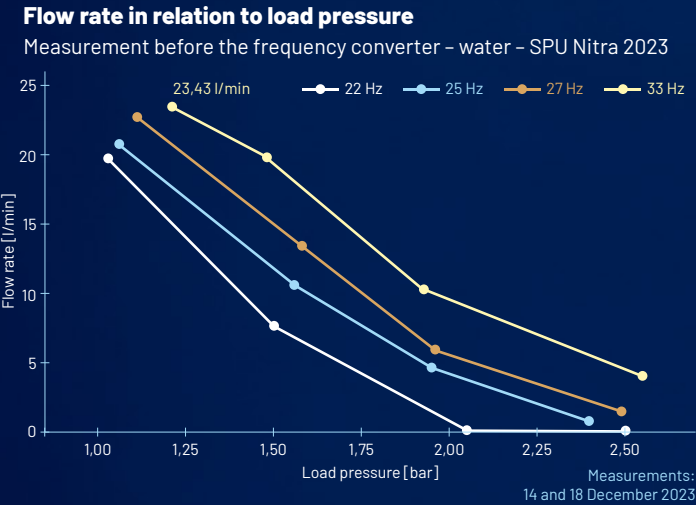
“This enormous difference in electrical power input, indicating a higher degree of efficiency, will be the subject of further research at our university.”

Statement by UNIZA, 26 February 2025

Laboratory measurements of the prototype
SPU Nitra, 2023

The Faculty of Engineering at SPU in Nitra measured the electrical power input and water flow rate of the pump prototype under different operating conditions.

- 14 and 18 December 2023
- 4 frequencies: 22 / 25 / 27 / 33 Hz
- Pressure: 1 to 2.5 bar



Graphic interpretation of data from the SPU Nitra report – prototype flow rate at different frequencies and load pressures.

UNDER LOAD: 0.5 bar	
Flow rate: approx. 17.3–17.8 l/min	
Sigma pump	304,0 W
Nemesys vibration prototype	119,6 W

60.7% LOWER
measured active power input

NO-LOAD OPERATION: Sigma pump: 189.9 W, Nemesys vibration prototype: 197.0 W

Under no-load operation, the measured values were comparable. A significant difference appeared only under load.

Measurement by the Slovak Institute of Metrology · Reports No. 10902-650-022-24 and 09896-630-142-24 · Expanded measurement uncertainty approx. ±9.7 to ±9.8 W

Independent comparative measurement
SMÚ – Žilina, 2024

The Slovak Institute of Metrology measured the active electrical power input of the vibration prototype and a mass-produced Sigma pump. Both devices were compared at the same pressure and nearly the same flow rate.

Measurement: 6 December 2024, reports issued: 12 December 2024



Nemesys vibration prototype
Report No. 10902-650-022-24

Sigma pump
Report No. 09896-630-142-24

UNDER LOAD: 1 bar	
Flow rate: approx. 17.3 l/min	
Sigma pump	414,0 W
Nemesys vibration prototype	144,4 W

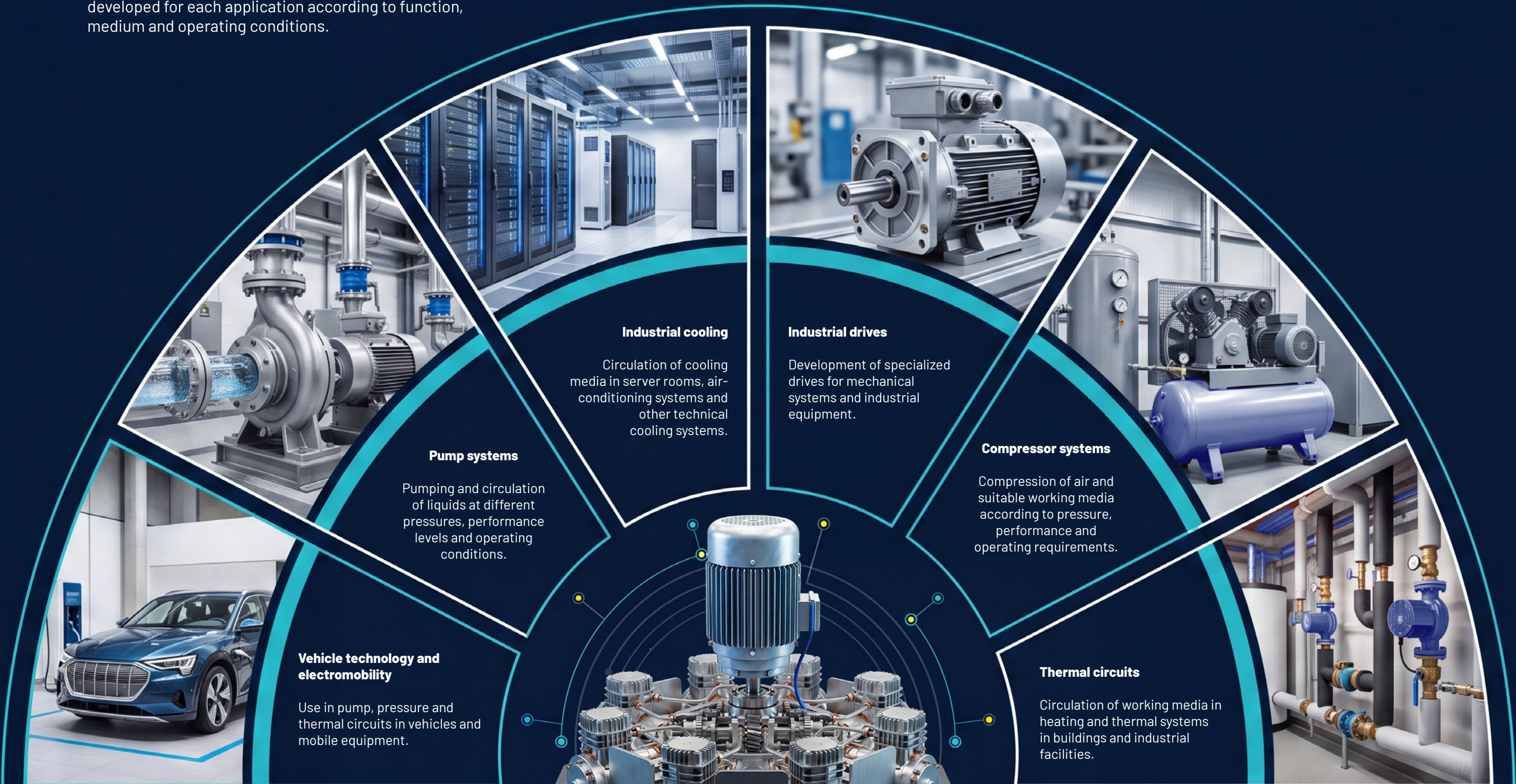
65.1% LOWER
measured active power input

One principle, many technical solutions.

The patented principle can be implemented in different designs and performance levels. A separate device is developed for each application according to function, medium and operating conditions.

*“The future does not have to be predicted.
It has to be made possible.”*

Antoine de Saint-Exupéry



The areas shown represent possible development paths. Each specific application requires its own technical design, prototype and validation.

8-cylinder development model
Example of one possible design based on the patented principle.

The principle is here. Who will use it first?

Energy efficiency is a competitive advantage today. The patented Nemesys principle enables more efficient devices - and whoever adopts it first gains the lead.



Where does your industry use the most energy today?



What would change if the same task used less energy?



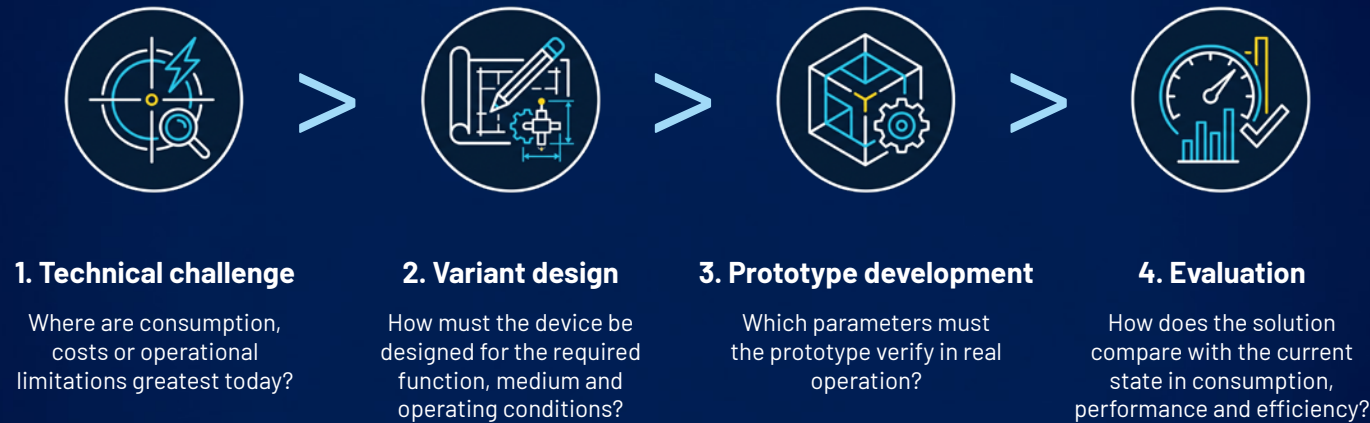
Who will use this advantage first?
You or your competition?



Looking for a solution? Let's start with the right question...

You do not need a finished solution. Name the process or device where you want to **reduce consumption, costs or technical limitations**. Together, we will assess whether a new variant based on the patented Nemesys principle is possible.

How does cooperation work?



*"You see things and ask, 'Why?'
I dream of things that never
were, and ask, 'Why not?'"*

George Bernard Shaw

Why not in your industry?

Technology connects. Community gives it strength.

NemesysUnit brings technology, people and support together in one system that enables new solutions and the company’s long-term development.



Why NemesysUnit?

New solutions need more than a good idea.

They need time, measurements, patents, partners and people willing to support them early - before they become part of the industry.

That is why NemesysUnit was created.

Not as a product, but as a system of contractually documented participation for people who want to support new technologies and take part in their future development.

Contractually documented participation

Participation in the project is based on a standard contractual model prepared by a specialist law firm.

Each participation is documented by contract and clearly defined in the relevant documents.

It is not informal support, but a clearly defined participation system.

Participants’ rights and obligations are governed by the relevant contractual documents.

Nemesys and NemesysUnit

Nemesys develops technologies.

NemesysUnit builds a community that supports them.

- Every prototype
- Every patent
- Every independent measurement
- Every step towards serial production

All of this moves the project forward. The two projects support each other.



NemesysUnit Calculator

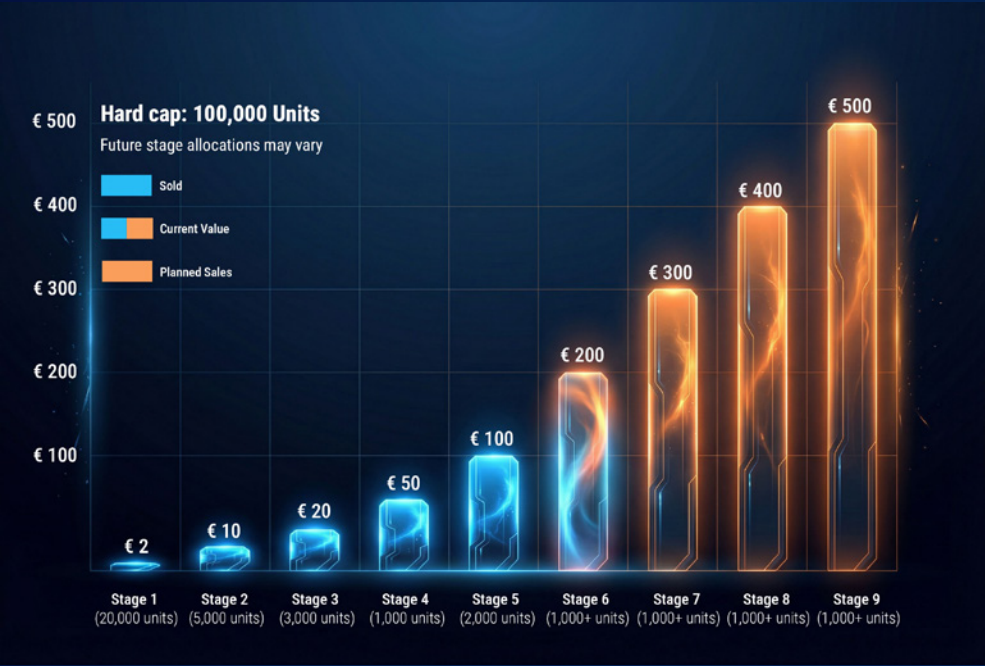


What value could NemesysUnit have under different project development scenarios?

At nemesysunit.com, an illustrative calculator models possible scenarios based on the parameters of the vibration pump project.

More than 400 participants and more than 33,000 NemesysUnits issued

Together, they form a community that has supported the project from the start. The community is one of the project’s greatest assets.



Technical progress creates new value.

The value of NemesysUnit is not determined arbitrarily.

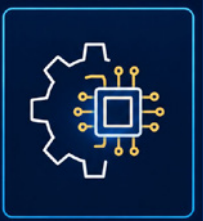
It grows with the Nemesys project and reflects technical progress, validation and technology readiness.

What influences the value of NemesysUnit?



Patent protection

Extending patent protection to additional countries is one of the project’s most demanding phases.



Technology development

Every new prototype, design solution and technical validation moves the project forward.



Independent measurements

Results from independent expert institutions increase the technology’s credibility.



Partnerships

New manufacturers, development partners and organizations expand the possibilities for practical use.



Community

The project grows with the people who have chosen to support its further development.

“People who are bold enough to believe they can change the world are the ones who *ultimately* do.”

Steve Jobs



*"Every great change
begins with **the first step.**"*

Pavol Nemeš

Pavol Nemeš

Independent inventor focused on understanding fundamental physical principles through systematic research, experimentation and practical validation.

Prototype presentation

We offer an in-person or online presentation of the Nemesys prototype, led directly by the inventor.

The presentation focuses on the technical principle, functional concept and practical use of the invention, followed by an open discussion.

What the presentation includes

- Explanation of the physical and technical principle
- Overview of the prototype and how it works
- Current stage of development
- Potential applications and further development
- Time for questions and technical discussion

Presentation formats

- In-person presentation
- Online presentation
- Technical consultation or expert discussion

**Please arrange your appointment by phone.
We look forward to hearing from you!**

Nemesys, s.r.o.

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Prototype presentation:

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