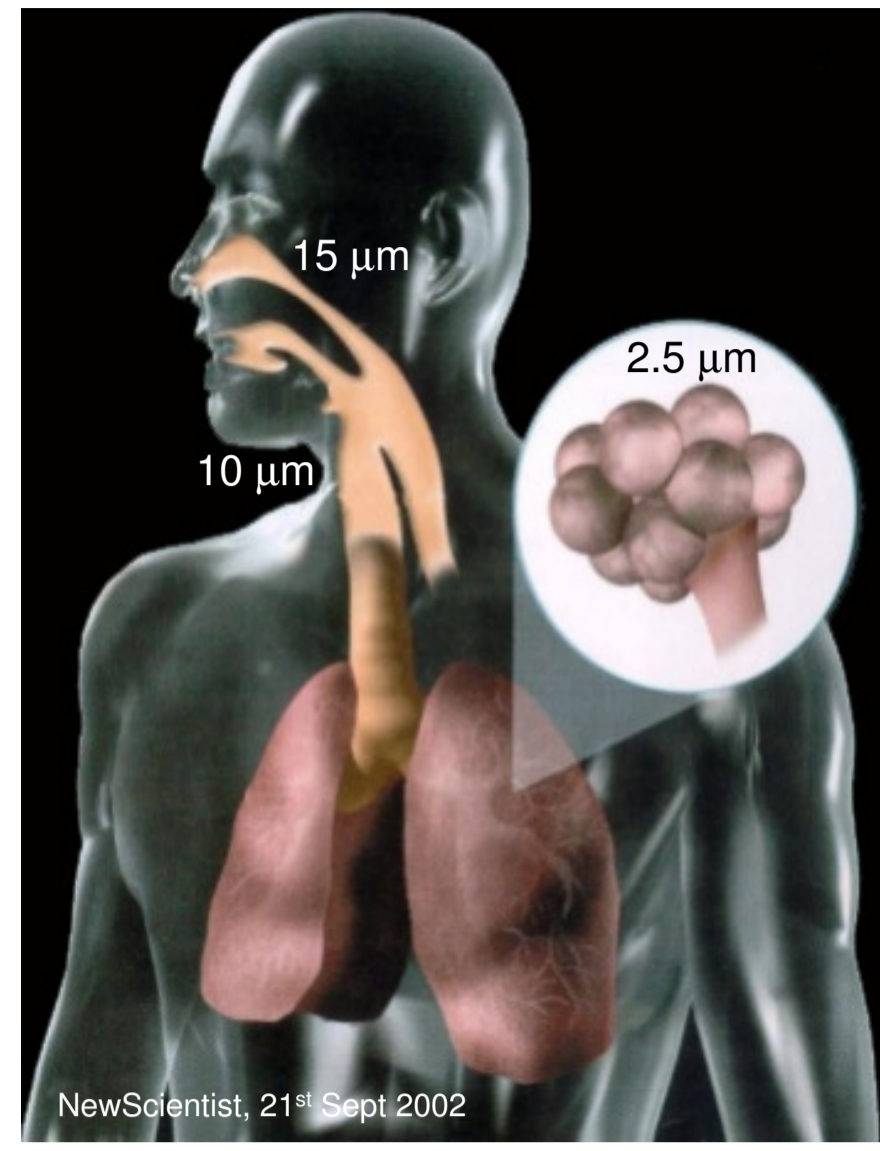


The ROCD project (**R**educing Risks from **O**ccupational Exposure to **C**oal **D**ust) is an EU-funded contract (2017 to 2020) to address current concerns about the health impacts of dust in coal mines.

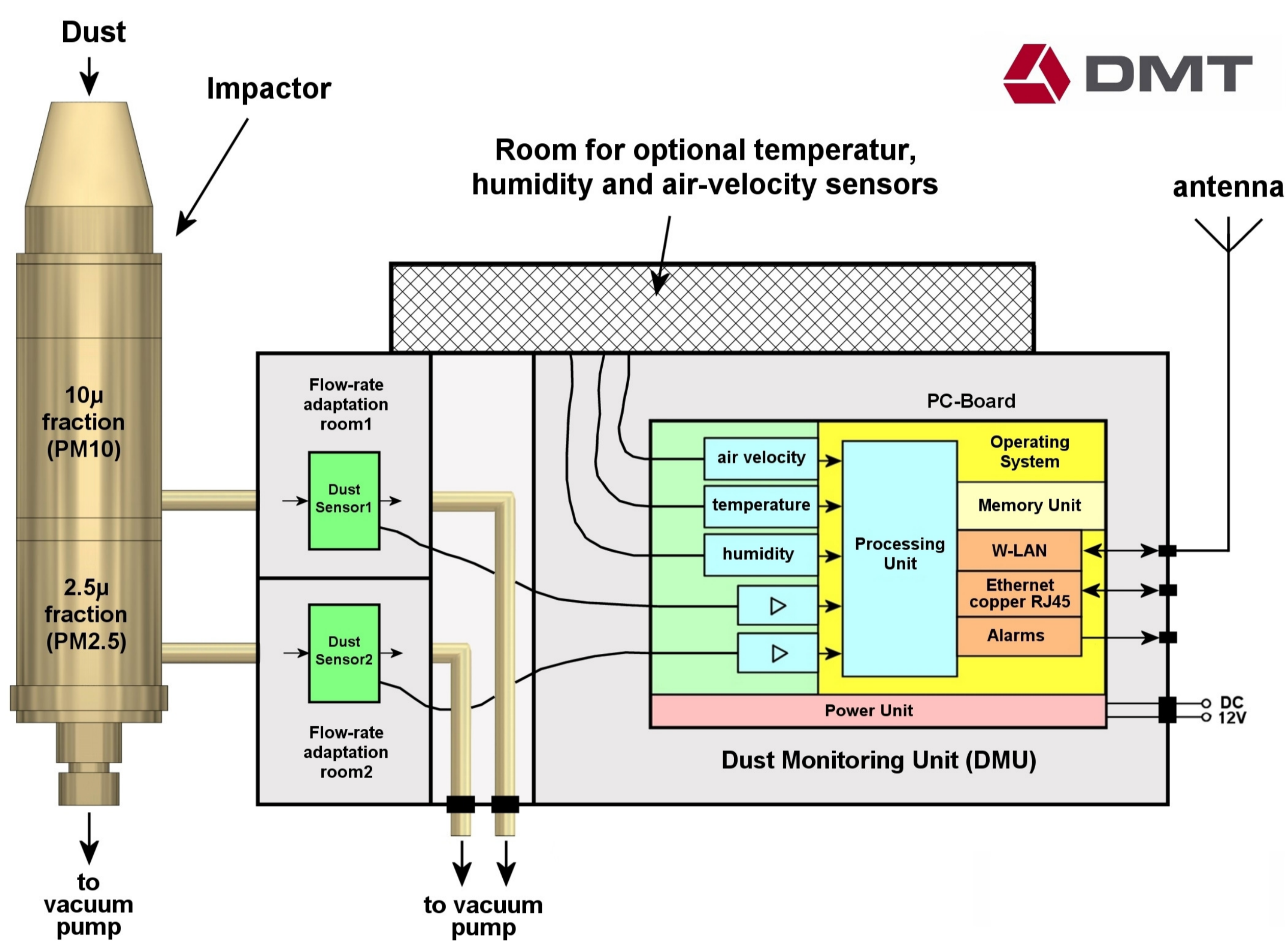
- Despite international efforts, coal mine dust continues to impact the health of thousands of miners.
- Interdisciplinary project involving a world-leading consortium of 10 university and industry partners from UK, Poland, Slovenia, Germany and Spain.
- Project will develop modern assessment methods and devices to control dusts and protect workers.
- First detailed study of PM_{2.5} (nominally dust with a diameter <2.5 microns), which is increasingly implicated in human, mainly cardiovascular, diseases.
- Case studies at hard coal mines in Poland and a lignite mine in Slovenia.
- Global dissemination of developed dust characterisation methods, new devices for monitoring and dust suppression and training tools for the proper use of dust masks to reduce incidences of coal mining-related disease.



<http://emps.exeter.ac.uk/csm/rocd>

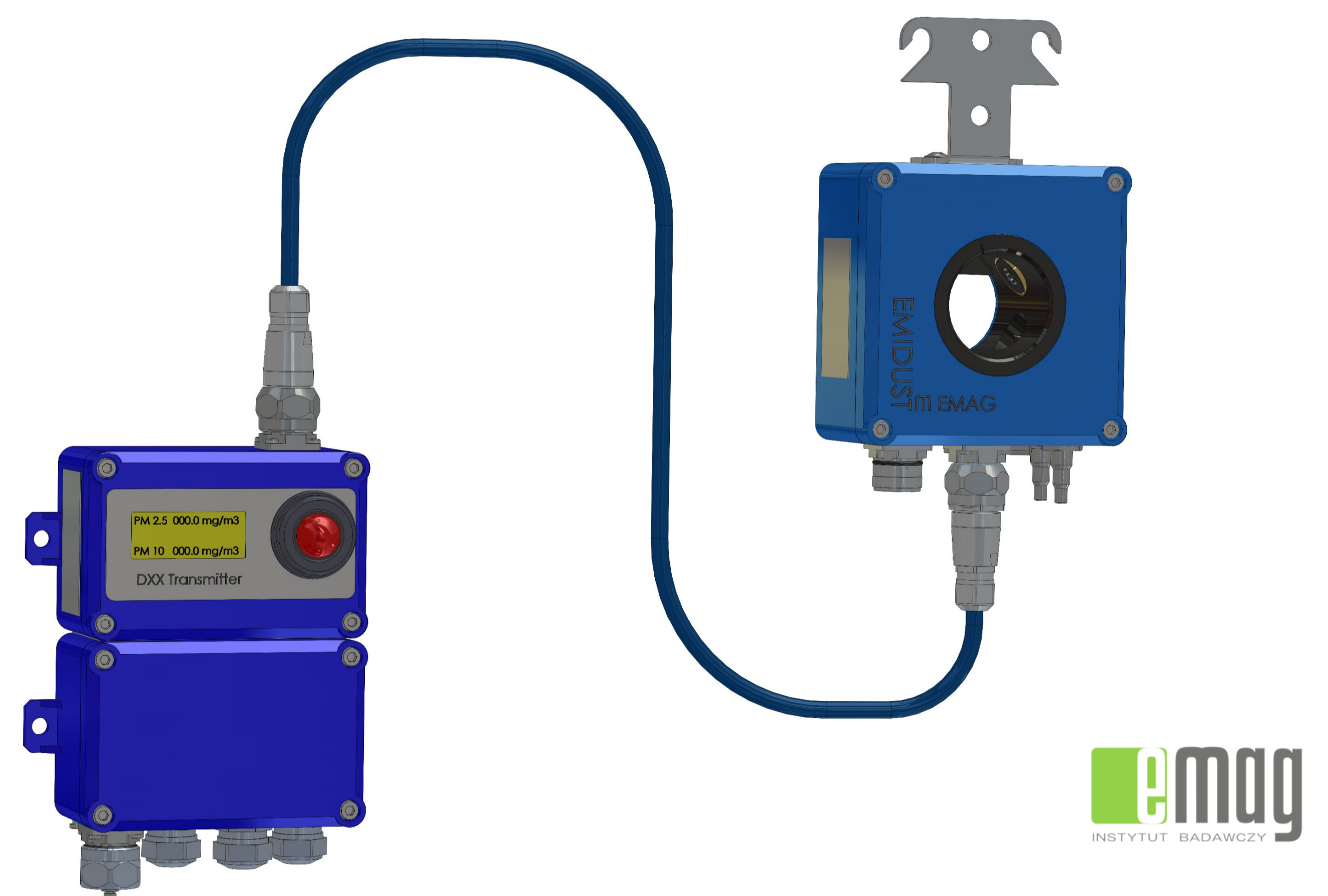
New devices for dust monitoring and control, optimised for PM₁₀ and PM_{2.5}

Development of new dust monitoring devices



New ATEX certified gravimetric and electrical dust measuring device

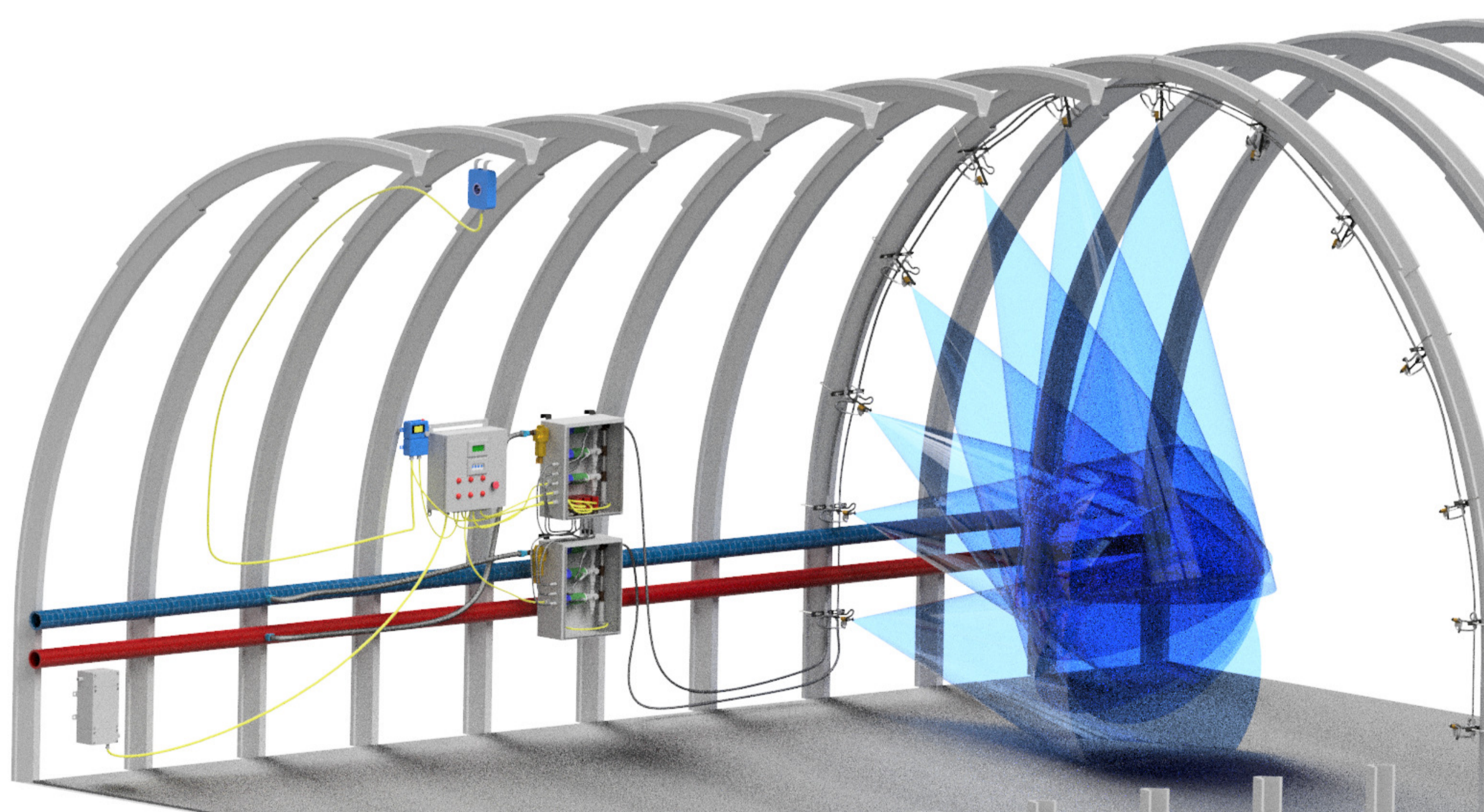
DMT is developing a prototype of a new spectrometer-based dust-monitoring device for the continuous determination of dust concentrations in air. An impactor with a high flow rate will ensure simultaneous dust-sampling for gravimetric analysis.



New ATEX certified optical dust monitoring device

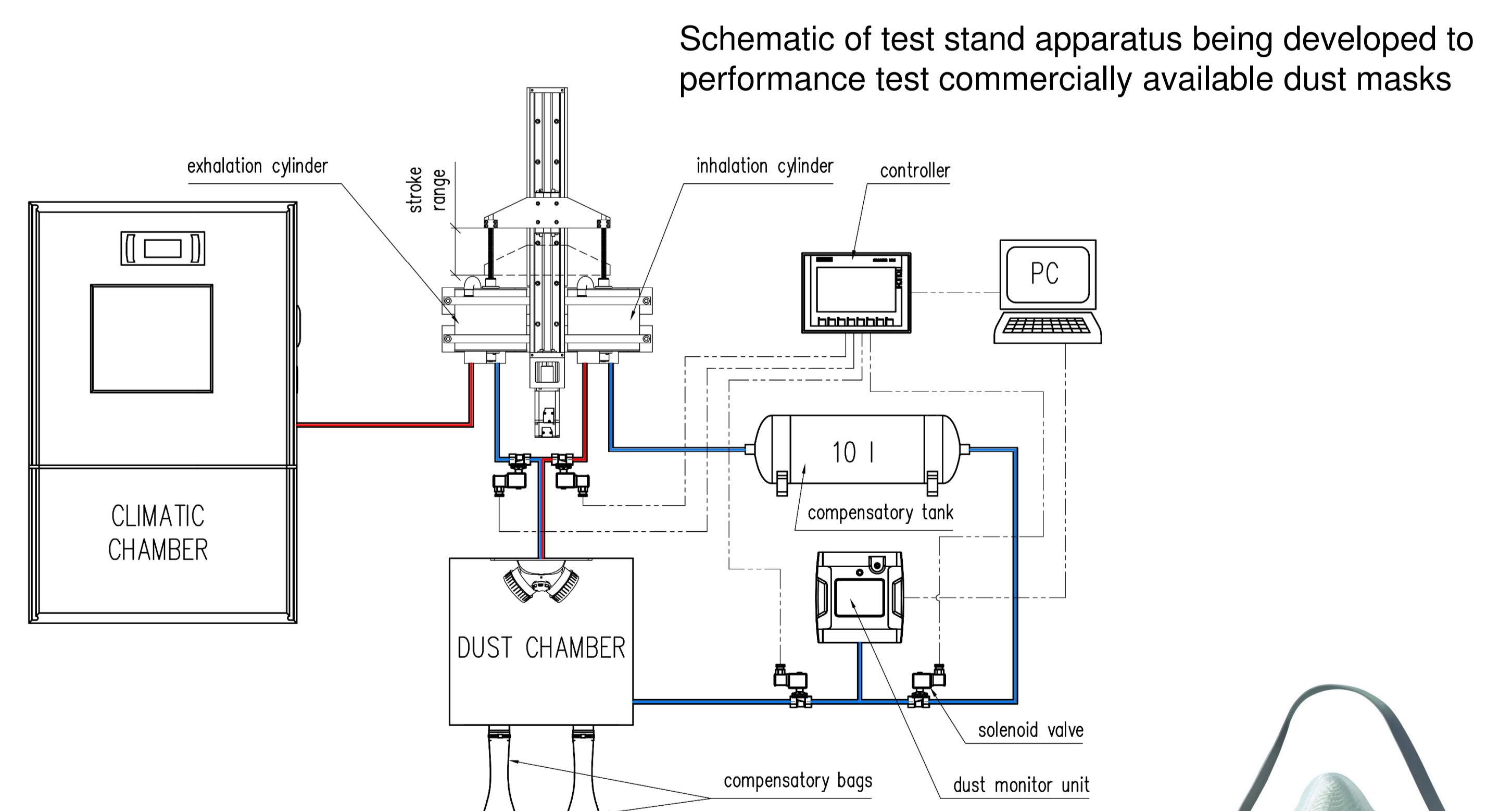
ITI EMAG is developing a new optical dust monitoring device that is a modification of the previously developed (uncertified) dust meters. The device will be used to simultaneously measure the levels of PM_{2.5} and PM₁₀ dust fractions up to a concentration of 200 mg/m³. It will be a device designed for environmental research in zones with high dust concentrations.

Development of new dust control system



Visualisation of a new intelligent spraying device being developed to reduce and prevent the spread of dust (PM_{2.5} and PM₁₀) in underground mines. The system uses compressed air to generate a high velocity spray of water droplets which have diameters close to and therefore capture dust particles. The advantage of the new device is that the intensity of the spray is adjusted depending on the level of dust measured by an EMIDUST optical dust meter.

New test methods for dust mask performance



Selected masks will be tested for their efficiency in reducing mine worker exposure to coal dust PM₁₀ and PM_{2.5}. Filter effectiveness (including leakage) will be established using a newly developed test stand, and mask life time and wearability in underground coal mine assessments.



One of the selected mask: MOLDEX 2365 Classic: EN 149:2001 A1 2009: FFP1 NR D

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