

 **Zenner**  
We are **SOLWERS**

## Designing, Planning & Consulting

Our customer base consists of large and small companies, public stakeholders, contractors, manufacturing plants, equipment manufacturers, construction companies, housing cooperatives, and private households. Our service portfolio consists of acoustics, energy & life cycle, special systems and HVAC & Automation. We provide unbiased laboratory measurement expertise related to product quality control, product research & development, definition of technical specifications, product approval and certifications, as well as type approval testing in our accredited HVAC and sound laboratory.

Zenner Engineers' HVAC and sound laboratory is accredited by FINAS accreditation service, accreditation requirement SFS-EN ISO/IEC 17025:2017.

[See the scope of accreditation](#)

  
**FINAS**  
Finnish Accreditation Service  
T276 (EN ISO/IEC 17025)



## ACCREDITED LABORATORY

Our laboratory conducts fluid dynamic tests, and performs thermal, electrical, acoustic and sound measurements.

More information can be found

[www.zenner.fi/en/](http://www.zenner.fi/en/)

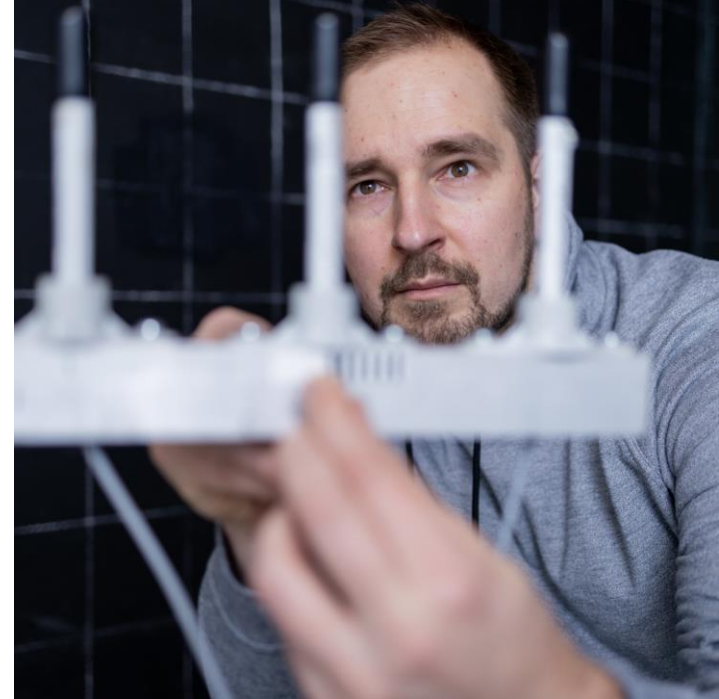
Zenner Engineers HVAC and sound laboratory is a testing laboratory accredited by FINAS accreditation service, accreditation requirement SFS-EN ISO/IEC 17025:2017. Please see the scope of accreditation.

## PROFESSIONAL TEAM

Our engineers have decades of experience and their workmanship is sustained continuously. Our proficiency is at a high level and is externally accredited (FISE & FINAS).

## AGILE COMPANY

We are a long-standing company that has been in operation for over 50 years. Our working atmosphere is encouraging. The tasks can be shared according to the different competence levels. Project Management is based on our vast knowledge and continuous development. Our quality system serves as a base for the work supervision and final inspection.



## OUR EXPERTS DESIGN, PLAN AND CONSULT

ACOUSTICS

ENERGY & LIFE CYCLE

SPECIAL SYSTEMS

HVAC & AUTOMATION

MODELING

NUMERICAL COMPUTATION

TESTING SERVICES

RnD SERVICES



## ACOUSTICS

Room & building acoustics, Sound insulation, Noise reduction, Product & equipment noise control, Vibration, Structure borne noise

## HVAC & AUTOMATION

Water & Sewer, Heating, Cooling, Air conditioning, Building automation, Expertise statements



## ENERGY & LIFE CYCLE

Energy planning, Energy calculations, Energy production optimisation, Environment simulations

## SPECIAL SYSTEMS

Compressed air & gas systems, cryogenic systems, flue gas systems, pneumatic tube systems

## DESIGN SERVICES



 **Zenner**  
We are **SOLVERS**

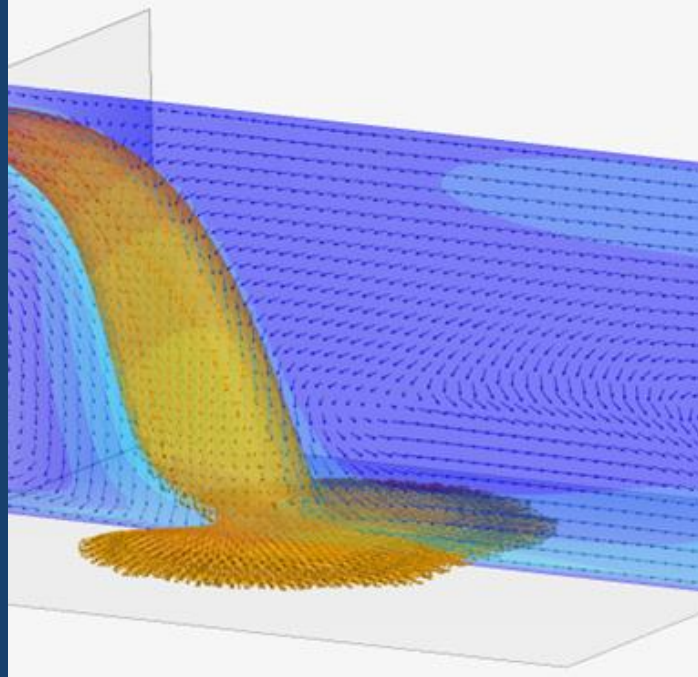


**OUR ENGINEERS ARE PROBLEM  
SOLVERS IN CHALLENGING CASES**

## LABORATORY MEASUREMENTS

Acoustic measurements, Fluid dynamics measurements, Thermal measurements, Electrical measurements, Water supply appliance testing, Wastewater noise measurements

Product quality control, Product research and development, Definition of technical specifications, Product approval & certification, Type approval testing



## TESTING & RnD SERVICES

### FIELD MEASUREMENTS

Acoustics, Building physics, HVAC & HPAC, Thermal comfort

### MODELING AND NUMERICAL COMPUTATION

Flow simulations (CFD), Condition simulations (CFD), Acoustic modeling, FEA-modeling

### SPECIAL MEASUREMENTS

We perform targeted tailor-made measurements as well as model room testing





## ACOUSTIC MEASUREMENTS

Determining sound power levels in the reverberation test room or with the intensity method (ISO 3741, ISO 9614)

Acoustic and fluid dynamic measurements of ventilation terminal units (ISO 5135)

Sound attenuation measurements (ISO 7235)

Building material sound absorption measurement and classification (ISO 354 and ISO 11654)

Sound insulation measurements for building elements (ISO 15186)

Water supply appliance noise emission measurements (ISO 3822)

## ACOUSTIC FIELD MEASUREMENTS

Sound insulation, impact sound insulation and facade sound insulation measurements (ISO 16283-1, -2 and -3, ISO 717-1 and -2)

Noise measurements: e.g. environmental noise, traffic noise, noise from building service equipment (ISO 1996, Ministry of the Environment guideline 1/1995, ISO 16032)

Room acoustics measurements, e.g. reverberation time, speech intelligibility, room acoustics parameters (ISO 3382)

Equipment sound power level measurements with the intensity method (ISO 9614)

Sound leak analyses and noise charts (so-called acoustic holography)

Vibration and structure borne measurements

# ACOUSTIC, PHYSICAL RESEARCH AND MEASUREMENT SERVICES

[zenner.fi/en/measuring-services/](https://zenner.fi/en/measuring-services/)



## FLUID DYNAMICS, THERMAL & ELECTRICAL MEASUREMENTS

Air volume flow rate measurements (SFS-EN ISO 5167)

Flow and acoustics measurements for supply and exhaust air units (SFS-EN 12238)

Flow, electrical, and acoustic measurements for fans and ventilation equipment (ISO 5801)

Aerodynamic testing of ventilation units

Flow and thermal measurements for heat recovery, heating, and cooling radiators (SFS-EN 308)

Testing of residential air handling units (SFS-EN 13141-7)

Environmental and efficiency tests for heat recovery devices (SFS-EN 13141)

Prototype manufacture, testing and analysis, product development

## BUILDING PHYSICS, HVAC & HPAC FIELD MEASUREMENTS

Temperature and humidity measurements

Building element tightness measurements

Building air impermeability measurements (n50 and q50 values, SFS-EN 13829)

Thermal imaging

Field measurements related to HVAC and HPAC, e.g. volume flow rate and pressure measurements



We are **SOLVERS**



| We are **SOLVERS**

reliable  
partner

## OUR VALUES

TRUSTED PARTNER  
TECHNICAL EXPERTISE  
AGILE COMPANY

## OUR VISION

TO BE A NATIONALLY AND INTERNATIONALLY RESPECTED  
PARTNER THAT CREATES THE BEST POSSIBLE ACOUSTICS  
AND HVAC DESIGN AS WELL AS LABORATORY AND FIELD-  
TESTING RESULTS FOR THE CUSTOMER

## CONTACT US

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