NETZSCH

Proven Excellence.

Analyzing & Testing

Proven Excellence.

NETZSCH Company Profile

Agenda

NETZSCH

1. The NETZSCH Group and the Business Unit A&T
2. NETZSCH A&T: The Whole World of Thermal Analysis, Rheology and Fire Testing
3. Wide Range of Applications
4. Worldwide Leading Companies/Research Institutes Rely on the Knowhow of NETZSCH

1 The NETZSCH Group and the Business Unit A&T

The NETZSCH-Group

And its Globally Acting Business Units

Erich NETZSCH GmbH & Co. Holding KG

Analyzing & Testing

Thermal analysis instruments and instruments for the determination of thermophysical properties

Grinding & Dispersing

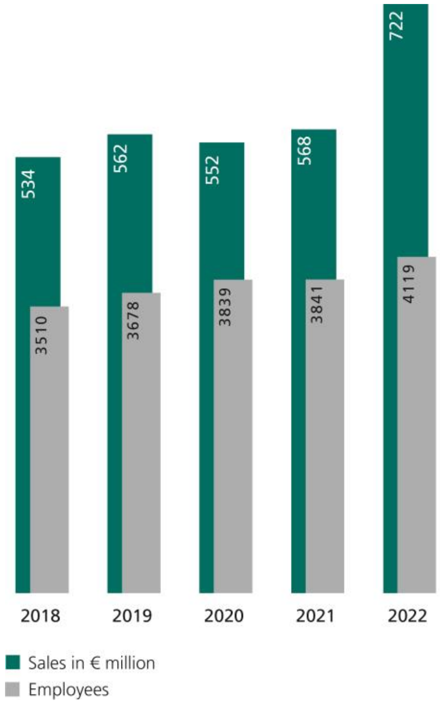
Comprehensive machine program for wet and dry grinding as well as mixing, dispersing, homogenizing and classifying

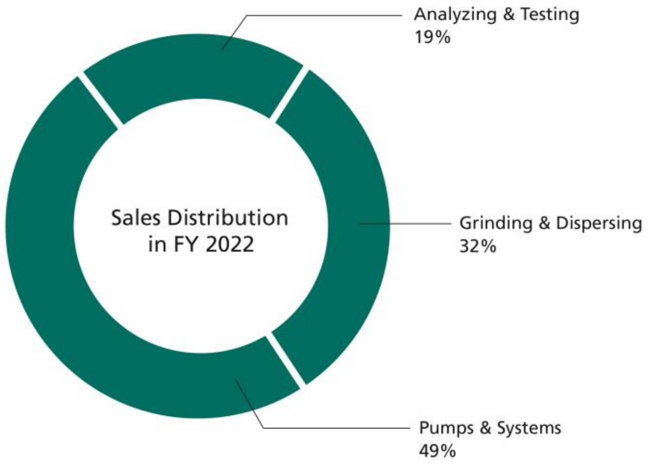
Pumps & Systems

Always the right positive displacement pump for your application

The NETZSCH Group
Continuous Growth

- Foundation 1873 by Thomas and Christian Netzsch in Selb
- More than 4000 Employees worldwide
- € 722 million in sales in fiscal year 2021/2022 (fiscal year: July 1 – June 30)





The Business Unit Analyzing & Testing

>150M €

Sales volume

>650

Employees worldwide

6

Production facilities worldwide

>10

Laboratories worldwide

>50

Sales and service locations worldwide

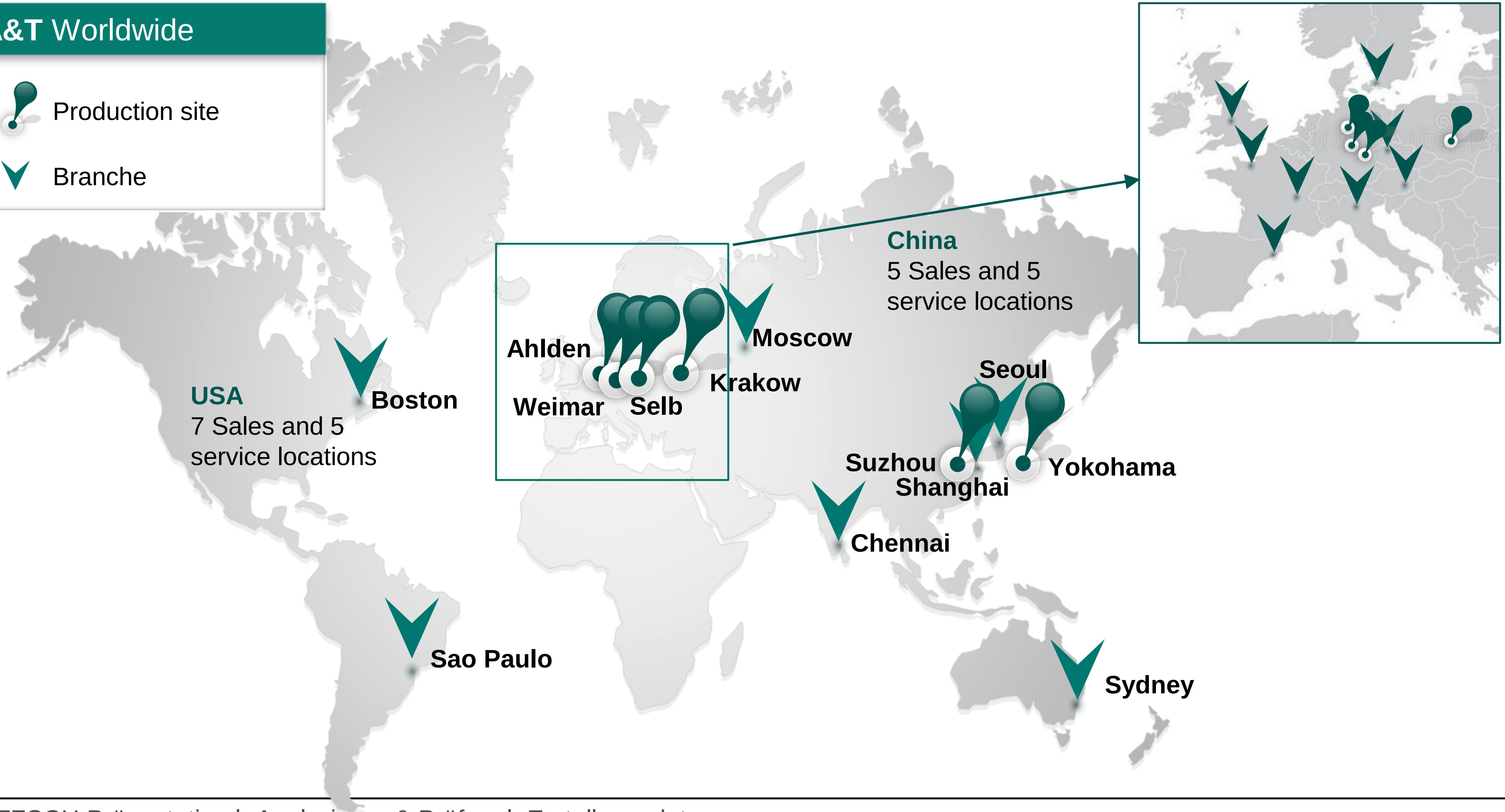
NETZSCH Analyzing & Testing - Worldwide Presence

NETZSCH

A&T Worldwide

Production site

Branche



Europe

Germany
HQ Selb
Ahlden
Weimar
Austria
Graz
Czech Rep.
Prague
Finland
Tampere
France
Lyon
Italy
Verona
Poland
Krakow
Spain
Barcelona
Sweden
Stockholm
UK
Wolverhampton

NETZSCH

Products and Services for Applications in the Low- and High-Temperature Range from -260°C up to 2800°C

Thermal Analysis

Determination of changes in dimension and mass, phase transitions and enthalpies as functions of the temperature

Thermophysical Properties

Determination of thermal conductivity, specific heat capacity and thermal expansion coefficient

Accelerating Rate Calorimetry

Analysis of degradation and reaction processes with regard to temperature, dissipated heat and pressure curve

Fire Tester

Determination of the fire behavior of products in the automotive, construction, electronics and polymer industries; classification into "European fire classes”

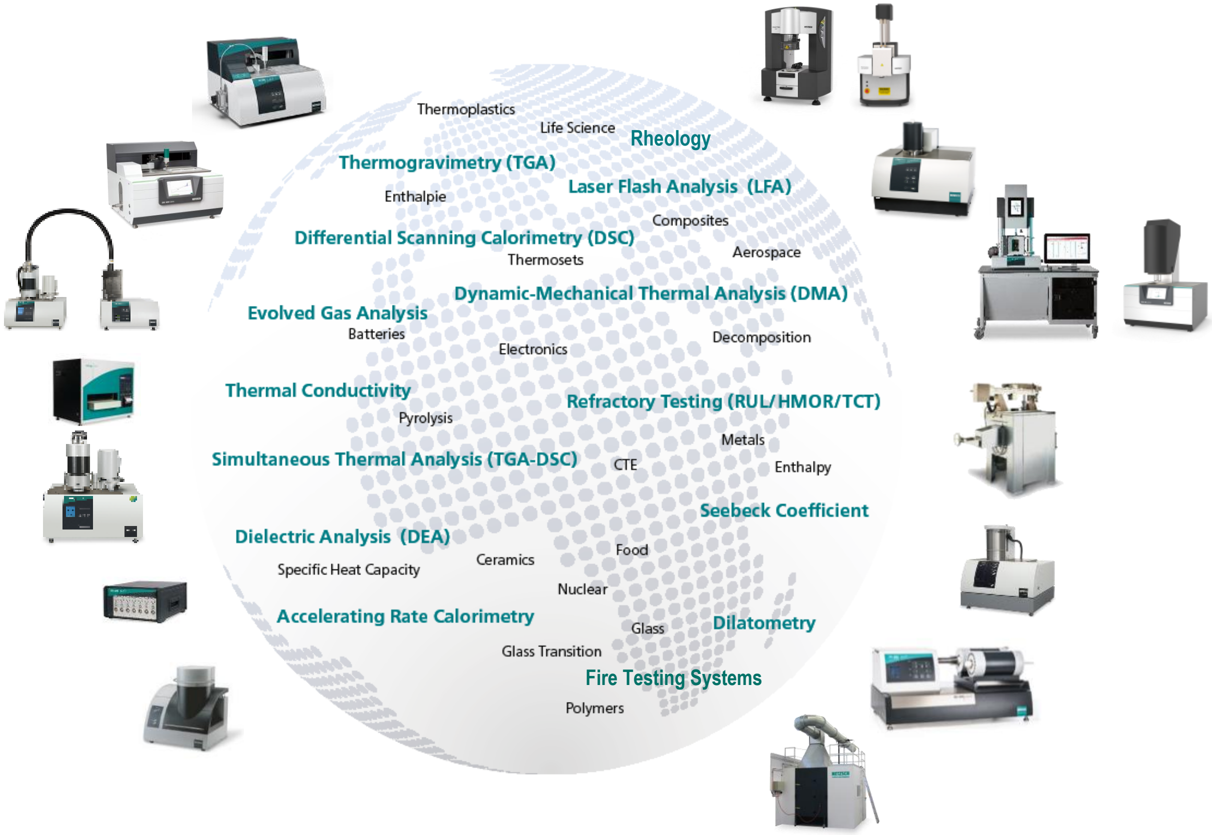
Rheology

Determination of the rheological properties of non-Newtonian liquids and soft solids - from formulation to product use

2 NETZSCH A&T: the Whole World of Thermal Analysis, Rheology and Fire Testing

NETZSCH A&T: The Whole World of Thermal Analysis, Rheology and Fire Testing

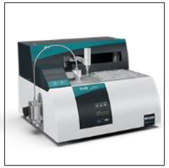
NETZSCH



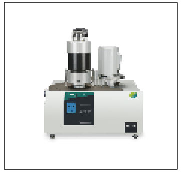
The Right Solution for Every Method

NETZSCH

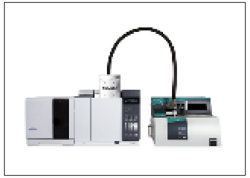
Differential Scanning Calorimetry (DSC) / Differential Thermal Analysis (DTA)



Thermogravimetry



Simultaneous Thermoanalysis

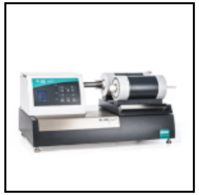


Gas Analysis

Accelerating Rate Calorimetry

Method					
	DSC DTA	TGA	STA	QMS FT-IR	ARC
	TMA DIL	DMA	DEA	Rheology	SBA

Method



Thermomechanical Analysis (TMA) and Dilatometry (DIL)

Dynamic Mechanical Analysis

Dielectric Analysis

Analysis of the deformation and flow behavior

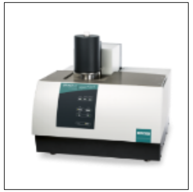
Seebeck Coefficient and electrical conductivity

The Right Solution for Every Method

NETZSCH

Method	Fire Testing Systems	HFM/GHP LFA/Thermoreflectance	RUL HMOR	Method


Determination of the reaction to fire performance





Thermal Diffusivity and Thermal Conductivity


Refractory Testing

Fire Testers – Fire testing equipment for ...

NETZSCH

KBT – Cable
EN 50399, IEC 60332

TRDA–
Smoke Density Testing Device
DIN 50055

LOI – Plastics
ISO 4589-2, DIN 22117, ASTM D2863

TBB – Floor Radiant Panels
EN ISO 9239-1

TSP – Smoldering Test
DIN EN 16733

KBK – Determination of the Ignitability of Products DIN EN ISCO 11925-2

SBI- Single – Building Products,
EN 13823

FRG – Structural Cohesion Tester
DIN EN 520

SBI-Single –Building Products
EN 13823

HBK – Materials-Aircraft
ISO 3795, DIN 75200, FMVSS 302,
GB 8410, IS 15061, CMVSS 302,
U.T.A.C 18-502, FAR 25.853

TNB – Fire-Testing Device for Non-Combustibility DIN EN ISO 16733

UL94 – Fire Hazard of Electrotechnical Products
UL 94, DIN EN 60695-11, ISO 9773

TCC – Heat Release and Smoke Production
ISO 5660-1, ASTM E 1354

TFP – External Cladding Systems
DIN 4102-20,
ÖNORM B 3800-5,
BS 8414-1

3 Wide Range of Applications

Polymers

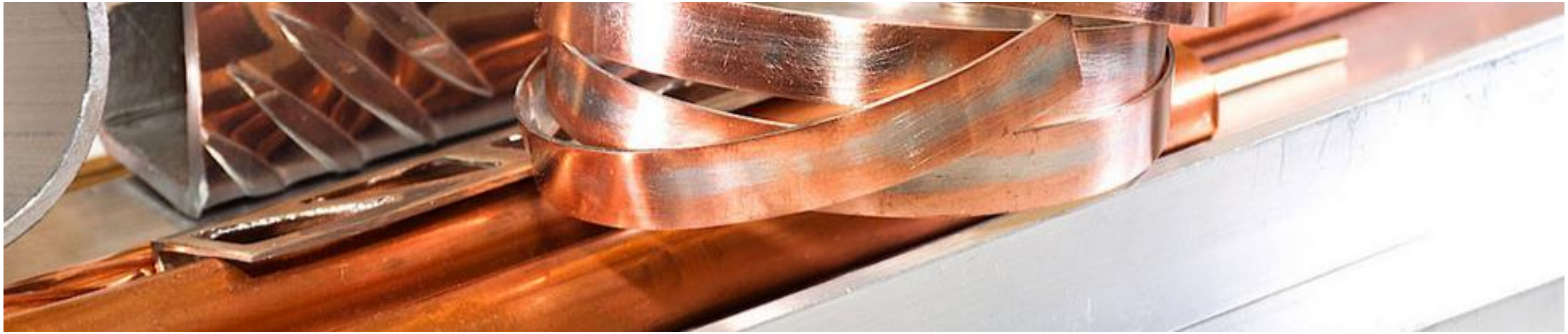
NETZSCH

DSC	DMA	TG-FT-IR	DEA	Rheology
Glass transition, melting, crystallization, curing and reaction behavior	Stiffness and damping behavior, visco-elastic properties	Thermal stability, decomposition behavior and content of residual solvents	Cure monitoring	Deformation behavior, flow behavior

NETZSCH

DIL	STA	DSC/DTA	LFA	Rheology
Expansion and sintering behavior	Burnout of binders, reaction behavior, thermal stability	Phase transitions	Thermal diffusivity and conductivity	Flow behavior

Metals & Alloys



DSC	DIL	STA	LFA
Phase transitions	Expansion behavior	Oxidation behavior, corrosion	Thermal diffusivity and conductivity

Building Materials

DSC	DIL	STA	HFM/TCT/ GHP	Rheology
Phase transitions, reaction behavior	Expansion behavior, stiffness	Phase transitions, decomposition behavior	Thermal conductivity	Deformation behavior, flow behavior

Life Science

DSC	TG	STA	DSC	Rheology
Gelation, melting, crystallization, polymorphism	Content of water and solvents, thermal stability	Composition, reaction and decomposition behavior	Purity, compatibility, denaturation	Deformation behavior, flow behavior

4 Worldwide Leading Companies/Research Institutes Rely on the Knowhow of NETZSCH

Worldwide Leading Companies Rely on the Knowhow of NETZSCH

NETZSCH

AstraZeneca
life inspiring ideas

COMAC
中国商飞

HUAWEI

REHAU
Unlimited Polymer Solutions

Audi
Vorsprung durch Technik

Dynamit Nobel

L'ORÉAL

SAMSUNG

BASF
The Chemical Company

S F

LG

SIEMENS

BAYER
Bayer

imagination at work

Panasonic
ideas for life

SONY

BMW

GM

PORSCHE

TOSHIBA

More than 90% of Worldwide Leading Research Institutes Rely on the Knowhow of NETZSCH

NETZSCH

CERN

UNIVERSITY OF OXFORD

Imperial College London

HUMBOLDT-UNIVERSITÄT ZU BERLIN

STANFORD UNIVERSITY

Fraunhofer

PRINCETON UNIVERSITY

TUM Technische Universität München

TU Delft

서 울 대 학 교 SEOUL NATIONAL UNIVERSITY

MIT Massachusetts Institute of Technology

Caltech

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

UNIVERSITY OF HELSINKI

Yale University

UNIVERSITY OF CAMBRIDGE

KU LEUVEN

PEKING UNIVERSITY

HARVARD UNIVERSITY

ETH zürich

THE UNIVERSITY OF WESTERN AUSTRALIA

UNIVERSITY OF TORONTO