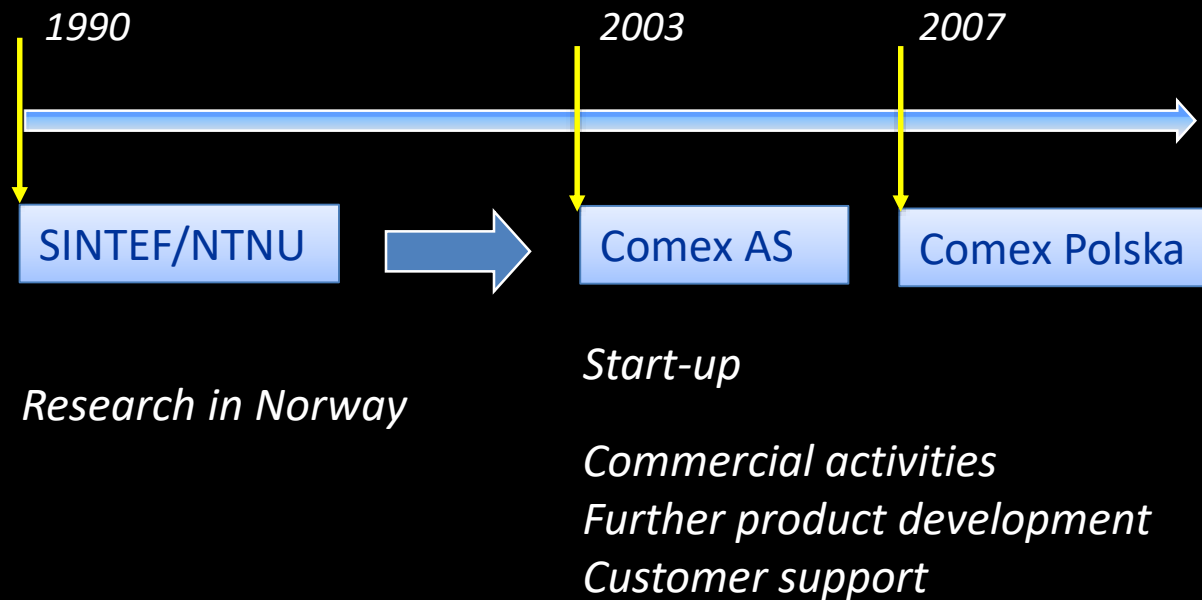


**Wykorzystanie zaawansowanego pilotażowego systemu klasyfikacji i mielenia strumieniowego w atmosferze gazów obojętnych, do optymalizacji procesów przemysłowych**

Jacek Kolacz  
Comex Group  
Norway - Poland

**Comex**

# Organisation history



# Locations



Main office  
Oslo, Norway

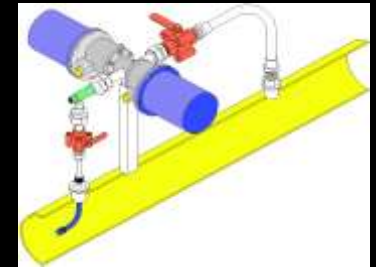
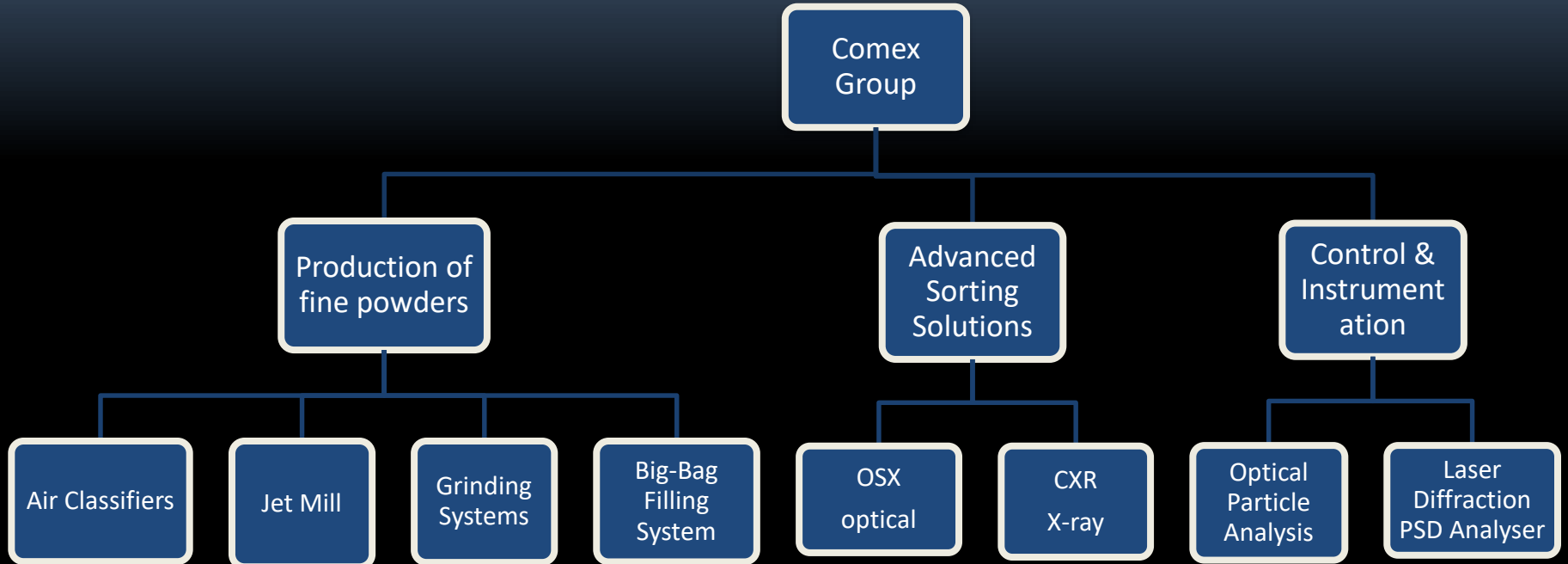


R&D + manufacturing  
Krakow, Kety  
Poland



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# Product portfolio



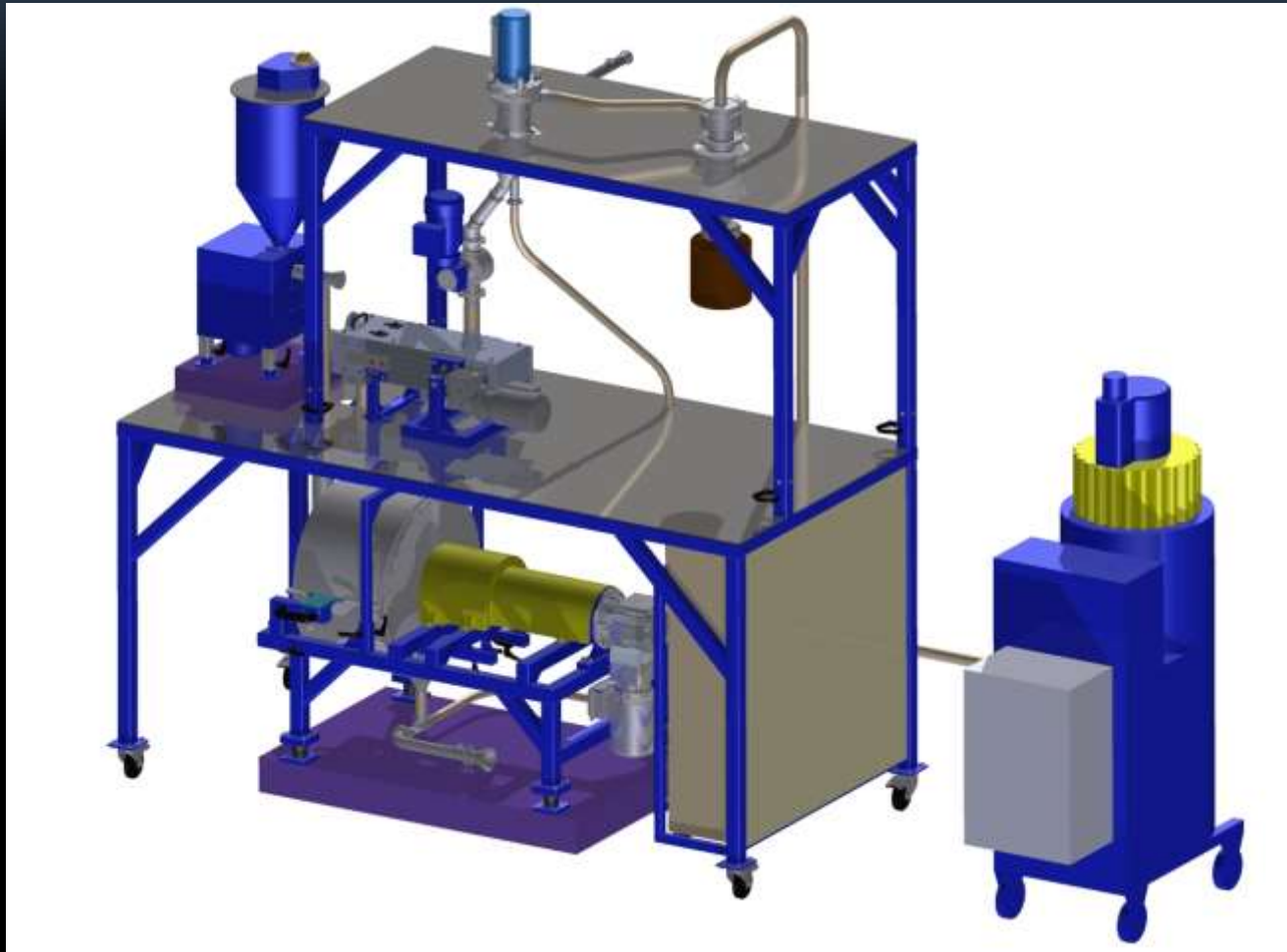
# Customers from...



**Comex**

**INERT ATMOSPHERE GRINDING,  
MICRONIZING AND  
CLASSIFICATION SYSTEMS  
IN LABORATORY SCALE**

# Laboratory Grinding Systems



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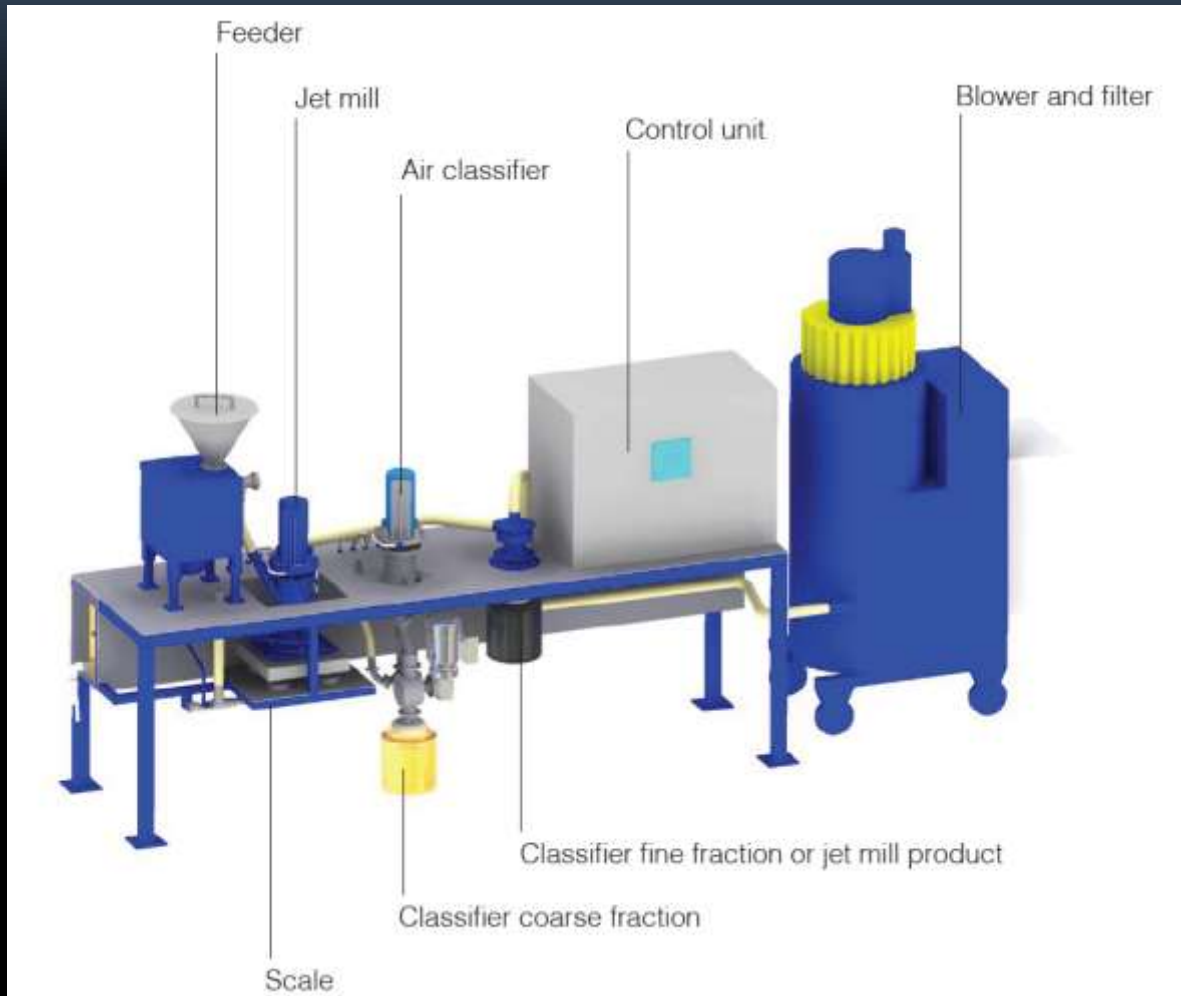
# Laboratory Grinding Systems



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# Laboratory Grinding Systems



# Pilot Grinding/Classification Systems



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**INDUSTRIAL SCALE**

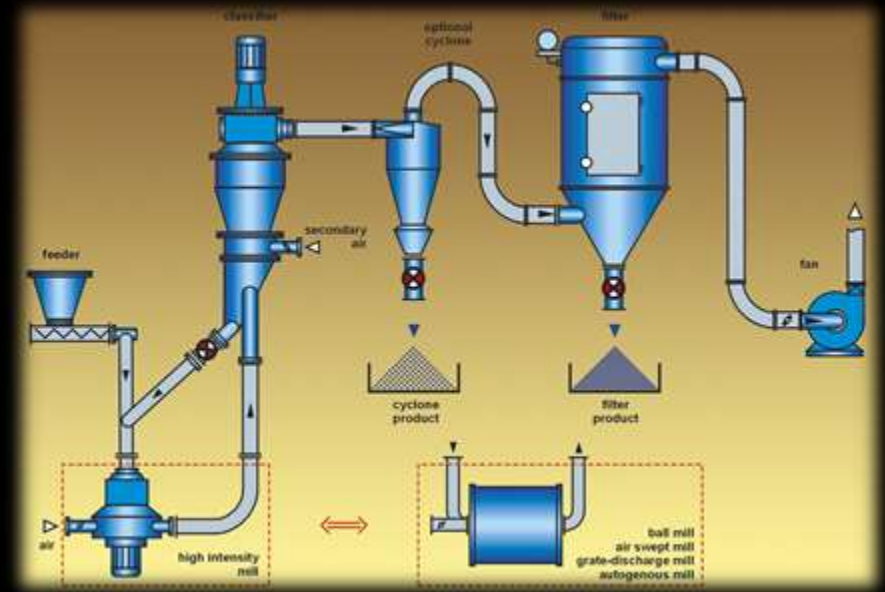
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# Industrial Grinding Systems



## Expertise in inert atmosphere applications:

- ✓ Designing new and complete production systems
- ✓ Integrating new customized equipment into existing systems
- ✓ Integrating ATEX APPROVED equipment into the existing systems

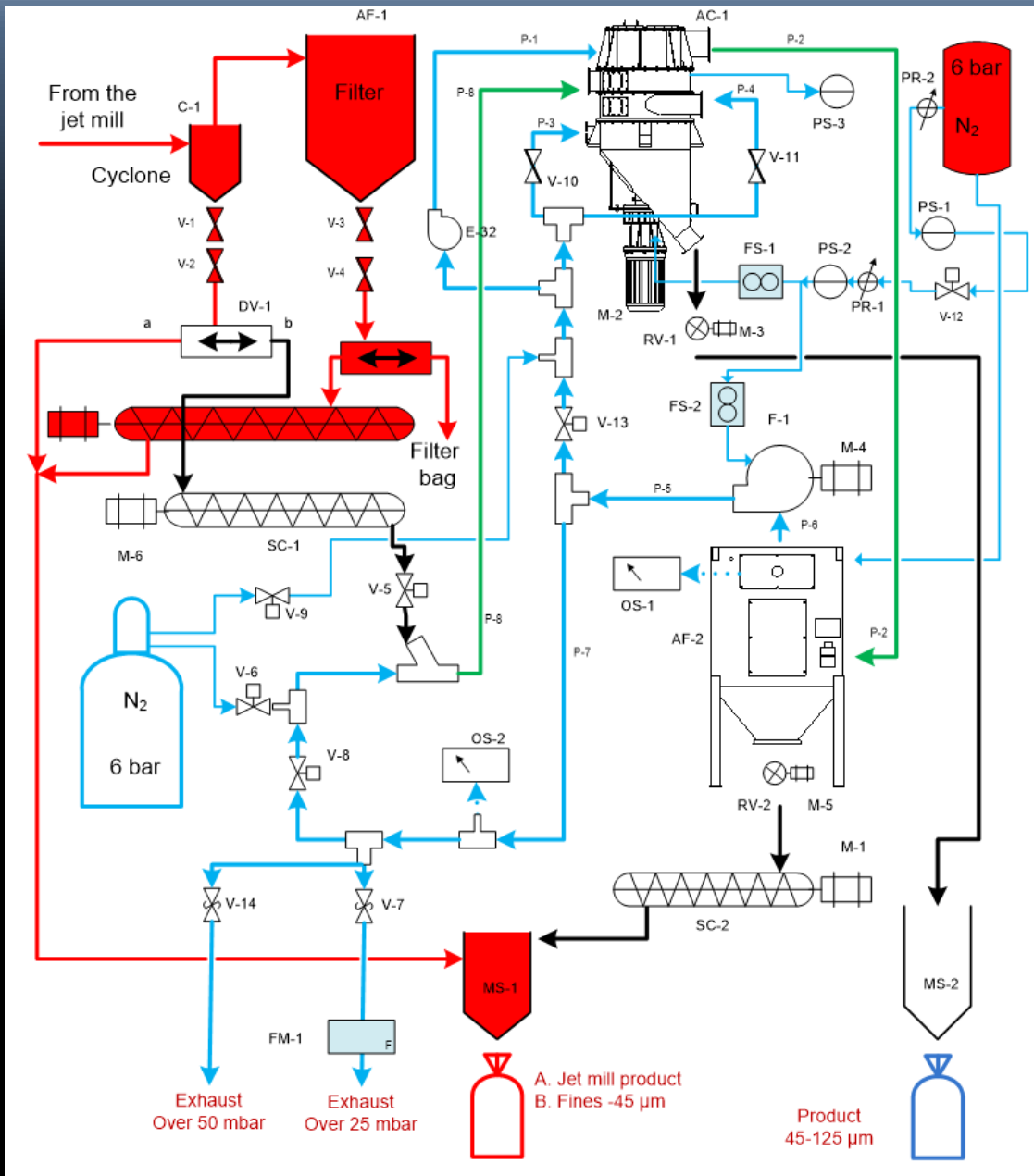


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# Industrial Grinding Systems

ATEX approved

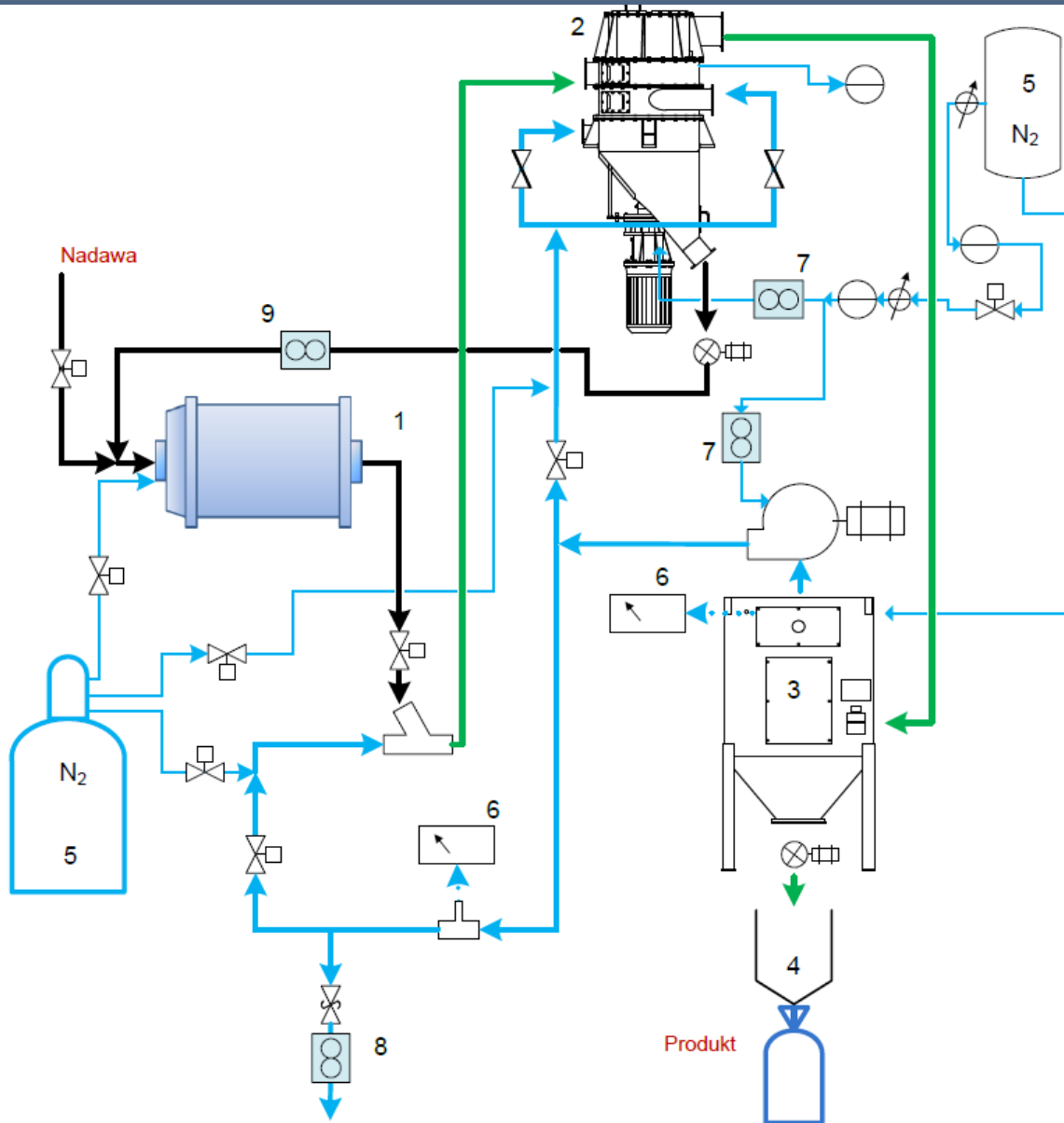
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# Industrial Grinding Systems

ATEX approved

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Example of the multi-stage powder processing system



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Example of the powder  
processing system  
Jet milling system

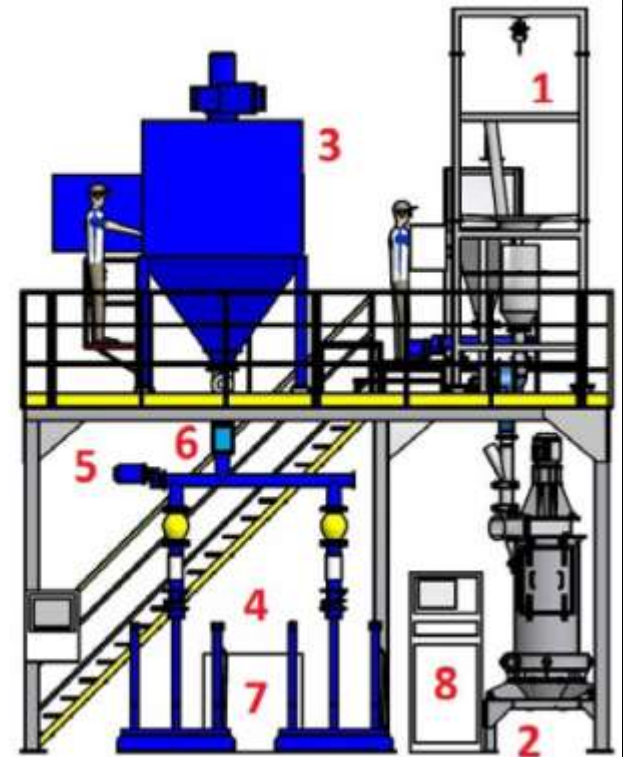


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# Example of the powder processing system

## Jet milling system - ATEX approved

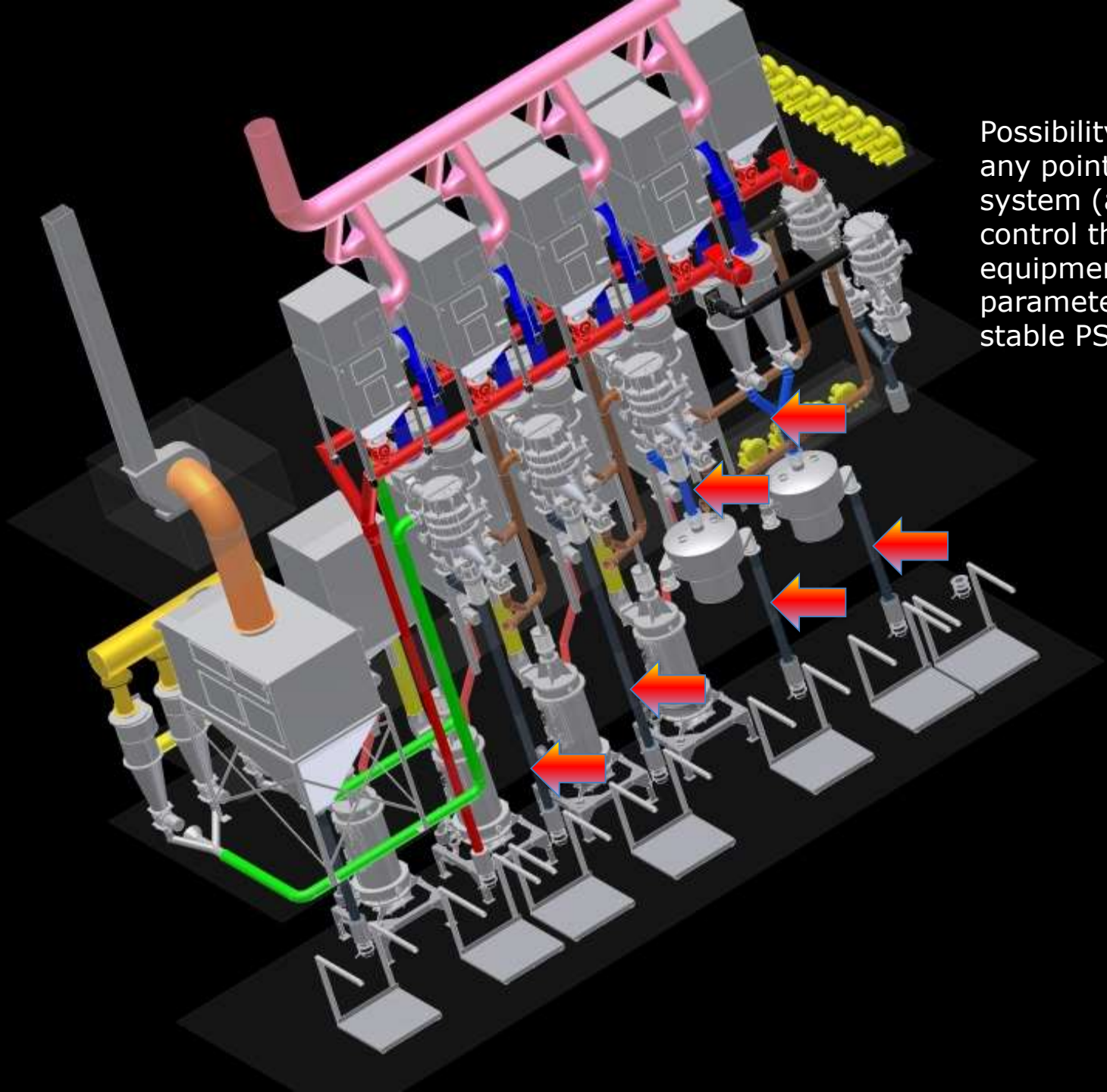


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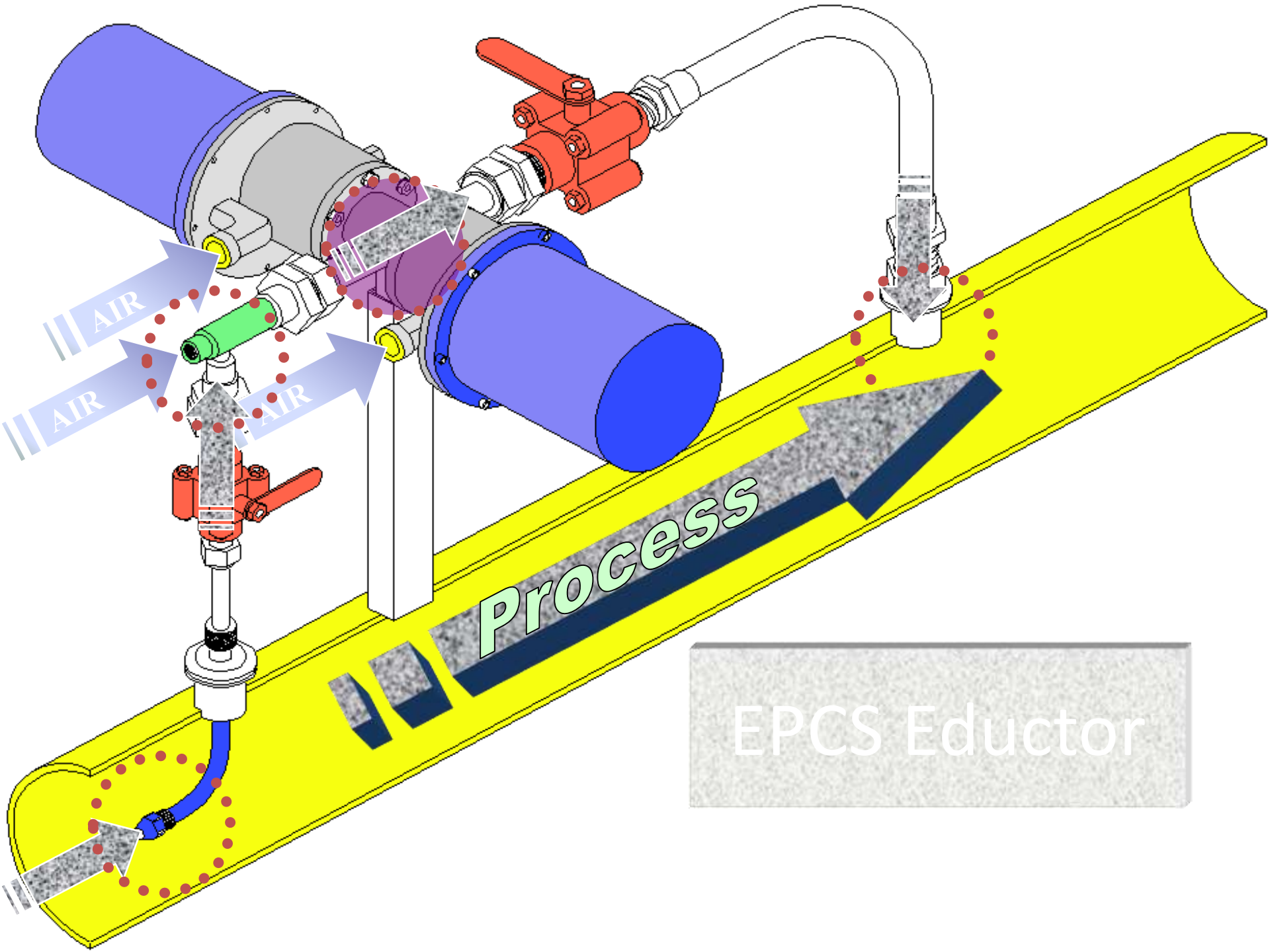
Example of the powder  
processing system  
Loading stations  
ATEX approved



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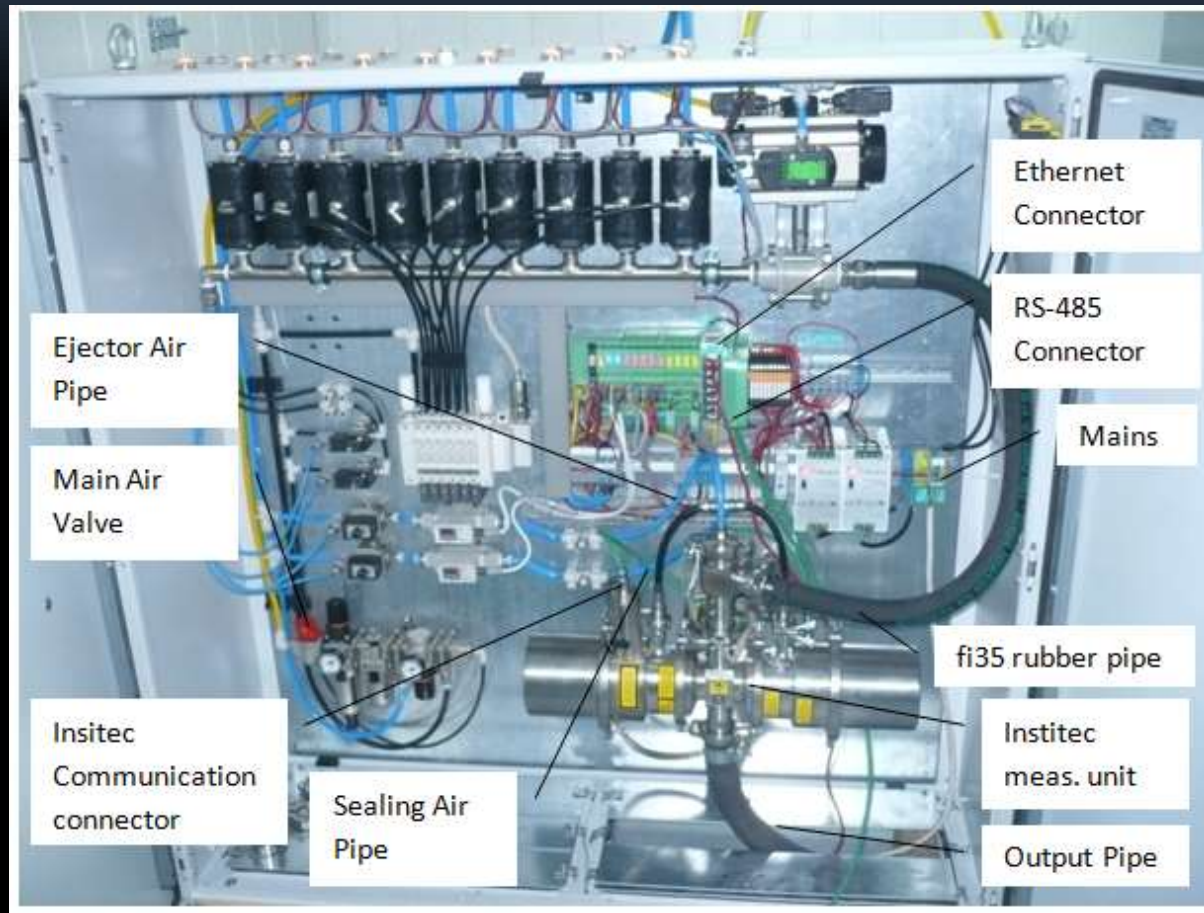
Possibility to sample any point of the system (arrows) and control the equipment parameters to get stable PSD



Process

EPCS Educator

# PSD on-line system



Measurement Parameters

05/03/98 15:25:10

Valid Data Record (Warning)

Material : test powder

Standard Values:

Transmission = 69.33%	Dv(10) = 5.84 (um)	Span = 1.66
Cv = 96.8 (PPM)	Dv(50) = 20.63 (um)	D[3][2] = 10.03 (um)
SSA = 0.598 (m <sup>2</sup> /cc)	Dv(90) = 40.01 (um)	D[4][3] = 22.84 (um)

Notes:

Material:

Measurement Path:

Qe (Avg) = 2.11

Laser Wavelength = 670.0 (nm)

Pscat (Avg) = 0.47 (0.00)

Mesh Factor = 1.00

Calibration : (ST10AIAC.CAL, STAASFSE.IMG, STD0130.RSP)

Lens = 100

Media Refractive Index = 1.00 + 0.00i

Particulate Refractive Index = 1.50 + 0.50i

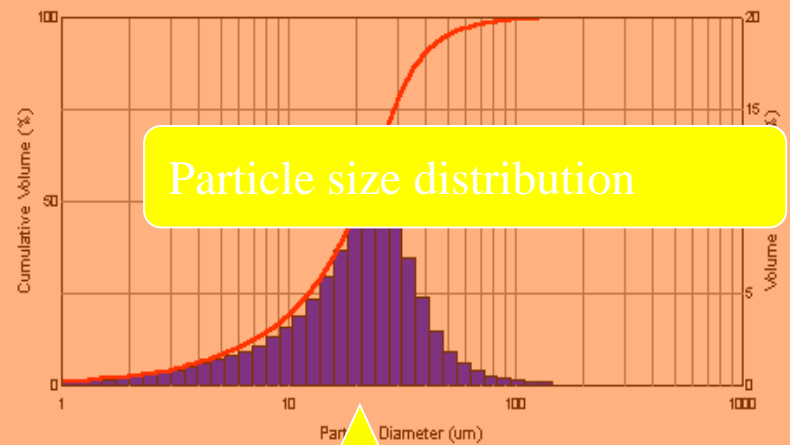
Measurement parameters

Particle Size Distribution

05/03/98 15:25:10

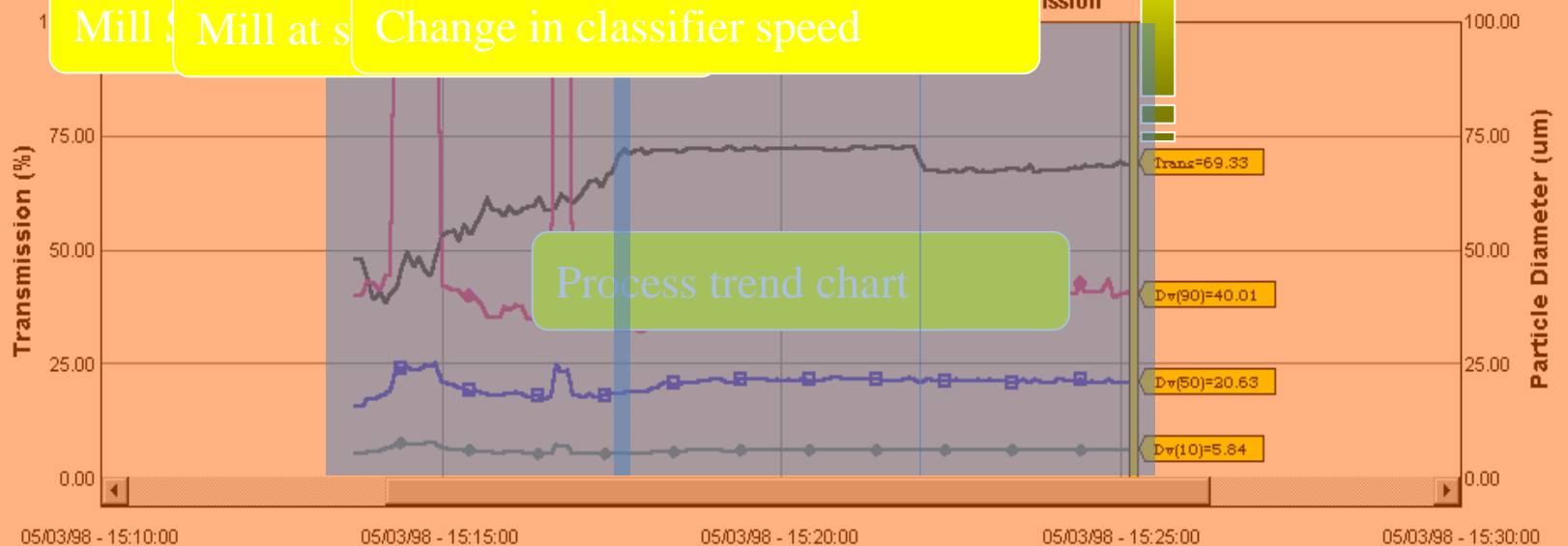
Valid Data Record (Warning)

Material : test powder



Particle size distribution

Mill at speed Change in classifier speed



Process trend chart

Start

Tag

Update

Background

Real Time Tracking

Process Control

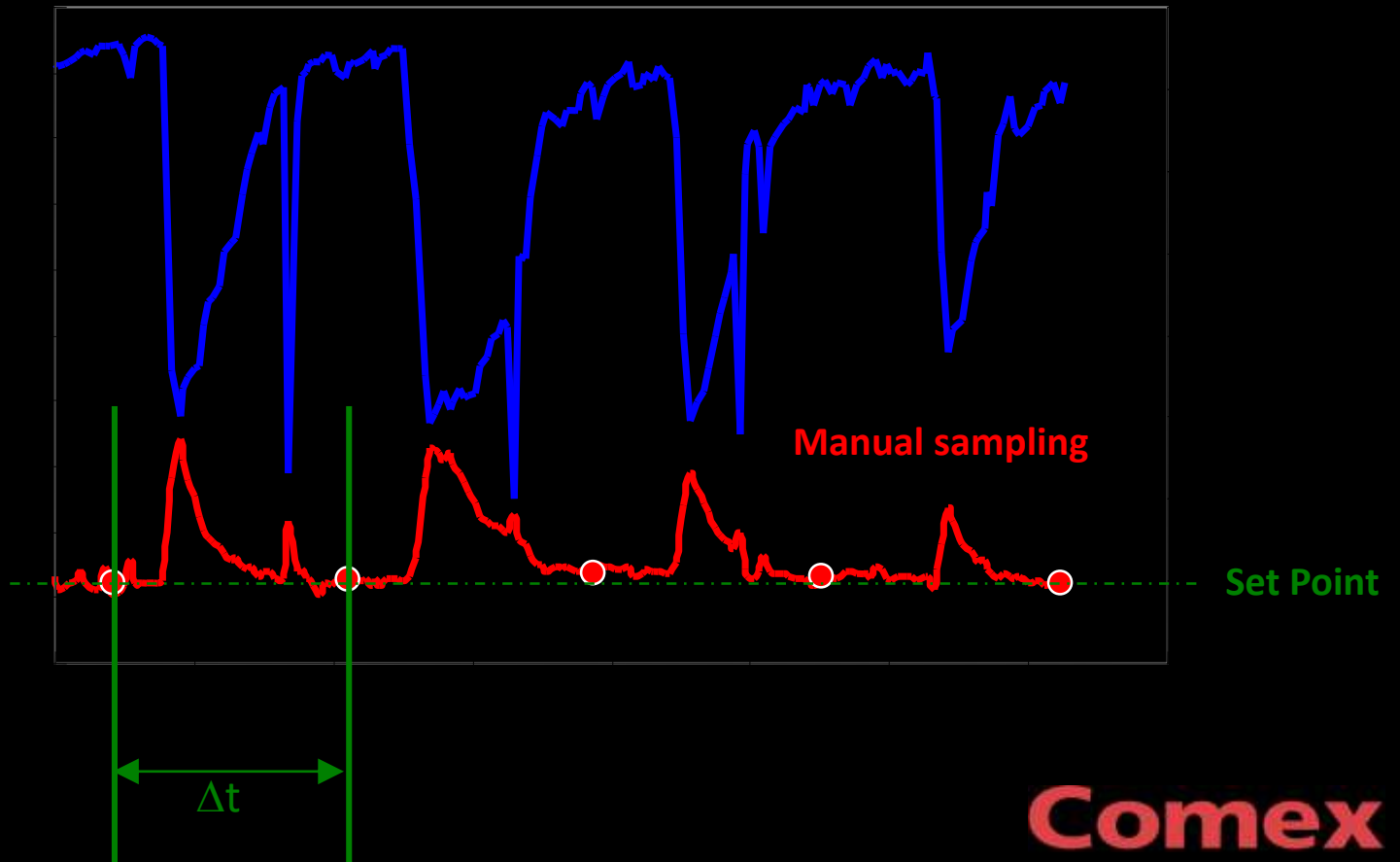
Messages

# Mill Variations

100% = No particles

— Transmission

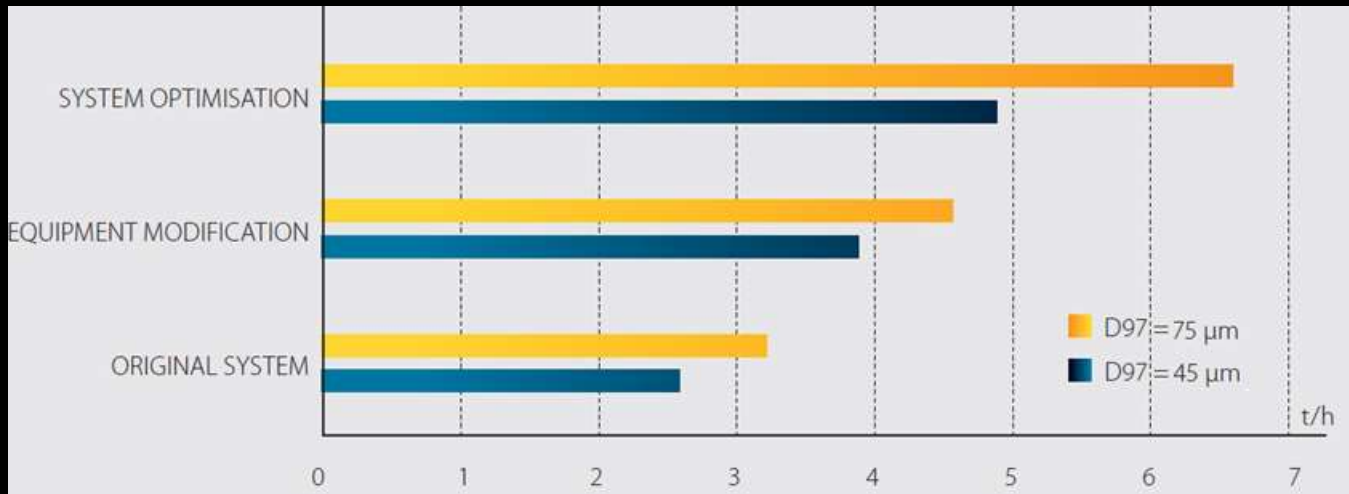
—  $D_v(50)$



0% = Lots of particles

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# Example of the industrial plant optimisation based on laboratory research work





# Conclusions

Inert atmosphere processing systems can very much simplify the laboratory and industrial circuits and provide the economic compromise solutions, when compared to the Ex proof alternatives.

## Approved applications:

- Grinding systems
- Classification circuits
- Particle size control systems

## Typical applications :

- Processing of metal powders
- Processing of powders with high chemical instability
- On-line particle size control
- Overall plant control with ATEX approval

**Thank you for your attention**

**Comex**