



# | FMI Holding

**CLEAN EVENT 2023**

## | Agenda

- FMI Holding / DTA
- Strategy
- Cleanroom
- Cleaning facility
- Clean EDM



# Dutch Technology Alliance

People driven progress.



FMI ImProvia



# An alliance of companies



- ✓ Component manufacturing
- ✓ Mechatronic systems & assembly
- ✓ Medical implants & Instruments



- ✓ Engineering professionals
- ✓ Engineering services
- ✓ Smart Industry Solutions
- ✓ Production Automation



- ✓ Robotics



- ✓ Infra
- ✓ Maintenance and management



- ✓ Industry
- ✓ Utility
- ✓ Safety
- ✓ Maintenance and management



## FMI Holding strategy

### **Growth plan 2025**

- Grow strategy YoY 20% (incl. acquisitions)
- More added value within FMI on clean production (assurance in our own hands)
- Focus on Semicon-, Analytical and Medical market (3 pillar strategy)
- Trend from ISO 7 to ISO 6
- Complete process assurance
- Digitalization / automation

## Program of requirements

- Different per market
- NEN- ISO 19227 (Medical) / GSA's (Semicon)
- Part of bid/no bid procedure
- Requirements increasing with higher accuracies
- Procedures during production
- Part of decision-making new investments
- Part of supplier selection process

# Cleanroom

## Project phases

- Program of requirements
- Concept draft
- Startup inquiries
- Final choice supplier & finalizing investment plan
- Realization plan
- Validation
- Handover

# Cleanroom

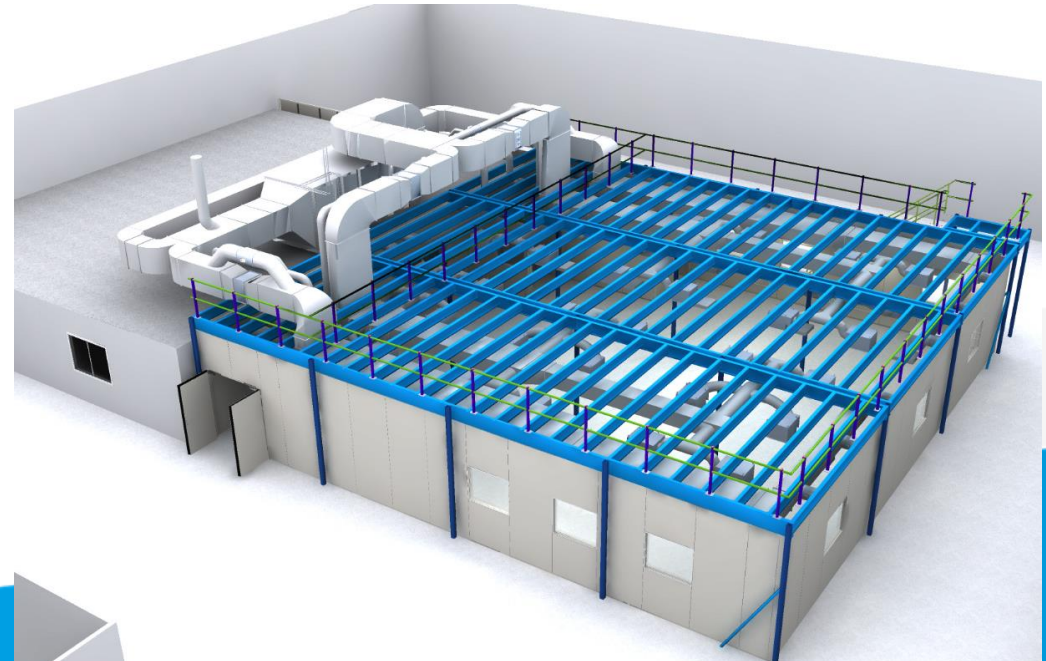
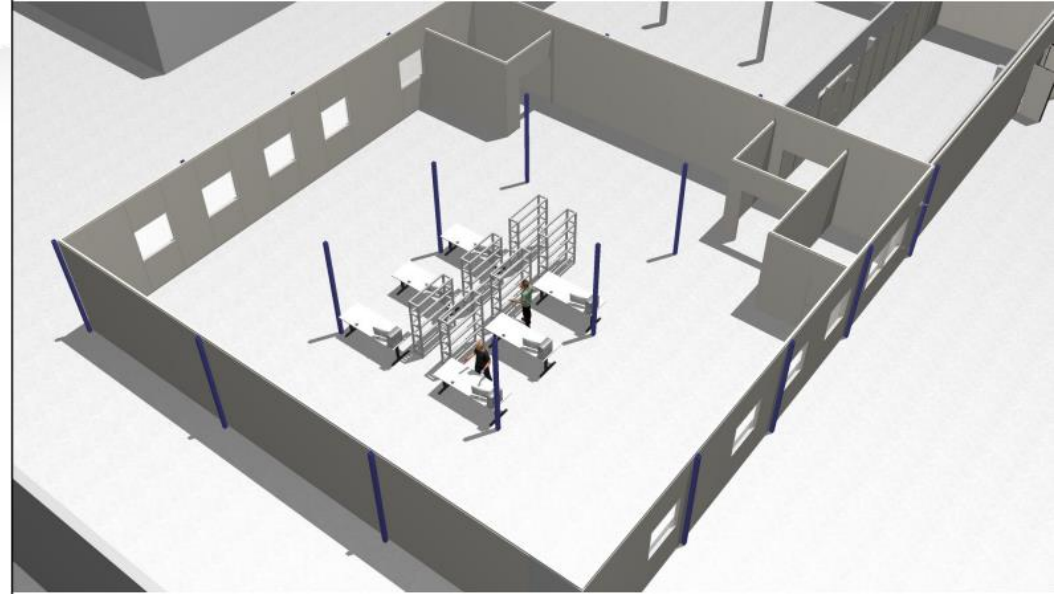
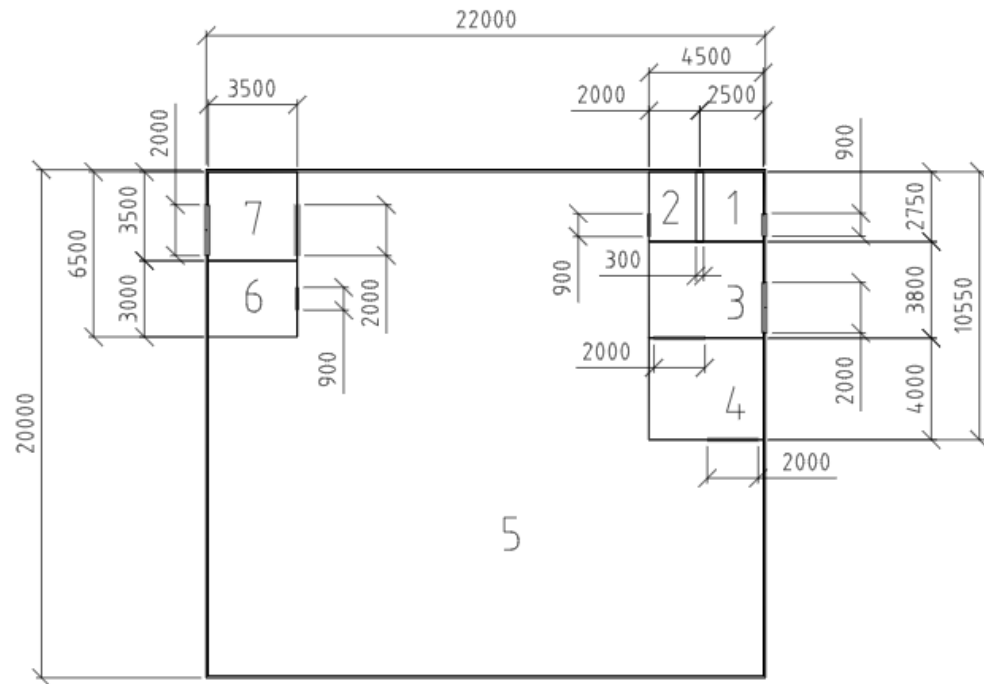
## Program of requirements

- Flexible towards the future Class ISO 7, upgradable to ISO 6
- Preservation of storage m2 within current building and connection to existing cleanroom
- Process assurance, continuous monitoring.
- Environmental conditions including noise, temperature and humidity
- Cleanliness of air XCDA
- Optimal Internal Logistics
- Dark Room Control Room
- Cleaning friendly
- Short construction time, shopfloor remains open



# Cleanroom

Drafts 2D towards 3D design



## Cleanroom

Realization plan:

- ✓ Installation time (turn-key) 6 weeks
- ✓ Warehouse m2 available
- ✓ Up-gradable to ISO 6
- ✓ Continues monitoring on temperature/pressure/humidity





# Cleanroom

OPLEVER  
HAPPENING

BOOK  
SPINNAAL  
ON TOUR



MARTHON  
CLEANROOM SOLUTIONS

EXPERIENCE THE DIFFERENCE

# Cleaning

## **Project phasing**

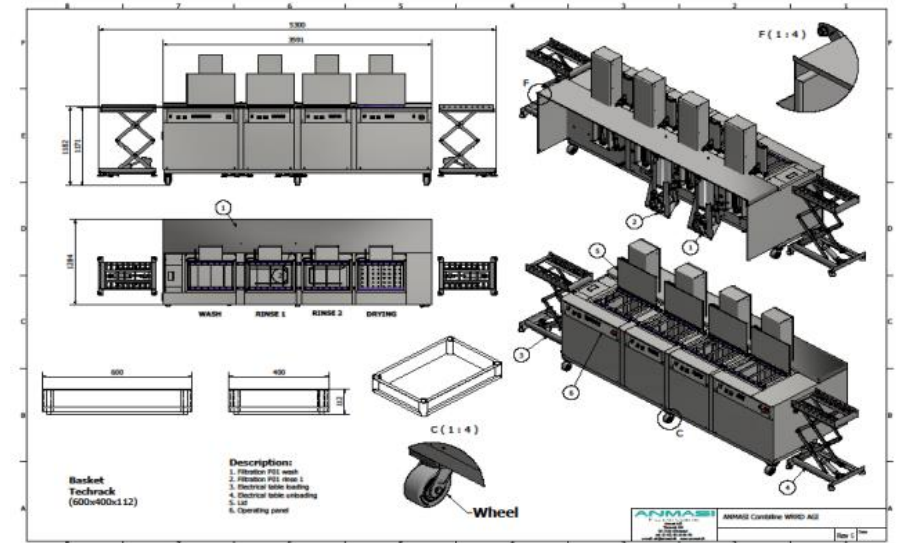
- Setting up a program of requirements
- Start-up quotation process
- Final choice, development of investment plan
- Realization plan
- Acceptance



# Cleaning Facility

## Program of Requirements

- Grade 2 cleanliness
- Small Footprint
- Takt time total process cleaning
- Ergonomics
- Timesaving process start cleaning to start assembly
- Serviceability, cleanability.
- Min. downtime, shop stays open



### ANMASI COMBI / COMBILINE 150 WRRD AGI

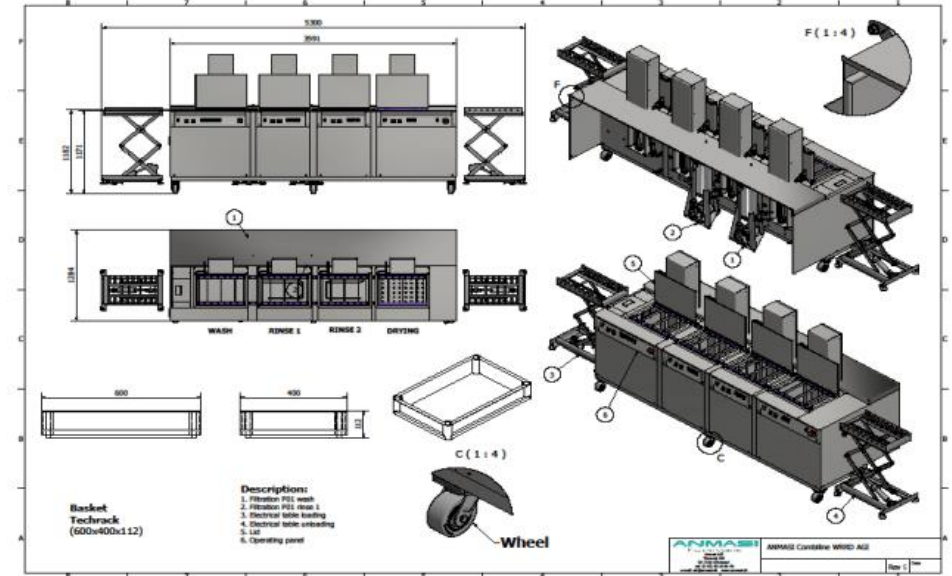
Ultrasoon enkel- en meertrapsreinigingssysteem voor het reinigen van onderdelen



# Cleaning

## Final choice

- ✓ Grade 2 cleanliness, supplier involvement in chemicals
- ✓ Footprint within existing space
- ✓ Takt time in flow 5 minutes washing drying
- ✓ Ergonomics; scissor lift system, auto lift loading
- ✓ Time saving; basket as carrier in assembly
- ✓ Serviceability (moveable, flexible, dust covers)
- ✓ Short placement time max 1 day downtime.
- ✓ Testing and FAT at Gibac



ANMASI COMBI / COMBILINE 150 WRRD AGI

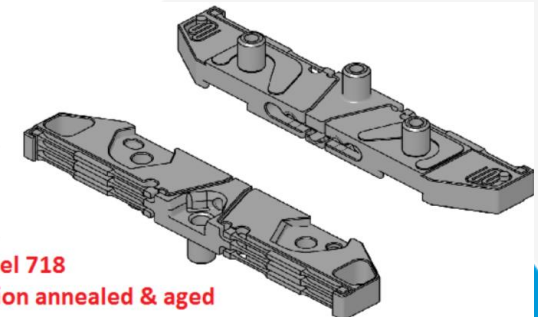
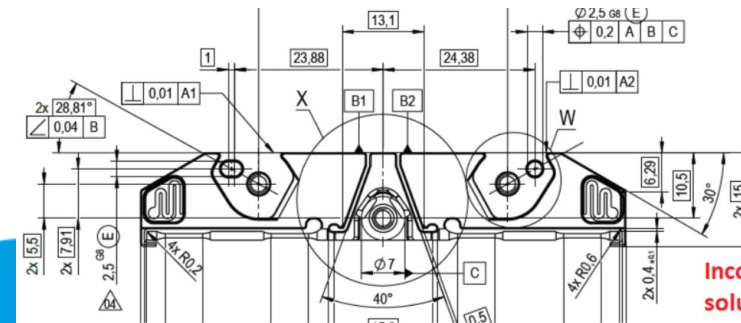
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# Clean EDM

## Specifications

- Producing Inconel parts without copper and zinc contamination
- Testproces
  - Berkenhoff did extensive testing in their EDM laboratory
  - De Ridder tested the Confreecut wire on its high-end Sodick EDM machine
  - Sommen-edm introduced the wire to FMI
- Define production process



Inconel 718  
solution annealed & aged



**Thank you for your attention!**