CONTINUOUS EB-WELDING OF REINFORCEMENTS — INDUSTRIAL APPROACH

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OUR EB SOLUTIONS MEET ALL YOUR CHALLENGES

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INTRODUCTION

I. STARTING CONDITIONS

II. PRELIMINARY TESTS

1. Production line concept

2. Chamber dimensionning

3. Thick bar section handling

RESUME

I STARTING CONDITIONS

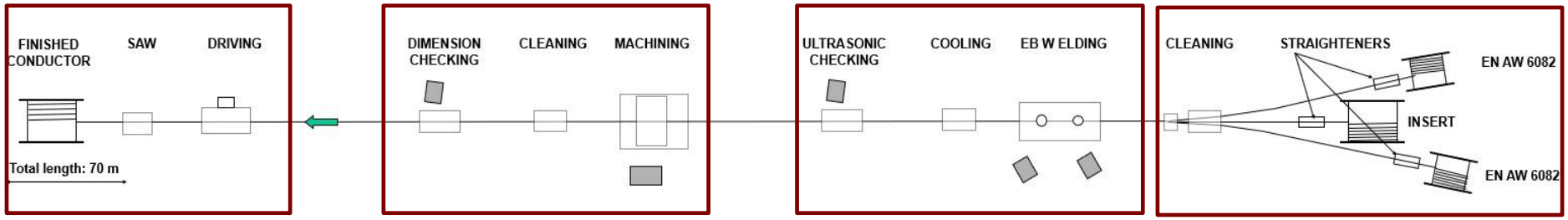
Condition 1: Al stabilised Superconductor production process

Condition 2: Multi-product approach > Listing of dimensions

Condition 3: One Academic/Consortium partner

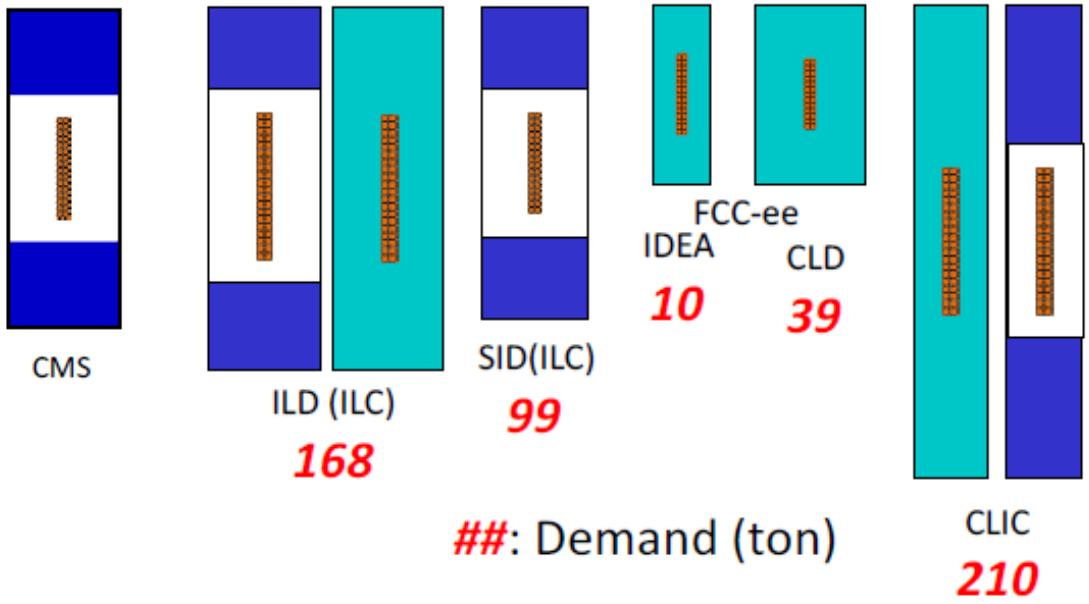
- **One production line**
  Adaptable for all known reinforcement welding needs
  Reasonable Time for Product shifting
  Longtime Disponibility

- **Long term production scheduling**



II.1 - TESTS - PRODUCTION LINE CONCEPT

- Need for data base: Thickness // Power & Speed // Temperature

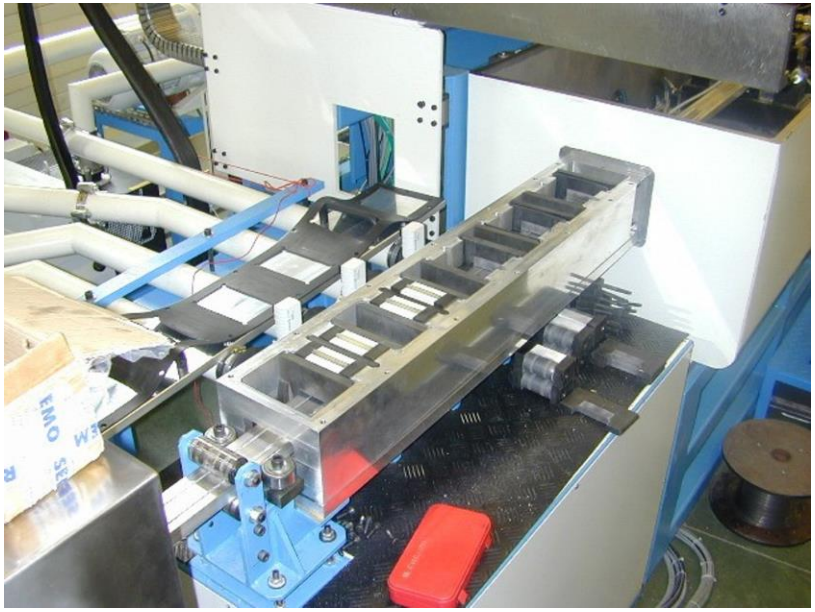


- Optimisation of superconductor position and distance between NbTi/Cu cable and EBW boundary
- Thickness limit
- Multi-product line concept

II.2 - TESTS - CHAMBER DIMENSIONNING

- Need for Temperature management:
  Tmax ~ 200°C at chamber exit => Tmax ~ 300°C NbTi conductor

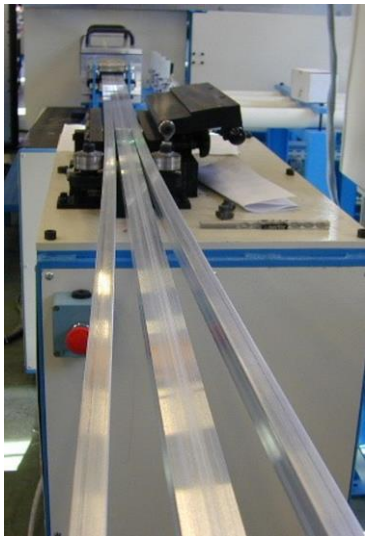
- Heat capacity adapted to beam power and speed
  Oversized strip before machining..



- Adaptability
- Multi-product approach
- Disponibility

II.3 - TESTS - THICK BAR SECTION HANDLING

- Pre-straitening & Straitening thicker bars
- Inter-Connection
- Final coiling direction definition

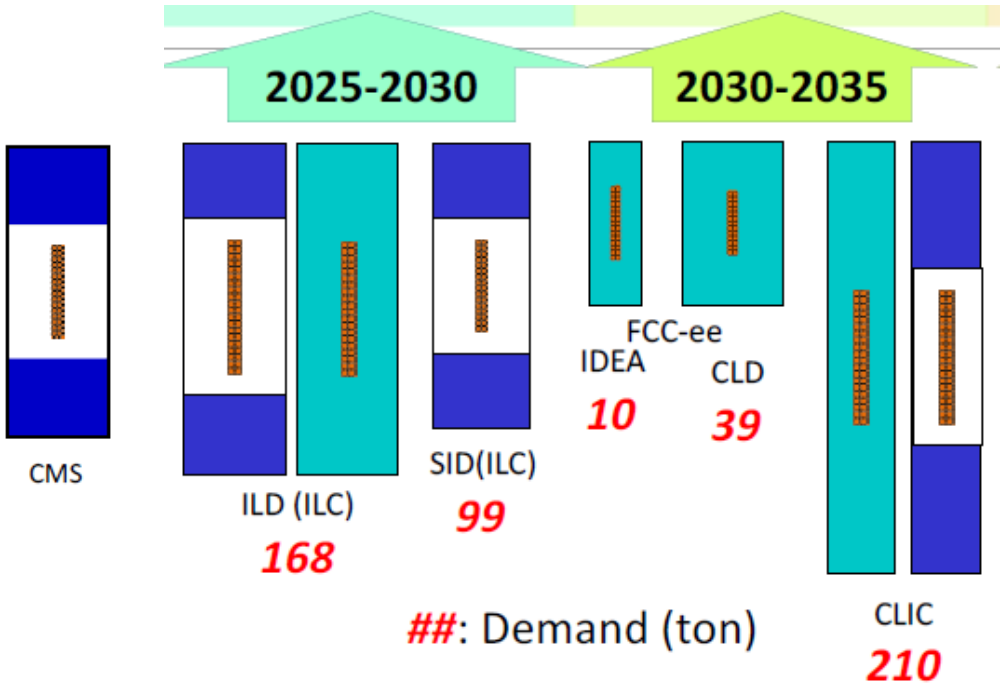


- Adaptability
- Multi-product approach
- Security

SUMMARY

- **Conditions**:
  - Al stabilised SC production
  - Multi-product Approach
  - Single Coordinator

- **Centralisation of information**
  - (CMS 3Years)
  - Longterm schedule
    - ILD 2-3Years
    - SiD 1-2Years
    - CLIC 2-3Years
  - Disponibility
  - Shift of date



- Optimisation of geometry for optimal weld parameters

- Study to define maximum size for industrial production

Al stabilised Superconductor
+
Unique multi-product EB-welding line
v
Cost reduction
+
Repeatable product quality

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'*Simplicity is complexity resolved*' – C. Brancusi

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