INSTITUTO SUPERIOR TÉCNICO
Universidade Técnica de Lisboa

Conceptual study on Flexible Guidance and Docking system for ITER Remote Handling Transport Cask

ERB 5004 CT 96 0127-NET96-431 (EFDA) | [1996-1997]

- Partners
  - **Instituto Superior Técnico (IST),** Portugal
- Objectives
  - Study of a concept, different from rail-based, to transport the casks containing divertors and blanket modules from the Tokamak Building to the Hot Cell Building
- Addressed topics
  - Flexible Guidance and Navigation Methodologies
  - Traction and kinematics structures of mobile robots
  - Guidance and Navigation strategies
  - Communications
  - Docking
- Concept proposed by IST (AGV + free roaming platform)
  - Flexible guidance vehicle with a **rombic kinematic** structure (two drive and steering wheels) with:
    - **Inductive steering** for primary guidance (AGV solution)
    - **Free-roaming navigation** for secondary guidance (mobile robot)
  - Equipped with **air-cushions**

selected in 1997 by ITER JCT as **the reference concept for transport** of components between TB and HCB

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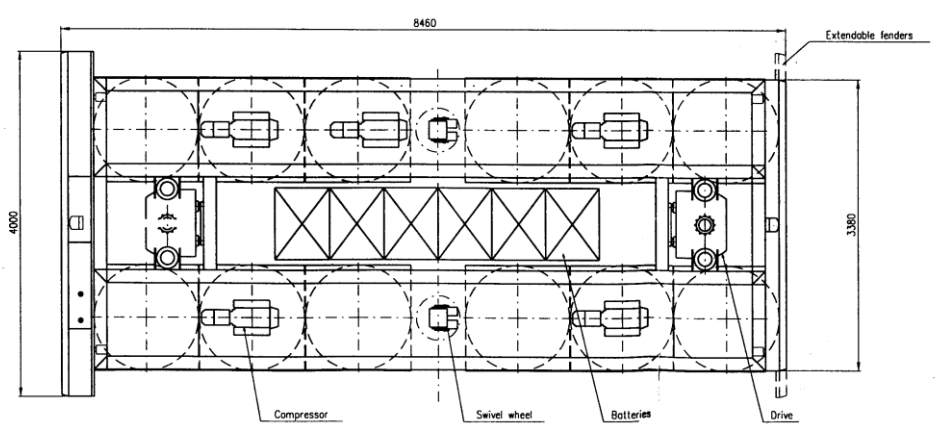
Design study for an Air Floating System, by AeroGO, with technical assistance of IST and NNC Ltd

1998

- Air-cushion platform

- 12 areo-casters
- 5 compressors
- 6 battery packs



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- Publications from IST team:
  - Isabel Ribeiro, Pedro Lima, Pedro Aparício, Renato Ferreira, “Conceptual Study on Flexible Guidance and Navigation for ITER Remote Handling Transport Casks”, Proceedings of the 17th IEEE/NPSS Symposium on Fusion Engineering, San Diego, USA October 1997, pp. 969-972.
  - Isabel Ribeiro, Pedro Lima, Pedro Aparício, Renato Ferreira Conceptual Study on Flexible Guidance, Navigation and Docking Systems for the ITER RH Transport Casks, ISR Internal Report RT-401-97, 1997 – PDF