

## 1. Area of Application

- Patented system for integrated handling and draping of composite fiber reinforcements (e.g. carbon- or glass-fiber fabrics). The main focus lies on material protection, process stability and improvement of productivity during the composite part manufacturing.

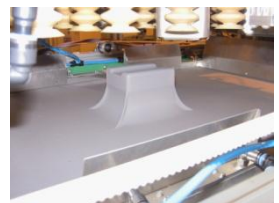
## 2. Operation

1. Automated endeffector positioning
2. Picking up workpiece by vacuum
3. Handling and positioning workpiece on forming tool on vacuum table
4. Unrolling drape membrane under endeffector
5. Switching on heating device
6. Lowering endeffector on vacuum table over forming tool
7. Evacuating vacuum table and space under drape membrane
8. Draping and fixing workpiece on forming tool
9. Aerating vacuum table, lifting endeffector, switching off heating device, rolling up drape membrane
10. Repeating upper steps

## 3. Technical Data

- Handling Endeffector
  - Complete PLC-control
  - Single vacuum gripper control feasible
  - Vacuum gripper:
    - special BRÖTJE-Automation development
  - Grid for vacuum gripper: 80 mm
  - Number of vacuum grippers: customers choice
  - Vacuum system: ejector technology
  - Heating device technology: Infrared
  - Heating power: 3600 W (12 x 300 W)
  - Drape membrane: high flexible silicone foil
  - Target material of workpiece:
    - thermoplastic banded porous textiles
  - Material of structure: aluminum
- Positioner
  - Standard 6-axes robot
  - Alternative: Gantry or CNC-portal

# COMPOSITE HANDLING & DRAPE SYSTEM "CHDS"

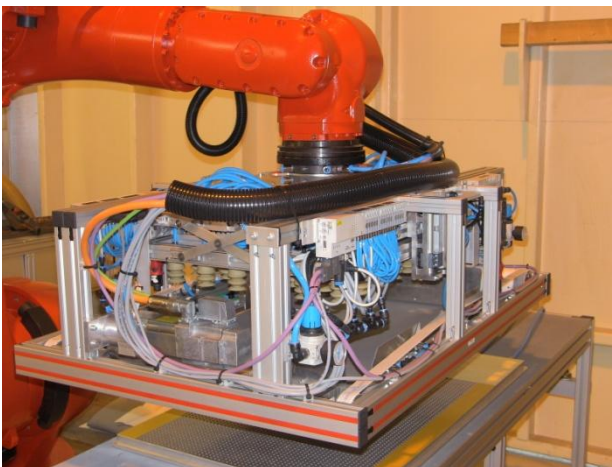


## 4. Cycle Time

- Cycle time depends on manufacturing process requirements, the material and their draping characteristics

## 5. Special Features

- Patented, integrated handling and drape system
- Complete SPS controlled
- Includes BRÖTJE-Automation Composite Handling
- System "EVO"- technology:
  - E: Efficient energy usage
  - V: Variable workpiece-geometries
  - O: Optimised light-weight design
- Possibility for contour variable handling of different workpiece-geometries
- BRÖTJE-Automation special vacuum grippers:
  - maximum material protection during handling process
  - maximum process safety during handling process
- Integration of endeffectors in robot-cells
- High production accuracy
- Single vacuum gripper control feasible
- Vacuum generation by means of ejector pumps direct at endeffector for workpiece handling and draping process: low-noise, maintenance-free
- Aerospace qualified drape membrane
- Optional positioning sensors



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