

## 1. Area of Application

- Automated system for handling and positioning of composite fiber reinforcements (e.g. carbon- or glass-fiber fabrics). The main focus lies on material protection and process stability during the composite part manufacturing.

## 2. Operation

- Automated endeffector positioning
- Choosing pick-up configuration
- Lowering endeffector
- Switching on vacuum system
- Picking-up workpiece (from cutter or storage)
- Handling and positioning workpiece at lay-up area
- Switching off vacuum system
- Lifting endeffector
- Repeating upper steps

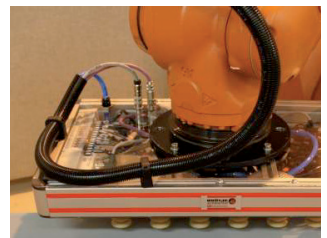
## 3. Technical Data

- Handling Endeffector
  - Complete PLC-control
  - Single vacuum gripper control feasible
  - Vacuum gripper:
    - special BRÖTJE-Automation development
  - Grid for vacuum gripper: 40 mm
  - Number of vacuum grippers: customers choice
  - Vacuum system: ejector technology
  - Target material of workpiece: porous textiles
  - Material of structure: aluminum
  - Material of covering/grid plate: plastic plates
- Positioner
  - Standard 6-axes robot
  - Type choice depends on endeffector weight
  - Alternative: Gantry or CNC-portal

## 4. Cycle Time

- Handling with maximum robot speed is possible
- Cycle time depends on manufacturing process and lay-up/stacking requirements

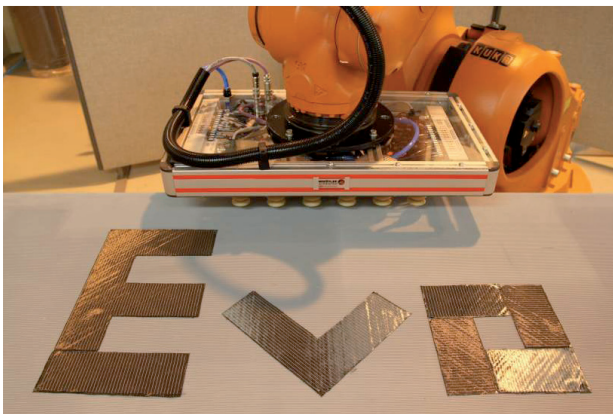
# COMPOSITE HANDLING SYSTEM "EVO"



## 5. Special Features

- Complete PLC controlled handling system "EVO":
  - 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
- Unlimited maximum size of endeffector
- Compact design for high endeffector mobility
- Low end effector weight: manual application possible
- High production accuracy
- Single vacuum gripper control feasible
- Vacuum generation by means of ejector pumps
  - direct vacuum generation at endeffector
  - high degree of efficiency
  - low-noise emission
  - low maintenance
- Optional positioning sensors

## COMPOSITE HANDLING SYSTEM "EVO"



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