Pick-and-place head: Theory of Operation

PNP-1 | Blaide product line | 17 November 2026 | Design only: nothing built or tested

The nozzle picks a part by vacuum, the camera-calibrated gantry carries it, the hollow-shaft motor turns it to the footprint angle, and the pump stops to release it. A normally-open vent valve wired across the pump closes while the pump runs and opens when it stops, so release needs no separate signal. The pressure reading tells the firmware whether a part is on the nozzle at each stage.

Design

- Vacuum nozzle on a hollow-shaft motor for rotation, driven by the tool motor channel
- PP-100 board switches the pump and powers a pressure-sensor module
- Vent valve wired in parallel with the pump, so the part releases when the pump stops: no second control line
- 24-pocket tray on a 12 mm pitch that locates in the bed slots