Pick-and-place head: Specification

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



Requirements

- Place 0402 to SOIC parts from a tray
- Know when a pick failed
- Fit a dock position; no new motion hardware

Specification

Parameter	Target
Size / mass	38 x 35 x 114 mm, about 110 g
Nozzles	0.45, 0.75 and 1.4 mm
Parts	0402 to SOIC from a 24-pocket tray on a 12 mm pitch
Rotation	Hollow-shaft stepper on the nozzle axis
Vacuum	Diaphragm pump in the base; held below -25 kPa, open above -8 kPa
Pump current	0.3 A at 24 V (model)
Planned rate	35 parts in about 5 minutes on the sample board

Design summary

- 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

All figures are design targets, calculations or planning values.