How to choose a surface grinder

Seven specifications decide the machine. Get these right and the price comparison becomes straightforward; get one wrong and you buy twice.

1. Table size — Measure the largest workpiece plus the fixture. You need the part to travel past the wheel at both ends, so working length is roughly table length minus 100–150 mm.

2. Tolerance and flatness — Above 0.01 mm, a manual machine is honest money. At 0.005 mm you want hydraulic with a scraped table. Below 0.003 mm, CNC with glass scales.

3. Control level — Manual, hydraulic-automatic, PLC or full CNC. The step that pays back fastest for most shops is hydraulic-automatic; the step that pays back on repeat work is PLC.

4. Wheel and spindle — A 200 mm wheel suits small parts and fast dressing cycles; 350–400 mm wheels cut faster on wide plates but need 7.5–11 kW and a bigger footprint.

5. Chuck system — Standard fine-pole electromagnetic chuck holds most work. Add a demagnetizer for post-grind handling and a sine table for angled faces.

6. Floor space and power — Allow 1.2 m around the table stroke, 3-phase supply of the rated spindle power plus coolant, and a coolant settling pit or separator.

7. Volume and uptime — One part a day does not need a PLC. Three shifts of the same part does — and it needs a second wheel flange so dressing does not stop the cycle.

Price bands by machine line (FOB Ningbo, indicative)

Machine line	Table size range	Indicative price
Manual Precision Surface Grinders	—	US$ 4,200 – US$ 8,200
Automatic Precision Surface Grinders	—	US$ 9,800 – US$ 78,000
PLC Programmable Surface Grinders	—	US$ 12,500 – US$ 48,900
CNC Precision Surface Grinders	—	US$ 28,000 – US$ 92,500
Precision Rotary Table Grinders	—	US$ 18,500 – US$ 71,500
Vertical Spindle Surface Grinders	—	US$ 14,500 – US$ 54,900
Gantry Series Surface Grinders	—	US$ 52,000 – US$ 340,000
Surface Grinder Parts & Accessories	—	US$ 45 – US$ 1,250

Quick comparison

Type	Best for	Accuracy
Manual	Lowest cost, highest operator skill, best for one-off toolroom work	0.005 mm flatness
Hydraulic automatic	Cycle repeatable without operator attention, fast on long tables	0.005 mm flatness
PLC	Stored cycles, automatic dressing, consistent depth per pass	0.002 mm positioning
CNC	Programmed profiles, wheel wear compensation, lights-out capable	0.002 mm positioning / 0.003 mm repeat
Gantry	Wide plates and long beds, double column rigidity	0.01–0.02 mm / 1000 mm

Send us the drawing. We answer with the smallest machine that holds the tolerance, the wheel to use and the cycle time we would expect — usually within 24 hours.

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