

# Machining processes

## Milling

### CNC processing centers

- **5-axis** – usable area: X=1135mm, Y=1050mm, Z=750mm, rotary swivel table dimensions: 1050x850, the maximum weight of milled detail: 2000 kg,
- **4-axis** – usable area: X=1035mm, Y=560mm, Z=510mm, the maximum weight of milled detail: 125 kg using dividing head and 255 kg using dividing head and loose headstock,
- **2-axis** – usable area: X=1000mm, Y=540mm, Z=620mm, the maximum weight of milled detail: 1000 kg.
- **Conventional milling machine** – swivel table dimensions: 400x1000 mm.



### Integrated Mill-Turn CNC Centers

- **5-axis OKUMA** – using intercepting spindle and milling swivel head, the maximum turning diameter:  $\varnothing$  630mm, usable area Z=900mm, Y=160 mm
- **5-axis DMG** – the maximum turning diameter:  $\varnothing$  500 mm, usable area: Z=3000 mm, Y=400 mm, the loose headstock is controlled through software, it is equipped with two steady rests and the scope of their grip equals  $\varnothing$  30 ÷ 253 mm.



## Turning

- **CNC turning lathes** – the maximum turning diameter:  $\varnothing$  560 mm, spindle clearance:  $\varnothing$  100 mm, the maximum length of turned component: 1500 mm, axis displacement: X=230 mm, Y=100 mm
- **universal turning lathes** – the maximum turning diameter/length  $\varnothing$  520 mm/2500 mm,  $\varnothing$  560 mm/2000 mm,  $\varnothing$  165 mm/3000 mm,
- **boring and turning lathe** – the maximum turning diameter  $\varnothing$  2000 mm,
- **facing lathe** – the maximum turning diameter  $\varnothing$  1620 mm.



## Boring

- **WK130/2 boring machine** – usable area 2000 x 2000 x 1800 mm, the maximum weight of treated detail: 1000 kg,
- **SIP boring machine** – usable area 1400 x 950 x 800 mm

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## Drilling

- **DIXI coordinate jig drilling machine** – usable machining area 780x650x70 mm
- **drill lathe (horizontal drilling) for long hole drilling** – the maximum diameter:  $\varnothing 120$ /the maximum length 4000 mm; the drill lathe is equipped with tools for holes of the following diameters:  $\varnothing 7.6$  mm,  $\varnothing 10$  mm,  $\varnothing 11.1$  mm,  $\varnothing 11.7$  mm,  $\varnothing 13.25$  mm,  $\varnothing 16$  mm,  $\varnothing 20$  mm,  $\varnothing 22$  mm,  $\varnothing 29.3$  mm,  $\varnothing 32.5$  mm,  $\varnothing 33.6$  mm,  $\varnothing 35.5$  mm,  $\varnothing 38$  mm,  $\varnothing 49$  mm,  $\varnothing 58$  mm,  $\varnothing 60$  mm,  $\varnothing 61$  mm,  $\varnothing 64.9$  mm,  $\varnothing 86$  mm,  $\varnothing 120$  mm



## Honing

- **SUNEN HTC 4132 CNC honing machine for long hole honing** – the scope of honed diameter is equal to  $\varnothing 7.5 \div 60$  mm, the maximum length of honed detail cannot exceed 3000 mm, the honing machine is equipped with heads for machining of full-ended holes in the following diameters:  $\varnothing 7.6 \div 7.8$  mm,  $\varnothing 8.1$  mm,  $\varnothing 12.7$  mm,  $\varnothing 21.3 \div 30.2$  mm,  $\varnothing 40$  mm,  $\varnothing 48.5 \div 63.5$ , and grooved holes in the following diameters:  $\varnothing 7.62$  mm,  $\varnothing 12.5$  mm, the grooves can be profiled in the following diameters:  $\varnothing 7.82$  mm,  $\varnothing 12.96$  mm,
- **horizontal honing machine** – the scope of honed diameters:  $\varnothing 50 \div 112$  mm, the maximum length: 2200 mm,
- **vertical honing machine** - the scope of honed diameters:  $\varnothing 7 \div 50$  mm, the maximum length: 1000 mm



## Grinding

- **CNC grinding machine** – manufactured by Jones & Shipman 524 EASY, grinder table dimensions: 500x200 mm,
- **surface grinder** – grinder table dimensions: 320x1000 mm,
- **cylindrical grinder** – the maximum grinding diameter/length:  $\varnothing 400/1650$  mm,  $\varnothing 315/2000$  mm,
- **internal grinder** – grinding diameter/length:  $\varnothing 40-400/250$  mm,  $\varnothing 10-165/175$  mm,
- **centerless grinder** – the maximum grinding diameter/length  $\varnothing 125/200$  mm



## Other machines

- **broaching machines** – pull broaching length: 750 mm/force: 10T,
- **thread-rolling machines** – the scope of diameter:  $3 \div 70$ , the maximum length: 125 mm