

Rapid machine list

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Programming system

Topcam

TopSolid'Cam is a new CNC programming system with outstanding features. It is fully integrated with TopSolid, but can also be operated as an autonomous system. The programming is carried out in TopSolid'Cam via the volume model.

Visualisation of the unprocessed and finished parts, the clamp situation and the entire machine enables the user to see where his or her tooling is at any given time, thus saving him or her from having to run a new CNC program on the machine to suit the given purpose.

Visualisation of the removal of material, a material management system that always knows where material still needs to be machined and a full machine simulation running parallel to the programming process are features which only very few CAM systems offer.

Furthermore, automated processes guarantee reduced programming costs, enhanced reliability and maximum benefits.

Programming station

- Top Cam 3D-CAD / CAM programming station
- Data import from CAD (IGES, DXF, SAT, DWG, VDA, JAMA, STL, STEP, etc.)
- Free-form area construction

Cubic machining, vertical

Chiron Mill 4500 5-axis CNC vertical machining plant

- Clamping area: 5100 x 710mm
- Travel paths: X = 4500 Y = 630 Z = 550
- Max table load: 1t / m
- Tool accommodation: HSK 63
- Output: 34 kW
- Max R.P.M.: 20'000 rpm
- NC-swivelhead
- Dividing unit (Rotomatik) as C-Axe
- Interference area: 520mm
- Max load axial: 18'393 N
- Max load radial: 14'155 N
- Renishaw measuring scanner

Chiron Mill 1250 5-axis CNC vertical machining plant

- Clamping area: X = 1250 Y = 840 Z = 550
- Tool accommodation: HSK 63
- Output: 34 kW
- Max R.P.M.: 9'000 rpm
- Max table load: max. 1000kg
- Max turntable load: max. 500kg
- Interference area: 1150mm
- NC-swivelhead
- Circular attachment (D500mm) integrated with clamping table
- Renishaw measuring scanner

Chiron FZ 18 L 4-axis CNC vertical machining plant

- Clamping area: 2910 x 450mm
- Travel paths: X = 2600 Y = 400 Z = 425
- Tool accommodation: ISO 40
- Output: 18 kW
- Max R.P.M.: 20'000 rpm
- Max table load: 1t / m
- Dividing unit (Rotomatik)
- Interference area: 380mm
- Max load axial: 11'242 N
- Max load radial: 8'652 N

SW BA-35 4-axis CNC vertical machining plant

- Clamping area: 3600 x 500mm
- Travel paths: X = 2630 Y = 500 Z = 500
- Tool accommodation: ISO 40
- Output: 22.5 kW
- Max R.P.M.: 7'500 rpm
- Max table load: 2x800kg
- Interference area: 470mm
- Dividing unit (Rotomatik)
- Max load axial: 11'242 N
- Max load radial: 8'652 N

Cubic machining, horizontal

Makino a92 4-axis CNC horizontal machining centre

- Clamping area: 1000 x 800mm
- Travel paths: X = 1520 Y = 1250 Z = 1350
- Max table load: max. 2000kg
- Interference area: D 1500mm
- NC-Turntable B: 360 Pos.
- Tool accommodation: HSK 100
- Output: 50 kW
- Max. R.P.M.: 20'000 rpm
- Marposs measuring scanner

Makino A88-A40 4-axis CNC horizontal machining centre

- Clamping area: 630 x 630mm
- Travel paths: X = 900 Y = 800 Z = 970
- Max table load: max. 1000kg
- Interference area: D 1000mm
- NC-Turntable B: 360 Pos.
- Tool accommodation: HSK 100
- Output: 30 kW
- Max. R.P.M.: 12'000 rpm
- Marposs measuring scanner

Makino A88e 4-axis CNC horizontal machining centre

- Clamping area: 630 x 630mm
- Travel paths: X = 900 Y = 800 Z = 970
- Max table load: max. 1000kg
- Interference area: D 1000mm
- NC-Turntable B: 360 Pos.
- Tool accommodation: HSK 100
- Output: 30 kW
- Max. R.P.M.: 12'000 rpm
- Marposs measuring scanner

Makino A88e 4-axis CNC horizontal machining centre

- Clamping area: 630 x 630mm
- Travel paths: X = 900 Y = 800 Z = 970
- Max table load: max. 1000kg
- Interference area: D 1000mm
- Turntable B: 360 Pos.
- Tool accommodation: HSK 100
- Output: 30 kW
- Max R.P.M.: 12'000 rpm
- Marposs measuring scanner

Makino a61 4-axis CNC horizontal machining centre

- Clamping area: 500 x 500mm
- Travel paths: X = 730 Y = 650 Z = 730
- Max table load: max. 700kg
- Interference area: D 800mm
- Turntable B: 360 Pos.
- Tool accommodation: HSK 63
- Output: 22 kW
- Max. R.P.M.: 12'000 rpm

Makino MC 65 4-axis CNC horizontal machining centre

- Clamping area: 500 x 500mm
- Travel paths: X = 630 Y = 575 Z = 650
- Turntable B: 360 Pos.
- Tool accommodation: ISO 50
- Output: 15kW
- Interference area: 700mm

Fastems flexible handling system

- Capacity: 112 Europaletts
52 Machinepaletts (630x630mm)
24 Machinepaletts (800(1000)x800mm)
- Integrated finished parts washing

Rotary parts machining

Mori Seiki ZT2500 Y 8-axis twin-spindle CNC lathe centre

- Cutting diameter of spindle 1: max. 520mm
- Cutting diameter of spindle 2: max. 360mm
- Travel path of revolver 1: X = 280, Y = +/- 70, Z = 960
- Travel path of revolver 2: X = 200, Z = 960
- Rod loader: FMB (D10mm-65mm rod passage)
- Portal robot: Promot (2 x 10kg)

Mori Seiki ZT2500 Y 7-axis twin-spindle CNC lathe centre

- Cutting diameter of spindle 1: max. 380mm
- Tailstock (sleeve travel path 150mm)
- Travel path of revolver 1: X = 280, Y = +/- 70, Z = 960
- Travel path of revolver 2: X = 200, Z = 960

Index GU 600 4-axis CNC lathe

- Cutting diameter via bed-table: max. 230mm
- Travel path of revolver 1: X = 181.50, Z = 650
- Travel path of revolver 2: X = 97, Z = 650

Böhringer VDF DUC 560 ti universal lathe / cycle lathe

- Cutting diameter: max. 570mm
- Travel path: X = 750, Z = 1500
- Travel path revolver 1: X = 181.50, Z = 650

Hardinge GS 200 2-axis CNC lathe

- Cutting diameter: 284mm
- Travelpath: X = 228 Z = 406

Grinding

Kellenberger Kel-Vista UR 175/1000 CNC external and internal grinding

- Centre height: 175mm
- Centre distance: 1000mm
- Grinding length max: 1000mm
- Max grinding diameter: Ø 349mm
- Workpiece weight: 100kg
- Output: 6kW

Studer S50-42 CNC 7 NC circular grinding machine

- Max grinding diameter: 440mm
- Max table load: max. 250kg
- Grind length max.: 1000mm

Kellenberger 50 HRJ external and internal grinding

- Centre height: 175mm
- Max grinding diameter: 350mm
- Grind length: max.: 900mm

ELB SWH 5 NC-K surface grinding machine

- Z-path max: max. 364mm
- Max grinding length: 710mm
- Spindlecentre to table: min. 145mm, max. 525mm

Gear internal-external machining

Mikron A35/EL-CNC 6-axis CNC gear toothing machine

- Cutting diameter, manual loading: max. 200mm
- Cutting diameter, automatic loading: max. 150mm
- Cutting length: max. 450mm
- Length of part to be cut: max. 700mm
- Largest cuttable module (HM): 3
- Portal loader: mmD

Lorenz SNJ-5 gear shaping machine

External toothing:

- Spur gears Ø: max. 180mm
- Bevel spur gears Ø: max. 165mm
- Tooth length: max. 50mm

Internal toothing:

- Spur gears Ø: max. 140mm
- Bevel spur gears Ø: max. 140mm
- Tooth length: max. 35mm

Staehtly SH281 hobbing machine

- Cutting diameter: max. 280mm
- Diameter of part to be cut: max. 315mm
- Cutting length: max. 250mm
- Length of part to be cut: max. 665mm
- Largest cuttable module: 6

Klinik RH 16-50 channelling machine

- Stroke: max. 1500mm
- Maximum tensile force: 16t
- Maximum diameter of part to be machined: 800mm
- Maximum tool diameter: 95mm

Milling / Drilling

MAHO MH 800 P 5-axis CNC milling and drilling machine

- Travel paths: X = 800 Y = 500 Z = 600
- Tool accommodation: ISO 40
- Turning capacity of circular attachment: 360°

Bridgeport GX800 vertical machining centre

- Travel paths: X = 800 Y = 540 Z = 510
- Tool accommodation: ISO 40
- Output: 13kW
- Max R.P.M.: 8'000 rpm
- Max table load: 700kg

ALMA EM300 NC end processing machine

- Travel paths: X = 300 Y = 150 Z = 250
- Speed of drill spindle: 170 – 2000 rpm

Friction welding

ESAB LEGIO FSW 3UT friction stir welding

- Table area: 2000x500mm
- Travel paths: X: 2000mm Y: 500mm Z: 280mm
- Welding depth: max. 10mm

Sheet metal production

Bystronic BI 1000 Laser

- Continuous laser output: 1000 Watt
- Cutting area dimensions: max. 3000 x 1500mm
- Cutting thickness in case of steel: max. 10mm

Beyeler RT DNC CNC folding press

- Working length: 2550mm
- Slide stroke: 215mm
- Engine output: 7.5 kW
- Pressure: 125t

ASEA-ESAB A30 A welding robot

- Inert gas shielded arc welding plant
- Programming system (three-dimensional control joystick)
- ESAB MHS-150 2-station turntable
- Diameter of circular attachment: 400mm
- Dimensions of part to be welded: max. L/B/H:1000mm / 700mm / 1000mm

Schlatter PS 80 H spot-welding unit

- Electrode force: max. 1500kg
- Pole flange gap: 120 – 520mm
- Electrode stroke: max. 58mm
- Spot-weld capacity: 120 KVA

Mengele ES 40/100 press

- Clamping area: 1000mm x 500mm
- Maximum stroke: 200mm
- Output: max. 40t

Various other

- Manual welding stations
- Conventional presses

Enamelling shop

Enamelling plant

- Passageway: 2500 x 1000 x 1500mm
- Weight: max. 250kg
- Enamelling furnace: max:220 °C
- Washing, degreasing incl. pre-treatment: antirusting
- Wet-spraying

Quality Assurance

Zeiss Accura 3D-CNC multi-coordinate measuring tool

- CNC control with additional programmes
- Measuring range: X = 1200 Y = 1800 Z = 1000
- Scanning

Scan Max MAN 3D-multicoordinate measuring tool

- Measuring range: X = 500 Y = 400 Z = 400
- Active scan length: 80mm

Alufix mounting devices, flexible, fast mounting of parts, 9 pallets simultaneously

- 2-coordinate measuring on Tesa Microhite
- Measuring range: 800mm

Gear measurements with Mahr testing machines