

MSD1600-200 CNC Double Helical/Herringbone Shaper Design Overview

MSD1600-200 Capacities

Nominal Pitch Diameter, External	1600 mm	60 "
Nominal Pitch Diameter, Internal	1270 mm	50 "
Maximum Face Width W/Both Heads	400 mm	16 "
Maximum Diametral Pitch, Spur	12.7 mod	2 DP
Maximum Diametral Pitch, Helical	12.7 mod	2
Maximum Helix Angle	40 deg.	40 deg.
Worktable Diameter	1120 mm	44 "
Cutter Spindle Stroking Range	12-150 spm	
Cutter Spindle Diameter	120 mm	4.75 "
Maximum Cutter Slide Travel (variable range above worktable)	100 mm	4 "
Minimum outer cutter spindle face position above worktable	356 mm	14 "
Maximum outer cutter spindle face position above worktable	660 mm	26 "
Max distance between cutter spindles	500 mm	20 "
Work Spindle Thru Bore	254 mm	10 "
Maximum Overall Width	3300 mm	144 "
Maximum Height	2540 mm	100 "
Maximum Overall Length (Depth)	3800 mm	150 "
Net weight with motors	31751 Kg	70000 lbs

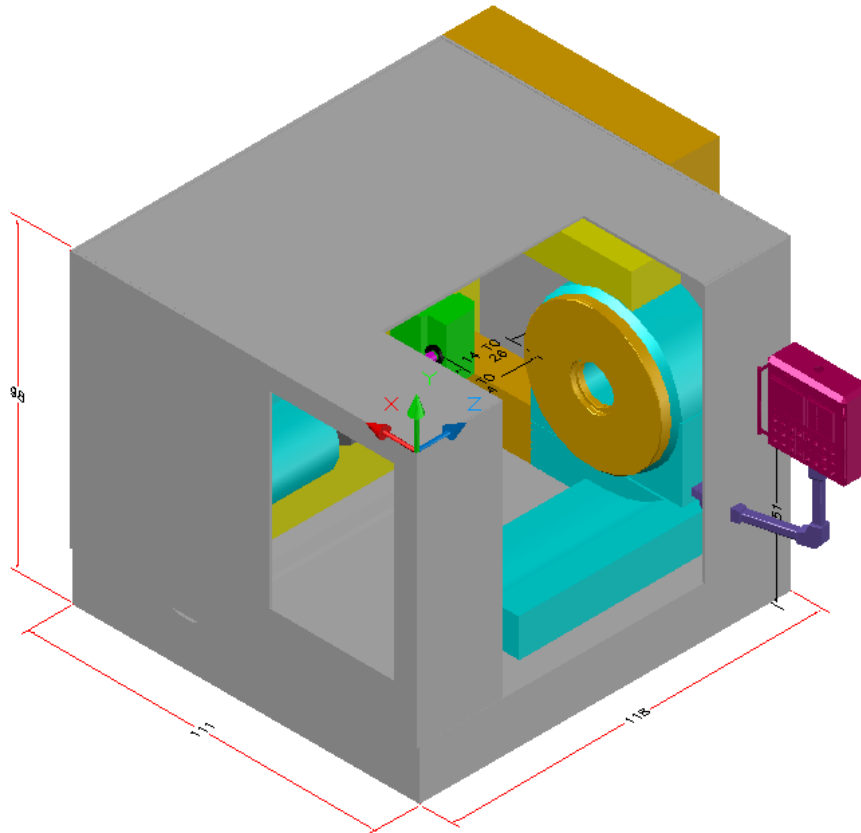
Control Architecture Selection

- Fanuc 31i Series
- Entirely new HMI / MMI
- Standard M&G Codes
- Conversational Control
- AI Contour Control I, II
- Faster interpolation cycle
- Nano CNC System/Nano Interpolation
- Remote Diagnostics & Operation

Max.controlled axis	40 axis (32 servo, 8 spindle)
Max.controlled path	10 path
Max.simultaneously controlled axis	24 axis
Max.part program strage length	8MB
PMC execution time	25ns
Max.PMC path	3 path
MAX I/O point	4096 points/4096points
Look-ahead blocks	1000 blocks

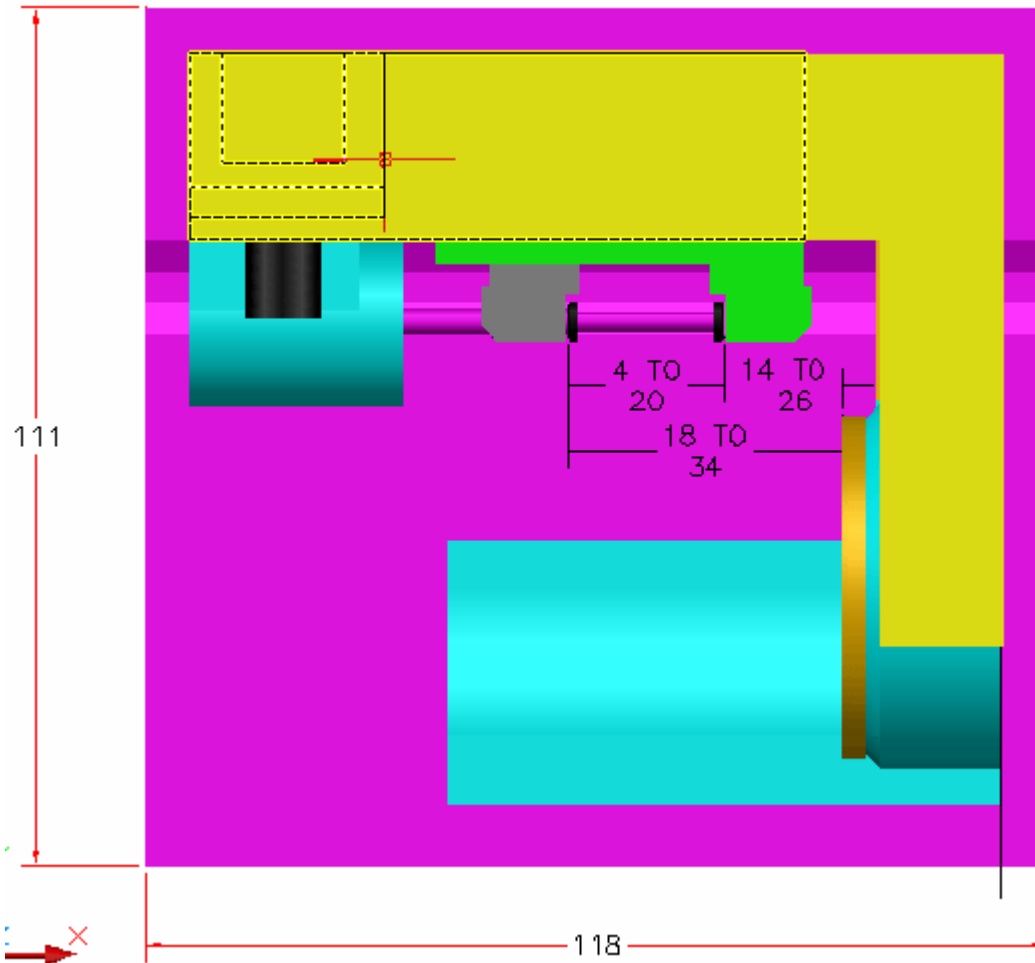


MSD 1600-200 Double Helical/Herringbone CNC Gear Shaper



- Base machine with Fanuc 31i CNC System
- Hydrostatic 30° guide
- Pendant mounted console with 15" color TFT touch screen
- Pentium 4, XP pro, 15" color, Full Qwerty Keyboard w/Mouse
- GFI Duplex outlet (120 V AC)
- Manual pulse generator, switchable inch/metric, programmable tool and work offsets
- >Storage for part program set up data on 40GB hard drive (approximately 14Kb per part)
- Diagnostics and error prevention, descriptive error messages
- Function controls and keypads for online direct entry of gear shaping data
- Modular hardware and software for easy expansion
- Operator's menu with cutter configuration menu, part setup menu, on-line diagnostics, cycle counter, cycle timer
- Operating timer, real time clock, total power-on elapse time
- Seven Axes Control using AC Servo Direct Drives:
- Includes electronic index drive for synchronization of cutter and work rotation
 - Stroking speed, stroke position, work spindle rotation,
 - Cutter spindle rotation, infeed speed and position, stroke length
- Adaptive process control for optimizing chip load by sensing cutting force of each stroke,
- Automatic compensation of temperature dependent center distance changes,
- Stroke positioning of cutter spindle
- Selectable number of cuts
- Programmable, multi-surface cutting capability
- Programmable infeed and rotary feed
- Servo driven backoff, Oriented Stiffness Back-Off™

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- Water cooled heat exchanger, Water/Glycol cooler for integral and linear liquid cooled motors
- Lubrication system
- Coolant system 210 liter (55.5 gal) tank, chip basket, optional chip conveyor
- Full machine enclosure
- Documentation
- Paint, Sherwin Williams BM 1302 Dotted Swiss Off-White
- Cutter spindle adapter with 44.45 mm (1-3/4") nose
- Work lamp, high intensity

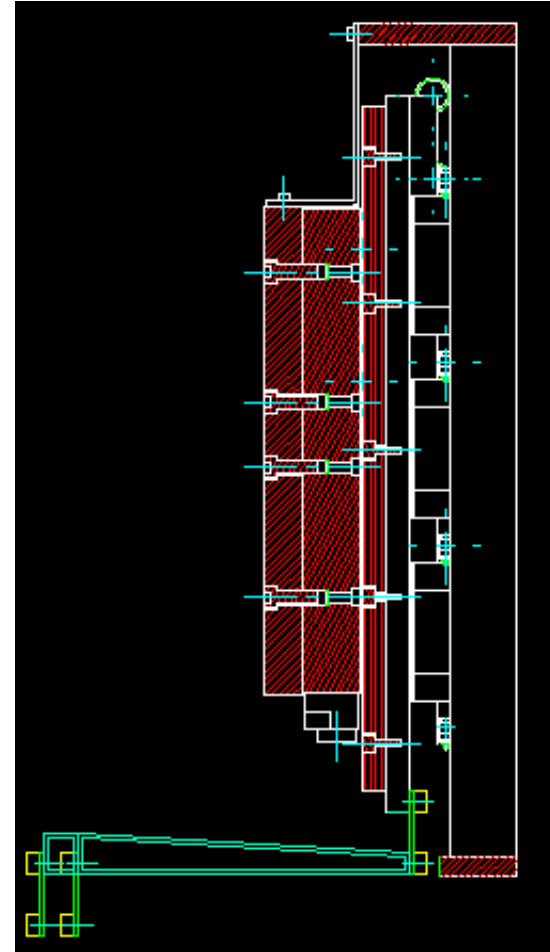
Optional

- CNC Controlled Crowning and taper software
- CNC Electronic Guide
- Integral Motor Cutterheads

MSD 1600-200 Key Features

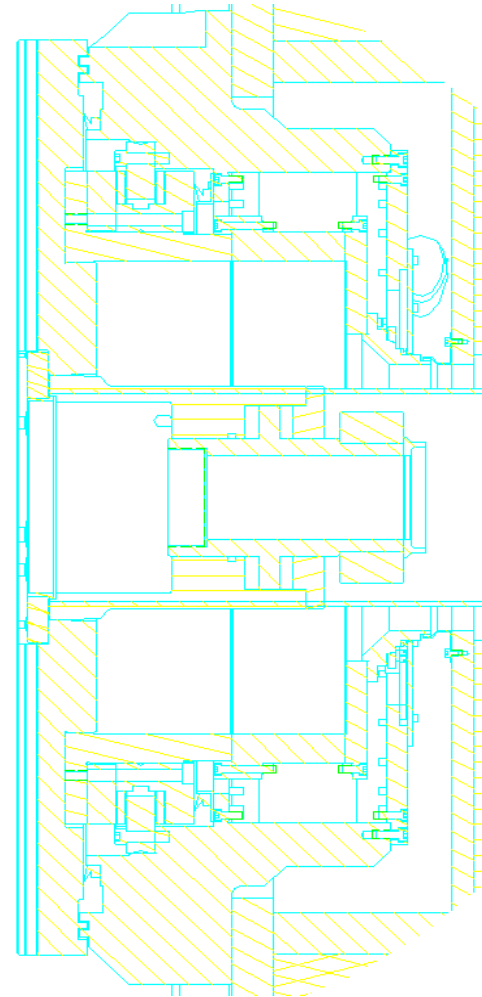
- Linear Servo Stroke Axis
 - Programmable Stroke Rate
 - Constant SFM Stroking
 - Extended Tool Life
 - 50% Production Improvement over Sykes Crank
 - Automatic Tool Position and Stroke Length
 - High Precision Scale

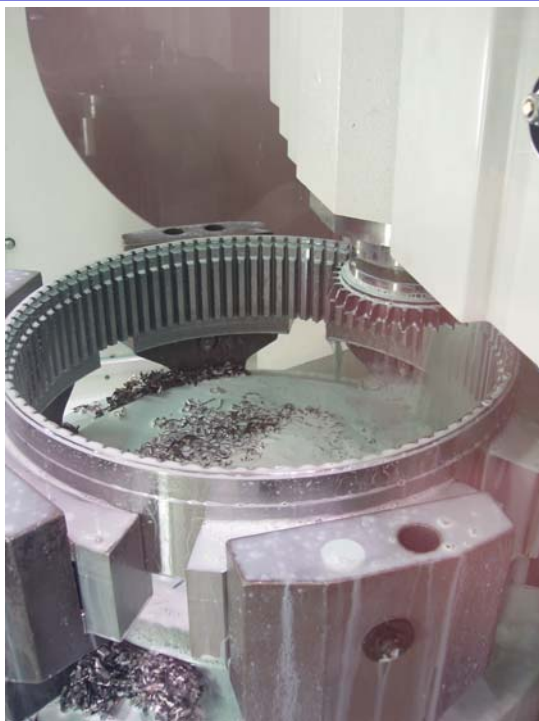
- Linear Servo Motor Tool Relief /Position
 - Size Control for each Cutter
 - Crowning and Taper Control each Cutter
 - High Precision Scale



MSD 1600-200 Key Features continued

- Integral Servo Motor Cutter Rotation
 - Rapid Rotation
 - No Lost Motion
 - High Precision Scale
 - Electronic Guide and Compensation
- Integral Servo Motor Table Rotation
 - Rapid Rotation
 - No Lost Motion
 - High Precision Scale
 - Powered Work End Support
- X Axis Moving Tool Slide
 - Work Loading Convenience
 - Chip Conveyor System
 - Operator Visibility
 - Heavy Duty Work Alignment





*Manufactured in the USA by Bourn
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