

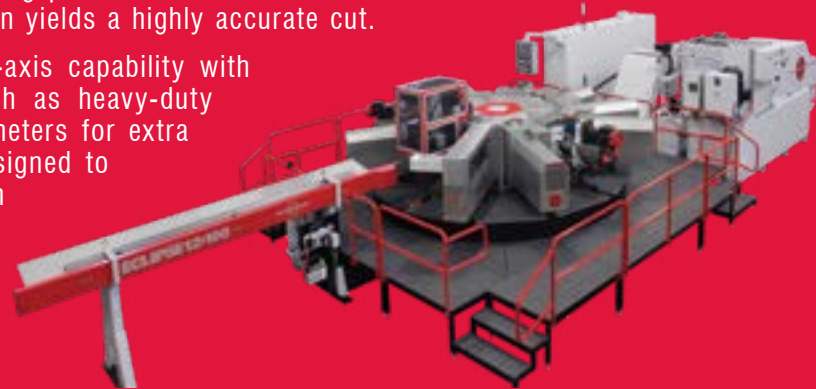
ECLIPSE 12-100

NEW TECHNOLOGY: ECLIPSE 12-100

The Eclipse 12-100 features a one-piece, heavy-duty cast iron machine frame that is 2m in diameter, nearly twice as large as the traditional 12 station Hydromat machine. This machine platform offers multiple tool spindles in a single footprint integrated with one chip management & coolant system. Robot load/unload with auto inverting offers six-sided machining capability on both bar and blank loading applications. A revolutionary new cut-off saw, designed by Hydromat Inc. engineers, featuring bar and workpiece spacing prior to saw blade retraction after the cut. The saw's two-speed drive motor with belt reduction yields a highly accurate cut.

Each of the 12 tool spindle modules features 3-axis or 4-axis capability with all-electric servo spindles and high-tech components such as heavy-duty linear guideways for high accuracy, and large bearing diameters for extra stability, that yield smoother cutting at higher speeds. Designed to be exceptionally rigid, these modules were designed with

The Eclipse offers a high degree of machining flexibility derived through engineering expertise coupled with a visionary concept, the type of creative thinking that has produced this superior Rotary Machining Center for small to large batch production.



ECLIPSE 12-100 Rotary Transfer Machine

- Heavy duty cast iron base with 12 horizontal positions and 100mm (Chucks) work-holding capacity
- FANUC 30iB CNC control and touch screen operator pendant interface
- Index Table equipped with Hirth Ring coupling providing indexing accuracy and repeatability
- Quick change Hainbuch collet and chuck table clamping systems
- Vertical Sliding Cut-Off Saw module
- Standard all-electric 3 and 4-Axis tool spindle modules

FANUC CNC Control

- FANUC 30iB CNC Control with 15" Panel I touch screen
- Remote handheld operator display unit with jog buttons and emergency stop functions
- Encoder servo feedback system
- High-speed cutting and rigid tapping options
- Hydromat Inc. is proud to be named an authorized FANUC CNC system integrator



ECLIPSE Cut-Off Saw Module

- Vertical slide motion to position saw blade above the bar stock and eliminate remnants damaging the blade
- 3-Axis with direct drive dual winding servo spindle motor
- Bar and workpiece spacing during saw retract motion eliminates saw blade dragging on the return motion
- Standard carbide-tipped Ø 360mm saw blade
- 80mm Y-axis and 135mm Z-axis stroke
- 500rpm base speed/maximum of 6,000rpm

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ECLIPSE 12-100 Index Table

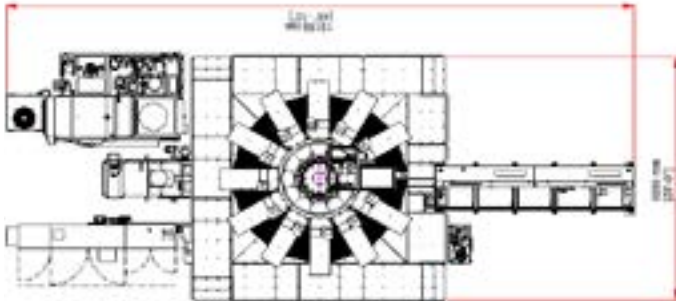
- 12 hydraulic actuated Hainbuch stationary Quick Change clamping devices with 65mm maximum clamping capacity with hexagon draw-type clamping geometry
- Quick Change 2 or 3 jaw chuck system 100mm maximum clamping capacity
- Table index 0.9 seconds
- Hydraulic actuated lift and down function
- Servo hydraulic single or double index function
- HB45 Collet - Ø 40mm / Hainbuch Collet - Ø 65mm

Bar Stock Loading Systems

Bar-fed versions of Eclipse machines come equipped with a standard or bundle bar feeder, depending on the application and the production requirements.



The bar-fed collet version of the Eclipse 12-100 has a maximum workpiece diameter of 65mm (2.5") and features a maximum workpiece length of 180mm (7") with 127mm (5") of material outside the collet.



ECLIPSE 12-100 Toolspindle Modules

ECLIPSE 55/250 3-Axis

- Direct drive spindle motor with Ø 55mm front bearings with 250mm Z-Axis stroke
- 80mm X-Axis and 100mm Y-Axis CNC slide stroke
- FANUC 8,000 or 12,000 RPM servo motor
- HSK-C50 tool holder interface
- Optional coolant fed

ECLIPSE 55/250 4-Axis Profile

- Belt driven spindle with Ø 55mm front bearings and a 250mm Z-Axis stroke
- 80mm X(1)-Axis and 100mm Y-Axis CNC slide stroke
- FANUC servo motor
- Flange spindle for mounting dynamic profile turning head with 30mm X2-Axis stroke
- Ø 160mm dual or single slide profiling head -5,000 rpm

ECLIPSE 12-100 Sample Applications



45x80mm - STAINLESS STEEL - HEX BAR STOCK
CYCLE TIME: 16.5 SEC



Ø 50x200mm - 12L14 STEEL - BAR STOCK
CYCLE TIME: 15.0 SEC

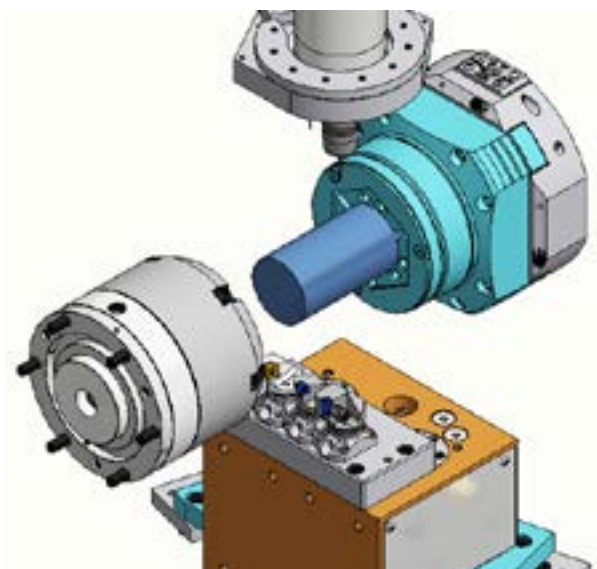
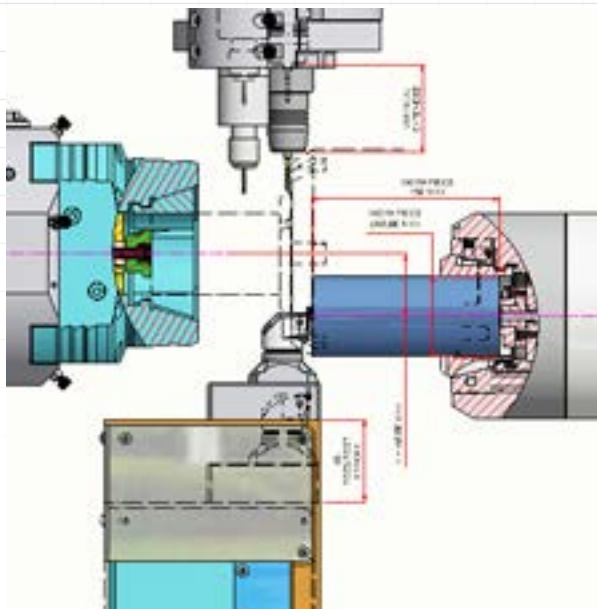


Ø 46x80mm - 1144 STEEL - BAR STOCK
CYCLE TIME: 21.5 SEC

ECLIPSE 12-100

Application Details

Part Name:	Valve Body
Size Range:	1.25" hex X 3" long Ø1.343" round X 3.4" long
Volume:	1 round part ~250K per year 7 hex parts ~425K per year
Industry:	Mobile Hydraulics

Pick-Off Station Overview**Product Turnkey Solution**

- Eclipse 12-100 with **bundle bar feeder**, and **12 multi-axis machining modules**:
 - One 360mm cutoff saw
 - One 3-axis drilling station
 - Three 4-axis profile turning station
 - Seven 4-axis Pickoff & Turn stations
 - Two vertical drill/mill spindles each with an auxiliary High-Speed motorized drilling spindle
- Casting mounted toolposts with **quick-change lathe tooling** for **multiple operations per pick-off station** including:
 - Rough & finish OD profile turning
 - ID Drilling & reaming
 - ID boring
 - OD Grooving
 - Single point threading
- **Custom ID Mandrels** to locate on critical bore and face for **exceptional accuracy and repeatability**
- **Robot unloading** to custom indexing conveyor and palletizing system
- Approximate **Cycle Time 23-24 seconds** (depending on the part)

Product Turnkey Advantages

- **Improved cycle time**, even compared to current multi-spindle machines
- **Complete part** ready for plating and final honing in one machine vs three operations/machines in the current process
- **Easy change-overs between part families** with **quick-change tooling & workholding**
- **Improved part quality** due to direct workholding on ID diameter & face Datums with ID Mandrel
- Palletizing system puts the finished product in dunnage trays for shipment to plating vendor in place of hand loading