

BSA Machine Tools

Kitts Green
Birmingham, B33 0LE



FM 26792



Churchill

PRO-ELIP

Elliptical CNC Turning

CHURCHILL OMEGA RANGE

OMEGA, a name uniquely symbolic for precision, quality, accuracy and split second timing. The **OMEGA** range has become synonymous with quality throughout the worlds machine tool industry, bringing forward for our clients gains in productivity, quality, manufacture and machine utilisation while operating costs, work in progress and downtime are reduced.

The **OMEGA** provides a range of CNC turning centre's that satisfies the spectrum of turned parts requirements, whether the application is for the contract shop where speed and ease of set up is the requirement, or a major manufacturer where large batch or dedicated component production is the norm and minimum time is essential.

Key Benefits

- Bar Capacity 42mm, 65mm & 76mm.
- **Polymer Resin Composite Bed.**
- Turned Length 500mm or 1,000mm.
- Single or Twin Spindles.
- **"C"** Axis with Driven Tools to both Spindles.
- **"Y"** Axis (+- 50mm).
- Linear Guideways.
- Rapid Traverse **30metres / minute.**
- Spindle Power **15-22kW AC.**

"OUT OF ROUND" TURNING

BSA Machine Tools offer machines with **"PRO-ELIP"** for turning parts such as pistons, cam worm threads and components with eccentric features. **"PRO-ELIP"** is fully under the control of the CNC, being versatile and easy to program. Long lead, internal & external can now be produced using standard turning geometry inserts and turning speeds, single & multiple starts are the same to **"PRO-ELIP"**.

PRO-ELIP ELLIPTICAL TURNING

“PRO-ELIP” is a full CNC version, with a high performance CNC slide which follows a form detailed by a data table in the CNC control, where the displacement of the “X” axis is in strict relationship to the angular relationship of the spindle.

For a thread type form only a simple table on one revolution of the spindle is required, with the helixing being provided by another axis.

The system can be applied to **ANY SHAPE** or type of component, limited only by the dynamics of the system, which allows up to 3G of acceleration, and the geometry of the tooling

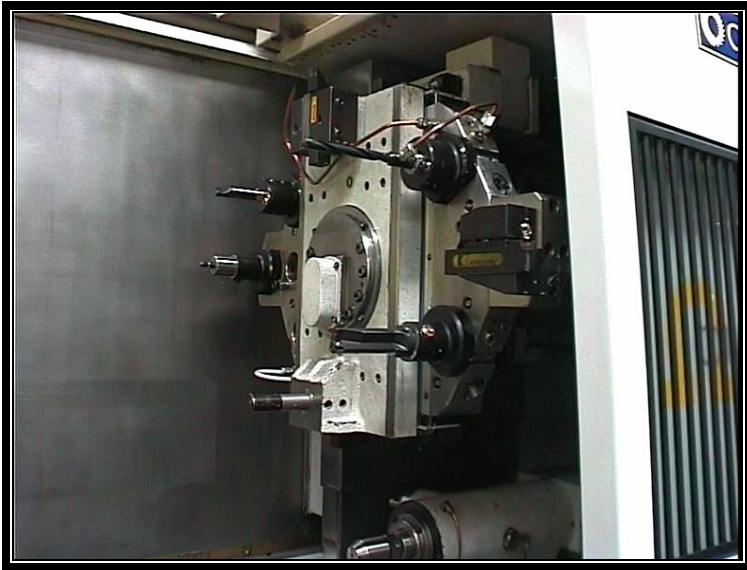
ROCK BITS & COUPLINGS

Rock Bit & Coupling manufacture are typical components that benefit from ***“PRO-ELIP”*** when fitted to a Churchill Omega CNC Turning Centre.

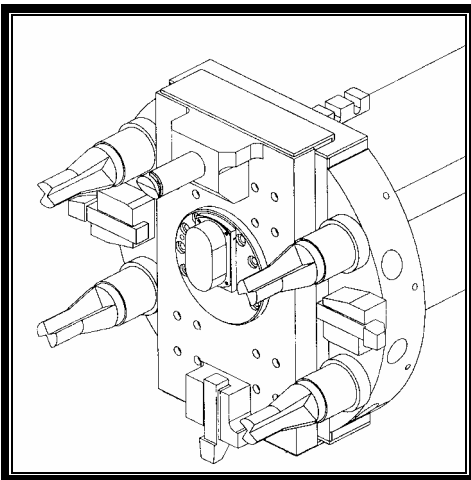
The machine can be manually loaded or as part of an automated set up with In Process Gauging, and Gantry loading to from a carousel material Feeder



THE "PRO-ELIP" TURRET



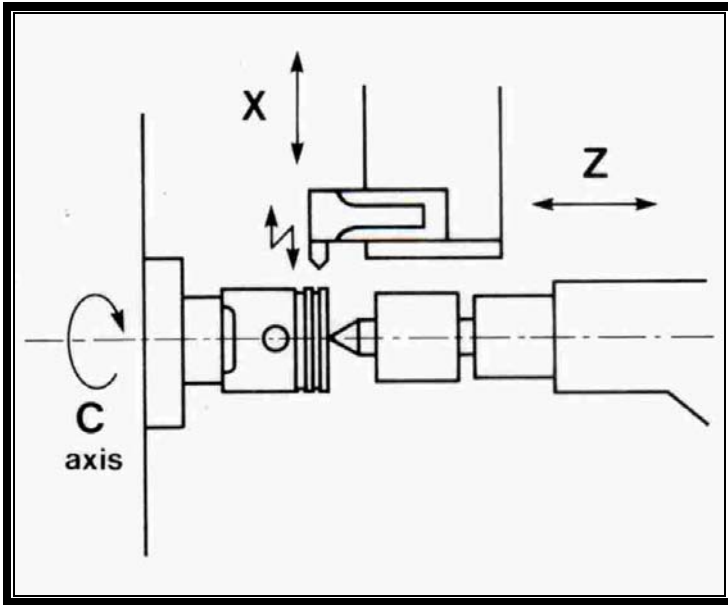
VDI Turret – 8 Stations – 2 Position Reciprocating Slide



The VDI Turret, fitted with a secondary slide capable of both round and oval turning, with spindle speeds up to 3,000r.p.m. Cycle times are even further reduced by the process being able to produce more than one shape during each pass.

The 8 station Turret with facility of two tooling positions, which can reciprocate, accepting either internal or external tooling

SLIDE CONFIGURATION



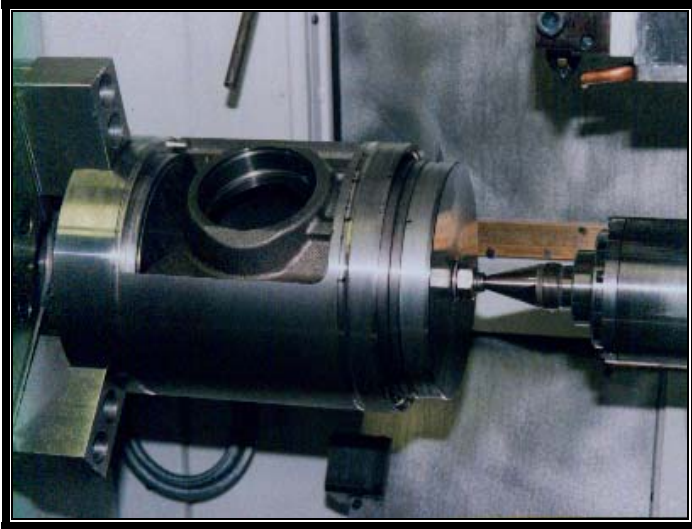
PISTON TURNING SPECIFICATIONS

Item	Unit	Description
Max Turn Diameter	mm	360
Max Stroke	mm	20
Max Speed	r.p.m	3,000
Spindle Power	Kw – (AC)	22 or 30

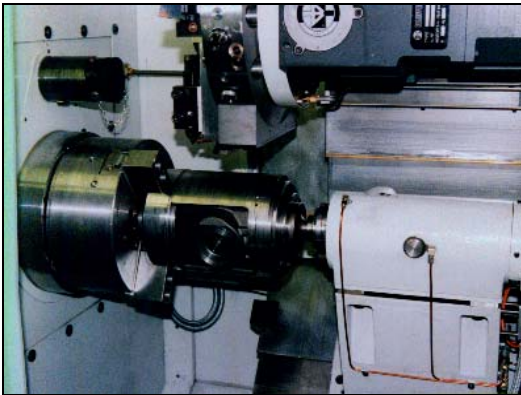
OMEGA SPECIFICATION

- Spindle Nose: A2-8" A2-11"
- Maximum Bar Diameter. 75mm 142mm
- Spindle Motor: 22Kw AC 22Kw AC
- Bed Length: 1 Metre. 1 Metre
- Automatic Tailstock.
- Automatic Guarding.
- 8 Station Turret.
- 2 Reciprocating Slides.
- Swarf Conveyor.

PISTON TURNING



The example shown is manufactured in cast iron. The component 160mm in diameter, and 280mm long consists of a varying elliptical form along its longitudinal stroke, with a second eccentric form which has to remain constant and in synchronisation with the pistons ovality.



Marine
Piston
being
produced
on a:

**Churchill
Omega
CNC
Turning
Centre.**

SIEMENS 840D CONTROL SYSTEM



The program is controlled by the CNC software which allows the operator to have full control of speeds & feeds which can be adjusted without alteration to the finished shape, and thus improving surface finish and size control.

The **Siemens 840D** system can control any automation together with the machining process. The control is user friendly and programs are easily updated at the machine on the shop floor.

Specification:

Modular 32-bit microprocessor.

CNC continuous path control.

Flat Colour Screen

Data Table with 6Kb programmable memory.

BSA Machine Tools Ltd

Mackadown Lane, Kitts Green, Birmingham B33 0LE

Tel: +44 (0)121 783 4071

Fax: +44 (0)121 789 9509

email: sales@bsamachinetools.co.uk

www.bsamachinetools.co.uk