

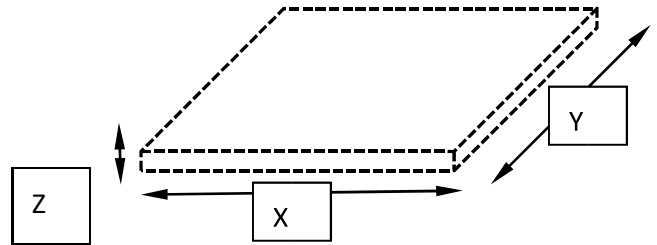
## Department of Mechanical Engineering Machine Shop Equipment Capacities

### Maxiem Abrasive Water-jet Cutter

Travel X = 1500 mm, Y = 1500 mm

Bed size 2337mm x 1752 mm

Maximum clearance nozzle to bed: 170mm



Materials: almost any material up to 150mm thick can be cut (hardened steel, ceramics, plastics, wood) however brittle materials can be troublesome and cutting costs increase non-linearly with thickness.

### Haas VF-4 CNC Vertical Milling Centre\*

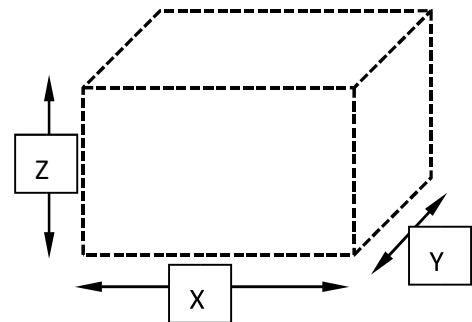
Travel X = 1270 mm, Y = 508 mm, Z = 635 mm

Table weight capacity 1600 kg

Auxiliary 4<sup>th</sup> Axis swing  $\Phi$ 160mm

15,000 rpm spindle

50,000 rpm auxiliary spindle attachment



### Haas ST-10 CNC Lathe (pending)\*

Swing:  $\Phi$  355 mm

Spindle to tailstock: 355 mm

Spindle bore:  $\Phi$  50 mm

### Cazeneuve Lathe \*

Swing:  $\Phi$  530mm

\*This equipment is designated for technician use only

Spindle to tailstock: 1900mm

Spindle bore:  $\Phi$  51 mm

#### Colchester Triumph Lathe (3x)

Swing:  $\Phi$  380mm over bed;  $\Phi$  600mm gap open

Spindle to tailstock: 1400mm

Spindle bore:  $\Phi$  55 mm

#### Kondia FV-1 Milling Machines (3x)

Travel X = 790 mm, Y = 382 mm, Z = 419 mm

#### Drilling Machines

Elliot Drill Press with #4 Morse taper spindle

KBC 16" Drill Press with #3 Morse taper spindle

Buffalo drill presses (3x) with 13mm chuck capacity

Max drill diameter= 41.2 mm (1.625")

Instrument drilling down to #80 (0.343mm) drill size is possible

#### Saws:

Johnson V-36 vertical bandsaw

Throat: 36" (914mm)

Max thickness: 305 mm

Meba horizontal bandsaw

Max width: 406mm

Max thickness: 230mm (nominal, larger is possible with special setup)

Max. mitre angle: 45 degrees

Jet 14" vertical bandsaw:

Throat: 14" (355 mm)

\*This equipment is designated for technician use only

Max thickness: 150 mm

Note: this saw is typically set up with an 18 teeth per inch blade for cutting sheet stock that is too thick for the shear

#### Atek Bantam 424 Press Brake

Max bend length: 1220mm

Max load: 24 tons

Current tooling: up to 11 gauge mild steel (3mm) at 1000 mm bend length

Punches:

90 degree straight vee, 0.5 mm tip radius,

Full length 1220 mm long

90 degree gooseneck vee 0.5 mm tip radius

Segmented 77, 97, 117, 137, 157 mm

Dies:  $\frac{3}{4}$ " 90 degree Vee

Full length 1220 mm long

Segmented 77, 97, 117, 137, 157 mm

#### Brown Boggs Shear (manual)

Max length of cut: 1220 mm

Max thickness: 16 gauge mild steel (1.6mm)/20 gauge stainless steel (0.9mm)

#### Rotex 18-A2.00 Manual Turret Punch (8 Ton nominal rating)

Round punches  $\frac{5}{32}$ ",  $\frac{3}{16}$ ",  $\frac{7}{32}$ ",  $\frac{1}{4}$ ",  $\frac{9}{32}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ ",  $\frac{1}{2}$ "  $\frac{5}{8}$ ",  $\frac{3}{4}$ ",  $\frac{7}{8}$ ", 1",  $1\frac{1}{8}$ ",  $1\frac{1}{4}$ ",  $1\frac{1}{2}$ ",  $1\frac{3}{4}$ ", 2"

Slip Rolls:

Length 1220mm

\*This equipment is designated for technician use only

Roller diameter 75mm (minimum theoretical rolling radius = 75mm plus springback allowance)

Nominal max capacity 16 gauge (1.6mm) mild steel

Spot Welders:

SIP 15KVA Spotwelder

Max total thickness: 6mm

Miller 2.5KVA spotwelder Max total

thickness: 1.5mm

Welders:

MIG welder: Millermatic 251 with aluminum wire feed option

Mild steel max thickness 12 mm (single pass)

TIG Miller Dynasty 350 Tigrunner (300 amps max current)\*

Sunstone Engineering Pulse Arc Welder PA230M (instrument welder)\*

Plasma Cutters\*

Thermal Dynamics Cutmaster 100 (80A max, max 13 mm mild steel)

Thermal Dynamics Aircut 15C (max capacity 3mm mild steel)

Heat Treating Oven (programmable)

Ney Vulcan 3-1750

Max temperature: 1100 degrees C (2012 degrees F)

Interior Volume 360 x 250 x 320 mm ( H x W x D)

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