

OCCUPATIONAL TOOLS AND EQUIPMENT LIST

Machinist



Government of Newfoundland Labrador
Department of Immigration, Skills and Labour
Apprenticeship and Trades Certification

March 2019

Preface

This document is intended as a companion to the March 2019 Plan of Training for the Machinist occupation. It identifies the necessary tools and equipment required by apprentices and training institutions for the completion of apprenticeships.

Acknowledgements

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We offer you a sincere thank you.

Contact Information

Department of Immigration, Skills and Labour
Apprenticeship and Trades Certification
Tel: 709-729-2729 / 1-877-771-3737
Email: app@gov.nl.ca
Web: www.gov.nl.ca/atcd

Note:

The numbers suggested in the following Tools and Equipment List represents the required minimum. Please verify this list with your selected training institution

**Tools and Equipment List
MACHINIST**

SECTION A: TOOLS AND EQUIPMENT REQUIRED BY STUDENT			
Item	Units for Individual Students	Required for Entry (E) Advanced (A) Both (B)	Comments
TOOLS AND EQUIPMENT			
Goggles/Safety Glasses	1	B	
Safety Boots	1	B	
Coveralls/ Shop Coat	1	B	
Hand Protection/Gloves	1	B	
Welding Gloves	1	B	
4pc Combination Set	1	B	Learning institution has the option to provide a "tool box "with this item included.
Adjustable Wrenches	1	B	Learning institution has the option to provide a "tool box "with this item included.
Allen Keys	1 set	B	Learning institution has the option to provide a "tool box "with this item included.
Ball Peen Hammer	1	B	Learning institution has the option to provide a "tool box "with this item included.
Boring Bars	1	B	Learning institution has the option to provide a "tool box "with this item included.
Chip Brushes	1	B	Learning institution has the option to provide a "tool box "with this item included.
Centering Gauge (Thread)	1	B	Learning institution has the option to provide a "tool box "with this item included.
Centre Punch	1	B	Learning institution has the option to provide a "tool box "with this item included.
Dead Blow Hammers (Softface)	1	B	Learning institution has the option to provide a "tool box "with this item included.
Deburring Tool	1	B	Learning institution has the option to provide a "tool box "with this item included.
Depth Gauge	1	B	Learning institution has the option to provide a "tool box "with this item included.
Dial Indicators	1	B	Learning institution has the option to provide a "tool box "with this item included.
Dividers	1	B	Learning institution has the option to provide a "tool box "with this item included.
Drill Chuck Key	1	B	Learning institution has the option to provide a "tool box "with this item included.
Edge Finders	1	B	Learning institution has the option to provide a "tool box "with this item included.
Feeler Gauges	1	B	Learning institution has the option to provide a "tool box "with this item included.

SECTION A: TOOLS AND EQUIPMENT REQUIRED BY STUDENT

Item	Units for Individual Students	Required for Entry (E) Advanced (A) Both (B)	Comments
File Card	1	B	Learning institution has the option to provide a "tool box "with this item included.
File Handles	1	B	Learning institution has the option to provide a "tool box "with this item included.
Hacksaw	1	B	Learning institution has the option to provide a "tool box "with this item included.
Hermaphrodite Calipers	1	B	Learning institution has the option to provide a "tool box "with this item included.
Honing Stone	1	B	Learning institution has the option to provide a "tool box "with this item included.
Inside Calipers	1	B	Learning institution has the option to provide a "tool box "with this item included.
Lathe File	1	B	Learning institution has the option to provide a "tool box "with this item included.
Lathe Rotating Dead Center	1	B	Learning institution has the option to provide a "tool box "with this item included.
Measuring Tape	1	B	Learning institution has the option to provide a "tool box "with this item included.
Outside Micrometers	1	B	Learning institution has the option to provide a "tool box "with this item included.
Pliers (Slip Joint)	1	B	Learning institution has the option to provide a "tool box "with this item included.
Prick Punch	1	B	Learning institution has the option to provide a "tool box "with this item included.
Radius Gauges (up to 1/4")	1	B	Learning institution has the option to provide a "tool box "with this item included.
Scales (6 inch)	1	B	Learning institution has the option to provide a "tool box "with this item included.
Screw Pitch Gauges	1	B	Learning institution has the option to provide a "tool box "with this item included.
Scriber	1	B	Learning institution has the option to provide a "tool box "with this item included.
Three Wire Thread Measuring Set Pins	1	B	Learning institution has the option to provide a "tool box "with this item included.
Vernier Calipers (Plain)	1	B	Learning institution has the option to provide a "tool box "with this item included.

Note: If identifying sets, please include specific information.

SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
SAFETY EQUIPMENT				
Arc Welding Shield	5	1	A	
Eyewash Station	As required by OHS/Fire Regulations	1	B	
Fire Blanket	As required by OHS/Fire Regulations	1	B	
Fire Extinguishers	As required by OHS/Fire Regulations	1	B	
Fire Hoses	As required by OHS/Fire Regulations		B	
First Aid Station	As required by OHS/Fire Regulations	15	B	Including First Aid Kit
Hearing Protectors	As required	1	B	
Heat Treatment Oven Mitts/Gloves	1 pair	1	B	
Safety Barrier Tapes	As required		B	
Welding Jackets	5	1	A	
HAND TOOLS				
Acetylene Torch	1	1	E	
Bars	1 pry bar	1	B	
Buffing Wheels	1	1	E	
Die Stock	2	1	B	
Drill Drift	As required: 1 per Drilling Machine	15	B	
Drill Gauge	1 Fractional 1 Number 1 Letter 1 Metric	1	B	
Drill Sharpening Gauge	2	1	E	

SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Files	Assortment	1	B	
Hacksaw Blades	As required.	1	B	Assortment of blades
Metal Stamps	1 set: <ul style="list-style-type: none">▪ letters▪ numbers	1	B	
Pin Punches	1 set	15	E	
Transfer Punch Set	1 set	15	B	
SHOP EQUIPMENT				
Arbor Press	1	1	B	
Bandsaw Welding Machine	1	15	E	
Chain Fall Hoist	1	1	E	
Dividing Head with Change Gears	2	1	B	
Grease Guns	1	1	B	
Hand Broaches	1 set	15	E	
Hand Reamers	1 of each: <ul style="list-style-type: none">▪ Solid▪ Expansion / Adjustable	1 1	B	
Lapping Plate	1	1	B	
Lathe Dogs	Various numbers and sizes	1	B	
Machine Vice	1 per Mill	1	B	
Mandrels (Solid Lathe)	Various numbers and	1	B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
	sizes			
Oil Cans/Guns	5	3	B	
Oxy Welding and Cutting Equipment	1	1	E	
Parallels	Various paired sets and sizes	1	B	
Quick Change Toolpost	1 per lathe	1	B	
Rotary Table	2	1	A	
Shaper Vice	1 Per Shaper	1	E	
Shim Stock	Various numbers and sizes as required	1	B	
Slings	Variety	15	E	
Socket Set	1 Complete set: Metric and Standard 1/4" , 3/8" / 1/2" drive	15	B	
Steady Rest	1 per lathe	1	B	
Tap Extractors	1 set	15	E	
Tap Wrenches	2	15	B	
Taper Sleeves	Various numbers and sizes	1	B	
Taper Turning Attachment	1 per Lathe	15	B	
Tapping Head	1	15	E	
Tool Holders (Lathe)	Various kinds	1	B	
Torch Tip Lighters	1 per Torch	1	E	
Vee Block	2 sets	5	B	
Vises	1 per student	3	B	

SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Wheel Balancers	1	15	B	
Wheel Dressers	2 Hand Held	1	B	
Wrench Sets	1 complete set (Metric and Standard)	15	B	
MACHINE TOOLS				
Arc Welding Machines and Related Equipment	5	1	A	
Computer Numeric Control (CNC) Machine Tools	1 Industrial CNC Mill 1 Industrial CNC Lathe 2 Bench Top CNC Lathes 1 Bench Top CNC Mills	1 1 1 1	B	
Carbide Grinder	1	1	B	
Conventional Lathes	15 Engine Lathes	1	B	
Cylinder Grinder	3	1	A	
Drill Sharpening Units	1 of each. Capability up to $\frac{1}{2}$ " and higher.	1	B	
End Mill Sharpening Unit	1	1	A	
Geared Head Drill Press	1	1	E	
High Temperature Oven	1	15	B	
Horizontal (Universal) Milling Machines	3	1	B	
Horizontal Bandsaw	1	1	B	
Horizontal Shapers	2	1	E	
Horizontal Surface Grinder	3	1	A	

SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Hydraulic Press	1	1	B	
Pedestal / Bench Grinder	3	1	B	
Radial Arm Drill Press	1	1	E	
Sandblasting Unit	1	1	B	
Tools and Cutter Grinder	1	1	A	
Upright / Floor Model Drill Press	1	1	B	
Vertical (Contour) Bandsaw	1	1	E	
Vertical Milling Machines	3	1	B	
Vertical Slotter	1	1	E	
POWER TOOLS				
Abrasive Cut-Off Saw	1	1	E	
Air Grinder	1	1	B	
Angle Grinder	1	1	B	
Buffing Tools	1	1	B	
Die Grinder	1	1	B	
Disc Grinder	1	1	B	
Line Boring Equipment	1	1	A	
Magnetic Drill Press	1	1	E	
Portable Band Saw	1	1	E	
Portable Drill	1	1	B	
Portable Key Seat Cutter	1	1	E	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
CUTTING TOOLS AND ACCESSORIES				
Abrasive Cut Off Wheels	As required: ■ Variety	1	E	
Boring Heads	2	1	B	
Broaches	1 set	15	E	
Carbide Inserts and Holders	Variety	1	B	
Center Drills	Various numbers	1	B	
Chucking Reamers	Variety	1	B	
Drill Sets (Jobber)	1 set of each: ■ Fractional ■ Number ■ Alphabet (A – Z) ■ Metric	15	B	
Grinding Wheels	As required: ■ aluminum oxide ■ silicon carbide	1 1	B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Gear Cutter	As required: <ul style="list-style-type: none"> ▪ Spur Gear Cutter ▪ Bevel Gear Cutter 	1	A	
Hole Saws	1 set	15	B	
Knurling Tools	Variety	1	E	
Machine Drills (Taper Shank)	Variety of sizes	15	B	
Machine Reamers (Tapered Shank)	Variety	1	B	
Milling Cutters	As required: <ul style="list-style-type: none"> ▪ dovetail ▪ end mills ▪ T-Slot ▪ woodruff ▪ side and face ▪ helical ▪ slitting saws ▪ formed ▪ angular ▪ carbide insert 	1 1 1 1 1 1 1 1 1 1	B	
Pipe Taps	Variety	15	B	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Taps and Dies	1 set $\frac{1}{4}$ " to 1" (Course and Fine)	15	B	
Taps and Dies	1 set Metric	15	B	
Tool Bits (HSS) Lathe	As required.	1	B	
Tool Bits Lathe (Carbide Cemented)	As required: ▪ variety	1	B	
LAYOUT EQUIPMENT				
Engraver	1	1	B	
Layout Fluid	As required.		B	
Layout Table	1	1	B	
Machinist Square	1	1	B	
Surface Finish Comparator	1	1	B	
Surface Plates	2	1	B	
Vernier Height Gauge	2	1	B	
MEASURING TOOLS				
Angle Gauge Blocks	1	1	B	
Angle Plate	3	1	B	
Coordinate Measuring Machine (CMM)	1	1	A	
Digital Readout	As required	1	B	
Drill Rod Blanks	2 sets	15	A	

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Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Electronic Surface Finish Comparator	1	1	B	
Gauge Blocks / Precision Blocks	1 set	15	B	
Go-No-Go Gauge	1 Threads 1 Diametrical	1 1	E	
Master Cylinder Gauge	1	15	A	
Master Height Transfer Gauge	1	15	A	
Micrometer	As required: <ul style="list-style-type: none"> ■ thread ■ inside ■ outside 0-6" set ■ thread comparator ■ depth 	1 1 1 1 1	B	
Master Precision Level	1	1	B	
Optical Comparator	1	1	A	
Protractor	2 of each: <ul style="list-style-type: none"> ■ universal ■ bevel ■ plate 	1 1 1	B	
Radius Gauges (over $\frac{1}{4}$ ")	1 set above $\frac{1}{4}$ inch in size	1	B	
Refractometer	1	1	B	
Sine Bar	1	1	B	
Small Hole Gauge	2 sets	15	B	
Square	1 Cylindrical	1	B	

SECTION B: TOOLS AND EQUIPMENT REQUIRED BY TRAINING INSTITUTION

Item	Units per 15 Students	Maximum Students per Unit	Required for Entry (E) Advanced (A) Both (B)	Comments
Surface Plate	1 Granite	1	B	
Telescopic Gauge	3 sets	5	B	
Vernier Caliper	2 of each: <ul style="list-style-type: none"> ▪ dial ▪ digital 	1 1	B	
SETUP ACCESSORIES AND WORK HOLDING DEVICES				
Adaptors	Various	1	B	
Boring bars	Various	1	B	
Cylinder Grinder Accessories	1 per machine: <ul style="list-style-type: none"> ▪ Jaw Chucks ▪ Solid centers ▪ Steady rest ▪ Center Support ▪ Wheel Dressers 	3 1 1 1 1	A	
Chucks	1-3 Jaw per Lathe 1-4 Jaw per Lathe	1 1	B	
C-Clamps	Various	1	B	
Collets	Various	1	B	
Degreasing Tank	1	1	B	
Drill Chuck	1 per Drilling Machine	1	B	
Drive Plates	1 per Lathe	1	B	
Follower/ Rest	1 per Lathe	1	B	
Machinist Screw Jacks	2	1	B	
Milling Machine Arbours	Various	1	B	
Overhead Crane	1	1	B	

Note: If identifying sets, please include specific information.