

OCCUPATIONAL TOOLS AND EQUIPMENT LIST

Machinist



Government of Newfoundland & Labrador
Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division

March 2023

Preface

This document is intended as a companion to the March 2019 Pre-employment Plan of Training and the 2023 Atlantic Apprenticeship Curriculum Standard for the Machinist occupation. It identifies the necessary tools and equipment required by apprentices and training institutions for the completion of apprenticeships.

Acknowledgements

Advisory committees, industry representatives, instructors and apprenticeship staff provided valuable input to the development of this document. Without their dedication to quality apprenticeship training, this document could not have been produced.

We offer you a sincere thank you.

Contact Information

Department of Education and Early Childhood Development
Apprenticeship and Trades Certification Division
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	Learning institution has the option to provide a “tool box” with these items included.
Safety Boots	1	B	
Coveralls/ Shop Coat	1	B	
Hand Protection/Gloves	1	B	
Welding Gloves	1	B	
4pc Combination Set	1	B	
Adjustable Wrenches	1	B	
Allen Keys, metric and standard	1 set of each	B	
Ball Peen Hammer	1	B	
Centre Punch	1	B	
Measuring Tape	1	B	

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				

Eyewash Station	As required by OHS/Fire Regulations		B	
Fire Blanket	As required by OHS/Fire Regulations		B	
Fire Extinguishers	As required by OHS/Fire Regulations		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 / Apron	15	1	E	
HAND TOOLS				
Bars	1 pry bar set	1	B	
Buffing Wheels	1 set	1	E	
Die Stock	8	2	B	
Drill Drift	As required, 1 per Drilling Machine	15	B	
Drill Gauge	1 Fractional 1 Number 1 Letter	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
	1 Metric			
Drill Sharpening Gauge	2	8	E	
Files <ul style="list-style-type: none"> • Lathe • Mill • Doublecut 	15 of each	1	B	
Files <ul style="list-style-type: none"> • Round • Triangle • Square • Thread • Needle file • Assortment • Half round 	3 of each	5	B	
Hacksaw Blades	Consumable. On hand as required.	1	B	Assortment of blades
Metal Stamps <ul style="list-style-type: none"> • letters • numbers 	1 set of each	15	B	
Pin Punches	1 set	15	E	
Transfer Punch Set	1 set	15	B	
SHOP EQUIPMENT				
Arbor Press	1	15	B	
Bandsaw Welding Machine	1	15	E	
Chain Fall Hoist	1	15	E	
Dividing Head with Change Gears	2	8	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
Grease Guns	1	15	B	
Hand Broaches, standard or metric	1 set	15	E	
Hand Reamers, standard or metric □ Solid □ Expansion / Adjustable	1 of each	15	B	
Lapping Plate	1	15	B	
Lathe Dogs, various numbers and sizes	1 per lathe	1	B	
Machine Vice	1 per machine	1	B	
Mandrels (Solid Lathe)	Various numbers and sizes	1	B	
Oil Cans/Guns	5	3	B	
Oxy Welding and Cutting Equipment	1	15	E	
Parallels	Various paired sets and sizes	1	B	
Quick Change Toolpost	1 per lathe	1	B	
Rotary Table	2	8	A	
Shaper Vice	1 Per Shaper	1	E	
Shim Stock	Consumable, various numbers and sizes as required	1	B	
Slings	Variety	15	E	

Socket Set, Metric and	1 set of each measurement	15	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
Standard 1/4" , 3/8" , 1/2" drive	standard (or 1 combo set), that includes all drive sizes			
Steady Rest	8	2	B	
Tap Extractors	1 set	15	E	
Tap Wrenches	8	2	B	
Taper Sleeves, various numbers and sizes	15	1	B	
Taper Turning Attachment	1 per Lathe	1	B	
Tapping Head	1	15	E	
Tool Holders (Lathe)	Various kinds	1	B	
Torch Tip Striker	1 per Torch	1	E	
Vee Block	2 sets	5	B	
Vises	1 per student	1	B	
Wheel Balancers	1	15	B	
Wheel Dressers	2 Hand Held	8	B	
Wrench Sets, (Metric and Standard)	1 complete set of each	15	B	
MACHINE TOOLS				
Arc Welding Machines and Related Equipment	5	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
Computer Numeric Control (CNC) Machine Tools	1 Industrial CNC Mill 1 Industrial CNC Lathe 2 Bench Top CNC Lathes 2 Bench Top CNC Mills	15 15 8 8	B	
Carbide Grinder	1	15	B	
Conventional Lathes	15 Engine Lathes	1	B	
Cylinder Grinder	3	5	A	
Drill Sharpening Units <ul style="list-style-type: none"> • ½ in. and under • ½ in. and over 	1 of each	1	B	
End Mill Sharpening Unit	1	15	A	
Geared Head Drill Press	1	15	E	
High Temperature Oven	1	15	B	
Horizontal (Universal) Milling Machines	3	15	B	
Horizontal Bandsaw	1	15	B	
Horizontal Shapers	2	8	E	
Horizontal Surface Grinder	3	5	A	
Hydraulic Press	1	15	B	
Pedestal / Bench Grinder	3	5	B	

Radial Arm Drill Press	1	15	E	
Sandblasting Unit	1	15	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
Tools and Cutter Grinder	1	15	A	
Upright / Floor Model Drill Press	1	15	B	
Vertical (Contour) Bandsaw	1	15	E	
Vertical Milling Machines	3	5	B	
Vertical Slotter	1	15	E	
POWER TOOLS				
Abrasive Cut-Off Saw	1	15	E	
Air Grinder	1	15	B	
Angle Grinder	1	15	B	
Buffing Tools	1	15	B	
Die Grinder	1	15	B	
Line Boring Equipment	1	15	A	
Magnetic Drill Press	1	15	E	
Portable Band Saw	1	15	E	
Portable Hand Drill	1	15	B	
Portable Key Seat Cutter	1	15	E	
CUTTING TOOLS AND ACCESSORIES				
Abrasive Cut Off Wheels, various sizes	As required	1	E	
Boring Heads	2	8	B	

Carbide Holders <ul style="list-style-type: none"> • Right hand turning • Parting • Threading 	1 of each per lathe	15	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
Carbide Inserts	Consumable, variety of types and sizes as needed	1	B	
Boring Bar, multiple sizes	3 of each size	5	B	
Center Drills	Various numbers	1	B	
Chucking Reamers	Variety	1	B	
Drill bit Sets (Jobber) <ul style="list-style-type: none"> □ Fractional □ Number □ Alphabet (A – Z) □ Metric 	1 set of each	15	B	
Grinding Wheels <ul style="list-style-type: none"> □ aluminum oxide □ silicon carbide 	Consumable, As required	1 1	B	
Gear Cutter <ul style="list-style-type: none"> □ Spur Gear Cutter □ Bevel Gear Cutter 	Various, as required	1	A	
Hole Saws	1 set	15	B	
Knurling Tools	Various, 1 per lathe	1	E	

Machine Drills (Taper Shank)	Variety of sizes	15	B	
Machine Reamers (Tapered Shank)	Variety of sizes	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
Milling Cutters, variety of sizes: <ul style="list-style-type: none"> dovetail end mills T-Slot woodruff side and face helical slitting saws formed angular carbide insert 	1 of each	15	B	
Pipe Taps	1 set with variety of sizes	15	B	
Taps and Dies, metric and imperial, variety of sizes.	1 of each	15	B	
Tool Bits (HSS) Lathe	Consumable, As required	1	B	
Tool Bits Lathe (Carbide Cemented)	Consumable, As required	1	B	
LAYOUT EQUIPMENT				
Engraver	1	15	B	
Layout Fluid	Consumable, As required		B	

Layout Table	1	15	B	
Machinist Square	1	15	B	
Surface Finish Comparator	1	15	B	
Surface Plates	2	8	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
Vernier Height Gauge	2	8	B	
MEASURING TOOLS				
Angle Gauge Blocks	1	15	B	
Angle Plate	3	5	B	
Coordinate Measuring Machine (CMM)	1	1	A	
Digital Readout	As required	1	B	
Drill Rod Blanks	As required	15	A	
Electronic Surface Finish Comparator	1	15	B	
Gauge Blocks / Precision Blocks	1 set	15	B	
Go-No-Go Gauge <ul style="list-style-type: none"> • Thread • Ring 	1 of each	15	E	
Master Cylinder Gauge	1	15	A	
Master Height Transfer Gauge	1	15	A	

Micrometer <ul style="list-style-type: none"> • thread • inside • outside 0-6"set • depth 	2 of each	8	B	
Master Precision Level	1	15	B	
Optical Comparator	1	15	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
Protractor <ul style="list-style-type: none"> • universal • bevel • plate 	2 of each	8	B	
Radius Gauges (over ¼ ")	1 set above ¼ inch size	15	B	
Refractometer	1	15	B	
Sine Bar	1	15	B	
Small Hole Gauge	2 sets	8	B	
Square	1 Cylindrical	15	B	
Surface Plate	1 Granite	15	B	
Telescopic Gauge	3 sets	5	B	
Vernier Caliper, plain	3	5	B	
Vernier Caliper, dial	15	1	B	
SETUP ACCESSORIES AND WORK HOLDING DEVICES				
Adaptors	Various	1	B	

Cylinder Grinder Accessories <ul style="list-style-type: none"> Jaw Chucks Solid centers Steady rest Center Support Wheel Dressers 	1 of each per machine	1	A	
Chucks	One 3 Jaw per Lathe One 4 Jaw per Lathe	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
C-Clamps	Various	1	B	
Collets	Various	1	B	
Degreasing Tank	1	1	B	
Drill Chuck	1 per Drilling Machine 1 per lathe	1	B	
Drive Plates	1 per Lathe	1	B	
Follower/ Rest	1 per Lathe	1	B	
Machinist Screw Jacks	2	8	B	
Milling Machine Arbours	Various	1	B	

Note: If identifying sets, please include specific information.