

Manufacturing Cluster Precision Machining Equipment List

Item	Number	Price Per	Total
Pentium computer with monitor, printer, table, chair and appropriate	6	\$800.00	\$4,800.00
Internet Connection	1	\$0.00	\$0.00
Engine lathe with quick-charge gearbox and thread-chasing dial (recommended size 14" x 30")	6	\$12,000.00	\$72,000.00
Live center - With Machine	6	\$0.00	\$0.00
Dead center - With Machine	6	\$0.00	\$0.00
Universal three-jaw chuck with key - With Machine	6	\$0.00	\$0.00
Drive plate with dog - With Machine	6	\$0.00	\$0.00
Additional wrenches as required for tool holders and other lathe accessories - With Machine	6	\$0.00	\$0.00
Workbench with vise	2	\$60.00	\$120.00
Safety glasses	24	\$1.50	\$36.00
Machinist's rule, 6"	6	\$5.00	\$30.00
Micrometers, 1" and 2"	6	\$30.00	\$180.00
Combination set	6	\$45.00	\$270.00
Vernier, dial, or digital caliper, 6"	6	\$50.00	\$300.00
Dial indicator	6	\$15.00	\$90.00
Magnetic base for dial indicator	6	\$10.00	\$60.00
Center gauge ("fishtail" gauge)	6	\$10.00	\$60.00
Machinery's Handbook	12	\$55.00	\$660.00
Layout dye with brush	6	\$12.00	\$72.00
Cutting fluid	6	\$15.00	\$90.00
Surface gauge with scriber point	6	\$40.00	\$240.00
Scriber	6	\$5.00	\$30.00
Center punch	6	\$6.00	\$36.00
Parallels, 6"	6	\$55.00	\$330.00
Mill file with handle	6	\$12.00	\$72.00
Ball peen hammer	6	\$9.00	\$54.00
Number stamp set	6	\$25.00	\$150.00
Adjustable wrench	6	\$14.00	\$84.00
Allen wrench set	6	\$15.00	\$90.00
Center drills	50	\$3.00	\$150.00
Drill chuck with key and sleeve for tailstock mounting	6	\$25.00	\$150.00
Surface finish specimen plates	6	\$20.00	\$120.00
Pre-ground carbide tool bits for: straight turning shoulder turning, facing, thread cutting	20	\$5.00	\$100.00
Cutoff/grooving tool, 1/8"	10	\$5.00	\$50.00
Tool post and tool holders for turning, facing, cutting-off/grooving, and threadingc - With Machine	6	\$0.00	\$0.00
Chucking (in addition to above tools)		\$0.00	\$0.00
Four-jaw independent chuck - With Machine	6	\$0.00	\$0.00
Soft jaws (optional) - With Machine	6	\$0.00	\$0.00
Spiders for chucks (optional) - With Machine	6	\$0.00	\$0.00
Tool holders for left and right hand turning tools, grooving tool, internal and external threading tools - With Machine	6	\$0.00	\$0.00
Boring bar and holder	6	\$60.00	\$360.00
Wrenches as req'd for lathe, tool holders, and acc's. - With Machine	6	\$0.00	\$0.00
Micrometer, 3"	6	\$85.00	\$510.00
Telescoping gauge set (to 2") or ID calipers	6	\$35.00	\$210.00

Right and left hand turning tools, capable of turning to a square shoulder	6	\$6.00	\$36.00
Tool blanks to produce external threading tool	50	\$6.00	\$300.00
Tool blanks to produce internal threading tool	50	\$6.00	\$300.00
Chamfering tool sets, asst. dia. and chamfer angles	6	\$35.00	\$210.00
Assorted stub drills, 3/4" – 1" diameter	6	\$60.00	\$360.00
Power Feed Milling (in addition to above tools)		\$0.00	\$0.00
Adjustable parallels (optional)	6	\$30.00	\$180.00
Edge finder	6	\$15.00	\$90.00
Soft-faced hammer	6	\$12.00	\$72.00
T-slot cleaner	6	\$3.00	\$18.00
HSS end mills, asst. sizes	6	\$75.00	\$450.00
Inserted carbide face mills, 2"	6	\$60.00	\$360.00
Vertical universal milling machine (Bridgeport type) with power feed, 12" x 36" table	6	\$14,000.00	\$84,000.00
Milling vise (6" capacity minimum)	6	\$180.00	\$1,080.00
R-8 adaptors, other appropriate adaptors, collects, or holders to fit machine spindle - With Machine	6	\$0.00	\$0.00
T-slot bolts, nuts, studs, washers, clamps, or other necessary fittings to secure vise to mill - With Machine	6	\$0.00	\$0.00
		\$0.00	\$0.00
Vertical Milling (in addition to above tools)		\$0.00	\$0.00
Depth micrometer	6	\$30.00	\$180.00
Prick punch	6	\$6.00	\$36.00
Edge finder	6	\$15.00	\$90.00
Jobber's length drills: 1/4", 1/2", 11/16", 23/32", 13/64", 5/16", 27/64", 47/64"	12	\$60.00	\$720.00
Reamers, assorted sizes up to 1"	6	\$85.00	\$510.00
Drill chuck with key	6	\$60.00	\$360.00
Drift for spindle	6	\$3.00	\$18.00
Collets, R-8 adaptors, or other appropriate adaptors to fit drill chuck and cutters to machine spindle	-	\$60.00	\$60.00
Soft jaws for mill vise	-	\$10.00	\$10.00
Surface Grinding (in addition to above tools)		\$0.00	\$0.00
Master square or magnetic square	6	\$30.00	\$180.00
Burr knife or scraper	6	\$20.00	\$120.00
Selection of grinding wheels suitable for the machine	6	\$25.00	\$150.00
Horizontal spindle surface grinder capable of handling wheels up to 10' or greater	6	\$8,000.00	\$48,000.00
Magnetic chuck (pre-dressed)	6	\$150.00	\$900.00
Angle plate or precision grinding vise	6	\$25.00	\$150.00
Wheel dressing tool and appropriate holder or fixture	6	\$9.00	\$54.00
Suitable tools for cleaning chuck (brushes, shop rags, vacuum cleaner, etc.)	6	\$5.00	\$30.00
		\$0.00	\$0.00
Drill Press (in addition to above tools)		\$0.00	\$0.00
Dividers, 6"	6	\$5.00	\$30.00
Height gauge or surface gauge, either w/scriber point	6	\$35.00	\$210.00
Mill file or burr knife, scaper, etc.	6	\$15.00	\$90.00
Machine tap set for 3/8 - 16	6	\$45.00	\$270.00
Countersinks, 1/2"	6	\$15.00	\$90.00
Countersinks, 5/16"	6	\$15.00	\$90.00
Selection of at least six reamers, asst. sizes	6	\$80.00	\$480.00

Selection of at least six jobber's length drills, from 1/4" to 1/2", including 5/16" and 25/64"	6	\$75.00	\$450.00	
Tapping fluid	6	\$25.00	\$150.00	
Drill press, bench or floor type	6	\$300.00	\$1,800.00	
Drill vise or other appropriate work holding device	6	\$45.00	\$270.00	
Appropriate wrenches for drill press and accessories	6	\$15.00	\$90.00	
			\$224,548.00	\$224,548.00
CNC Mill with tooling (optional)	2	\$35,000.00	\$70,000.00	
CNC Lathe with tooling (optional)	2	\$30,000.00	\$60,000.00	
CNC Software (optional)	6	\$1,500.00	\$9,000.00	
			\$139,000.00	\$139,000.00
				\$363,548.00

OPTIONAL: Trainers, CNC Systems, and Simulators that enhance student learning, raise student achievement, meet industry standards, and have SDE approval.