Sam Weston
ETME 203
Assignment 5

Cost analysis

Design A:

Side plates: 8hrs

Vise body left side: 2hrs

Vise body right side: 4hrs

Sliding jaw: 6hrs

Base plates: 1hr

Soft Jaws: 2hrs

Handle: 2hrs

Total: 25hrs

Design B:

Vise body: 16hrs

Sliding jaw: 4hrs

Sliding jaw bottom piece: 2hrs

Soft jaws: 2hrs

Handle: 2hrs

Base plate: 2hrs

Total: 28hrs

Sam Weston
ETME 203
Assignment 5

Design C:

Vise body base: 6hrs

Vise body left: 4hrs

Vise body right: 5hrs

Sliding jaw: 6hrs

Base plate: 1hr

Handle: 2hrs

Soft jaws: 2hrs

Round rails:2hrs

Total: 28hrs

FMEA

Design A

Function	Mode	Result	Probability	Severity	Detection	Fix
Holding stock	Jaws not square	Holes drilled in stock not square	Medium-high 50-60%	medium	Using precise measuring devises	Tighter hole tolerances
Jaw sliding	Slides bind	Difficult or impossible to use vise	Low-medium 30-40%	Medium-high	Thorough testing	Better tolerancing on side plates and sliding jaw
Pushing jaw	Screw binds	Difficult or impossible to use	Low 10-20%	high	Thorough testing	Re-machine threads, make sure all parts square

Sam Weston
ETME 203
Assignment 5

Design B

Function	Mode	Result	Probability	Severity	Detection	Fix
Sliding jaw	Loose slide	Parts machined in vise are sloppy	Medium 50%	Low-medium	Testing	Better tolerancing
Hold stock	Jaws not square	Parts made in vise not square	Low 20%	Medium	Precise measurement	Make sure vise body is attached square to mill table when machined
Hold vise to table	Base plate loose	Part sloppy	Medium 50%	medium	Testing	Better tolerances for holes in base

Design c

Function	Mode	Result	Probability	Severity	Detection	Fix
Sliding jaw	Rails not parallel	Vise jaw has limited movement- is unusable	Medium 50%	high	testing	Better tolerances on holes that hold rails
Holding stock	Jaws not square	Parts made in vise not made square	Medium 40%	medium	testing	Square parts better on mill table
slides	Chips/dust caught in slides	Jaw movement not smooth	Low 30%	medium	testing	Tighten tolerances between rails and holes