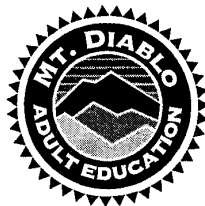


WOODTURNING TOOLS

Their care & use



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WOODTURNING TOOLS – THEIR CARE AND USE

- **Introduction**



WOODTURNING TOOLS – THEIR CARE AND USE

- Introduction
- **Tool steels, manufacturers, how tools cut**



WOODTURNING TOOLS – THEIR CARE AND USE

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- **Double-edged tools (parting tools, skews)**



WOODTURNING TOOLS – THEIR CARE AND USE

- Introduction
- Tool steels, manufacturers, how tools cut
- Double-edged tools (parting tools, skewes)

Second session: Scrapers

Third session: Gouges



TOOL STEEL

HSS

M2

CPM

Cyro

A11

V10

M42



HSS

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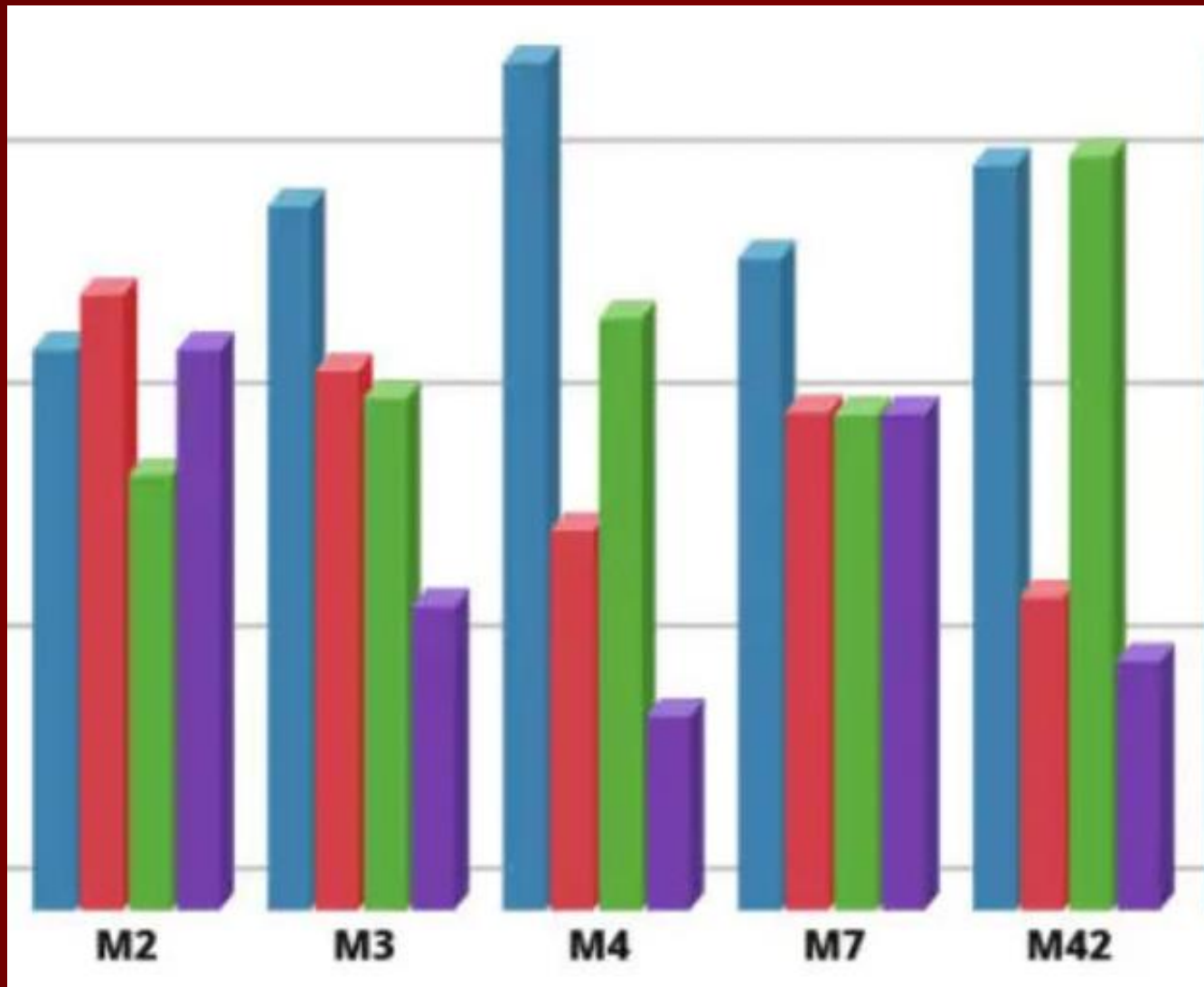


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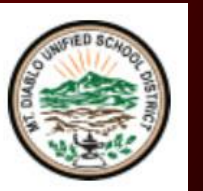




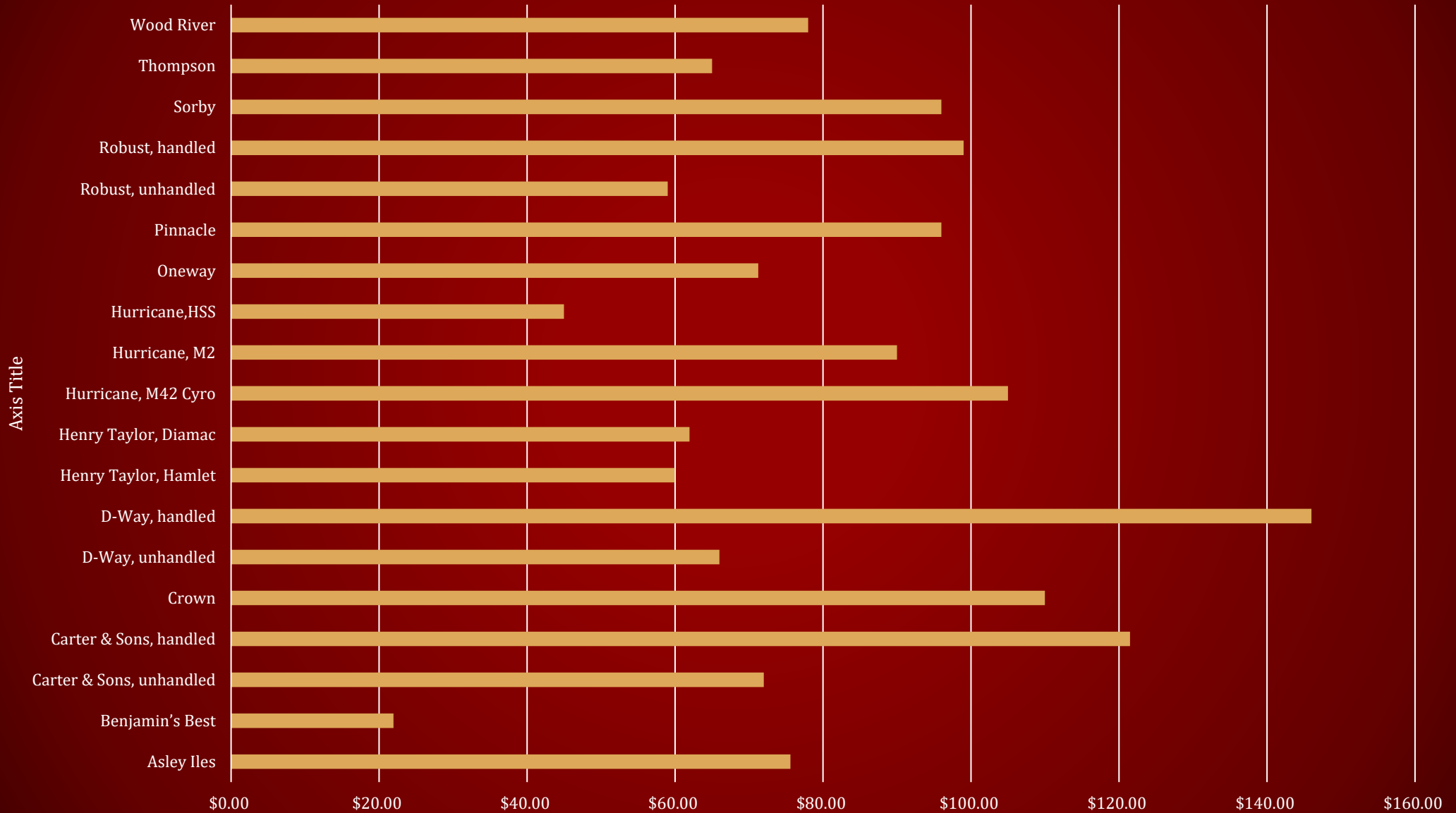
■ Wear Resistance ■ Toughness ■ Red Hardness ■ Ease of Grinding



Manufacturer	Steel
Asley Iles	HSS
Benjamin's Best	M2
Carter & Sons	M42 cobalt steel, polished edges
Crown	M42 cobalt steel, Cryo
D-Way	M-42 cobalt steel
Henry Taylor	M2, "Hamlet"
Henry Taylor	M2, "Diamic"
Hurricane	?, M2, M2 Cryo, M42 Cryo
Oneway	CPM, M4, 63 RC
Pinnacle	Cryo, Made by Crown for Woodcraft, 3x stronger than M2
Robust	"Nitrided HSS, 75RC
Sorby	M2 HSS
Thompson	V10
Wood River	HSS, 62-64RC, Woodcraft brand



3/8" Bowl Gouge List Prices



How Do Tools Cut?

(Severing materials)

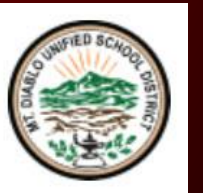
- **Compression**



How Do Tools Cut?

(Severing materials)

- **Fracture**



How Do Tools Cut?

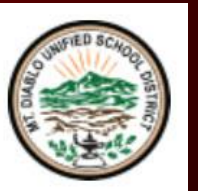
(Severing materials)

- **Shearing**



- **When Tools Cut?**

- **Creates elastic strain**
- **Breaks bonds**
- **Fractures**
- **Generates heat/sound**



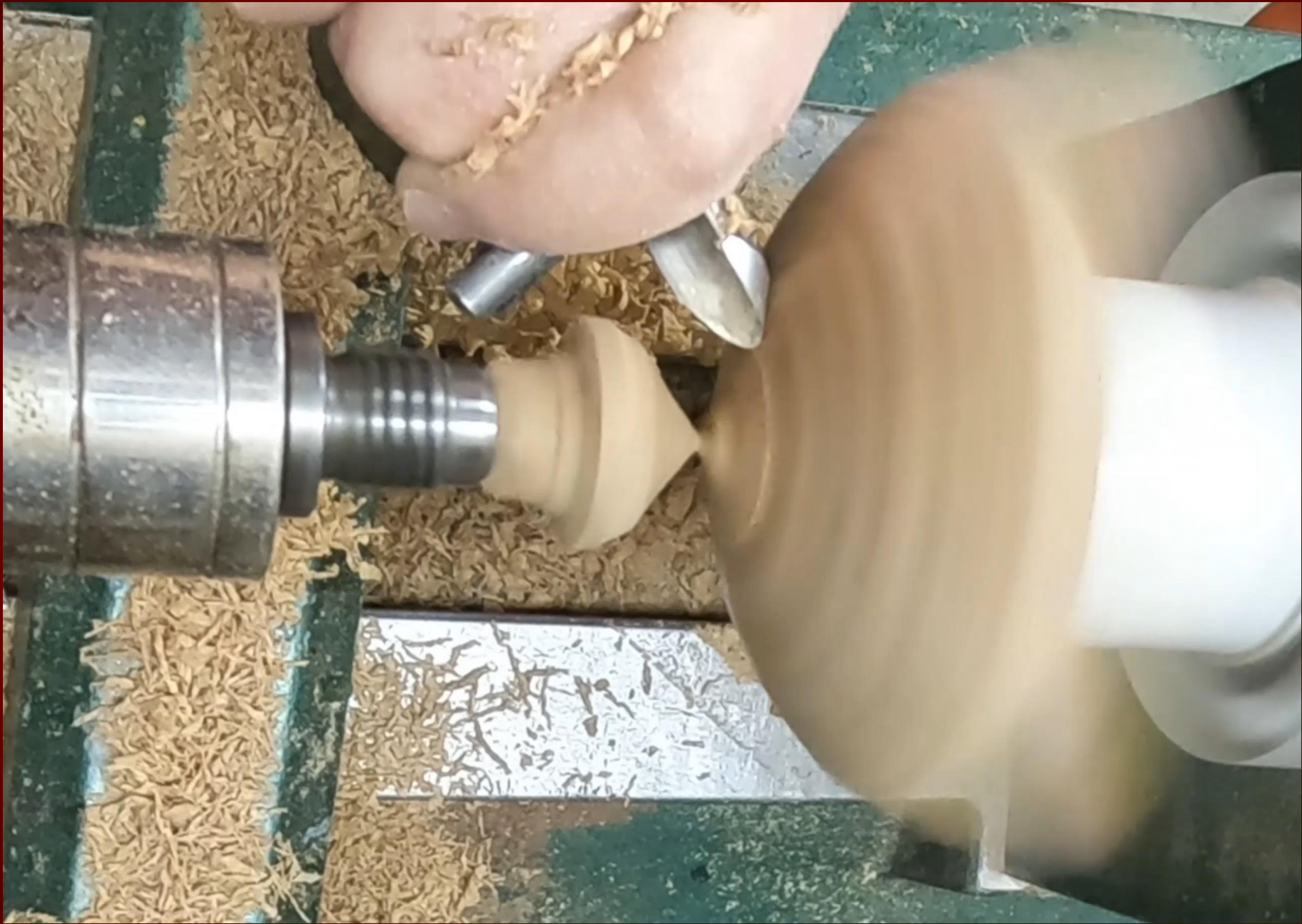
Sharp tools

- **Concentrates force into a smaller area**
- **Lowers friction**
- **Increases material stress causing fracture**



- **A demonstration**





- **Cutting vs. Scraping**

-

- **Cutting: Contact angle $< 90^\circ$ to surface**
- **Scraping: Contact angle $> 90^\circ$ to surface**



- **Cutting with a positive rake angle**



DOUBLE-EDGE TOOLS

Parting Tools



PARTING TOOLS

- A “*bevel rubbing*” tool



PARTING TOOLS

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- Narrow – parting



PARTING TOOLS

- A “*bevel rubbing*” tool
- Narrow – parting
- Medium – parting, sizing, tenons



PARTING TOOLS

- A “*bevel rubbing*” tool
- Narrow – parting
- Medium – parting, sizing, tenons
- Wide – ~~parting~~ sizing, tenons, beading



PARTING TOOLS CONCERNS

- Not “rubbing the bevel”

PARTING TOOLS CONCERNS

- Not “rubbing the bevel”
- Not resetting the tool rest

PARTING TOOLS CONCERNS

- Not “rubbing the bevel”
- Not resetting the tool rest
- Edge not kept “square”

PARTING TOOLS CONCERNS

- Not “rubbing the bevel”
- Not resetting the tool rest
- Edge not kept “square”
- **Tendency to bind in deep cuts**

PARTING TOOLS

Demonstration

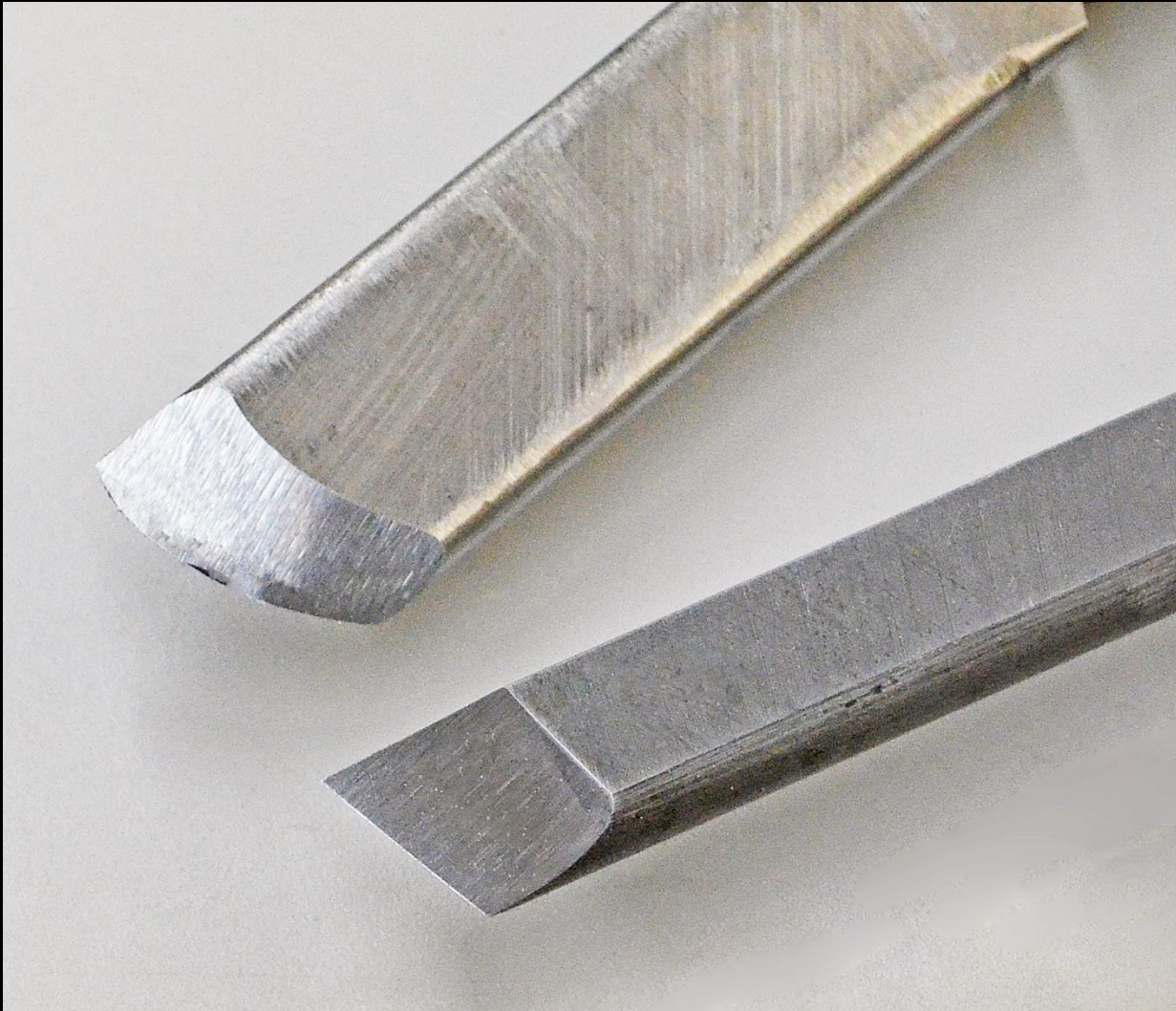
PARTING TOOLS

Demonstration

DOUBLE-EDGE TOOLS

Skew chisels





SKEW STYLES

Radiused: $\frac{1}{4}$ width straight

- Toe edge flat
- Heel edge rounded
- Skew angle $\sim 70^\circ$
- Blade edge length 1.5x thickness

SKEW CHISEL CONCERNS

- Not “rubbing the bevel”
- Not maintaining constant alignment
- Hesitation
- Lathe RPM too low
- Maintaining a keen edge

FIVE CUTS OF THE SKEW

Planing
cut

The
BEAD!

Peel cut

“V” cut

End cut

SKEW CHISELS

Demonstration

PARTING TOOLS

Demonstration

