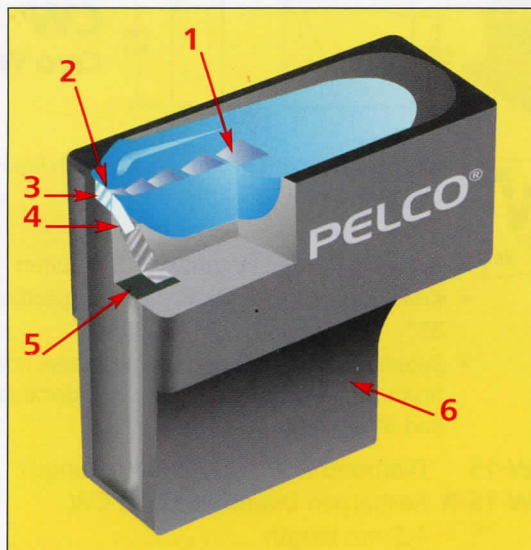
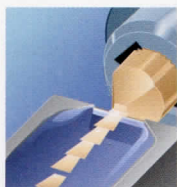


### PELCO® Diamond Knives

*ultramicrotomy, cryo, histology and materials applications*



1. Perfectly smooth sections from 0.1µm to 5µm
2. Hydrophilic diamond surface draws water to the edge for easy sectioning
3. Flawless, jewel quality diamond crystal, in sizes from 1 to 10mm
4. Maximum sectioning stability is assured by molecular welding between diamond and stainless steel shank
5. Highly inert and strong bonding material is unharmed by solvents
6. Eight different boat styles and seven types for all ultra-microtomy, cryo, histology and materials applications



#### Quality Control/Guarantee

Passing through 25 quality control tests and 10 tests to reach flawless quality, you expect perfect sections free of striations and compression. Guarantee: You must be totally satisfied with the knife's performance.



#### Smooth, Precise Cuts

Actual magnified photo of a ribbon being cut from a specimen block using one of our fine diamond knives. Notice the smoothness.



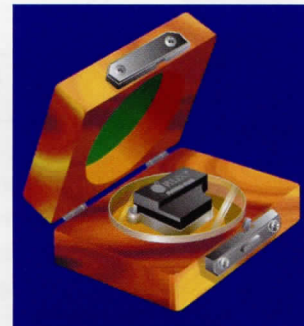
#### Carefully Selected Materials

The diamond knives are produced from carefully selected jewel quality octahedral diamonds. Each crystal is cleaved along its natural lattice into several thin plates which are microscopically screened.



#### Precision Workmanship

Each plate is welded onto a steel shank and following that is a high precision series of processes to lap and polish the diamond into what is unquestionably the sharpest cutting tool made. The radius of the diamond knife edge is about 50 Ångstroms (5nm) or 30 carbon atoms and the entire length of its edge must be defect-free to the same dimensions. Ultimately an exhaustive final sectioning test is performed through the entire length of the edge. Only if it is flawless is it approved for shipment and packed and sealed in its wood case.



every Diamond Knife is set in a handsome wood case

#### PRIMARY BOAT STYLES



**S**  
Standard



**W**  
Cryo Wet



**D**  
Cryo Dry



**K**  
Large (7-10mm)

#### Resharpener Service

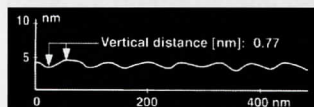
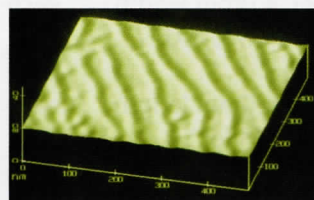
Any brand of knife can be resharpener to better than new condition or exchanged for a new diamond knife.

Per request, your resharpener knife from any brand can be set in a new boat and box at no charge.

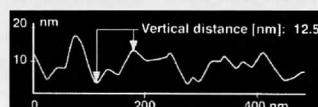
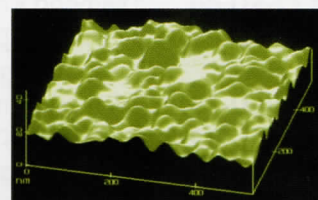


#### AFM image of a PELCO® Diamond Knife

compared to a gold coated optical quality mirror



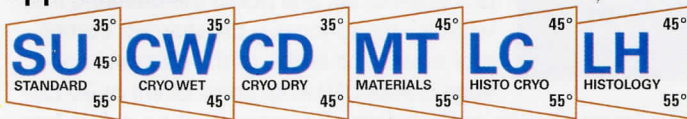
arrow: vertical distance of 0.77nm  
Atomic force microscope view of a diamond knife surface adjacent to the edge. Roughness is less than 5 carbon atoms.



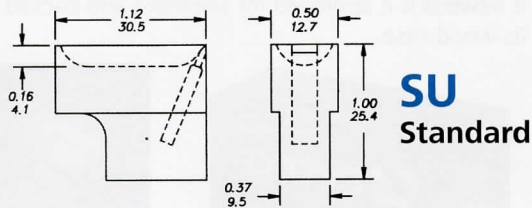
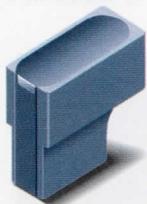
arrow: vertical distance of 12.51nm  
View of gold coated, optical quality mirror. In comparison, our diamond knives are 16 times smoother.



**A PELCO® Diamond Knife for every need**  
a complete listing of knives for various applications



### Standard Ultramicrotomy Diamond Knives



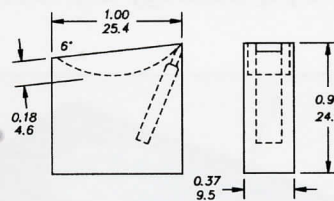
**SU**  
Standard



- Biological, biomedical specimens
- 25nm - 200nm thickness range
- Available in edge lengths of 1.5- 6.0mm
- Knife angle supplied is 45°, unless specified as 35° or 55°
- Supplied with black anodized "S" Boat (standard), oval cavity

<b>122-SU-15</b>	Diamond Knife, SU, 1.5mm length . . .each
<b>122-SU-15-R</b>	Resharpen Diamond Knife, SU, 1.5mm length . . . . .each
<b>122-SU-20</b>	Diamond Knife, SU, 2.0mm length . . .each
<b>122-SU-20-R</b>	Resharpen Diamond Knife, SU, 2.0mm length . . . . .each
<b>122-SU-25</b>	Diamond Knife, SU, 2.5mm length . . .each
<b>122-SU-25-R</b>	Resharpen Diamond Knife, SU, 2.5mm length . . . . .each
<b>122-SU-30</b>	Diamond Knife, SU, 3.0mm length . . .each
<b>122-SU-30-R</b>	Resharpen Diamond Knife, SU, 3.0mm length . . . . .each
<b>122-SU-35</b>	Diamond Knife, SU, 3.5mm length . . .each
<b>122-SU-35-R</b>	Resharpen Diamond Knife, SU, 3.5mm length . . . . .each
<b>122-SU-40</b>	Diamond Knife, SU, 4.0mm length . . .each
<b>122-SU-40-R</b>	Resharpen Diamond Knife, SU, 4.0mm length . . . . .each
<b>122-SU-45</b>	Diamond Knife, SU, 4.5mm length . . .each
<b>122-SU-45-R</b>	Resharpen Diamond Knife, SU, 4.5mm length . . . . .each
<b>122-SU-50</b>	Diamond Knife, SU, 5.0mm length . . .each
<b>122-SU-50-R</b>	Resharpen Diamond Knife, SU, 5.0mm length . . . . .each
<b>122-SU-55</b>	Diamond Knife, SU, 5.5mm length . . .each
<b>122-SU-55-R</b>	Resharpen Diamond Knife, SU, 5.5mm length . . . . .each
<b>122-SU-60</b>	Diamond Knife, SU, 6.0mm length . . .each
<b>122-SU-60-R</b>	Resharpen Diamond Knife, SU, 6.0mm length . . . . .each

### Cryo Wet Ultramicrotomy Diamond Knives



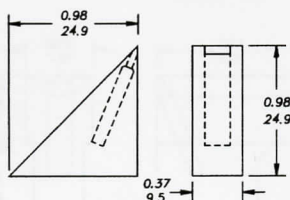
**CW**  
Cryo Wet

- Frozen specimens sectioned wet with liquids like ethylene glycol
- 50nm - 1µm thickness range
- Available in edge lengths of 1.5 - 6.0mm
- Knife angle supplied is 45°, unless specified as 35°
- Supplied with "W" Boat, stainless steel non-glare finish for wet cryo sectioning, cylindrical cavity and 6° inclined top edge

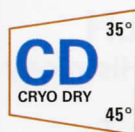
<b>122-CW-15</b>	Diamond Knife, CW, 1.5mm length . . .each
<b>122-CW-15-R</b>	Resharpen Diamond Knife, CW, 1.5mm length . . . . .each
<b>122-CW-20</b>	Diamond Knife, CW, 2.0mm length . . .each
<b>122-CW-20-R</b>	Resharpen Diamond Knife, CW, 2.0mm length . . . . .each
<b>122-CW-25</b>	Diamond Knife, CW, 2.5mm length . . .each
<b>122-CW-25-R</b>	Resharpen Diamond Knife, CW, 2.5mm length . . . . .each
<b>122-CW-30</b>	Diamond Knife, CW, 3.0mm length . . .each
<b>122-CW-30-R</b>	Resharpen Diamond Knife, CW, 3.0mm length . . . . .each
<b>122-CW-35</b>	Diamond Knife, CW, 3.5mm length . . .each
<b>122-CW-35-R</b>	Resharpen Diamond Knife, CW, 3.5mm length . . . . .each
<b>122-CW-40</b>	Diamond Knife, CW, 4.0mm length . . .each
<b>122-CW-40-R</b>	Resharpen Diamond Knife, CW, 4.0mm length . . . . .each
<b>122-CW-45</b>	Diamond Knife, CW, 4.5mm length . . .each
<b>122-CW-45-R</b>	Resharpen Diamond Knife, CW, 4.5mm length . . . . .each
<b>122-CW-50</b>	Diamond Knife, CW, 5.0mm length . . .each
<b>122-CW-50-R</b>	Resharpen Diamond Knife, CW, 5.0mm length . . . . .each
<b>122-CW-55</b>	Diamond Knife, CW, 5.5mm length . . .each
<b>122-CW-55-R</b>	Resharpen Diamond Knife, CW, 5.5mm length . . . . .each
<b>122-CW-60</b>	Diamond Knife, CW, 6.0mm length . . .each
<b>122-CW-60-R</b>	Resharpen Diamond Knife, CW, 6.0mm length . . . . .each



## ■ Cryo Dry Ultramicrotomy Diamond Knives



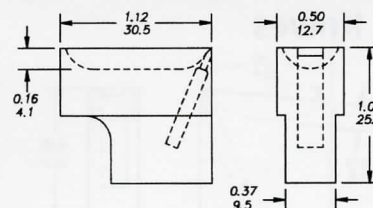
**CD**  
Cryo Dry



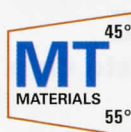
- Frozen specimens sectioned dry
- 50nm - 1µm thickness range
- Available in edge lengths of 1.5 - 6.0mm
- Knife angle supplied is 45°, unless specified as 35°
- Supplied with "D" Boat (no trough) for dry cryo sectioning with stainless steel, non-glare finish

<b>122-CD-15</b>	Diamond Knife, CD, 1.5mm length . . .each
<b>122-CD-15-R</b>	Resharpen Diamond Knife, CD, 1.5mm length . . . . .each
<b>122-CD-20</b>	Diamond Knife, CD, 2.0mm length . . .each
<b>122-CD-20-R</b>	Resharpen Diamond Knife, CD, 2.0mm length . . . . .each
<b>122-CD-25</b>	Diamond Knife, CD, 2.5mm length . . .each
<b>122-CD-25-R</b>	Resharpen Diamond Knife, CD, 2.5mm length . . . . .each
<b>122-CD-30</b>	Diamond Knife, CD, 3.0mm length . . .each
<b>122-CD-30-R</b>	Resharpen Diamond Knife, CD, 3.0mm length . . . . .each
<b>122-CD-35</b>	Diamond Knife, CD, 3.5mm length . . .each
<b>122-CD-35-R</b>	Resharpen Diamond Knife, CD, 3.5mm length . . . . .each
<b>122-CD-40</b>	Diamond Knife, CD, 4.0mm length . . .each
<b>122-CD-40-R</b>	Resharpen Diamond Knife, CD, 4.0mm length . . . . .each
<b>122-CD-45</b>	Diamond Knife, CD, 4.5mm length . . .each
<b>122-CD-45-R</b>	Resharpen Diamond Knife, CD, 4.5mm length . . . . .each
<b>122-CD-50</b>	Diamond Knife, CD, 5.0mm length . . .each
<b>122-CD-50-R</b>	Resharpen Diamond Knife, CD, 5.0mm length . . . . .each
<b>122-CD-55</b>	Diamond Knife, CD, 5.5mm length . . .each
<b>122-CD-55-R</b>	Resharpen Diamond Knife, CD, 5.5mm length . . . . .each
<b>122-CD-60</b>	Diamond Knife, CD, 6.0mm length . . .each
<b>122-CD-60-R</b>	Resharpen Diamond Knife, CD, 6.0mm length . . . . .each

## ■ Materials Science Diamond Knives



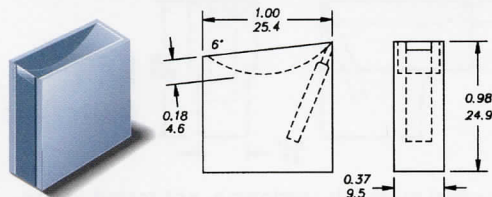
**MT**  
Materials



- Industrial materials sectioning, not tested to the same ultra high standards as standard ultramicrotomy knives
- 50nm - 2µm thickness range
- available in edge lengths of 2 - 7mm
- knife angle supplied is 45°, unless specified as 55°
- Supplied with Black anodized "S" Boat (standard), with oval cavity unless otherwise specified. Knives 7mm and longer require a "K" Boat (large boat with cylindrical cavity and 6° inclined top, black anodized) see next page for "K" Boat description.

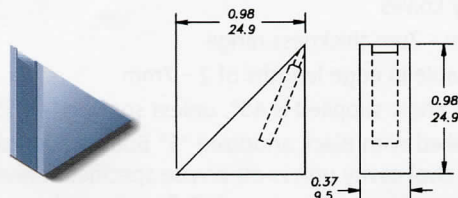
<b>122-MT-20</b>	Diamond Knife, MT, 2.0mm length . . .each
<b>122-MT-20-R</b>	Resharpen Diamond Knife, MT, 2.0mm length . . . . .each
<b>122-MT-25</b>	Diamond Knife, MT, 2.5mm length . . .each
<b>122-MT-25-R</b>	Resharpen Diamond Knife, MT, 2.5mm length . . . . .each
<b>122-MT-30</b>	Diamond Knife, MT, 3.0mm length . . .each
<b>122-MT-30-R</b>	Resharpen Diamond Knife, MT, 3.0mm length . . . . .each
<b>122-MT-35</b>	Diamond Knife, MT, 3.5mm length . . .each
<b>122-MT-35-R</b>	Resharpen Diamond Knife, MT, 3.5mm length . . . . .each
<b>122-MT-40</b>	Diamond Knife, MT, 4.0mm length . . .each
<b>122-MT-40-R</b>	Resharpen Diamond Knife, MT, 4.0mm length . . . . .each
<b>122-MT-45</b>	Diamond Knife, MT, 4.5mm length . . .each
<b>122-MT-45-R</b>	Resharpen Diamond Knife, MT, 4.5mm length . . . . .each
<b>122-MT-50</b>	Diamond Knife, MT, 5.0mm length . . .each
<b>122-MT-50-R</b>	Resharpen Diamond Knife, MT, 5.0mm length . . . . .each
<b>122-MT-55</b>	Diamond Knife, MT, 5.5mm length . . .each
<b>122-MT-55-R</b>	Resharpen Diamond Knife, MT, 5.5mm length . . . . .each
<b>122-MT-60</b>	Diamond Knife, MT, 6.0mm length . . .each
<b>122-MT-60-R</b>	Resharpen Diamond Knife, MT, 6.0mm length . . . . .each
<b>122-MT-65</b>	Diamond Knife, MT, 6.5mm length . . .each
<b>122-MT-65-R</b>	Resharpen Diamond Knife, MT, 6.5mm length . . . . .each
<b>122-MT-70</b>	Diamond Knife, MT, 7.0mm length . . .each
<b>122-MT-70-R</b>	Resharpen Diamond Knife, MT, 7.0mm length . . . . .each

### Light Microscopy (Histology) Cryo Diamond Knives



W, Wet Style Boat

**LC**  
Histo Cryo



D, Dry Style Boat

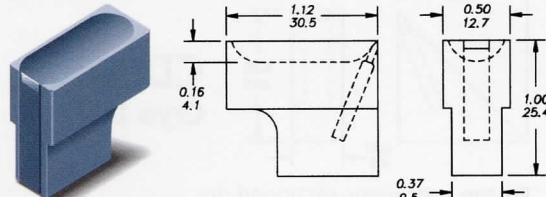


- Frozen sections to be examined at light microscopy magnifications
- 0.1µm - 5µm thickness range
- available in edge lengths of 4 - 7mm
- Knife angle supplied is 45°, unless specified as 55°
- Specify **"W"** Boat (stainless steel non-glare finish for wet cryo sectioning, cylindrical cavity and 6° inclined top edge) or **"D"** Boat (no trough, for dry cryo sectioning, stainless steel, non-glare finish) when ordering.

<b>122-LC-40</b>	Diamond Knife, LC, 4.0mm length . . .each
<b>122-LC-40-R</b>	Resharpen Diamond Knife, LC, 4.0mm length . . .each
<b>122-LC-45</b>	Diamond Knife, LC, 4.5mm length . . .each
<b>122-LC-45-R</b>	Resharpen Diamond Knife, LC, 4.5mm length . . .each
<b>122-LC-50</b>	Diamond Knife, LC, 5.0mm length . . .each
<b>122-LC-50-R</b>	Resharpen Diamond Knife, LC, 5.0mm length . . .each
<b>122-LC-55</b>	Diamond Knife, LC, 5.5mm length . . .each
<b>122-LC-55-R</b>	Resharpen Diamond Knife, LC, 5.5mm length . . .each
<b>122-LC-60</b>	Diamond Knife, LC, 6.0mm length . . .each
<b>122-LC-60-R</b>	Resharpen Diamond Knife, LC, 6.0mm length . . .each
<b>122-LC-65</b>	Diamond Knife, LC, 6.5mm length . . .each
<b>122-LC-65-R</b>	Resharpen Diamond Knife, LC, 6.5mm length . . .each
<b>122-LC-70</b>	Diamond Knife, LC, 7.0mm length . . .each
<b>122-LC-70-R</b>	Resharpen Diamond Knife, LC, 7.0mm length . . .each

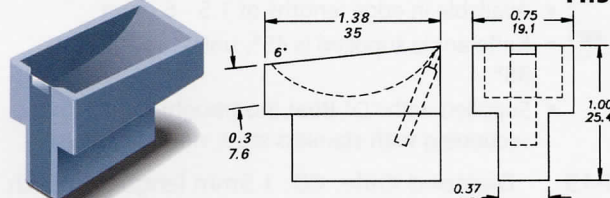
Note: Knives 7mm and longer require a **"K"** Boat (large boat with cylindrical cavity and 6° inclined top, black anodized).

### Light Microscopy (Histology) Diamond Knives

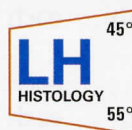


S, Standard Style Boat

**LH**  
Histology



K, Large Boat



- Sections to be examined at light microscope magnifications
- 0.1µm - 5µm thickness range
- available in edge lengths of 4 - 9mm
- knife angle supplied is 45°, unless specified as 55°
- Knives 7mm and longer require a **"K"** Boat (large boat with cylindrical cavity and 6° inclined top, black anodized. Edges 4 - 7mm may take a standard **"S"** Boat, specify boat style if other than S is desired.

<b>122-LH-40</b>	Diamond Knife, LH, 4.0mm length, "S" Boat . . .each
<b>122-LH-40-R</b>	Resharpen Diamond Knife, LH, 4.0mm length . . .each
<b>122-LH-50</b>	Diamond Knife, LH, 5.0mm length, "S" Boat . . .each
<b>122-LH-50-R</b>	Resharpen Diamond Knife, LH, 5.0mm length . . .each
<b>122-LH-60</b>	Diamond Knife, LH, 6.0mm length, "S" Boat . . .each
<b>122-LH-60-R</b>	Resharpen Diamond Knife, LH, 6.0mm length . . .each
<b>122-LH-70</b>	Diamond Knife, LH, 7.0mm length, "K" Boat . . .each
<b>122-LH-70-R</b>	Resharpen Diamond Knife, LH, 7.0mm length . . .each
<b>122-LH-75</b>	Diamond Knife, LH, 7.5mm length, "K" Boat . . .each
<b>122-LH-75-R</b>	Resharpen Diamond Knife, LH, 7.5mm length . . .each
<b>122-LH-80</b>	Diamond Knife, LH, 8.0mm length, "K" Boat . . .each

Continued



## ■ Light Microscopy (Histology) Diamond Knives

Continued

**122-LH-80-R** Resharpener Diamond Knife, LH,  
8.0mm length . . . . .each

## ■ Diamond Knife Cleaner



Debris on the edge of a diamond knife will make sectioning difficult, create stress points and ruin sections. The Diamond Knife Cleaner is designed to clean diamond knives without any solid objects touching the knife edge.

Insert the knife into the special holder inside the Cleaner's lid. Place the lid on the beaker containing a mild cleaning solution, and select a time period. The cleaning action is a magnetic

stirrer that automatically reverses direction twice each minute and has an 8-hour adjustable timer. A six position timer on the panel can be set to cycle from 15 minutes to 8 hours. The knife is in a reversed position - hanging firmly - during this cleaning operation. A knife base up to 9.5mm ( $\frac{3}{8}$ " ) wide is accommodated. Stirring speed: 1800rpm. 6 watts, 1/8A fuse.

Includes: Basic instrument, beaker, holder/cap, magnet and magnet guard.

Dimensions: 12cm long x 7.6cm wide x 6.4cm high (14cm with beaker in place) ( $4\frac{3}{4}$  x 3 x  $2\frac{1}{2}$  or  $5\frac{1}{2}$ " ).

**122** Diamond Knife Cleaner, 100-125VAC . . . . .each

**122-220** Diamond Knife Cleaner, 200-250VAC . . . . .each

An economy Cleaner Kit is also available which includes the accessory parts but not the main instrument (beaker, holder, cap, magnet and magnet guard) - for use with your magnetic stirrer.

**122-6** Economy Diamond Knife Cleaner Set each

## Landmark Sectioning History

### Diamond Knife

Fernández-Moran H (1956) Applications of a diamond knife for ultrathin sectioning to the study of the fine structure of biological tissues and metals. J. Biophys. Biochem. Cytol. **2**, (suppl.):29.

### Glass Knife

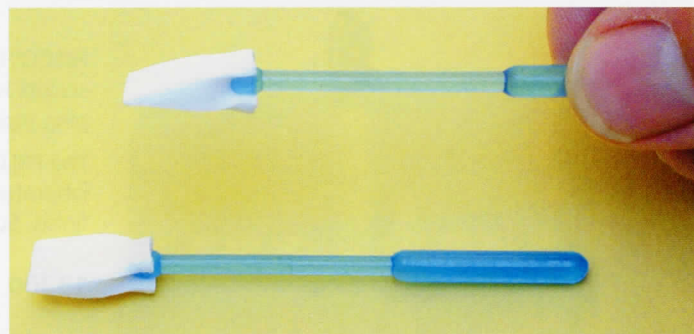
Latta, H and Hartman, JF (1950), Use of a glass edge in thin sectioning for electron microscopy, Proc. Soc. Exp. Bio. & Med. **74**, 436-439

LKB KnifeMaker Introduced 1964.

### First Commercial Ultramicrotome:

Sorvall® Porter-Blum® Ultramicrotome; New York Univ. Dental School, 1953

## ■ PELCO® Diamond Knife Cleaning Tools



Material specially developed for cleaning debris from diamond knives. Works also very well on sapphire knives, scalpel blades, microtome blades, Vibratome blades, diamond scribes and minitools. The PVA material wicks liquids instantaneously for fast and sure

cleaning. The sponge type material stays rigid when using alcohol as cleaning fluid and assists in removing debris from the knife edge. When water is used the material becomes soft and a wiping/cleaning action can be applied. May be used multiple times and the shape or size allows safe use. Available in two forms:

Wedge tip on a plastic holder (pk/20) for safest use.

**122-10** Diamond Knife Cleaning Tools . . . . .pkg/20

Block with rounded ends (pk/5) 38x18x13mm ( $1\frac{1}{2}$  x  $\frac{3}{4}$  x  $\frac{1}{2}$ " )

**122-20** Diamond Knife Cleaning Blocks . . . . .pkg/5