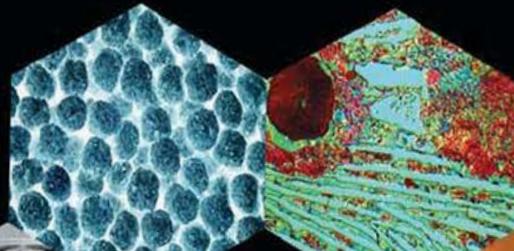


(USD DOLLARS)

MetLab

Corporation



Trusted
since
1968



Locations



*Our commitment is providing
Knowledgeable ongoing supported
Service along with superior products
for immediate delivery.*



METLAB CORPORATION
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Terms & Conditions

- Prices subject to change without notice
- Prices quoted F.O.B. Niagara Falls, NY
- Net 30 days with established credit
- Taxes added where applicable

Ordering Information



1-800-828-6866



1-716-282-6971



sales@metlabcorp.com

Payment Methods

- Via Check
- Bank Transfer
- Credit Card



Websites

www.metlabcorp.com

www.metallographicequipment.com

www.hardnesstesting.ca

www.imageanalysis.ca

www.charpynotch.com

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DIAMOND WAFERING BLADES

Type	Description	Qty	Catalog #
HIGH CONCENTRATION - METAL BOND	3" X .006" X $\frac{1}{2}$ " 4" X .012" X $\frac{1}{2}$ " 5" X .015" X $\frac{1}{2}$ " 6" X .020" X $\frac{1}{2}$ " 7" X .025" X $\frac{1}{2}$ "	EACH	M306H M412H M515H M620H M725H
LOW CONCENTRATION - METAL BOND	3" X .006" X $\frac{1}{2}$ " 4" X .012" X $\frac{1}{2}$ " 5" X .015" X $\frac{1}{2}$ " 6" X .020" X $\frac{1}{2}$ " 7" X .025" X $\frac{1}{2}$ "	EACH	M306L M412L M515L M620L M725L
RESIN BOND DIAMOND WHEELS	8" X .045" X $1\frac{1}{4}$ " (32mm) 10" X .050" X $1\frac{1}{4}$ " (32mm) 12" X .062" X $1\frac{1}{4}$ " (32mm) 14" X .070" X $1\frac{1}{4}$ " (32mm)	EACH	M845D M1050D M1262D M1470D



CBN WAFERING BLADES

MEDIUM CONCENTRATION METAL BOND/RESIN BOND CONTINOUS RIM are recommended for sectioning of ferrous materials including high speed steels, inconel, stellite, iron and cobalt base alloys, nickel base super alloys, lead base alloys, titanium alloys and stainless steels.

Type	Description	Qty	Catalog #
USED ON SLOW SPEED /HIGH SPEED	3" X .006" X $\frac{1}{2}$ " 4" X .012" X $\frac{1}{2}$ " 5" X .015" X $\frac{1}{2}$ " 6" X .020" X $\frac{1}{2}$ " 7" X .025" X $\frac{1}{2}$ "	EACH	M306C M412C M515C M620C M725C
USED ON HIGH SPEED	8" X .045" X $1\frac{1}{4}$ " (32mm) 10" X .050" X $1\frac{1}{4}$ " (32mm) 12" X .062" X $1\frac{1}{4}$ " (32mm) 14" X .070" X $1\frac{1}{4}$ " (32mm)	EACH	M845C M1050C M1262C M1470C

CUTTING SUPPLIES

Type	Description	Qty	Catalog #
SOLUBLE OIL	Soluble Oil, Concentrate	QUART	SO-032
	Soluble Oil, Concentrate	GALLON	SO-128
SOLUBLE OIL with rust inhibiting additive. For use with all abrasive cut-off machines and belt grinders which have contained recirculating systems. Blue, odorless, foam controlled. Sulfur and nitrate free. Mixture 20:1			
CUTTING FLUID	Cutting Fluid	QUART	CF-032
	Cutting Fluid	GALLON	CF-128
OIL BASE LUBRICANT CUTTING FLUID ideally suited for use with high , low and CBN diamond wafering blades on low and high speed saws.			
DRESSING STICKS	4" x 1/2" Square	EACH	DS-1
	4" x 1/2" Square	10/PKG	DS-10
DRESSING STICKS - aluminum oxide. Should be used on new and frequently used diamond wafering blades and grinding discs to maintain superior cutting performance.			

METLAB ABRASIVE CUT-OFF WHEELS

Description	Usage	Qty	Catalog #
LOW SPEED			
4" X .012" X 1/2"	General Ferrous Cutting (A/O)	10/BOX	4F12
4" X .025" X 1/2"	General Ferrous Cutting (A/O)	10/BOX	4F25
4" X .012" X 1/2"	General Non-Ferrous Cutting (S/C)	10/BOX	4NF12
5" X .020" X 1/2"	Hard Ferrous, Rc45+ (A/O)	10/BOX	5F20H
5" X .020" X 1/2"	Soft, Medium Hard Ferrous, Rc45 - (A/O)	10/BOX	5F20S
6" X .020" X 1/2"	Hard Ferrous, Rc45+ (A/O)	10/BOX	6F20H
6" X .020" X 1/2"	Soft, Medium Hard Ferrous (A/O)	10/BOX	6F20S
6" X .020" X 1/2"	Soft and Ductile, Non-Ferrous, Al, Cu, Ti (S/C)	10/BOX	6NF20

HIGH SPEED			
6" X .040" X 5/8"	Hard Steel, Alloys (A/O)	EACH	640
6" X .040" X 5/8"	Soft Steel, Alloys (A/O)	EACH	644
6" X .040" X 5/8"	Titanium, Other Alloys (S/C)	EACH	647
6" X .025" X 5/8"	Delicate Cutting of Ferrous Metals and Alloys (A/O)	EACH	650
7" X .030" X 1/2"	General Ferrous Cutting (A/O)	10/BOX	7F30
7" X .030" X 1/2"	General Non-Ferrous Cutting (S/C)	10/BOX	7NF30

RUBBER BONDED ABRASIVE CUT-OFF WHEELS

Made from sheets of natural rubber and have been manufactured by the "original calendered method." They have a unique composition that makes them ideal for high quality cool, burn-free sectioning on metallographic samples.

Description	Usage	Qty	Catalog #
9" X .063" X 1 1/4"	Tool steel, hard ferrous alloys, hard steels Rc60+	10/BOX	CW9-10
9" X .063" X 1 1/4"	Medium hard steels and super alloys Rc40-55	10/BOX	CW9-20
9" X .063" X 1 1/4"	Soft steels Rc15-35	10/BOX	CW9-30
9" X .063" X 1 1/4"	Soft - Medium hard non-ferrous metals	10/BOX	CW9-40
9" X .032" X 1 1/4"	Delicate cutting on all ferrous metals	10/BOX	CW9-50
10" X .063" X 1 1/4"	Tool steel, hard ferrous alloys, hard steels Rc60+	10/BOX	CW10-10
10" X .063" X 1 1/4"	Medium hard steels and super alloys Rc40-55	10/BOX	CW10-20
10" X .063" X 1 1/4"	Soft steels Rc15-35	10/BOX	CW10-30
10" X .063" X 1 1/4"	Soft - Medium hard non-ferrous metals	10/BOX	CW10-40
10" X .040" X 1 1/4"	Delicate cutting on all ferrous metals	10/BOX	CW10-50
12" X .063" X 1 1/4"	Tool steel, hard ferrous alloys, hard steels Rc60+	10/BOX	CW12-10
12" X .063" X 1 1/4"	Medium hard steels and super alloys Rc40-55	10/BOX	CW12-20
12" X .063" X 1 1/4"	Soft steels Rc15-35	10/BOX	CW12-30
12" X .063" X 1 1/4"	Soft - Medium hard non-ferrous metals	10/BOX	CW12-40
12" X .045" X 1 1/4"	Delicate cutting on all ferrous metals	10/BOX	CW12-50
12" X .063" X 1 1/4"	General purpose, sectioning all tool and hard steels Rc15+	10/BOX	CW12-60



RESIN BONDED ABRASIVE CUT-OFF WHEELS

Uses aluminum oxide or silicon carbide particles in a bakelite binder. These wheels are especially formulated to give the ideal cut surface finish for metallographic preparations. The 10", 12" and 17" wheels are designated as our special 'METCUT' series

Description	Usage	Qty	Catalog #
10" X .060" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Irons, Nihard, etc. Rc60+	10/BOX	CW-031 A
10" X .070" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Irons, Nihard, Rc60+(Reinforced)	10/BOX	CW-031 RA
10" X .060" X 1¼"	Hard Ferrous Alloys, Hardened Steels, Rc50+	10/BOX	CW-032
10" X .060" X 1¼"	Medium Hard Steels and Super Alloys, Rc35-50	10/BOX	CW-033
10" X .060" X 1¼"	Medium soft Steels, Rc15-35	10/BOX	CW-034
10" X .060" X 1¼"	Soft to Medium Hard Non-Ferrous Metals, Aluminum, Brass, Titanium, Zirconium	10/BOX	CW-036
12" X .075" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Irons, Nihard. Rc60+	10/BOX	51-MET N
12" X .080" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Irons, Nihard. Rc60+(Reinforced)	10/BOX	51-MET RA
12" X .075" X 1¼"	Hard Ferrous Alloys, Hardened Steels, Rc50+	10/BOX	52-MET
12" X .075" X 1¼"	Medium Hard Steels and Super Alloys, Rc35-50	10/BOX	53-MET
12" X .075" X 1¼"	Medium soft Steels, Rc15-30	10/BOX	54-MET
12" X .075" X 1¼"	S/C Hard Bond Soft Ductile, Non-Ferrous	10/BOX	56-MET
14" X .120" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Iron, Nihard Rc60+	10/BOX	CW14-10 N
14" X .125" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Iron, Nihard Rc60+(Reinforced)	10/BOX	CW14-10 RA
14" X .120" X 1¼"	Hard Ferrous Alloys, Hardened Steels, Rc50+	10/BOX	CW14-20
14" X .120" X 1¼"	Medium Hard Steels and Super Alloys, Rc35-50	10/BOX	CW14-30
14" X .120" X 1¼"	Soft Steels, Rc15-30	10/BOX	CW14-40
14" X .120" X 1¼"	Soft to Medium Hard Non-Ferrous Metals, Aluminum, Brass, Titanium, Zirconium	10/BOX	CW14-50
18" X .125" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Iron, Nihard Rc60+	5/BOX	CW18-10 N
18" X .125" X 1¼"	Hard Ferrous Alloys, Hardened Steels, Rc50+	5/BOX	CW18-20
20" X .135" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Iron, Nihard Rc60+	5/BOX	CW20-10 N
20" X .145" X 1¼"	Extremely Hard Ferrous Alloys, Tool Steels, White Cast Iron, Nihard Rc60+(Reinforced)	5/BOX	CW20-10 RA



OTHER SIZES OF SPECIAL WHEELS ARE AVAILABLE UPON REQUEST

Mounting

MOUNTING SUPPLIES

Type	Measurement	Qty	Catalog #
Reusable Plastic Molds	1.0" I.D.	12/PKG	M154
	1.25" I.D.	12/PKG	M155
	1.50" I.D.	12/PKG	M156
	2.0" I.D.	12/PKG	M1567
Silicon Rubber Molds	1.0" I.D.	5/PKG	M157
	1.25" I.D.	5/PKG	M158
	1.50" I.D.	5/PKG	M159
	2" I.D.	5/PKG	RM2
	3" x 1.5"	EACH	RM3A
	3" x 2"	EACH	RM3B
Specimen Caps	1.0" I.D.	25/PKG	M171
	1.25" I.D.	25/PKG	M172
	1.50" I.D.	25/PKG	M173
	2" I.D.	25/PKG	M173-2
Met Base	4" x 5" PSA	10/PKG	M180



Compression Mounting Properties & Comparison

	PHENOLIC	LUCITE	EPOXY	DIALYL PHTHALATE
MOLDING TEMP	350° F / 176° C	300° F / 148° C	350° F / 176° C	300° F / 148° C
MOLDING PRESS	4200 PSI	3000 PSI	4200 PSI	3000 PSI
COLORS	BLACK, RED, GREEN	CLEAR	BLACK	BLUE, GREEN
CYCLE TIMES	EXCELLENT	MODERATE	GOOD	GOOD
EDGE RETENTION	FAIR	GOOD	EXCELLENT	EXCELLENT
CLARITY	NONE	EXCELLENT	NONE	NONE
HARDNESS	LOW	GOOD	HIGH	HIGH

COMPRESSION MOLDING POWDERS

Name	Color	5 lbs	25 lbs
LUCITE	TRANSPARENT	M125	M125-25
LUCITE THERMOPLASTIC provides an economical transparent mount for specimens. Allows the operator to see areas of interest in the mount. Good edge retention & med hardness.			
PHENOLIC THERMOSETTING	BLACK	M126	M126-25
	RED	M127	M127-25
	GREEN	M128	M128-25
PHENOLIC THERMOSETTING These are the most popular and economical materials to use. Its fast , has a med shrinkage, med edge retention and low hardness.			
DIALYL PHTHALATE SHORT GLASS	BLUE	M131	
	GREEN	M132	
DIALYL PHTHALATE SHORT GLASS used for a harder surface finish. Chemical resistant. Excellent edge retention.			
DIALYL PHTHALATE MINERAL FILLED	BLUE	M130	
DIALYL PHTHALATE MINERAL FILLED provides moderate shrinkage and chemical resistance. Excellent edge retention, high hardness.			
BLACK EPOXY COURSE/GLASS FILLED	BLACK	M129C	M129C-25
BLACK EPOXY FINE/GLASS	BLACK	M129	M129-25
BLACK EPOXY THERMOSETTING has superior edge retention, tough grinding and excellent flow characteristics. Chemical resistant. High hardness.			
CARBON FILLED POWDER	1 LB.	M134	
NICKEL FILLED POWDER	1 LB.	M134-N	
COPPER FILLED POWDER	1 LB.	M134-C	
CONDUCTIVE FILLED POWDERS. Mounting powder to make conductive mounts for SEM & OES applications.			

PHENOLIC PREFORMS

Color	Qty	1"	1.25"	1.50"
BLACK	500	M126LA	M126LB	M126LC
RED	500		M127LB	M127LC
GREEN	500		M128LB	M128LC

PHENOLIC PREFORMS involves a combination of pressure and high temperature to mount the specimen in a form. Phenolic preforms are a convenient form for increased speed and production.Exhibits medium edge retention and hardness properties.



MOUNTING

MOUNTING SUPPLIES

Type	Description	Qty	Catalog #
Mounting Clips	Met-clips (metal)	100/PKG	M163
	Met-clips (plastic white)	100/PKG	M164
	Uni-clips (black plastic)	100/PKG	M174
	Met-clips (plastic clear)	100/PKG	M164-C
			
Cups / Sticks	(7oz) Waxed Graduated	100/PKG	M165
	Wooden Spatulas	500/PKG	M166
Spray Cans	Silicone Mold Release	8 oz	M167
			
Scoops & Pumps	Gallon Pump	EACH	M450
	Powder Scoop	EACH	M451
Safety Ware	Disposable Gloves	100/BOX	M452
	Safety Glasses	EACH	M453
			



Cold Mounting Properties & Comparison

	METLAB EPOXY	JETSET EPOXY	ACRYLIC	GLASS ACRYLIC	POLYESTER	TECHNOVIT
TYPE	DUROPLASTIC	DUROPLASTIC	THERMOPLASTIC	THERMOPLASTIC	DUROPLASTIC	DUROPLASTIC
PEAK TEMPERATURE	160° F / 70° C	212° F / 100° C	150° F / 65° C	150° F / 65° C	100° F / 38° C	251° F / 122° C
CURE TIME	4-8 HOURS	1-2 HOURS	8-12 MINUTES	8-12 MINUTES	1½-2 HOURS	7-8 MINUTES
SHORE D-HARDNESS	82	80	80	95	76	78
CLARITY	CLEAR	CLEAR	OPAQUE	BLACK	CLEAR	WHITE
SHRINKAGE	EXCELLENT	GOOD	GOOD	MINIMUM	GOOD	LOW
HARDNESS	EXCELLENT	GOOD	GOOD	EXCELLENT	GOOD	GOOD

TECHNOVIT COLD MOUNTING SYSTEM

Name	Curing Time	Kit	
TECHNOVIT 4000 mixing powder/syrup I+II 2:2:1	10-13 MINUTES	TN4000 750 gram powder 500 ml syrup I 250 ml syrup II	
TECHNOVIT 4006 mixing powder / liquid 2:1	9-13 MINUTES	TN4006 1000 gram powder 500 ml liquid	
TECHNOVIT 4071 mixing powder / liquid 2:1	5-7 MINUTES	TN4071 1000 gram powder 500 ml 1-C liquid	
TECHNOVIT 5000 mixing powder / liquid 20g to 13ml	7-12 MINUTES	TN5000 1000 gram powder 500 ml liquid	



Technovit Properties & Comparison

	TN 4000	TN 4006	TN 4071	TN 5000
COLOR	WHITE	HIGH CLEAR	GREEN-SEMI TRASNPARENT	BROWN
APPLICATION	gap-free, specimen embed	bubble-free, specimen embed pressure unit	specimen embedding	conductive material embedding
COMPONENTS	powder/syrup	powder/liquid	powder/liquid	powder/liquid
CURING AT 22°C	10-13	9-13	5-7	7-12
TEMP STABILITY	130°C	125°C	105°C	100°C

For detailed information on technovits, visit metlabcorp.com/technovits

COLD MOUNTING SYSTEM

Mounting

Name	Time	Kit	Resin	Hardener
METLAB EPOXY	4-8 HOURS used with vacuum if required	M135	LIQUID	LIQUID
mixing resin to hardener 15:2		1 quart resin ½ pint hardener (10) 7oz waxed cups (10) stir sticks	M136 1 quart	M138 ½ pint
			M137 1 gallon	M139 1 quart

JETSET EPOXY	1-2 HOURS	M135A	LIQUID	LIQUID
mixing resin to hardener 15:2		1 quart resin ½ pint hardener (10) 7oz waxed cups (10) stir sticks	M136A 1 quart	M138A 1 pint
			M137A 1 gallon	M139A 1 quart

FAST CURE ACRYLIC	8-12 MINUTES	M140	POWDER	LIQUID
mixing powder to hardener 3:2		1 lb powder 1 pint hardener (10) 7oz waxed cups (10) stir sticks	M142 5 lbs	M145 ½ gallon
			M143 10 lbs	M146 1 gallon

POLYESTER	1½-2 HOURS	1 quart resin 1 unit hardener (10) 7oz waxed cups (10) stir sticks	LIQUID	LIQUID
mixing resin to hardener 6 oz : .01 oz or 60 g:1 g			M147-5 \$ 5 gallon	M148 1 quart

METMOUNT 1 EPOXY	6 HOURS (Clear Mount)	LIQUID	LIQUID
mixing resin to hardener 4:1 by volume		M335R-32 32oz.	M335H-8 8oz.
		LIQUID	LIQUID
		M335R-64 64oz.	M335H-16 16oz.
		LIQUID	LIQUID
		M335R-128 128oz.	M335H-32 32oz.



METMOUNT 2 EPOXY	9 HOURS (Clear Mount)	LIQUID	LIQUID
mixing resin to hardener 2:1 by volume		M336R-32 32oz.	M336H-16 16oz.
		LIQUID	LIQUID
		M336R-128 128oz.	M336H-64 64oz.



METMOUNT 3
EPOXY
mixing resin to hardener
5:1 by volume

2 HOURS
(Clear Mount)



LIQUID	LIQUID
M337R-32 32oz.	M337H-8 8oz.
LIQUID	LIQUID
M337R-128 128oz.	M337H-32 32oz.

METMOUNT 4
EPOXY
mixing resin to hardener
4:1 by volume

1 - 1.5 HOURS
(Clear Yellowish
Mount)

LIQUID	LIQUID
M338R-64 64oz.	M338H-16 16oz.



REPLICATING SYSTEM

Catalog #	Qty	Description
MET-333	2X50mm	Provil Novo Light media
MET-334	48	Mixing cannula
MET-335	96	Tips for mixing cannula
MET-337	EACH	Mixing pistol



For detailed information on impressions, visit metlabcorp.com/impressions

ABRASIVE GRINDING DISCS

PLAIN PRODUCTION

Grit	Qty	200mm (7.87")	250mm (9.84")	300mm (11.81")
60	100	M106-60-PRO	M180-60-PRO	M120-60-PRO
120	100	M106-120-PRO	M180-120-PRO	M120-120-PRO
180	100	M106-180-PRO	M180-180-PRO	M120-180-PRO
240	100	M106-240-PRO	M180-240-PRO	M120-240-PRO
320	100	M106-320-PRO	M180-320-PRO	M120-320-PRO
400	100	M106-400-PRO	M180-400-PRO	M120-400-PRO
600	100	M106-600-PRO	M180-600-PRO	M120-600-PRO

OTHER SIZES AVAILABLE UPON REQUEST

ABRASIVE GRINDING DISCS

PSA PRODUCTION

Grit	Qty	200mm (7.87")	250mm (9.84")	300mm (11.81")
60	100	M112-60-PRO	M114-60-PRO	M115-60-PRO
120	100	M112-120-PRO	M114-120-PRO	M115-120-PRO
180	100	M112-180-PRO	M114-180-PRO	M115-180-PRO
240	100	M112-240-PRO	M114-240-PRO	M115-240-PRO
320	100	M112-320-PRO	M114-320-PRO	M115-320-PRO
400	100	M121-400-PRO	M114-400-PRO	M115-400-PRO
600	100	M112-600-PRO	M114-600-PRO	M115-600-PRO

WET / DRY SILICON CARBIDE C WEIGHT ABRASIVE GRINDING DISCS

are manufactured in North America and are classified to U.S standards. FEPA is grit classification according to abrasives manufactured in Europe and are classified to European standards.

US (CAMI)	60	80	120	180	240	320	400	600	800	1200
P GRADE (FEPA)	P60	P80	P120	P180	P220	P500	P800	P1200	P2400	P4000
MICRON SIZE	268	192	125	76	52	35	22	14	10	5

ABRASIVE GRINDING DISCS

PLAIN PREMIUM

Grit	Qty	8" (203mm)	9" (228mm)	10" (254mm)	12" (305mm)
60	100	M106-60	M108-60	M180-60	M120-60
80	100	M106-80	M108-80	M180-80	M120-80
120	100	M106-120	M108-120	M180-120	M120-120
180	100	M106-180	M108-180	M180-180	M120-180
240	100	M106-240	M108-240	M180-240	M120-240
320	100	M106-320	M108-320	M180-320	M120-320
400	100	M106-400	M108-400	M180-400	M120-400
600	100	M106-600	M108-600	M180-600	M120-600
800	100	M106-800	M108-800	M180-800	M120-800
1200	100	M106-1200	M108-1200	M180-1200	M120-1200

OTHER SIZES AVAILABLE UPON REQUEST

ABRASIVE GRINDING DISCS

PSA PREMIUM

Grit	Qty	8" (203mm)	10" (254mm)	12" (304mm)
60	100	M112-60	M160-60	M115-60
120	100	M112-120	M160-120	M115-120
180	100	M112-180	M160-180	M115-180
240	100	M112-240	M160-240	M115-240
320	100	M112-320	M160-320	M115-320
400	100	M112-400	M160-400	M115-400
600	100	M112-600	M160-600	M115-600
800	100	M112-800	M160-800	M115-800
1200	100	M112-1200	M160-1200	M115-1200

WET / DRY SILICON CARBIDE C WEIGHT ABRASIVE GRINDING DISCS

are manufactured in North America and are classified to U.S standards. FEPA is grit classification according to abrasives manufactured in Europe and are classified to European standards.

US (CAMI)	60	80	120	180	240	320	400	600	800	1200
P GRADE (FEPA)	P60	P80	P120	P180	P220	P500	P800	P1200	P2400	P4000
MICRON SIZE	268	192	125	76	52	35	22	14	10	5

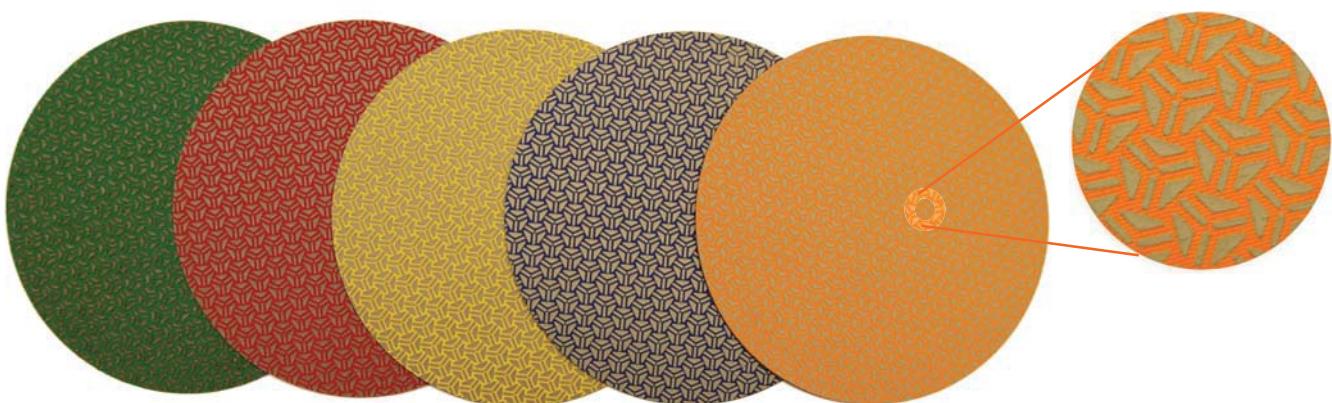
FLEXIBLE PIANO DIAMOND DISCS

MD

Grit	Qty	8" (203mm)	10" (254mm)	12" (305mm)
80	1	M506-8G	M506-10G	M506-12G
120	1	M506-8R	M506-10R	M506-12R
220	1	M506-8Y	M506-10Y	M506-12Y
600	1	M506-8B	M506-10B	M506-12B
1200	1	M506-8O	M506-10O	M506-12O

MD FLEXIBLE PIANO DIAMOND DISCS reduces grinding processes to just a couple of steps in addition cuts preparation time. Piano Discs replace the conventional silicon carbide abrasive discs and in addition are more economical and produces superior finishes on specimens. Piano Discs use water for cooling. The patterned segmented diamond surface has been designed for grinding materials and minimize build-up of abraded material, produces specimens that are perfectly flat.

GRINDING



GRINDING BELTS

4" x 36"

Grit	Silicon Carbide 10/BOX (WET-DRY)	Zirconia 5/BOX (WET-DRY)	Aluminum Oxide 10/BOX (DRY)
60	M100-60	M117-60	M101-60
80	M100-80	M117-80	M101-80
120	M100-120	M117-120	M101-120
180	M100-180	M117-180	M101-180
220	M100-220	M117-220	M101-220
240	M100-240		M101-240
320	M100-320		
400	M100-400		
600	M100-600		

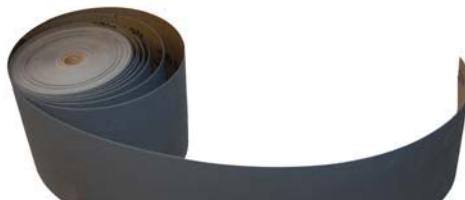


OTHER GRIT & SIZES
AVAILABLE
ON REQUEST

GRINDING BELTS

6" x 48"

Grit	Silicon Carbide 5/BOX (WET-DRY)	Zirconia 5/BOX (WET-DRY)	Aluminum Oxide 5/BOX (DRY)
60	M525-60	M504-60	M503-60
80		M504-80	M503-80
120		M504-120	M503-120
180		M504-180	M503-180
220		M504-220	M503-220
240			M503-240



ROLLS S/C

Grit	Qty	3" x 75'	3 7/16" x 75'
180	1	M110-180	M111-180
240	1	M110-240	M111-240
320	1	M110-320	M111-320
400	1	M110-400	M111-400
600	1	M110-600	M111-600

STRIPS S/C

Grit	Qty	3" x 11"
240	100	M114-240
320	100	M114-320
400	100	M114-400
600	100	M114-600
800	100	M114-800
1200	100	M114-1200

ZIRCONIA ALUMINA DISCS

PSA

Grit	Qty	8" (203mm)	12" (305mm)
60	25	M183-60	M184-60
120	25	M183-120	M184-120
180	25		M184-180
220	25		M184-220

WET / DRY ZIRCONIA ALUMINA C WEIGHT ABRASIVE GRINDING DISCS P.S.A.
BACK are manufactured in North America and are classified to U.S standards.



**OTHER GRIT & SIZES
AVAILABLE
ON REQUEST**

STONE GRINDING WHEELS

SGW-AO-060	EACH	14" (356mm) X 1 3/4" X 1 1/2" – GRIT 60 A/O	
SGW-AO-150	EACH	14" (356mm) X 1 3/4" X 1 1/2" – GRIT 150 A/O	
SGW-SC-150	EACH	14" (356mm) X 1 3/4" X 1 1/2" – GRIT 150 S/C	
SGW8-AO-150	EACH	8" (200mm) X 1-7/8" X 1 1/2" – GRIT 150 A/O (used with Prepomatic)	



80-150	EACH	150mm (5.9") x 32 mm AL2O3 White Grinding Stone for hard steels	
80-151	EACH	150mm (5.9") x 32 mm AL2O3 Pink Grinding Stone for cast iron	

MAGNETIC DISC FIXATION SYSTEM

PSA

8" (203mm)	10" (254mm)	12" (305mm)	Qty
M195-8	M195-10	M195-12	1

This system provides for a quick convenient method for applying, removing, and reusing paper discs and polishing cloths from your grinding/polishing wheel. The system is comprised of two parts, the first part being a magnetic disc which has a pressure sensitive adhesive backing (PSA) and is applied to the wheel. The second part is our unique flexible rubber metal disc which in turn is placed on the magnetic disc. The rubber metal material is rustproof, durable, and reusable, has no sharp edges and sticks to the magnetic disc-like steel. Our rubber metal discs accept both PSA and plain backed grinding discs and polishing cloths. Our MAGNETIC DISC SYSTEM eliminates the expense of additional grinding/polishing wheels and also metal or bimetallic plates which are subject to bending and edge denting.

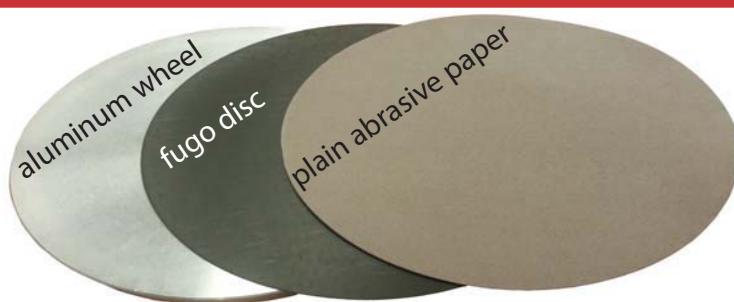


MD FUGO DISCS

PSA

8" (203mm)	10" (254mm)	12" (305mm)	Qty
M194-8	M194-10	M194-12	5/PKG

MD FUGO DISCS are rubber discs with an adhesive side which are used to attach non-adhesive paper to the wheels.



GRIT GRABBER

PSA

8" (203mm)	10" (254mm)	12" (305mm)	Qty
M175	M176	M177	10/PKG

GRIT GRABBERS are double sided adhesive interface discs which are used to attach non - adhesive grit papers and polishing cloths to the wheels.

DIAMOND SUSPENSIONS

WATER / OIL SOLUABLE

Heavy Concentration Superior Grade		MONOCRYSTALLINE			
µm	airspray 8 oz	bottle only 8 oz	trigger spray 16 oz	refill 32 oz	refill 128 oz
.10	M240	M250	M260	M260-32	M260-128
.25	M241	M251	M261	M261-32	M261-128
.50	M242	M252	M262	M262-32	M262-128
1	M243	M253	M263	M263-32	M263-128
3	M244	M254	M264	M264-32	M264-128
6	M245	M255	M265	M265-32	M265-128
9	M246	M256	M266	M266-32	M266-128
15	M247	M257	M267	M267-32	M267-128
30	M248	M258	M268	M268-32	M268-128
45	M249	M259	M269	M269-32	M269-128

METLAB highest quality virgin diamond particles which are presently used in our widely acceptable diamond compounds and airspray s have now been formulated into our new Diamond Suspensions. These suspensions are suitable for use in power lapping, general polishing applications or in automated diamond dispensing systems.



DIAMOND SUSPENSIONS

WATER / OIL SOLUABLE

Heavy Concentration Superior Grade		POLYCRYSTALLINE			
µm	bottle only 8 oz	finger pump 8 oz	trigger spray 16 oz	refill 32 oz	refill 128 oz
.25	M270	M280	M280-16	M280-32	M280-128
1	M271	M281	M281-16	M281-32	M281-128
3	M272	M282	M282-16	M282-32	M282-128
6	M273	M283	M283-16	M283-32	M283-128
9	M274	M284	M284-16	M284-32	M284-128
15	M275	M285	M285-16	M285-32	M285-128
30	M276	M286	M286-16	M286-32	M286-128
45	M277	M287	M287-16	M287-32	M287-128

Supreme grade constant suspensions use polycrystalline (black) diamond particles which have a greater number of cutting edges than our standard monocrystalline diamond suspensions. These increased edges reduce subsurface deformation especially on samples which are of different materials and hardness. Ideally suited for use in power lapping, general polishing applications or in all automated diamond dispensing systems.

POLISHING COMPOUND

MONOCRYSTALLINE

μm	5 gram	20 gram
1/4	M200	M201
1	M202	M203
3	M204	M205
6	M206	M207
9	M208	M209
15	M210	M211
30	M212	M213
45	M214	M215

HEAVY CONCENTRATION
WATER / OIL SOLUBLE



POLISHING COMPOUND

POLYCRYSTALLINE

μm	10 gram
1/4	M200P
1	M202P
3	M204P
6	M206P
9	M208P
15	M210P
30	
45	

HEAVY CONCENTRATION
WATER / OIL SOLUBLE



AEROSOL SPRAY

POLYCRYSTALLINE

μm	8 oz (Aerosol spray)
.25	M288
1	M289
3	M290
6	M291
9	M292
15	M293

HEAVY CONCENTRATION
WATER SOLUBLE

DIAMOND SUSPENSIONS

POLYCRYSTALLINE

μm	bottle only 8 oz	trigger spray 16 oz
.25	M260-P25	M260-16
1	M261-P1	M261-16
3	M262-P3	M262-16
6	M260-P6	M260-P-16
9	M261-P9	M261-P-16
15	M262-P15	M262-P-16

OIL SOLUBLE
WATER FREE

DIA-LUBE SUSPENSION

WITH COOLING LUBRICANTS

Description	Used On	16 oz	128 oz
DiaLube Allegra	MD Allegra polishing cloth for fine grinding (water based)	M280-16DL	M280-128DL
DiaLube Plan	MD Plan polishing cloth for fine grinding (no solvents)	M281-16DL	M281-128DL
DiaLube Mol	MD Mol polishing cloth (contains no solvents)	M282-16DL	M282-128DL
DiaLube Dac	MD Dac polishing cloth (contains no solvents)	M283-16DL	M283-128DL
DiaLube Plus	MD Plus polishing cloth (contains no solvents)	M284-16DL	M284-128DL
DiaLube Nap	MD Nap polishing cloth (contains no solvents)	M285-16DL	M285-128DL

DIA-LUBE SUSPENSION WITH COOLING LUBRICANTS. A unique blend of quality high performance diamonds accompanied with cooling lubricants. This process ensures a faster and more cost efficient sample preparations.

DIAMOND POLISHING EXTENDERS

Type	Quart	Gallon	5 Gallon
PURPLE (ALCOHOL BASED)	M225-32	M225-128	M225-640
Alcohol-based, general polishing of most materials. No ethylene glycol.			
GREEN (WATER BASED)	M226-32	M226-128	M226-640
Water-based, general polishing of most materials.			
RED (WATER/OIL BASED)	M227-32	M227-128	M227-640
Water / oil based, final polishing softer materials.			
BROWN (ALCOHOL BASED)	M220-32		
Alcohol based for fine grinding on all materials. Used with water free diamond suspension.			
BLUE LUBE (ETHANOL BASED)	M222	M223	M224
Alcohol-based, general polishing on most materials.			



COLLOIDAL SILICA

μm	Type	Quart	Gallon
≈ 0.06	Colloidal Silica	M306-32	M306-128
COLLOIDAL SILICA (BLUE) Used for chemical/mechanical polishing on oxides, metals, semi conductors and ceramic based materials.			
≈ 0.04	OPS Colloidal Silica (pH 10.5)	M511-OPSQ	M511-OPSG
OPS COLLOIDAL SILICA (WHITE) Has been formulated to reduce polishing time and are priced very economically. OPS under normal use may be diluted with water. Used for non-ferrous metals and very ductile materials like refractory metals and others.			



ALUMINA SUSPENSIONS

μm	Type	Quart	Gallon
0.05	Gamma B Alumina	M303-32	M303-128
0.3	Alpha A Alumina	M304-32	M304-128
1.0	Alpha C Alumina	M305-32	M305-128

not dry out on the polishing pad and is completely water soluble.



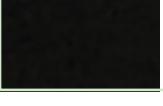
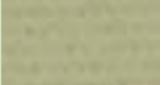
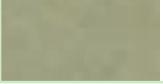
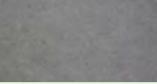
ALUMINA POWDERS

μm	1 lb	5 lbs
0.05	M300	M300-80
0.3	M301	M301-80
1	M302	M302-80

ALUMINA POWDERS are agglomerate-free, they are calcined to a high purity of 99.9% and then "deagglomerated" to break down the large agglomerates which would otherwise cause scratches. The result is a superior alumina that provides a faster time to a scratch-free finish.



Polishing Cloths Comparison & Properties

IMAGES	POLISHING CLOTH	RECOMMENDED USE
 	COTTON - very short nap 100% cotton cloth. Used for rough polishing on soft materials.	-diamond compounds -alumina
 	CHEM PAD - soft synthetic chemically resistant no nap pad that removes smears from tough materials. For final polishing on titanium, stainless steels, lead/tin solders, electronic packages and soft non-ferrous plastics.	-1µm & finer diamond -alumina -colloidal silica
 	DIA DAC - napless satin acetate woven pure medium hard silk cloth of very close weave. Recommended for use with in pre-polishing stages on ferrous and non-ferrous materials, petrographic samples and ceramics.	-3µm diamond products
 	DIA NAP - soft very short napped synthetic cloth for use in final polishing on all ferrous metals and sintered carbides.	-1µm & finer diamond
 	DIA MOL - woven 100% wool medium/soft cloth for use on ferrous and non-ferrous metals. Typically used on softer materials.	-3µm & finer diamond
 	DIA PLUS - soft long napped synthetic cloth for use on ferrous metals and sintered carbides, also used for final polishing on all materials with aluminum oxide powders. Excellent for un-mounted samples or manual polishing.	-3µm & finer diamond -alumina
 	DP PLAN – napless woven polyester nylon cloth of close weave, very durable. Recommended for use with 15 to 3 micron diamond to prevent relief and maintain flatness on hard/very hard materials.	-15µm to 3µm diamond
 	GOLD LABEL (NYLON) - nap free nylon with plastic backing. Provides excellent flatness	-15µm to 3µm diamond
 	METLAB (MICRO) - short synthetic rayon fibers to woven cotton backing giving a soft suede cloth of hard wearing properties. Recommended for final polishing on all materials. Good for high removal rates.	-1µm diamond -alumina
 	PAN W - synthetic chemotextile hard nap less material which has oil/water resistant backing. Maintaining flatness, edge and inclusion retention in pre-polishing stages on metals, ceramics, etc.	-9µm & finer diamond
 	RED FELT - 100% pure virgin wool fabric plucked rather than sheared pile. Used for general rough and intermediate polishing on all materials.	-1µm diamond -alumina
 	SILK – napless pure silk cloth of close weave. Used when slurry or skid polishing techniques are used with alumina or diamond compound on pre-polishing stages on metals or petrographic samples.	-9µm to 3µm diamond -alumina
 	VEL LAP - A white synthetic velvet short nap cloth which provides an excellent polish. Used for final polishing on soft metals	-1µm & finer diamond -alumina -colloidal silica

POLISHING CLOTHS

CLOTH	TYPE	8"	10"	12"
		203 mm	203 mm	305 mm
COTTON	PLAIN 10/PKG	M590-8PL	M590-10PL	M590-12PL
CHEM PAD	PSA 5/PKG	M660-8PS	M660-10PS	M660-12PS
RUBBER BACK	MD 5/PKG	M660-8MD	M660-10MD	M660-12MD
METAL BACK	MP 5/PKG	M660-8MP	M660-10MP	M660-12MP
DIA DAC	PSA 5/PKG	M615-8PS	M615-10PS	M615-12PS
RUBBER BACK	MD 5/PKG	M615-8MD	M615-10MD	M615-12MD
METAL BACK	MP 5/PKG	M615-8MP	M615-10MP	M615-12MP
DIA NAP	PSA 5/PKG	M630-8PS	M630-10PS	M630-12PS
RUBBER BACK	MD 5/PKG	M630-8MD	M630-10MD	M630-12MD
METAL BACK	MP 5/PKG	M630-8MP	M630-10MP	M630-12MP
DIA MOL	PSA 5/PKG	M620-8PS	M620-10PS	M620-12PS
RUBBER BACK	MD 5/PKG	M620-8MD	M620-10MD	M620-12MD
METAL BACK	MP 5/PKG	M620-8MP	M620-10MP	M620-12MP
DIA PLUS	PSA 5/PKG	M625-8PS	M625-10PS	M625-12PS
RUBBER BACK	MD 5/PKG	M625-8MD	M625-10MD	M625-12MD
METAL BACK	MP 5/PKG	M625-8MP	M625-10MP	M625-12MP
DP PLAN	PSA 10/PKG	M610-8PS	M610-10PS	M610-12PS
RUBBER BACK	MD 5/PKG	M610-8MD	M610-10MD	M610-12MD
METAL BACK	MP 5/PKG	M610-8MP	M610-10MP	M610-12MP
GOLD LABEL	PSA	M537-8PS	M537-10PS	M537-12PS

OTHER SIZES AVAILABLE UPON REQUEST

POLISHING CLOTHS

CLOTH	TYPE	8"	10"	12"
		203 mm	203 mm	305 mm
METLAB (MICRO)	PLAIN	M500-8PL	M500-10PL	M500-12PL
	PSA	M500-8PS	M500-10PS	M500-12PS
	MD	M500-8MD	M500-10MD	M500-12MD
PAN W	PSA	M560-8PS	M560-10PS	M560-12PS
RUBBER BACK	MD	M560-8MD	M560-10MD	M560-12MD
METAL BACK	MP	M560-8MP	M560-10MP	M560-12MP
RED FELT	PSA	M570-8PS	M570-10PS	M570-12PS
VEL LAP	PSA	M536-8PS	M536-10PS	M536-12PS

POLISHING

DIAMOND LAPPING FILM

μm	Plain		5/PKG	Plain		5/PKG	PSA
0.10	M507-10PL		M507-10PS		M509-10PL		M509-10PS
0.25	M507-25PL		M507-25PS		M509-25PL		M509-25PS
0.5	M507-05PL		M507-05PS		M509-05PL		M509-05PS
1	M507-1PL		M507-1PS		M509-1PL		M509-1PS
3	M507-3PL		M507-3PS		M509-3PL		M509-3PS
6	M507-6PL		M507-6PS		M509-6PL		M509-6PS
9	M507-9PL		M507-9PS		M509-9PL		M509-9PS
15	M507-15PL		M507-15PS		M509-15PL		M509-15PS
30	M507-30PL		M507-30PS		M509-30PL		M509-30PS

↓ 12" ↓

μm	Plain		3/PKG	Plain		3/PKG	PSA
0.10	M508-10PL		M508-10PS				
0.25	M508-25PL		M508-25PS				
0.5	M508-05PL		M508-05PS				
1	M508-1PL		M508-1PS				
3	M508-3PL		M508-3PS				
6	M508-6PL		M508-6PS				
9	M508-9PL		M508-9PS				
15	M508-15PL		M508-15PS				
30	M508-30PL		M508-30PS				

DIAMOND LAPPING FILM DISCS are micron graded diamond particles resin bonded to a uniform 3-mil polyester film backing. This offers a cleaner, more consistent alternative to diamond compounds or slurries. Used to finish and polish hard to grind materials such as glass, ceramics, hardened metals, composites and micro-electronic materials for SEM and TEM analysis. Used wet or dry.



PRESSURIZED DUSTERS

Type	Description	Qty	Catalog #
 	Dust-Off Chrome Valve	EACH	FGVC
	Dust-Off Refill, 10 oz.	EACH	FGSR
	Dust-Off Refill, 10 oz.	12/PKG	FGSR12
 	Dust-Off Plus 360 Degree Vector Valve	EACH	DPVC
	Dust-Off Plus Refill, 12 oz.	EACH	DPSR
	Dust-Off Plus Refill, 12 oz.	12/PKG	DPSR12
	Dust-Off XL, 12oz.	EACH	DPSXL
	Dust-Off XL, 12oz.	12/PKG	DPSXL12

ALL NEW 100% SAFE FOR THE OZONE DUST-OFF NO CFCs! NO HCFCs! NO PROPANE! NO BUTANE!

METLAB PRESSURIZED DUSTERS for very effective dust and lint removal from computers, monitors, laser printers, fax machines, copiers, keyboards, AV equipment, CDs, desktops, delicate equipment and much more. It is, of course, 100% ozone-safe. Both versions of the Dust-Off Plus feature our innovative 360 degree Vector Valve which allows the user to blast dust and lint out of even the most impossible- to-reach places. Dust-Off Chrome Valve System is the original pressurized duster product. Replacement canisters are compatible with most other chrome valve systems.

ULTRASONIC CLEANERS



Branson precision cleaning power is faster, more consistent, and safer than any other method. Hand scrubbing, soaking, or steam don't even come close. It's now powerful enough to remove heavy oils, buffing compounds, or proteins, consistent enough to manage difficult laboratory cleaning ever time and safe enough for those delicate electronic components or fine jewelry. Ultrasonic sound waves moving through a cleaning solution create an effect called cavitation, the rapid formation and collapse of microscopic bubbles. This violent collapse, along with the cleaning chemistry, scrubs every wetted surface. The deep cleaning action of ultrasonics removes the most stubborn contaminants, even from blind holes and internal surfaces. Heat enhances this process.

BULBS

Type & Voltage	Used On	Catalog #
HALOGEN		
Quartz 24V/150W	Unimet, Versamet	M806
6V/ 30W	Olympus, Nikon	M820
8V/ 20W (MR11G4 bast)		M821
6V/ 10W	Meiji PBH Stand	M822
6V/ 15W	Motic	M823
6V/ 20W	HMV2000, Olympus	M824
12V/ 50W	Olympus PME3, PMG3	M828
12V/ 100W	Olympus PME100	M829
24V/ 250W		M830
15V/150W		M807



21V/ 150W EKE	Fiber Optic Illuminator	M850
24V/ 250W ELC	Fiber Optic Illuminator	M851
8V/ 20W	Fiber Optic Illuminator	M852
120V/250W ETJ	Fiber Optic Illuminator	M853

TUNGSTEN



EL-1B (13.5V/40W)	Unitron series N	M800
EL-2 (8V/12W)	Unitron MEC	M801
EL-11(6V/15W) old style	Unitron BMEC (old)	M802
EL-12B(6V/15W) new style	Unitron BMEC (new)	M803
EL-2B(8V/12W) frosted	Unitron TM scope	M804
EL-38(8V/15W)	Neomet	M805
8V/ 0.5A	Type M (screw base)	M825
6.3V/ 0.15A	Type M (on/off load)	M826
12V/ 10W	Frosted M-400	M827
6V/18W		M831
12V / 18W	Matsuzawa MMT-X7	M810

FLUORESCENT RING



FL-100 standard	M840	
FL-150 white	M841	
FL-200 ultra violet	M842	
Unitron BMECFL-300 yellow	M843	

This is only a very small listing of various bulbs we can supply for Unitron, Olympus, B & L, Leitz, Meiji, Nikon and many others. Please contact us with your specific bulb requirements and we will be pleased to provide you with pricing information.

OTHER BULB REQUIREMENTS AVAILABLE UPON REQUEST

SHEPHERD FRACTURE GRAIN SIZE STANDARDS

SFG

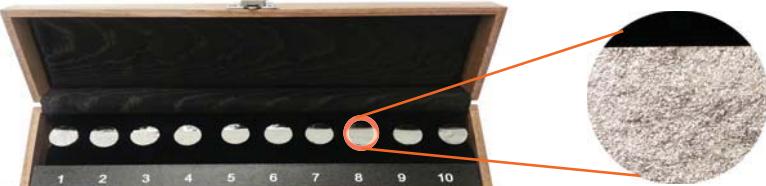
Complete Set 1 – 10

Overall dimensions:

12.5”L X 3.5”W X 2”

Weight:

3 Lbs.



The set of standards consists of ten fractured specimens (3/4" diameter) in an enclosed compact wooden walnut case. Each specimen is numbered consecutively from 1 (coarse) to 10 (fine) and are accurately spaced with equal increments of fracture differential through this range. Each specimen is visually compared with our master set of standards from which a section had been metallographically prepared and microscopically examined to verify ASTM grain size as outlined in ASTM Standards, Part 6 E112-81.

INTRODUCTION TO SHEPHERD FRACTURE GRAIN SIZE STANDARDS

B.F. Shepherd developed these Fracture Grain Size Standards for us in conjunction with his paper entitled "The P – F Characteristics of Steel". This work describes a comparatively simple and accurate method of determining differences between various heats of steel of similar analysis. This difference has been found to be a definite property and has been termed the "P – F Characteristic".

By use of the test outline by Mr. Shepherd, heats of steel can be classified as definite types, which have an exact relation to melting practice, ingot yield, hardening sensitivity and physical properties of the hardened part.

The Standards are used for determining or comparing the fracture grain size in steels and the readings obtained are equivalent to the American Society for Testing and Materials austenitic grain size readings.

These Standards have been universally adopted and the number of sets presently in use is more than 1000. They provide a metallurgical implement indispensable to the well-equipped laboratory or research department of steel manufacturers and steel users, universities, technical schools, etc. *Transactions, American Society for Metals 1934, Vol. 22, Page 979.

Procedure for Determinations of Grain Size

The specimen is compared roughly by removing and replacing individual lids from the standards. The lids are then removed from the three standards, which are nearest the unknown fracture. Comparison is made by placing the unknown fracture against the standards and comparing until a reading is obtained. This should be done in bright sunlight for accuracy. The reading should be made to the nearest ¼ number and recorded as such. For example, 7 ¼ means one step finer than No. 7 standard, 7 ¾ shows the fracture to be one step coarser than No. 8 standard, while 7 ½ would indicate a fracture grain size exactly intermediate between No. 7 and No. 8 standards.

The reading of the fractures with consistent accuracy requires considerable personal skill and experience. Any fracture determination should be an agreement of two qualified observers. Disagreement by more than ½ fracture number after a recheck should result in an arbitration reading by a third observer and the apparent true fracture number recorded.

It is desirable to keep the fractures fresh and in order to obtain maximum service the rules should be observed.

1. Keep lids on fractures when not in use.
2. Clean fractures periodically or when required with a soft pencil eraser.
3. Do Not Blow On Standards - Staining Could Develop.
4. Storage in a desiccator cabinet is highly recommended.

If replacement standards are required, complete case should be returned for insertion of new standard and other necessary repairs.

SAMPLE LEVELING PRESS

SLP-1

METLAB SAMPLE LEVELING PRESS is used to level metallurgical samples for examination with upright microscopes and stereoscopes to ensure sample flatness.



OTHER

METALLURGICAL MICROSCOPES

MET-0006*



MET-A0006 - Binocular Head

MET-T0006 - Trinocular Head

Eyepieces WF10×/18
Objectives 4x, 10x, 40x (20x, 50x, 80x and 100x optional)
Quadruple Nosepiece
Double layer mechanical stage 150×140mm/75×50mm
Coaxial Fine & Coarse Adjustment
Kohler Illumination, Epi-illuminator with iris aperture diaphragm and iris field diaphragm,
6V/20W Halogen Lamp, Brightness Adjustable
Blue, Green, Yellow & Ground Glass filters

MET-A006



MET-A006

Same as above except this unit comes with an 8 inches LCD screen to generate genuine photos and videos. Eyepieces and LCD Screen can both be used for convenient and comfortable viewing by individuals and share with groups alike. It is also feature the latest 5 Mega Pixels digital imaging microscopy techniques for quick and easy snapshots or videos.

PORTABLE MICROSCOPES

MET-LD003



MET-LD003 - 20X
MET-LC003 - 40X
MET-LB003 - 50X
MET-LA003 - 100X

Eyepiece 10X with reticle and diopter adjustment
Various of reticle for eyepiece to meet different requirements
Mechanical Tube Length 160mm
Eyepiece 10X
Diameter of Viewing field in Eyepiece φ18mm
Eyepiece Reticle 0.1mm
Focus Range 30mm

for more microscopes please visit www.metlabcorp.com

INVERTED METALLURGICAL MICROSCOPES

IM7100



IM7100

The IM7100 delivers an excellent performance-to-cost ratio because it has the features and versatility that one would expect to find in more expensive instruments. The IM7000 binocular Siedentopf-Type model is inclined at 30 degrees has an integrated front mounted camera port with adapters available for 35mm, CCD, CMOS and other cameras. Configured models come with 10x Super Widefield High Point Eyepieces F.N.22, a smooth operating ball bearing angle mounted quadruple nosepiece with 5x, 10x, 20x and 50x E Plan Achromat Infinity corrected objectives with an infinity tube lens $F= 200\text{mm}$. A 100x objective is optional and available as are other eyepieces and accessories. The standard fixed plain stage measures 180mm x 245mm and is ergonomically positioned right-handed with coaxial drop down controls. A powerful Koehler method vertical illuminator provides enhanced image quality.

MET-B0006



MET-B0006

Infinity plan achromat objectives provide bright, high resolution images with long working distances and high NA values. Siedentopf trinocular viewing head, inclined at 30°, interpupillary distance adjustment 48-75mm. Light distribution is 100% to the binocular or for photomicrography 20% to binocular and 80% to the photo tube Koehler vertical illuminator (built-in) with 6v30w halogen lamp, aperture diaphragm, field diaphragm and filter slots Quintuple nosepiece with Infinity Plan Achromat 5x, 10x, 20x & 40x objectives Plain stage 160mm X 250mm with Ø10, 15 and 20mm insert plates Attachable mechanical stage 120 (X) x 78 (Y) mm travel with Ø10, 15 and 20mm stage plates Polarizer and analyzer Filters: Daylight blue, green, yellow and ground glass Coaxial coarse and fine vertical focusing adjustment of objective assembly Coarse stroke 37.7 mm per rotation, fine stroke 0.2mm per rotation Photo tube, power cord, dust cover and manual .

MET-B006



MET-B006

Same as above unit MET-B0006 with added LCD screen features the latest 5 Mega Pixels digital imaging microscopy techniques for quick and easy snapshots or videos.

for more microscopes please visit www.metlabcorp.com

STEREOSCOPES

MET-0203



Offered in both binocular and trinocular heads.
Stereoscope on post stand.
Wide field eyepiece 10×
Zoom ratio 1:4.5
Zoom objective 1× ~ 4.5×
LED refection illumination
LED transmission illumination built into stand.

MET-0403



Offered in both binocular and trinocular heads.
Stereoscope on post stand.
Extra Wide field eyepiece 10×
Zoom ratio 6.3:1
Zoom objective 0.8×-5×
LED refection illumination
LED transmission illumination built into stand.

MET-0603



Offered in both binocular and trinocular heads.
Stereoscope on post stand.
Extra Wide field eyepiece 10×
Zoom ratio 1:8
Zoom objective 0.8×-6.4×
Plan Achromatic Objective 1×
LED refection illumination
LED transmission illumination built into stand.

EMZ-5TRD



Offered in both binocular and trinocular heads.
Stereoscope on post stand.
Extra Wide field eyepiece 10×
Zoom ratio 6.5:1
Zoom objective 0.7x- 4.5x
PK wide stand with focus block
(illumination sold separate)

for more microscopes please visit www.metlabcorp.com

STEREOSCOPES STANDS

MET-KBL-S



With FX focus block with illuminator port
Dimension of Base 15" x 13"

MET-ZF10-S



Column Height 11" to 13.5"
Focus range 4"

MET-ZF11-S



Column Height 11" to 13.5"
Focus range 4"

MET-ZF3-S



The Dual Arm Boom Stand with FS holder design has a linear ball bearing for support of its horizontal arms.
Dimension of Base 10" x 10"
Column Height 19"

MET-FX1-S



Articulating flex arm with FS holder.

PK-STAND



An extended working distance ergonomic pole stand with 250mm pole and "F" focusing holder mounted on a ergo base.

P-STAND



Basic pole stand with "F" focusing holder mounted on a plain base.

MET-ZF2-S



Dimension of Base 15.5" x 10.5"
Column Height 17"

for more microscopes please visit www.metlabcorp.com

ILLUMINATORS

FL-280



Cold Light Illumination is designed as an auxiliary lighting device for microscope in order to get better observation results.

Lamp:	T-H Lamp with Reflector 20V/ 150W Brightness Adjustable Fan Cooling
Voltage:	115 VAC, 50/60 Hz 220/230 VAC, 50/60 Hz
Dimensions:	5" x 6" x 10"
Fiber Input Dia:	1.00"

LIGHT GUIDES

EEG2823-1 & EEG283-2 GOOSENECK



Gooseneck illuminator available in either single or dual models, features flexible light guide which allows the users to position the light source at desired angles of incident illumination.

A3739P - ANNULAR RING LIGHT



Ring light system, provides high intensity illuminations at high magnifications and long working distance, w/o adjustment when refocusing or when zoom features are used.

RING LIGHTS

MET-72

LED Ring Illuminator with Transformer and with 72 LEDs



LCD STEREOSCOPES

MET-023

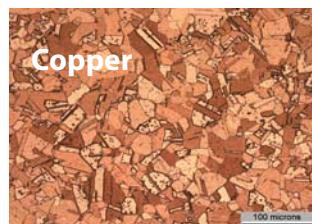


5mp Digital Camera
Picture resolution 2560×1920, Video resolution 640×480
Sensor Size 1/2.5 Inches
LCD Screen 8 Inches TFT Screen, Resolution is 800 X 600
Video Output AV Output (NTSC/PAL)
Data Output USB2.0, Storage SD Card Slot
Objective Zoom Range 0.7×-4.5, Zooming Ratio 1:6.5
Magnification 19×-120×, Visual Field 6.8×8.9-1.0×1.3mm
Objective 0.5X/0.75X/1X/1.5X/2X , Working Distance 88mm
Base Light Built-in LED Base Illumination: 45pcs LED Bulbs 5W

MET-023M



5mp Digital Camera
Picture resolution 2560×1920, Video resolution 640×480
Sensor Size 1/2.5 Inches
LCD Screen 8 Inches TFT Screen, Resolution is 800 X 600
Video Output AV Output (NTSC/PAL)
Data Output USB2.0, Storage SD Card Slot
Objective Zoom Range 0.7×-4.5, Zooming Ratio 1:6.5
Magnification 19×-120×, Visual Field 6.8×8.9-1.0×1.3mm
Objective 0.5X/0.75X/1X/1.5X/2X , Working Distance 88mm
Base Light Built-in LED Base Illumination: 45pcs LED Bulbs 5W
X-Y Axis Moving Survey Range 30X30mm
Minimum Measuring Reading 0.001mm
Measurement Accuracy <7um
Longer stand and base: Using 0.5X objective lens



for more microscopes please visit www.metlabcorp.com

BIOLOGICAL MICROSCOPES

MET-0402*



MET-A0402 - Binocular Head

MET-T0402 - Trinocular Head

Compensation Free binocular head, 30° inclined, Interpupillary 48-75mm
 Trinocular head (Optional)
 Wide Field Eyepiece WF 10x/18
 Infinitive Semi-plan Achromatic Objectives 4X,10X,40X,100X
 Quadruple Nosepiece
 Double Layers Mechanical Stage 140mm×140mm/ 75mm×50mm
 Sliding-in condenser NA1.25
 Coaxial Coarse & Fine Adjustment, Moving Range 20mm
 6V/ 20W Halogen Lamp, Brightness Adjustable

MET-0802



MET-0802 - Trinocular Head

Compensation Free Trinocular Head, Inclined at 30°, Interpupillary 48-75mm
 Extra Wide Field Eyepiece EW10x/ 22
 Backward Quintuple Nosepiece
 Infinite Plane Achromatic Objective 4x,10x,40x,100x
 Swing-out Condenser NA 0.9/ 0.25
 Double Layers Mechanical Stage 185×142mm, moving range 75×55mm
 External Illumination, Aspherical Collector, Halogen Lamp6V/30W
 Blue and green filter

MET-0802MH



MET-0802MH

Infinite Optical System
 Compensation Free Trinocular Head, Inclined at 30°, 360° Rotatable,
 Interpupillary Distance 48-75mm
 Compensation Free Binocular Head, Inclined at 30°, 360° Rotatable,
 Interpupillary Distance 48-75mm
 Extra Wide Field Eyepiece EW10x/ 20
 Inverse Quintuple Nosepiece
 Infinite Plan Achromatic Objective 4x, 10x, 40x, 100x
 Swing Condenser N.A.0.9/ 0.25
 Coaxial Coarse & Fine Focus Adjustment, Fine Division 0.002mm
 Double Layers Mechanical Stage 185×142mm, Moving Range 75×55mm
 External Illumination, Halogen Lamp 12V/ 50W
 Green LED Pointer , Brightness Adjustable

for more microscopes please visit www.metlabcorp.com

DIGITAL CAMERAS

PART #	Resolution	Description	Price
C002-2CUB	Color 2.0 Megapixels 1600x1200	12 fps at 1600x1200	
C023-2CUB	Color 3.2 Megapixels 2048x1536	9 fps at 2048x1536	
C005-2CUB	Color 5.0 Megapixels 2592x1944	6 fps at 2592x1944	

Package Content Includes:

- High Quality USB 2.0 Cable
- Scope Image Software
- Compatible with Windows 2000/XP/Vista/7



MET-HD500



A revolutionary product in microscope area which combines of tablet PC and a digital camera, it can preview, take snaps, videos and save them, make measurements, wireless transmission, 3G internet surfing. Abundant images, videos and dates can be stored in the built-in 32G Hard Drive Disk. It has a C-mount connector which can be connected to any microscopes with microscope adaptors. It is an Ideal instrument of industrial optical inspection, teaching and scientific research.

Features:

1. Real 5.0 Megapixel color CMOS sensor designed for professional microscopes.
2. 10.1" high resolution LCD touch screen.
3. Professional measuring software.
4. Windows 7 operation system, powerful functions.
5. Built-in 32G disk drive, large storage capacity.
6. Can be attached to any microscopes with optional microscope adaptor (0.5x microscope adapter(Φ23mm), Φ30mm and Φ30.5mm connecting ring.)
7. Aluminum C-mount connection for microscopes, solid and reliable.



FOR MORE INFO GO TO WWW.METLABCORP.COM/SCOPES

MICRO HARDNESS TESTERS

MANUAL



- LCD displays
- Test load 10 25 50 100 200 300 500 1000 gf
- 10X & 40X Objective
- Auto- Turret

SEMI AUTOMATIC



- SAME AS MANUAL TESTER
- Digital stage micrometers
- 1.3 mono digital camera
- CMT Measurment software
- Adapter "C" mount TV
- High Performance computer

FULLY AUTOMATIC



- SAME AS SEMI TESTER
- Motorized stage 75X50mm travel
- Auto focus kit
- Joystick stage controller kit with X-Y-Z cables
- Self level vise with insert ring

MACRO HARDNESS TESTERS

MANUAL



- Loads***
- LCD displays
- 10X & 20X Objective
- Auto- Turret
- Digital 10X Eyepiece
- Auto Load, dwell & unload

SEMI AUTOMATIC



- SAME AS MANUAL TESTER
- Digital stage micrometers
- 1.3 mono digital camera
- CMT Measurment software
- Adapter "C" mount TV
- 25x25mm stage
- High Performance computer

***Loads (Selected Models)

MODEL # MAHT-10 Kgf = 0.3, 0.5, 1, 2, 2.5, 3, 5, 10
 MODEL # MAHT-30 Kgf = 0.5, 1, 2, 3, 5, 10, 20, 30
 MODEL # MAHT-50 Kgf = 1, 2, 3, 5, 10, 20, 30, 50

RETROFITTING TESTER



We can retrofit your current hardness tester to use CMT measuring software, digital camera with computer

DIGITAL CAMERA

CL-13-213
 Mono 1.3mp Digital
 1280x1024



for more information please visit www.hardnesstesting.ca

ROCKWELL HARDNESS TESTERS

R150 - Digital Rockwell Hardness Tester



- Test Force 60, 100 & 150Kgf
- Digital LCD display
- Automatic Loading Control
- Throat Depth 165mm
- Converts to
HRA,HRB,HRC,HRF,HV,HK
HBW,HR15N,HR30N, HR45N,
HR15T,HR30T and HR45T
- Mini printer for data output
- Supports RS232 interface

RS150 - Digital Twin Rockwell Hardness Tester



- Test Force 3, 10, 15, 30 & 45 Kgf
- Digital LCD display
- Automatic Loading Control
- Throat Depth 160mm
- Converts to
HRA,HRB,HRC,HRF,HV,HK
HBW,HR15N,HR30N, HR45N,
HR15T,HR30T and HR45T
- Mini printer for data output
- Supports RS232 interface

28-40-20-01 Brinell Microscope



20x magnification consisting of 10x eyepieces and 2x objective lens provides sharp images of detent. Focusable eyepieces assures sharp focus on reticle. Cross line reticle measures up to 7mm in both X & Y in 0.1mm increments. Large knurled ring provides smooth, accurate focusing. Unique vertical illumination eliminates shadows. Focusable flashlight provides annular illumination uniformly highlighting the entire edge of any size indent. Two interchangeable base adapters are standard. 1.5" diameter for stability & 9/16" diameter for fillet weld inspection. Durable hardwood case with foam inserts to protect all components.

BRINELL HARDNESS TESTERS

HTB-3000C Digital Brinell Hardness Tester



- Test Force 62.5,100,125,
187.5,250,500,750,1000,
1500, 3000Kgf
- Testing range 8-650 HBW
- Digital LCD display
- 20X Mechanical Microscope
- Throat Depth 124mm
- Converts to HR, HV, HK
- Mini printer for data output
- Supports RS232 interface

HTB-3000D Digital Brinell Hardness Tester



- Test Force 62.5,100,125,
187.5,250,500,750,1000,
1500, 3000Kgf
- Testing range 8-650 HBW
- Digital LCD display
- 20X Mechanical Microscope
- Throat Depth 135mm
- Mini printer for data output
- Supports RS232 interface

for more information please visit www.hardnesstesting.ca

PORTABLE HARDNESS TESTERS

PRH-150 ROCKWELL TESTER



Testing Range:
20-88HRA, 20-100HRB, 20-70HRC
Scales:
HRA, HRB, HRC, HV, HB

PHB-3000 - BRINELL DUROMETER



Test Force: 3000kg
(500kg, 750kg, 1000kg, and
1500kg available)
Testing Range: 100-650HBW
Throat Depth: 100mm

PBD Series - BRINELL DUROMETER



Test Force: 1580kg
Tolerance of Test Force: <0.5%
Testing Range: 100-650HB
Casting, forging and steel raw materials

PWD SERIES - WEBSTER DUROMETER



Measuring Scope: 0~20HW
Indication Error: 0.5HW(5~17HW)
Repeatability Error: 0.5HW(5~17HW)
Different Models for Hardness Ranges

PLT-1000A - LEEB HARDNESS TESTER



Testing Range: 200-900 HL (Leeb Value)
Scales: HL, HV, HB, HRB, HRC, HSD
Testing Direction: Any Direction
UTS: Kgf/cm², Tons/in², Lbs/in² (PLT-2000A)

PSD-100 - DIGITAL SHORE DUROMETER



Test Scale: Shore Hardness
Measurement Deviation: <1%H
Parameters: Hardness result, average
value, maxes. value
Different Models for Measurement Ranges

for more information please visit www.hardnesstesting.ca

ROCKWELL DIAMOND INDENTERS

NIST Traceable

	Part #	Order Description	Price
STANDARD DIAMOND INDENTERS			
ASTM E18-08B Rockwell Diamond Indenter	DI-C	Standard C Scale	
	DI-N	Standard N Scale	
	DI-A	Standard A Scale	
	DI-CN	Combination C & N Scale	
NEWAGE® VERSITRON & INDENTRON DIAMOND INDENTERS			
ASTM E18-08B Rockwell Diamond Indenter	DI-C-V	Standard C Scale - Versitron	
	DI-N-V	Standard N Scale - Versitron	
	DI-C-VT	C Scale - Taper Versitron	
	DI-N-VT	N Scale - Taper Versitron	
	DI-C-I	Standard C Scale - Indentron	
	DI-N-I	Standard N Scale - Indentron	
	DI-A-I	Standard A(Carbide) - Indentron	
	DI-CN-I	C & N Combination - Indentron	
PORTABLE HARDNESS TESTERS - DIAMOND INDENTERS			
ASTM E18-08B Rockwell Diamond Indenter	PDI-C-W	C Scale - Portable Wilson	
	PDI-C-CAR	C Scale - Portable Clark, ATS	
	PDI-C-A	C Scale - Portable Ames	

Other indenters are available upon request

Calibration Certificates are supplied with all diamond indentors



BALL PENETRATORS & CARBIDE BALLS

	Part #	Order Description	Price
ROCKWELL CARBIDE BALL PENETRATORS (CLASS B)			
ASTM E18 - Compliant to the lastest ASTM E18 Revision which includes required Long Form Certification.	CRBP-16	1/16" Penetrator with Ball	
	CRBP-8	1/8" Penetrator with Ball	
	CRBP-4	1/4" Penetrator with Ball	
	CRBP-2	1/2" Penetrator with Ball	
ROCKWELL CARBIDE BALLS (CLASS B)			
ASTM E18 - Compliant to the lastest ASTM E18 Revision which includes required Long Form Certification.	CRB-16	1/16" Carbide Ball	
	CRB-8	1/8" Carbide Ball	
	CRB-4	1/4" Carbide Ball	
	CRB-2	1/2" Carbide Ball	
BRINELL CARBIDE BALLS (CLASS B)			
ASTM E18 - Compliant	CRB-10	10mm Carbide Ball	
	CRB-25	2.5mm Carbide Ball	

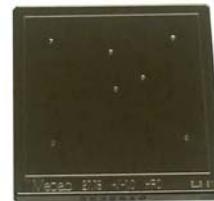
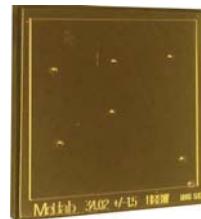


ROCKWELL TEST BLOCKS

NIST Traceable

please allow +/- 3 on range

Scale	Range	Part #	Order Description	Price
STANDARD TEST BLOCKS				
"A" Scale	20-80	HRA	A Scale (specify range)	
"B" Scale	1-99	HRB	B Scale (specify range)	
"C" Scale	10-68	HRC	C Scale (specify range)	
"D" Scale	40-73	HRD	D Scale (specify range)	
"E" Scale	14-96	HRE	E Scale (specify range)	
"F" Scale	18-85	HRF	F Scale (specify range)	
"G" Scale	10-66	HRG	G Scale (specify range)	
SUPERFICIAL TEST BLOCKS				
"15N" Scale	69-93	15N	15N Scale (specify range)	
"15T" Scale	69-93	15T	15T Scale (specify range)	
"30N" Scale	41-84	30N	30N Scale (specify range)	
"30T" Scale	20-82	30T	30T Scale (specify range)	
"45N" Scale	19-75	45N	45N Scale (specify range)	
"45T" Scale	9-72	45T	45T Scale (specify range)	



Special test blocks are available upon request

BRINELL TEST BLOCKS

NIST Traceable

please allow +/- 5 on range

Load	Range	Part #	Order Description	Price
3000 kg	80-500	HB3000	3000 kg Load (specify range)	
2500 kg	80-500	HB2500	2500 kg Load (specify range)	
2000 kg	80-500	HB2000	2000 kg Load (specify range)	
1500 kg	80-500	HB1500	1500 kg Load (specify range)	
1000 kg	50-195	HB1000	1000 kg Load (specify range)	
750 kg	50-195	HB750	750 kg Load (specify range)	
500 kg	60-140	HB500	500 kg Load (specify range)	
250 kg	60-140	HB250	250 kg Load (specify range)	
187.5 kg	60-500	HB187	187.5 kg Load (specify range)	

**MICROHARDNESS TEST BLOCKS**

NIST Traceable

Type	Range	Part #	Order Description	Price
Knoop	70-800	KTB	10-1000g (specify load & range)	
Vickers	55-750	VTB	10-1000g (specify load & range)	
Vickers HL	80-1700	VTB-HL	2-50kg (specify load & range)	
Dual V & K		DVK	10-1000g (specify load & range)	



IMAGE ANALYSIS SOFTWARE

Scope Image



Scope Image is image-processing software professionally designed for digital microscope. It allows you to view, capture, edit, record, zoom, measure, and process microscope images. Included with most of our digital cameras.

Captiva



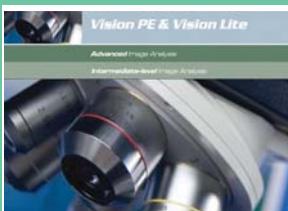
Clemex Captiva is the tool for you. Clemex Captiva software allows users to capture multiple images automatically, to make non-destructive direct measures and annotations, and save or share images and results with colleagues. Intelligent software dedicated to scientific imaging Clemex Captiva fills a need in quantitative microscopy with its intelligent capture and measurement features. Clemex Captiva is ready to use out of the box, and is an entry-level, upgradeable software, that is the gateway to a wide range of Clemex image analysis products.

Vision Lite



Clemex Vision Lite is a flexible yet affordable software solution that enables you to acquire, measure and even analyze your images using optional application packages. From basic image acquisition, to adding non-destructive annotations, to performing manual and automated measures, Clemex Vision Lite is the right choice if you do not require advanced toolsets for developing complex image analysis routines.

Vision PE



Clemex Vision PE, is available as a stand-alone solution or part of a turnkey image analysis system including all necessary hardware components. From measuring grain size to counting particles, Clemex Vision is an intuitive software program that empowers you to easily develop custom image analysis macros without writing a single line of code!

CMT.HD



When a hardness testing solution that produces reliable, accurate and repeatable test results is needed, choose from the Clemex CMT.HD line of macro and micro (single or dual) hardness testing solutions. Field proven systems, they offer unparalleled capabilities and are fully ASTM E-384 and DIN/ISO 6507 compliant.

DIGITAL CAMERAS

PART #	Resolution	Description	
CL-13-213	Mono 1.3 Megapixels 1280x1024	30 FPS at 640x480 res	
CL-13-334	Color 1.3 Megapixels 1280x1024	30 FPS at 640x480 res	
CL-13-219	Color 3.0 Megapixels 2048x1536	20 FPS at 1024x768 res	
CL-13-224	Color 5.0 Megapixels 2592x1944	25 FPS at 800x600 res	

for more information please visit www.imageanalysis.ca

PRECISION CUT-OFF MACHINES

METCUT - 5



16 10

METCUT-5 (LOW SPEED PRECISION CUTTER)

Used for cutting small cylindrical, rectangular metal body or electronic circuit board materials. This machine uses weight block load constant cutting force automatic cutting, after cutting it will stop automatically. Using micrometer device, sample cutting thickness can be adjusted, achieving the precision cutting, so it can be used as transmission electronic microscopy supporting sample preparation equipment. With variable speed from 0-800rpm. 110V, 1 phase, 50/60 Hz.

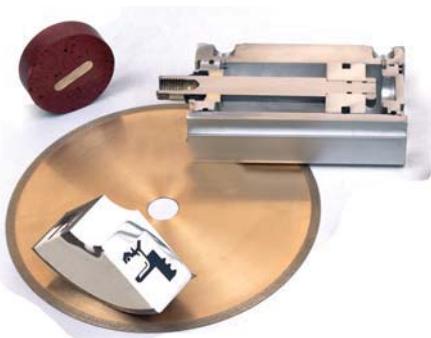
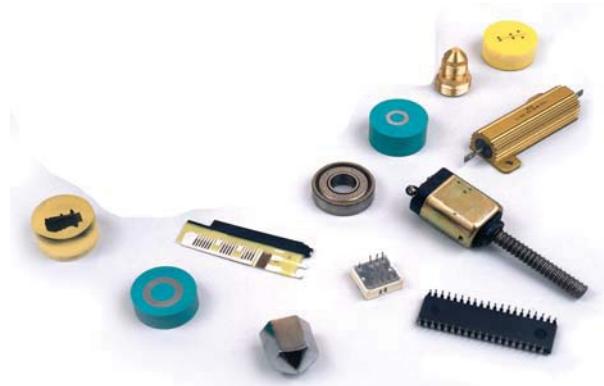
METCUT-8



50 08

METCUT-8 (HIGH SPEED PRECISION CUTTER)

Automatic "Y" axis , Joystick controlled "X" and "Z" axis, Cutting capacity up to 50mm Wheel size up to 8", Arbor size 1-1/4" (32mm), Safety hood lock, Large T-Slot table 250mm x 200mm, Variable speed 100-5000 rpm, Recirculating unit built in, -1 Hp motor Large touch screen, Pulse cutting, 110V, 1 phase, 60Hz.



ABRASIVE CUT-OFF MACHINES

METCUT-10



50 02

METCUT - 10 (Manual)

Abrasive cutting machines offer an economical solution to your metallographic sample preparation needs. With features including Fluorescent led light, Left and Right cam vises, Reinforced FRP hood, Overload protection, Amp meter, Electric safety lock on hood, Electric motor brake, Side opening for large specimens, Large shatter proof viewing window and start button with safety key. Use 13 gallon cooling unit, and up to 10" diameter wheel. 220V, 3 Phase, 50/60 Hz.

METCUT-12



50 03

METCUT-12

(Manual Abrasive Cut-Off Machine with Manual Y-Axis)

Abrasive cutting machines offer an economical solution to your metallographic sample preparation needs. With features including 5HP Motor, Cutting Capacity up to 150mm, Spindle Speed 2800 rpm, Cut-Off Wheels up to 12" with 1.25" Wheel Arbor, Reinforced "FRP" Hood, LED Light, Over Load Protection, Extra Large Twin T-Slotted Clamping Table 12" x 10.5", Electronic Hood Safety Lock, Cabinet Included, Motor Brake, Side Opening for Large Samples, Y Movement up to 450mm Travel, Epoxy Coated Chamber for Easy Clean Up, 26 Gal. Re-Circulating Tank 220V 3 Phase 60hz

METCUT-12A



50 04

METCUT-12A

(Automatic Y-Axis with pulse cutting Cut-Off Machine with Manual Z-Axis)

Abrasive cutting machines offer an economical solution to your metallographic sample preparation needs. With features including 5HP Motor, Cutting Capacity up to 150mm, Spindle Speed 2800 rpm, Cut-Off Wheels up to 12" with 1.25" Wheel Arbor, Reinforced "FRP" Hood, LED Light, Over Load Protection, Extra Large Twin T-Slotted Clamping Table 12" x 10.5", Electronic Hood Safety Lock, Cabinet Included, Motor Brake, Side Opening for Large Samples, Automatic "Y" Movement with pulse cutting, up to 450mm Travel, Epoxy Coated Chamber for Easy Clean Up, 26 Gal. Re-Circulating Tank 220V 3 Phase 60hz

METCUT-14



50 06

METCUT-14

(Manual Abrasive Cut-off Machine with Manual Y & Z Axis)

7.5HP Motor, 14" Abrasive wheels, Cutting Capacity up to 5",-Spindle Speed 2880 rpm Cut-Off Wheels up to 14" with 1.25" Arbor, Extra Large Viewing Window,LED light Extra Large Twin T-Slotted Clamping Table 17.5" x 13.75",Electronic Hood Safety Lock Cabinet Included, Motor Brake, 120 Liter re-circulation tank Included 220V, 3-Phase, 60Hz.

METCUT-20A



50 05

METCUT-20A (AUTOMATIC ABRASIVE CUT-OFF SAW)

Sturdy Floor Model cutting for sectioning for Metallographic Samples, Heavy Duty Rust Proof Steel Construction, -Two Way Sliding Door System – Large envelop to place bigger components, Cutting Capacity up to 180 mm dia Corrosion Resistant Cutting Chamber,15 HP (11 Kw), 440v, 3 Phase Ac Motor Variable Spindle speed 1000 -3000 rpm, Ergonomic Manual Cutting Hand Wheel Movement(Z Movement), cutting action automatic - 'Y' Movement Large Graphical Display with Touch Screen PLC System,LED illumination,Screw Vice Set T Slot Bed: 500mm x 500mm with 12mm T-Slot,Door interlock System Manual "X" Movement, Fume digester, 440V, 3 Phase, 50Hz.

HOT MOUNTING

METPRESS A



25 01

METPRESS A METPRESS, AUTOMATIC MOUNTING PRESS

- Electro Hydraulic Pressure (No Air Line Required)
- LCD Display with User Friendly Touch Screen Control
- Pressure Up To 350 BAR
- Temperature Up To 200° C
- Robust Slide Closer
- Corrosion Resistant Steel Construction
- Heating Power of 1000W
- 110V, 1 Phase 50/60Hz

METPRESS A2



25 09

METPRESS A 2 DOUBLE AUTOMATIC MOUNTING PRESS

- Electro Hydraulic Pressure (No Air Line Required)
- LCD Display with User Friendly Touch Screen Control
- Pressure Up To 350 BAR
- Temperature Up To 200° C
- Robust Slide Closer
- Corrosion Resistant Steel Construction
- Heating Power of 1300W
- 220V, 1 Phase 50/60Hz

VACUUM IMPREGNATION

METVAC



25 06

METVAC VACUUM IMPREGNATION SYSTEMS

Offers a high quality alternative to more expensive systems. Domed cap with external vacuum system. Holds up to 8 mounts. 110V, 1 phase.

GRINDING / POLISHING

EQUIPMENT

METPOL 2V



37 02

METPOL 2V

Dual wheel series of grinding/ polishing machines offer an economical solutions to your metallographic sample preparation needs. METPOL series of instruments are available in 8"(200mm) / 10" (250mm) / 12" (300mm) wheel sizes and come with both single or double wheel versions with variable rotating wheel speed of 50-600 RPM. Detachable water sprayer for easy cleaning. A feather touch digital control panel as well as a fully molded FRP body with easy disc change design. 110V, 1 phase, 50/60 Hz.

METPOL 300-1V



37 03

METPOL 300-1V

Single wheel grinding/ polishing machines offers an economical solutions to your metallographic sample preparation needs. In 12"(300mm) wheel size and comes with single wheel version with variable rotating wheel speed of 50-600 RPM. Detachable water sprayer for easy cleaning. A feather touch digital control panel as well as a fully molded FRP body with easy disc change design. 110V, 1 phase, 50/60 Hz.

METPOL - A



37 03-A

METPOL-A

Single wheel Automatic grinder / polisher machine offering an economical solution to your metallographic sample preparation needs with variable speeds from 50-600rpm. Along with our large HMI user friendly touch screen and robust metal construction. The auto head allows storage up to 50 programs, and rotates clockwise and counter clockwise. METPOL-A can also be used in manual mode. Optional automatic doser as shown in pic.



PETROGRAPHY

METCUT-10 GEO



50 07

METCUT-10 GEO Precision thin sectioning machine for petrography

- Cutting and Grinding up to 30 microns or less
- Diamond Wheels from 10"
- Cup grinding wheels from 10"
- Complete with Vacuum pump and chuck
- Built in micrometer
- 2 HP Motor
- 110V 1 Phase 60Hz

SPECTROSCOPY

MET-SPECTRA



80 08

MET-SPECTRA

Single disc spectro grinder offering an economical solution to your spectrographic grinding needs used for Flat Coarse Grinding of Iron & Steel Spectrographic Samples, 14" Vacuum Grinding Disc, Variable Speed From 100-3000 RPM, 1 HP Motor, Built-In Vacuum Suction System & Hood Safety Lock, 220V, 3 Phase, 60Hz.

BELT GRINDERS

METS4S



METS4S

Dry Belt Grinder Sander All-purpose- for wood, metal and plastics
1/2 HP , 1 phase.
Vertical or horizontal position.
3450 RPM
4" x 36" belt with full OSHA guard
50 lbs

METS4SWB



METS4SWB

WET/DRY Metallurgical Benchtop Belt Sander
4" x 36" wet benchtop belt sander
4" wide x 6" long platen/work area
1/2 hp, 110 vac, TEFC motor
self contained coolant tank & pump
Quick belt change, Pre-set belt tension
Dimensions: L20" x W 20" x H 12"

HAND OPERATED CHARPY

CNB-35



The CNB-35 Hand Operated Charpy Notch Broaching Machine is designed for test houses and laboratories, which are producing small batches of test pieces in carbon steels, easily machined low alloy steels, non-ferrous and plastic materials.

The machine is of robust construction designed to be mounted on a customers bench.

This hand Charpy machine will cut Charpy and Izod 'V' and 'U' notches in pre-machined standard 10mm square, sub-size and 0.45" diameter specimens. Hand operation makes it ideal for small batch quantities.

The CNB-35 Hand Operated Charpy Notch Broaching Machine is designed for test houses and laboratories, which are producing small batches of test pieces in carbon steels, easily machined low alloy steels, non-ferrous and plastic materials.

The machine is of robust construction designed to be mounted on a customers bench.



The broach is mounted in a square section rack and secured at the top & bottom by clamps. Adjusting screws built into the machine body are set to obtain the correct depth of notch and its position along the specimen.



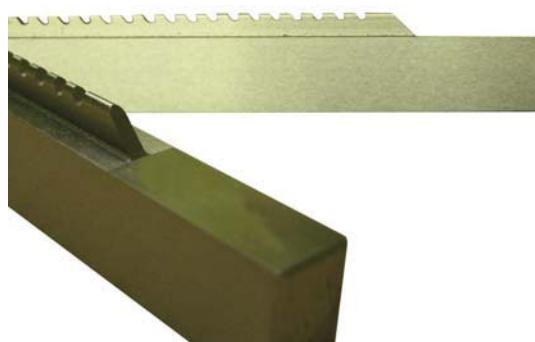
V Notch Sample



U Notch Sample



V Notch Broach



U Notch Broach

CHARPY / IZOD NOTCHING BROACHES

Catalog#	Notch Form	Depth	Radius	Cutting Rc	Price
NBT-V1	V	2 mm	.25 mm	42	
NBT-V1-TC	V	2 mm	.25 mm	50 Titanium Nitride Coated	
NBT-V1-HC	V	2 mm	.25 mm	53 Special Proprietary Coating	
NBT-U1	U	2 mm	1 mm	42	
NBT-U2	U	3 mm	1 mm	35	
NBT-U3	U	5 mm	1 mm	25	

RE-WORKING BROACHES

NBT-V1-SP	Re-sharpening of V Notch Broaches
NBT-TC	Tin Coating for Non Tin Coated Broach
NBT-SP-TC	Re-Sharpening & Re-Tin coat broach
NBT-SP-HC	Re-Sharpening & Re-Hard coat broach



NOTCH DEPTH CALIPER GAUGES

Catalog#	Description	Price
CNB26-012A3	2mm 'V' notch to ASTM A370-E23 (8mm +/- 0.025)	
CNB26-003A3	2mm 'V' notch to BS131-1:1961 Ferrous (8mm +/- 0.10)	
CNB26-017A3	2mm 'V' notch to EN 10 045-1:1990 (8mm +/- 0.06)	
CNB26-026A3	2mm 'V' notch to BS EN ISO 148-1:2010 (8mm +/- 0.075)	
CNB26-016A3	2mm 'U' notch to BS EN ISO 148-1:2010 (8mm +/- 0.11)	
CNB26-015A3	3mm 'U' notch to BS EN ISO 148-1:2010 (7mm +/- 0.11)	
CNB26-018A3	5mm 'U' notch to BS EN ISO 148-1:2010 (5mm +/- 0.09)	



Notch Gauge



Use of Gauge



Specimen Gauge

SPECIMEN SIZE CALIPER GAUGES

Catalog#	Description	Price
CNM-199A3	10mm specimen to ASTM A370-E23 (10mm +/- 0.075)	
CNM-200A3	7.5mm specimen to ASTM A370-E23 (7.5mm +/- 0.075)	
CNM-201A3	6.7mm specimen to ASTM A370-E23 (6.7mm +/- 0.067)	
CNM-202A3	5mm specimen to ASTM A370-E23 (5mm +/- 0.05)	
CNM-210A3	3.3mm specimen to ASTM A370-E23 (3.3mm +/- 0.033)	
CNM-211A3	2.5mm specimen to ASTM A370-E23 (2.5mm +/- 0.025)	

MOTORISED CHARPY



Blacks motorized broaching machine is a self-contained floor mounted unit, specially designed for cutting Charpy and Izod 'V' and 'U' notches in pre-machined standard 10mm square, sub-size and 0.45" diameter specimens.

This machine is simple to operate and of robust construction, with large removable panels to provide access for routine maintenance. The design of the machine provides a comfortable working height.

The cutting operation is achieved by drawing a specially designed multi-toothed broach across the specimen. The broach is drawn into the machine by precision twin lead screws via a geared mechanism to ensure the broach cuts perpendicular to the specimen clamp, limit switches are fitted for end of stroke travel. The lead screws are matched with the travel nut to ensure minimum-operating clearances, while spring loaded safety guards ensure swarf and debris cannot enter into the lead screws and nuts.

Guards:

The machine guards totally enclose the drive motor and operating mechanism. A broach guard is fitted to comply with safety regulations; limit switches prevent motor operation when the guards are open.



The sample is secured in the machine by the clamp. A light coating of cutting oil (RTD recommended) is applied to the broach and the lower push-button/switch is operated which draws the broach through the specimen to produce an accurate notch profile. After the notch has been cut, the sample is removed, the broach raise push-button/switch operated, which raises the broach and the broach teeth

MOTORISED CHARPY

CNB-31

FIXED SPEED

CNB-33

VARIABLE SPEED



CNB-31 FIXED SPEED MOTORISED CHARPY NOTCH MACHINE

Notches can be cut in carbon steels, easily machined low alloy steels, non-ferrous and plastic materials.

Fixed Speed Drive:

Once the notch depth has been set and the specimen clamped in position, the machine operation is activated via lower and raise push- buttons. An additional stop button is fitted for emergency use.

The machine operation is controlled by the lower and raise push- buttons, which forward and reverse the machine motor, resulting in the broach cutting and return strokes being at a fixed speed. The motor has thermal overload protection to protect the drive mechanism.



CNB-33 VARIABLE SPEED MOTORISED CHARPY NOTCH MACHINE

The variable speed control allows adjustment of the broach cutting speed, so more difficult materials can be broached and to give extended broach life between sharpening.

Notches can be cut in carbon steels, more difficult to machine alloy steels, stainless steels, non-ferrous and plastic materials. The variable speed drive and our hard cut broaches allow a wider range of materials to be cut, including stainless steel or more difficult to machine alloy steels.

Variable Speed Drive:

Once the notch depth has been set and the specimen clamped in position, the machine operation is activated via a lower and raise switch. A graduated knob controls the speed the broach cuts and the broach return speed is factory set at a constant fast speed. A stop button is fitted for emergency use.

The motor is controlled via a variable speed, frequency converter thyristor drive and the pre-programmed P.L.C. ensures motor overload does not occur to protect the drive mechanism.

CHARPY

SPECIMEN MILLING MACHINES



The Blacks CNM range of machines have been specially designed to allow laboratories and test houses to produce their own standard and sub-size Charpy / Izod test pieces ready for cutting the appropriate notch.

Two variations of the Charpy Specimen Milling Machine (CNM) are available to cover a wide range of materials.

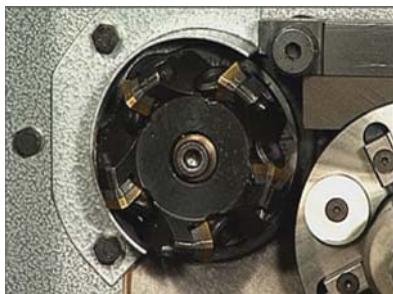


Work Holding Fixture:

The circular fixture allows up to four specimens to be machined during the same operation.

Various clamps, anvils and clamping screws are available to suit the type of rough cut blanks being used.

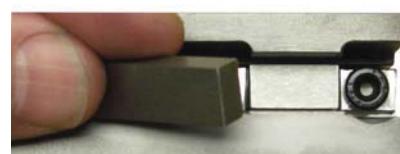
One circular fixture is included with each machine. For maximum machine production a 2nd fixture (optional extra) is recommended, so that whilst the 1st fixture is being machined, the 2nd fixture can have its samples loaded.



Cutter:

The cutter is fitted with five ISO carbide inserts, which are easily replaceable.

A micro adjuster allows for accurate control of specimen size and allows for compensation of cutter tip wear.



Sub size Fixture

SPECIMEN MILLING MACHINES

CSM-1	FIXED SPEED
CSM-1V	VARIABLE SPEED
CSM-RF	ROTATING WORK-HOLDING FIXTURE (ONE SUPPLIED WITH CSM-1) - TWO FIXTURES ARE NECESSARY TO ACHIEVE MAXIMUM PRODUCTION RATE
CSM-SRF	SUB-SIZE ROTATING WORK-HOLDING FIXTURE TO PRODUCE 5MM & 7.5 MM SAMPLES
CSM-CT	CARBIDE CUTTER TIPS 5 ARE REQUIRED TO COMPLETELY REPLACE WORN TIPS ON CUTETR 10/PKG



CSM-1 FIXED SPEED CHARPY SPECIMEN MILLING MACHINE

The Fixed Speed Machine is recommended for customers who are producing specimens in carbon steels, easily machined low alloy steels, non-ferrous and plastic materials. This machine has a fixed cutter speed of 1.98 m/sec and a variable feed rate for the samples of 2.5-9.0 mm/sec.

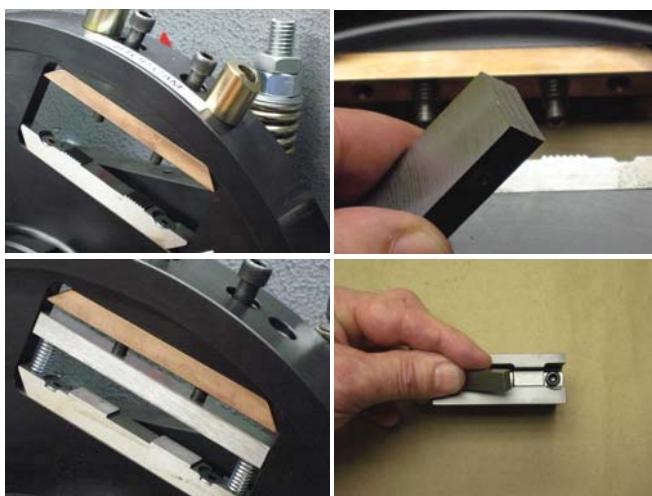
For customers producing specimens in a wider range of materials, see the CSM-1V with variable cutter speed



CSM-1V: VARIABLE SPEED SPECIMEN MILLING MACHINE

The Variable Speed Machine is recommended for customers who are producing specimens in carbon steels, more difficult to machine alloy steels, stainless steels, non-ferrous and plastic materials. This machine has a variable cutter speed of 1.0-2.5 m/sec and a variable feed rate for the samples of 2.2-9.0 mm/sec.

The varying of the cutter speed for differing materials improves the cutter tip life.



Fixture:

The rotating work holding fixture is fitted with clamps, anvils and clamping screws to suit the type of blank being used, i.e. rough sawn square/rectangular, round or tubular section and the size of specimen to be produced, i.e. 10mm square or sub-size

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