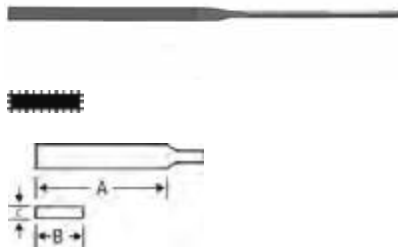




## 2-300

## HAND

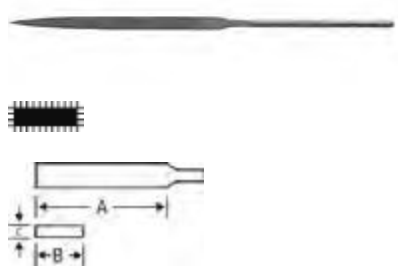


- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Edges and surfaces parallel
- Surfaces double cut, edges single cut
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth, 4 = Dead smooth

	 731151		A mm	B mm	C mm	 T/cm		 g	
	2-300-14-0-0	8044138	10	140	5.0	1.3	22	0	6
	2-300-14-2-0	8044145	10	140	5.0	1.3	34	2	6
	2-300-14-4-0	8108786	10	140	5.0	1.3	48	4	6
	2-300-16-0-0	8020491	10	160	5.6	1.4	22	0	9
	2-300-16-1-0	8020507	10	160	5.6	1.4	26	1	9
	2-300-16-2-0	8020514	10	160	5.6	1.4	34	2	9
	2-300-16-4-0	8020521	10	160	5.6	1.4	48	4	9
	2-300-18-0-0	8190545	10	180	6.2	1.6	22	0	13
	2-300-18-2-0	8190552	10	180	6.2	1.6	34	2	13

## 2-301

## FLAT



- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Surfaces parallel, edges taper to a point
- Surfaces double cut, edges single cut
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth

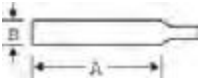
	 731151		A mm	B mm	C mm	 T/cm		 g	
	2-301-14-0-0	8190569	10	140	5.0	1.3	22	0	6
	2-301-14-2-0	8108748	10	140	5.0	1.3	34	2	6
	2-301-16-0-0	8108755	10	160	5.6	1.4	22	0	8
	2-301-16-1-0	8020538	10	160	5.6	1.4	26	1	8
	2-301-16-2-0	8020545	10	160	5.6	1.4	34	2	8



# NEEDLE FILES

## 2-302

### THREE SQUARE

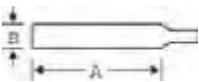


- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Triangular, surfaces taper to a point
- Surfaces double cut
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth, 4 = Dead smooth

	 731151		A mm	B mm	 T/cm			
	2-302-14-0-0	8044152	10	140	3.3	22	0	6
	2-302-14-2-0	8044169	10	140	3.3	34	2	6
	2-302-14-4-0	8108793	10	140	3.3	48	4	6
	2-302-16-0-0	8108762	10	160	3.8	22	0	9
	2-302-16-1-0	8020552	10	160	3.8	26	1	9
	2-302-16-2-0	8020569	10	160	3.8	34	2	9
	2-302-16-4-0	8108809	10	160	3.8	48	4	9
	2-302-18-0-0	8190613	10	180	4.3	22	0	13
	2-302-18-2-0	8190620	10	180	4.3	34	2	13

## 2-303

### SQUARE



- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Square, surfaces taper to a point
- Surfaces double cut
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth, 4 = Dead smooth

	 731151		A mm	B mm	 T/cm			
	2-303-14-2-0	8044176	10	140	2.4	34	2	6
	2-303-16-0-0	8108779	10	160	2.4	22	0	7
	2-303-16-1-0	8020576	10	160	2.4	26	1	7
	2-303-16-2-0	8020583	10	160	2.4	34	2	7
	2-303-16-4-0	8108830	10	160	2.4	48	4	7
	2-303-18-0-0	8190644	10	180	2.8	22	0	9
	2-303-18-2-0	8190668	10	180	2.8	34	2	9



## 2-304

### HALF ROUND

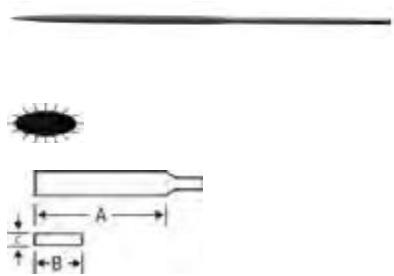


- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Surfaces taper to a point, flat and convex surfaces double cut
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth, 4 = Dead smooth

	 731151		A mm	B mm	C mm	 T/cm		 g
2-304-14-0-0	8044183	10	140	5.0	1.8	22	0	8
2-304-14-2-0	8044190	10	140	5.0	1.8	34	2	8
2-304-14-4-0	8108878	10	140	5.0	1.8	48	4	8
2-304-16-0-0	8020590	10	160	5.8	1.8	22	0	9
2-304-16-1-0	8020606	10	160	5.8	1.8	26	1	9
2-304-16-2-0	8020613	10	160	5.8	1.8	34	2	9
2-304-16-4-0	8020620	10	160	5.8	1.8	48	4	9
2-304-18-0-0	8190712	10	180	6.2	2.1	22	0	13
2-304-18-2-0	8190736	10	180	6.2	2.1	34	2	13

## 2-305

### OVAL

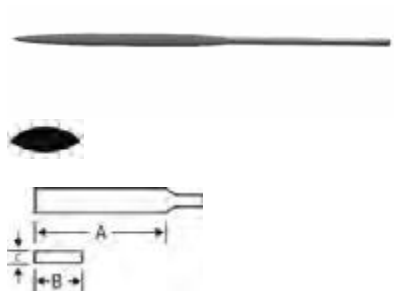


- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Oval, surfaces taper to a point
- Double cut
- Type of cut: 1 = Second, 2 = Smooth

	 731151		A mm	B mm	C mm	 T/cm		 g
2-305-16-1-0	8020637	10	160	3.9	2.7	26	1	9
2-305-16-2-0	8108908	10	160	3.9	2.7	34	2	9

## 2-306

### CROSSING



- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Two convex surfaces of different radii, tapering to a point
- Surfaces double cut
- Type of cut: 1 = Second, 2 = Smooth

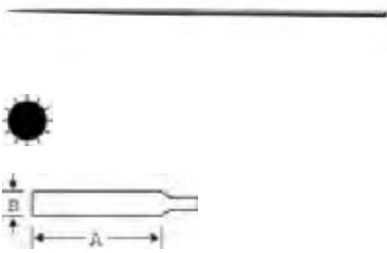
	 731151		A mm	B mm	C mm	 T/cm		 g
2-306-16-1-0	8020644	10	160	4.9	2.2	26	1	7
2-306-16-2-0	8108854	10	160	4.9	2.2	34	2	7



## NEEDLE FILES

### 2-307

### ROUND

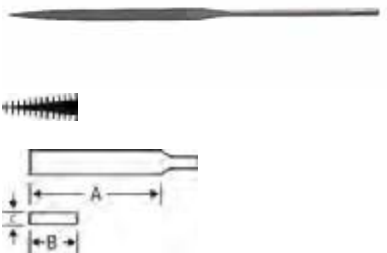


- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Round
- Surfaces taper to a point, double cut
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth, 4 = Dead smooth

	 731151		A mm	B mm	 T/cm		 g
	8044206	10	140	2.8	22	0	5
	8044213	10	140	2.8	34	2	5
	8108885	10	140	2.8	48	4	5
	8020651	10	160	3.0	22	0	7
	8020668	10	160	3.0	26	1	7
	8020675	10	160	3.0	34	2	7
	8020682	10	160	3.0	48	4	7
	8190965	10	180	3.3	22	0	13
	8190972	10	180	3.3	34	2	13

### 2-308

### KNIFE

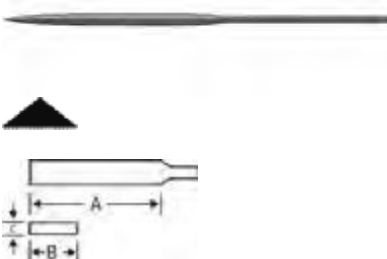


- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Conical, edges and surfaces taper to a point
- Flat, uncut back
- Surfaces double cut, thin edge single cut
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth

	 731151		A mm	B mm	C mm	 T/cm		 g
	8044220	10	140	5.3	1.6	34	2	6
	8108861	10	160	5.3	1.7	22	0	8
	8020699	10	160	5.3	1.7	26	1	8
	8020705	10	160	5.3	1.7	34	2	8

### 2-309

### BARRETTE



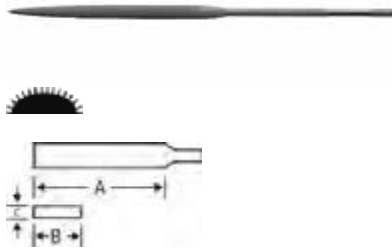
- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Triangular, one surface extra wide
- Surfaces and edges taper to a point
- Wider surface double cut, edges and narrower surfaces uncut
- Type of cut: 2 = Smooth, 4 = Dead smooth

	 731151		A mm	B mm	C mm	 T/cm		 g
	8108946	10	160	5.0	1.9	34	2	10
	8191054	10	160	5.0	1.9	48	4	10



## 2-313

## MARKING



- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Shape: Conventional half round needle file
- Surface tapers to a point
- Double cut on radius with uncut flat side
- Type of cut: 0 = Bastard

	 731151		A mm	B mm	C mm	 T/cm		 g
2-313-16-0-0	8191177	10	160	5.8	1.8	22	0	10

## 2-470

## NEEDLE FILE SETS



- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Set of 6 files in snap-shut plastic wallet with hanging hole
- Contains one file each of: hand, flat, half round, round, three square and square
- Includes one handle 9-488-02-10
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth, 4 = Dead smooth

	 731151		 mm	 T/cm		 g
2-470-14-0-0	8191191	1	140	22	0	60
2-470-14-2-0	8109080	1	140	34	2	60
2-470-14-4-0	8191207	1	140	48	4	60
2-470-16-1-0	8010942	10	160	26	1	70
2-470-16-2-0	8109097	10	160	34	2	70

2-470-14-0-0

9-488-02-10; 2-304-14-0-0; 2-300-14-0-0; 2-303-14-0-0; 2-302-14-0-0; 2-301-14-0-0; 2-307-14-0-0



2-470-14-2-0

9-488-02-10; 2-304-14-2-0; 2-300-14-2-0; 2-303-14-2-0; 2-302-14-2-0; 2-301-14-2-0; 2-307-14-2-0



2-470-14-4-0

9-488-04-10; 2-304-14-4-0; 2-300-14-4-0; 2-303-14-4-0; 2-302-14-4-0; 2-301-14-4-0; 2-307-14-4-0



2-470-16-1-0

9-488-04-10; 2-304-16-1-0; 2-300-16-1-0; 2-303-16-1-0; 2-302-16-1-0; 2-301-16-1-0; 2-307-16-1-0



2-470-16-2-0

9-488-04-10; 2-304-16-2-0; 2-300-16-2-0; 2-303-16-2-0; 2-302-16-2-0; 2-301-16-2-0; 2-307-16-2-0





# NEEDLE FILES

2-471

## NEEDLE FILE SETS




- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Set of 9 files in snap-shut plastic wallet with hanging hole
- Contains one file each of: hand, flat, half round, round, three square, square, oval, crossing and knife
- Includes one handle 9-488-02-10
- Type of cut: 1 = Second

	 731151		 mm	 T/cm		 9
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2-471-16-1-0	8010959	5	160	26	1	95
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2-471-16-1-0  
 9-488-02-10; 2-303-16-1-0; 2-304-16-1-0; 2-302-16-1-0; 2-300-16-1-0; 2-308-16-1-0;  
 2-301-16-1-0; 2-306-16-1-0; 2-305-16-1-0; 2-307-16-1-0



2-472

## NEEDLE FILE SETS



- For fine filing and polishing jobs
- Used by engravers, precision engineers, instrument makers, watchmakers and goldsmiths
- Set of 12 files in snap-shut plastic wallet with hanging hole
- Contains one file each of: hand, flat, three square, square, half round, crossing, round, knife, barrette, slitting, round-edge joint and marking
- Includes one handle 9-488-02-10
- Type of cut: 0 = Bastard, 1 = Second, 2 = Smooth

	 731151		 mm	 T/cm		 9
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2-472-14-0-0	8191214	5	140	22	0	90
2-472-14-2-0	8109103	5	140	34	2	90
2-472-16-0-0	8191238	5	160	22	0	120
2-472-16-1-0	8010966	5	160	26	1	120
2-472-16-2-0	8108922	5	160	34	2	120

2-472-14-0-0  
 2-312-14-0-0, 2-303, 2-300, 2-301, 2-311, 2-304, 2-302, 2-313, 2-307, 2-309, 2-306, 2-308

2-472-14-2-0  
 2-312-14-2-0, 2-303, 2-300, 2-301, 2-311, 2-304, 2-302, 2-313, 2-307, 2-309, 2-306, 2-308

2-472-16-0-0  
 2-312-16-0-0, 2-303, 2-300, 2-301, 2-311, 2-304, 2-302, 2-313, 2-307, 2-309, 2-306, 2-308

2-472-16-1-0  
 2-312-16-1-0, 2-303, 2-300, 2-301, 2-311, 2-304, 2-302, 2-313, 2-307, 2-309, 2-306, 2-308

2-472-16-2-0  
 2-312-16-2-0, 2-303, 2-300, 2-301, 2-311, 2-304, 2-302, 2-313, 2-307, 2-309, 2-306, 2-308





## 9-488-02

### NEEDLE FILE HANDLES



- Simple handle for all needle files
- One handle is included in each needle file set

	 731151		
9-488-02-10	8194772	10	5



## 2-300-D - 2-304-D

### DIAMOND NEEDLE FILES



- Used for finishing on material where the hardness makes conventional files ineffective
- Used by die and mould makers and special manufacturing applications on materials such as hardened steel, ceramics, glass, graphite, etc.
- Shape: The shapes are the same as for the corresponding conventional needle files
- The files are covered with diamond grit (D 126) and are supplied in individual plastic pouches
- Single pack

	 731151		 mm	
2-300-14-D-1P	8189105	1	140	6
2-300-16-D-1P	8189129	1	160	10
2-301-14-D-1P	8189136	1	140	6
2-301-16-D-1P	8189143	1	160	10
2-302-14-D-1P	8189150	1	140	6
2-302-16-D-1P	8189167	1	160	10
2-303-14-D-1P	8189174	1	140	6
2-303-16-D-1P	8189198	1	160	10
2-304-14-D-1P	8189204	1	140	6
2-304-16-D-1P	8189211	1	160	10

2-300-; 2-301-; 2-302-; 2-303-; 2-304-



## DIAMOND FILES

### 2-306-D - 2-308-D



### DIAMOND NEEDLE FILES

- Used for finishing on material where the hardness makes conventional files ineffective
- Used by die and mould makers and special manufacturing applications on materials such as hardened steel, ceramics, glass, graphite, etc.
- Shape: The shapes are the same as for the corresponding conventional needle files
- The files are covered with diamond grit (D 126) and are supplied in individual plastic pouches
- Single pack

	 731151		 mm	 g
2-306-14-D-1P	8189228	1	140	6
2-307-14-D-1P	8189235	1	140	6
2-307-16-D-1P	8189242	1	160	10
2-308-14-D-1P	8189259	1	140	6

2-306-; 2-307-; 2-308-

### 5-600-D - 5-670-D



### DIAMOND PRECISION FILES

- Used for heavy duty purposes where conventional files are ineffective
- Suitable for materials such as hard metals, hard plastics, graphite, epoxy, etc.
- Shape: Four different shapes, similar to conventional precision files
- Integrated handle for easy use
- The shaped section of the file (approx. 110 mm) is covered with diamond grit (D 126)
- The files are supplied in individual plastic pouches
- Single pack

	 731151		 mm	 g
5-600-21-D-1P	8189341	1	215	52
5-610-21-D-1P	8189358	1	215	54
5-630-21-D-1P	8189365	1	215	50
5-670-21-D-1P	8189389	1	215	63

5-600-21-D-1P ; 5-610-21-D-1P ; 5-630-21-D-1P ; 5-670-21-D-1P