


# 11. Tools

Hand tools. Cutters & broaches. Winders and bushing outfits. Cleaning machines. Safety equipment. Pliers and tweezers. Wheel & pinion cutters.


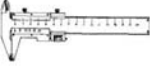
## EXTERNAL DRAPER MICROMETER

Price per unit

	<b>EXTERNAL DRAPER MICROMETER 0-25mm</b> Accurate micrometer for everyday use. Carbide tipped faces. 0.001mm graduations.	<b>0377 102515</b>	<b>1+</b>	<b>£ 15.98</b>
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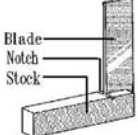
## VERNIER GAUGE

Price per unit

	<b>NYLON VERNIER GAUGE</b> An accurate vernier with easy-to-read dial measurement. Swiss made, in durable nylon. Accurate to 1/10th mm.	<b>0419 000115</b>	<b>1+</b>	<b>£ 18.35</b>
	<b>STAINLESS STEEL VERNIER</b> Reading to 0.001" and 1/50mm. Fine adjustment reading. Range 6" x 150mm.	<b>0419 000215</b>	<b>1+</b>	<b>£ 19.98</b>


## ENGINEERS SQUARE

Price per unit

	<b>ENGINEERS SQUARE</b> 4" square with solid steel stock.	<b>0921 000115</b>	<b>1+</b>	<b>£ 10.20</b>
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## MOVEMENT CLAMPS

Price per unit

	<b>MOVEMENT CLAMPS</b> Set of three robust clamps to support a movement while being dismantled.	<b>0416 000315</b>	<b>1+</b>	<b>£ 6.25</b>
			<b>2+</b>	<b>£ 5.00</b>


## AUTOMATIC CENTRE PUNCH

Price per unit





	<b>AUTOMATIC CENTRE PUNCH</b> Delivers a sharp blow to the required point when pressed down. Spring pressure is adjustable for different materials.	<b>0446 000115</b>	<b>1+</b>	<b>£ 4.98</b>
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## CIRCULAR GLASS CUTTER

Price per unit


	<b>CIRCULAR GLASS CUTTER</b> Cuts circles from 1 1/2" to 10" diameter. Spare cutting wheels in handle.	<b>0418 000115</b>	<b>1+</b>	<b>£ 12.60</b>
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## POCKET SCRIBER, STEEL TIP

<b>1</b> 	<b>2</b> 	<b>3</b> 	<b>Buy Online @ www.m-p.co.uk</b>	<b>Call Harvey 24 Hours</b>	<b>Call Harvey our Automated Sales line</b>	
<b>Price per unit</b>						
<b>1</b>	<b>POCKET SCRIBER, STEEL TIP</b> For marking watches and clocks after repairs and general scribing.	<b>0689 000115</b>	<b>1+</b>	<b>£ 3.24</b>		
<b>2</b>	<b>POCKET SCRIBER, DIAMOND TIP</b> For marking watches and clocks after repairs and general scribing.	<b>0689 000215</b>	<b>1+</b>	<b>£ 4.20</b>		
<b>3</b>	<b>METAL SCRIBER</b>	<b>0664 000115</b>	<b>1+</b>	<b>£ 6.14</b>		

## CENTRE FIXING NUT KEY


Price per unit

	<b>CENTRE FIXING NUT KEY</b> Adjustable key for centre fixing nuts on modern clocks. Suitable for slots.	<b>0435 000115</b>	<b>1+</b>	<b>£ 3.90</b>
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# 11. Tools


## BEAT AMPLIFIER

Price per unit

	<b>BEAT AMPLIFIER</b> A battery operated beat amplifier with both mechanical and quartz pickups. This will amplify the ticks to help you set a clock in beat, even in a crowded or noisy room. Uses 9v battery, supplied.	<b>0969 000115</b>	1+	£ 30.90
	<b>BEAT AMPLIFIER PICKUP</b> Replacement pickup for beat amplifier 0969 000115	<b>0969 000215</b>	1+	£ 13.40


## 400 DAY BEAT SET TOOL

Price per unit

	<b>400 DAY BEAT SET TOOL</b> For final adjustments to the beat without loosening the retainer. Highly recommended	<b>0595 040015</b>	1+	£ 12.80
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## PINVICE

Price per unit

	<b>PINVICE</b> Double ended pintongs with reversible chucks. Capacity 0 - 2.35mm	<b>0372 000115</b>	1+	£ 7.20
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## JEWELLERS TINSNIPS

Price per unit

	<b>JEWELLERS TINSNIPS</b> Hardened and ground straight blades with lacquered handles. 180mm long.	<b>0767 018015</b>	1+	£ 9.10
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## LATHE BELTING

For driving lathes and small motor drives. Joined by heating with a hot knife.

Price per unit


	<b>LATHE BELTING 2mm</b> Sold by the metre.	<b>0613 001215</b>	1+	£ 2.52
	<b>LATHE BELTING 3mm</b> Sold by the metre.	<b>0613 001315</b>	1+	£ 2.52
	<b>LATHE BELTING 4mm</b> Sold by the metre.	<b>0613 001415</b>	1+	£ 2.52
	<b>LATHE BELTING 5mm</b> Sold by the metre.	<b>0613 001515</b>	1+	£ 3.10
	<b>LATHE BELTING 6mm</b> Sold by the metre.	<b>0613 001615</b>	1+	£ 3.62

## CLOCK DIAL CUTTER






1 	2 	3 	<p><b>Call Harvey for Same day dispatch*</b></p> <p>* Conditions apply</p>		<p><b>Call Harvey for Postage free delivery*</b></p> <p>* Conditions apply</p>	<p><b>Call HARVEY on 0800 328 9435</b></p>
Price per unit						
1 <b>CLOCK DIAL CUTTER</b> An ingenious tool for cutting circles in card from 1/8" - 24" diameter. Cutter complete		<b>0386 000115</b>	1+	£ 16.50		
2 <b>CLOCK DIAL CUTTER BLADES</b> Pack of spare blades		<b>0386 000215</b>	1+	£ 4.40		
3 <b>COMPASS CUTTER</b> For cutting card dials 10-150mm in diameter.		<b>0386 000315</b>	1+	£ 5.95		

## RING CUTTER












Price per unit

	<b>RING CUTTER</b> For safely cutting rings from fingers. For emergency use, or when the finger has outgrown the ring. Cuts a neat line that can be easily repaired.	<b>1199 000115</b>	1+	£ 19.90
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## NEEDLE FILES

1 	2 	3 	4 	<p><b>M &amp; P</b> Key Suppliers to Clockmakers</p>		<p><b>Buy Online @ www.m-p.co.uk</b></p>
Price per unit						
1 <b>SET OF 8 NEEDLE FILES</b> In plastic wallet. High quality needle files, 14cm long, cut 2.		<b>0382 000815</b>	1+	£ 16.25		
2 <b>ECONOMY SET OF 6 NEEDLE FILES</b> Set of 6 assorted needle files.		<b>0382 100615</b>	1+	£ 3.98		
3 <b>12 PIECE NEEDLE FILE SET</b>		<b>1103 001215</b>	1+	£ 6.98		
4 <b>ENGINEERS 4 PIECE FILE SET</b>		<b>1102 000415</b>	1+	£ 13.98		

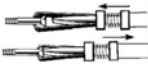
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MINIATURE NEEDLE FILES		Price per unit	
	<b>MINIATURE SQUARE NEEDLE FILE</b> For use on seconds hands etc. 3" long.	0606 000215	1+ £ 8.95
	<b>MINIATURE ROUND NEEDLE FILE</b> For use on seconds hands etc. 3" long.	0606 000115	1+ £ 8.70
WOODEN FILE HANDLE		Price per unit	
	<b>3" WOODEN FILE HANDLE</b> With small hole for most needle files and other general use. Can be used for broaches etc.	0692 000315	1+ £ 0.80 3+ £ 0.64 Pack of 10 £ 0.56
	<b>FILE HANDLE, 4" WOODEN</b>	0692 000415	1+ £ 0.95 3+ £ 0.76
	<b>FILE HANDLE 5" WOODEN</b>	0692 000515	1+ £ 1.05 3+ £ 0.84
DIAMOND COATED BULLS FOOT FILE		Price per unit	
	<b>DIAMOND COATED BULLS FOOT FILE</b> With a pad of industrial diamond as the abrasive. Steel construction.	0384 000215	1+ £ 9.95
NEEDLE FILE HOLDER		Price per unit	
	<b>SPRUNG NEEDLE FILE HOLDER</b> Spring loaded file holder will grip files and tools tightly. Capacity 3-4mm.	0383 000115	1+ £ 10.90
	<b>CHUCK NEEDLE FILE HOLDER</b> Chuck file holder will grip files and tools tightly. Capacity 2-4mm.	0383 000215	1+ £ 2.20
DOUBLE END PIVOT FILE & BURNISHER		Price per unit	
	<b>DOUBLE END PIVOT FILE &amp; BURNISHER L/H</b> Excellent for fine clock pivots. Left hand. For work on your LEFT hand side or beneath work on your right.	0375 000215	1+ £ 26.90
	<b>DOUBLE END PIVOT FILE &amp; BURNISHER R/H</b> Excellent for fine clock pivots. Right hand. For work on your RIGHT hand side or beneath work on your left.	0375 000315	1+ £ 32.50
INSPECTION MIRROR		Price per unit	
	<b>INSPECTION MIRROR FIXED STEEL</b>	0596 000215	1+ £ 3.60
	<b>INSPECTION MIRROR VARIABLE ANGLE</b>	0596 000315	1+ £ 4.90
KEY SIZING GAUGE		Price per unit	
	<b>KEY SIZING GAUGE</b> Eliminates guesswork when ordering or using up old keys. Solid construction with sizes from 1.75mm - 6.00mm.	0638 000115	1+ £ 17.00

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## SELF GRIP SCREWDRIVER

Price per unit

	<b>SCREW HOLDING SCREWDRIVER SET</b> Plain slot and cross-point screwdrivers that grip the screws whilst being placed in awkward situations. Sold as a pair.	<b>0385 000315</b>	1+	£ 4.44

## PIERCING SAWS


Price per unit

	<b>PIERCING SAW FRAME</b> Metal saw with wooden handle. Unadjustable.	<b>0421 000115</b>	1+	£ 14.90
	<b>ADJUSTABLE SAW FRAME.</b> Swiss style aluminium saw frame. Comfortable rubber grip. Quick release blade clamps. Well constructed.	<b>0421 000215</b>	1+	£ 9.85

## PIERCING SAW BLADES

Bundles of 12. High quality blades. Pitch is teeth/cm.


Price per unit

	<b>SWISS PIERCING SAW BLADES 0.18mm</b> Pitch: 32	<b>0421 001815</b>	1+	£ 1.95
			2+	£ 1.75
			Pack of 12	£ 1.36
	<b>SWISS PIERCING SAW BLADES 0.24mm</b> Pitch: 23.5	<b>0421 002415</b>	1+	£ 1.95
			2+	£ 1.75
			Pack of 12	£ 1.36
	<b>SWISS PIERCING SAW BLADES 0.28mm</b> Grade 3/0	<b>0421 002815</b>	1+	£ 1.95
			2+	£ 1.75
			Pack of 12	£ 1.36
	<b>SWISS PIERCING SAW BLADES 0.30mm</b> Pitch: 19. Grade 2/0	<b>0421 003015</b>	1+	£ 1.95
			2+	£ 1.75
			Pack of 12	£ 1.36
	<b>SWISS PIERCING SAW BLADES 0.34mm</b> Grade 1	<b>0421 003415</b>	1+	£ 1.95
			2+	£ 1.75
		Pack of 12	£ 1.36	
<b>SWISS PIERCING SAW BLADES 0.38mm</b> Pitch: 15 Grade 2	<b>0421 003815</b>	1+	£ 1.95	
		2+	£ 1.75	
		Pack of 12	£ 1.36	
<b>SWISS PIERCING SAW BLADES 0.50mm</b> Pitch: 11	<b>0421 005015</b>	1+	£ 1.95	
		2+	£ 1.75	
		Pack of 12	£ 1.36	

## WATCHMAKERS SCREWDRIVERS

Individual cross-point screwdrivers for removing backs from watches, calculators etc.


Price per unit

	<b>WATCHMAKERS CROSSPOINT SCREWDRIVER 1.5mm</b>	<b>0964 015015</b>	1+	£ 2.90
	<b>WATCHMAKERS CROSSPOINT SCREWDRIVER 2.0mm</b>	<b>0964 020015</b>	1+	£ 3.30
	<b>WATCHMAKERS CROSSPOINT SCREWDRIVER 2.5mm</b>	<b>0964 025015</b>	1+	£ 3.60

## TORX COMPATIBLE SCREWDRIVER



Plastic handled screwdriver with hardened tip. Compatible with Torx fixing systems. Torx is the registered trademark of Camcar/Textron Inc.

Price per unit

	<b>TORX COMPATIBLE SCREWDRIVER NO. 6</b> Tip size 1.67mm.	<b>1025 000615</b>	1+	£ 2.40
	<b>TORX COMPATIBLE SCREWDRIVER NO. 7</b> Tip size 1.99mm.	<b>1025 000715</b>	1+	£ 2.40
	<b>TORX COMPATIBLE SCREWDRIVER NO. 8</b> Tip size 2.31mm.	<b>1025 000815</b>	1+	£ 2.40
	<b>TORX COMPATIBLE SCREWDRIVER NO. 9</b> Tip size 2.50mm.	<b>1025 000915</b>	1+	£ 2.40

## EYEGLASS

Price per unit

	<b>EYEGLASS WITH SPECTACLE CLIP</b> 3 1/2" (2.8x) glass lens in non- reflective body and spectacle frame clip. Fits all types of frame.	<b>0371 103515</b>	1+	£ 3.90
	<b>EYEGLASS</b> 3 1/2" (2.8x) glass lens in non-reflective body.	<b>0371 003515</b>	1+	£ 3.60

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## CUTTING BROACHES

5 sided cutting broach measured in Stubbs wire gauge at about 10mm from the shoulder. Metric equivalents are approximate. 0.01mm taper (the diameter decreases 1mm per 100mm of length). See catalogue appendix for more information

Price per unit

	CUTTING BROACH NUMBER 80 Diameter 0.33mm. Length 31mm.	0547 003315	1+	£ 1.20
	CUTTING BROACH NUMBER 78 Diameter 0.38mm.Length 31mm.	0547 003815	1+	£ 1.20
	CUTTING BROACH NUMBER 76 Diameter 0.45mm. Length 36mm.	0547 004515	1+	£ 1.20
	CUTTING BROACH NUMBER 74 Diameter 0.55mm. Length 40mm.	0547 005515	1+	£ 1.20
	CUTTING BROACH NUMBER 72 Diameter 0.61mm. Length 40mm.	0547 006115	1+	£ 1.20
	CUTTING BROACH NUMBER 70 Diameter 0.68mm. Length 40mm.	0547 006815	1+	£ 1.20
	CUTTING BROACH NUMBER 68 Diameter 0.76mm. Length 44mm.	0547 007615	1+	£ 1.20
	CUTTING BROACH NUMBER 66 Diameter 0.81mm. Length 44mm.	0547 008115	1+	£ 1.20
	CUTTING BROACH NUMBER 64 Diameter 0.88mm. Length 48mm.	0547 008815	1+	£ 1.20
	CUTTING BROACH NUMBER 62 Diameter 0.94mm. Length 48mm.	0547 009415	1+	£ 1.20
	CUTTING BROACH NUMBER 60 Diameter 1.00mm. Length 48mm.	0547 010015	1+	£ 1.20
	CUTTING BROACH NUMBER 58 Diameter 1.04mm. Length 52mm.	0547 010415	1+	£ 1.20
	CUTTING BROACH NUMBER 56 Diameter 1.14mm. Length 52mm.	0547 011415	1+	£ 1.20
	CUTTING BROACH NUMBER 54 Diameter 1.39mm. Length 56mm.	0547 013915	1+	£ 1.30
	CUTTING BROACH NUMBER 52 Diameter 1.60mm. Length 62mm.	0547 016015	1+	£ 1.30
	CUTTING BROACH NUMBER 48 Diameter 1.90mm. Length 65mm.	0547 019015	1+	£ 1.90
	CUTTING BROACH NUMBER 46 Diameter 2.00mm. Length 70mm.	0547 020015	1+	£ 1.90
	CUTTING BROACH NUMBER 44 Diameter 2.15mm. Length 70mm.	0547 021515	1+	£ 1.90
	CUTTING BROACH NUMBER 42 Diameter 2.33mm. Length 75mm.	0547 023315	1+	£ 2.10
	CUTTING BROACH NUMBER 40 Diameter 2.46mm. Length 75mm.	0547 024615	1+	£ 2.20
	CUTTING BROACH NUMBER 38 Diameter 2.56mm. Length 75mm.	0547 025615	1+	£ 2.20
	CUTTING BROACH NUMBER 36 Diameter 2.69mm. Length 80mm.	0547 026915	1+	£ 2.40
	CUTTING BROACH NUMBER 32 Diameter 2.92mm. Length 83mm.	0547 029215	1+	£ 2.90
	CUTTING BROACH NUMBER 30 Diameter 3.22mm. Length 86mm.	0547 032215	1+	£ 2.90
	CUTTING BROACH NUMBER 26 Diameter 3.70mm. Length 95mm.	0547 037015	1+	£ 3.60
	CUTTING BROACH NUMBER 22 Diameter 3.98mm. Length 95mm.	0547 039815	1+	£ 3.60
	CUTTING BROACH NUMBER 18 Diameter 4.26mm. Length 100m.	0547 042615	1+	£ 3.90
	CUTTING BROACH NUMBER 16 Diameter 4.44mm. Length 100mm.	0547 044415	1+	£ 3.90
	CUTTING BROACH NUMBER 12 Diameter 4.70mm. Length 100mm.	0547 047015	1+	£ 4.60
	CUTTING BROACH NUMBER 8 Diameter 5.00mm. Length 105mm.	0547 050015	1+	£ 5.20
	CUTTING BROACH NUMBER 6 Diameter 5.10mm. Length 105mm.	0547 051015	1+	£ 5.20
	CUTTING BROACH NUMBER 4 Diameter 5.25mm. Length 105mm.	0547 052515	1+	£ 5.20
	CUTTING BROACH NUMBER 2 Diameter 5.56mm. Length 105mm.	0547 055615	1+	£ 5.20
	CUTTING BROACH NUMBER A Diameter 5.94mm. Length 105mm.	0547 059415	1+	£ 4.60
	CUTTING BROACH NUMBER C Diameter 6.14mm. Length 110mm.	0547 061415	1+	£ 4.80
	CUTTING BROACH NUMBER E Diameter 6.35mm. Length 110mm.	0547 063515	1+	£ 5.40
	CUTTING BROACH NUMBER H Diameter 6.75mm. Length 120mm.	0547 067515	1+	£ 5.90
	CUTTING BROACH NUMBER I Diameter 6.90mm. Length 120mm	0547 069015	1+	£ 6.10
	CUTTING BROACH NUMBER K Diameter 7.13mm. Length 120mm	0547 071315	1+	£ 6.40
	CUTTING BROACH NUMBER L Diameter 7.36mm. Length 120mm	0547 073615	1+	£ 6.60
	CUTTING BROACH NUMBER N Diameter 7.67mm. Length 120mm	0547 076715	1+	£ 6.90
	CUTTING BROACH NUMBER O Diameter 8.02mm. Length 125mm	0547 080215	1+	£ 7.30
	CUTTING BROACH NUMBER P Diameter 8.20mm. Length 125mm	0547 082015	1+	£ 7.40
	CUTTING BROACH NUMBER Q Diameter 8.43mm. Length 125mm	0547 084315	1+	£ 7.90
	CUTTING BROACH NUMBER R Diameter 8.61mm. Length 130mm	0547 086115	1+	£ 8.60
	CUTTING BROACH NUMBER S Diameter 8.83mm. Length 130mm	0547 088315	1+	£ 9.10
	CUTTING BROACH NUMBER U Diameter 9.34mm. Length 130mm	0547 093415	1+	£ 9.40
	CUTTING BROACH NUMBER V Diameter 9.57mm. Length 130mm.	0547 095715	1+	£ 9.60
	CUTTING BROACH NUMBER W Diameter 9.80mm. Length 130mm.	0547 098015	1+	£ 10.20
	CUTTING BROACH NUMBER X Diameter 10.08mm. Length 135mm.	0547 100815	1+	£ 12.90
	CUTTING BROACH NUMBER Y Diameter 10.26mm. Length 135mm.	0547 102615	1+	£ 13.10
	CUTTING BROACH NUMBER Z Diameter 10.48mm. Length 135mm.	0547 104815	1+	£ 13.70

## CUTTING BROACHES ASSORTMENTS

Price per unit

	CUTTING BROACH ASSORTMENT 34 - 56 Assortment of 12 broaches, by gauge. Even gauge numbers.	0381 345615	1+	£ 13.30
	CUTTING BROACH ASSORTMENT 58 - 80 Assortment of 12 broaches, by gauge. Even gauge numbers.	0381 588015	1+	£ 9.10

## SMOOTHING BROACH ASSORTMENT

Price per unit

	SMOOTHING BROACH ASSORTMENT 34 - 56 Assortment of 12 smoothing broaches to achieve an excellent finish. Even gauge numbers.	0702 345615	1+	£ 14.70
	SMOOTHING BROACH ASSORTMENT 58 - 80 Assortment of 12 smoothing broaches to achieve an excellent finish. Even gauge numbers.	0702 588015	1+	£ 9.80

## WHICH BROACHES TO BUY?

Our Bergeon bush list shows the internal and external diameters. The clocks you specialise in will often need bushing in the same places, and will use similar bushes. The outside diameters rise in regular steps so select broaches just larger than the bushes you use. The assortments should cover most internal adjustments.

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## UNIVERSAL STAKE

Price per unit



**UNIVERSAL STAKE** Steel bench stake with numerous holes, slots & grooves for riveting etc. 40 x 40 x 40mm.

0594 404015

1+

£ 76.80

## CLOCKMAKERS STAKE

1		2		3		Call Harvey 24 Hours	Call Harvey our Automated Sales line		Call Harvey for Same day dispatch*  * Conditions apply
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Price per unit

1	<b>FLAT ROUND CLOCKMAKERS STAKE</b> Round stake with 9 holes.	0757 000115	1+	£ 6.20
2	<b>FLAT RECTANGULAR STAKE</b> Rectangular stake with 36 holes	0757 000215	1+	£ 6.20
3	<b>BRASS SPLIT STAKE</b> Adjustable brass split stake with 9 holes.	0757 000315	1+	£ 8.20

## ROLLER CUTTERS OR SINKERS

Price per unit



**ROLLER CUTTERS OR SINKERS** Set of 6 double ended roller cutters, to create oil sinks in freshly inserted bushes.

0374 000615

1+

£ 34.90

## BURR REMOVER

Price per unit



**BURR REMOVER** Hollow centred, with four cutting edges. Insert a pin to locate the cutter when removing excess bushing.

0373 000115

1+

£ 18.40

## MAINSRING CLAMPS

Price per unit



**MAINSRING CLAMPS** For holding loop ended springs whilst working on movements. The spring will lift off as if it were in a barrel. Sold in pairs, to fit most American 8 day movements.

0249 000215

1+

£ 5.86

2+

£ 4.69

## MAINSRING WINDER - HOLE & LOOP SPRINGS

Price per unit



**MAINSRING WINDER - HOLE & LOOP SPRINGS** Cast frame with chuck to hold winding arbors from 2.5-5mm. Supplied complete with 10 barrels ranging from 7/8" to 2 3/8" internal diameter and holders for both hole and loop-ended springs. See Catalogue Appendix for more information

0769 000115

1+

£ 110.00

**RATCHET SPRING FOR MAINSPRING WINDER**

0769 000215

1+

£ 2.90

**MAINSRING WINDER REPLACEMENT HOOKS** 1 pair.

0769 000315

1+

£ 9.90

**SET OF 10 BARRELS FOR MAINSPRING WINDER**

0769 001015

1+

£ 32.90

## BERGEON MAINSPRING WINDER

Price per unit



**BERGEON MAINSPRING WINDER** This cast iron frame winder that fits in a bench vice is one of the few that can be considered suitable for inserting very large springs with safety and ease. The boxed kit comes with 2 cranks and 8 barrels. A 9th barrel is also available for giant springs. 18,25,30,35,40,48,57,65mm barrels are included.

0714 000115

1+

£ 399.90

## DEPTHING TOOL

Price per unit



**DEPTHING TOOL** A well designed but economical tool. Includes two pairs of runners and all parts needed to depth wheels and pinions and check escapements. Max. opening between runners 125mm. Max. pivot length 95mm. Body 185mm long, 95mm high and 70mm deep when closed. Complete with a pair of cones and trumpets.

0947 000115

1+

£ 129.50

## BERGEON CLOCK BUSHING OUTFIT

Although it's quite possible to fit bushes by hand, this bushing tool enables you to fit a new bush quickly, easily and above all, accurately. When a pivot wears its hole, it generally wears it into an elongated one. It is vital to get the replacement bush centred on the original position. This robust tool is ideal for the job.

Suitable for bushing plates from 50 - 220mm with a pillar height of 70mm. The tool is available as the full outfit, or as a reduced set to make it more affordable for the smaller workshop.

Both sets include main tool with 2 arms & 2 chucks, and 1 broach with hand wheel.

The full set includes a wooden box containing: 3 driving punches, 1 centring bit, 1 undrilled stake, 4 drilled stakes, 2 centring stakes, 10 reamers (1.20mm - 8.47mm), 2 chamfering tools, 5 pivot cutters & 1 jacobs chuck.

The reduced set includes a cardboard box containing: 3 driving punches, 1 centring bit, 1 undrilled stake, 4 drilled stakes, 1 centring stake, 10 reamers (1.20mm - 8.47mm) and 1 chamfering tool.

Brief instructions on use:

Fit a stake in base and secure the clock plate between the chucks. Fit centring point no. 6 in the broach. Locate the position of the original hole


Price per unit

# 11. Tools

and tighten. Remove the point and fit a reamer corresponding to the size of bush to fit. Slowly turn the flywheel, lifting from time to time to clear any swarf.


Remove the reamer and fit a punch slightly larger than the bush. Press down on the wheel to eliminate spring-back and tap lightly with a brass hammer.

Use the plates assembled to locate the correct point for bushing an oval hole using the centring stake. Full instructions are supplied with the tools.

	<b>BERGEON CLOCK BUSHING OUTFIT</b>	<b>0605 000115</b>	<b>1+</b>	<b>£ 369.50</b>
	<b>BUSHING OUTFIT BERGEON REDUCED</b>	<b>0605 000215</b>	<b>1+</b>	<b>£ 245.50</b>

## REAMERS FOR BERGEON BUSHING OUTFIT

Price per unit

	<b>BERGEON BUSHING OUTFIT REAMER 1.20mm</b> Replacement reamer only.	<b>0605 012015</b>	<b>1+</b>	<b>£ 6.40</b>
	<b>BERGEON BUSHING OUTFIT REAMER 1.97mm</b> Replacement reamer only.	<b>0605 019715</b>	<b>1+</b>	<b>£ 6.50</b>
	<b>BERGEON BUSHING OUTFIT REAMER 2.47mm</b> Replacement reamer only.	<b>0605 024715</b>	<b>1+</b>	<b>£ 6.70</b>
	<b>BERGEON BUSHING OUTFIT REAMER 2.97mm</b> Replacement reamer only.	<b>0605 029715</b>	<b>1+</b>	<b>£ 6.80</b>
	<b>BERGEON BUSHING OUTFIT REAMER 3.47mm</b> Replacement reamer only.	<b>0605 034715</b>	<b>1+</b>	<b>£ 6.90</b>
	<b>BERGEON BUSHING OUTFIT REAMER 4.47mm</b> Replacement reamer only.	<b>0605 044715</b>	<b>1+</b>	<b>£ 7.40</b>
	<b>BERGEON BUSHING OUTFIT REAMER 5.47mm</b> Replacement reamer only.	<b>0605 054715</b>	<b>1+</b>	<b>£ 7.70</b>
	<b>BERGEON BUSHING OUTFIT REAMER 6.47mm</b> Replacement reamer only.	<b>0605 064715</b>	<b>1+</b>	<b>£ 8.10</b>
	<b>BERGEON BUSHING OUTFIT REAMER 7.47mm</b> Replacement reamer only.	<b>0605 074715</b>	<b>1+</b>	<b>£ 8.60</b>
	<b>BERGEON BUSHING OUTFIT REAMER 8.47mm</b> Replacement reamer only.	<b>0605 084715</b>	<b>1+</b>	<b>£ 9.10</b>
	<b>REAMER ASSORTMENT, 5pcs, 1.78mm - 8.64mm</b>	<b>0605 000415</b>	<b>1+</b>	<b>£ 59.60</b>
<b>REAMER ASSORTMENT, 5pcs, 3.97mm - 7.97mm</b>	<b>0605 000515</b>	<b>1+</b>	<b>£ 59.60</b>	

## CUTTERS FOR BERGEON BUSHING OUTFIT

Price per unit

	<b>PIVOT CUTTER 2.20mm PIVOT 0.40mm</b>	<b>0605 100215</b>	<b>1+</b>	<b>£ 11.80</b>
	<b>PIVOT CUTTER 3.00mm PIVOT 0.70mm</b>	<b>0605 100315</b>	<b>1+</b>	<b>£ 12.40</b>
	<b>PIVOT CUTTER 5.00mm PIVOT 1.50mm</b>	<b>0605 100515</b>	<b>1+</b>	<b>£ 12.60</b>
	<b>PIVOT CUTTER 6.00mm PIVOT 3.00mm</b>	<b>0605 100615</b>	<b>1+</b>	<b>£ 12.80</b>
	<b>PIVOT CUTTER 9.00mm PIVOT 5.00mm</b>	<b>0605 100915</b>	<b>1+</b>	<b>£ 13.80</b>


## ACCESSORIES FOR BERGEON BUSHING OUTFIT

<b>1</b>		<b>2</b>		<b>3</b>			<b>Call Harvey for Postage free delivery*</b> * Conditions apply	<b>Call HARVEY on 0800 328 9435</b>	<b>M &amp; P Key Suppliers to Clockmakers</b>
<b>1</b>	<b>CHAMFERING TOOL 10mm</b>	<b>0605 001015</b>	<b>1+</b>	<b>£ 8.90</b>					
<b>2</b>	<b>CENTERING STAKE 16mm POINT 4mm</b>	<b>0605 001615</b>	<b>1+</b>	<b>£ 12.50</b>					
<b>3</b>	<b>JACOBS CHUCK 26mm OPENING 0-4mm</b>	<b>0605 002615</b>	<b>1+</b>	<b>£ 51.50</b>					

Price per unit

## BERGEON STAKING OUTFIT


Price per unit

	<b>BERGEON STAKING OUTFIT</b> This useful set can be used both on its own and also forms a most useful accessory for the Bergeon Bushing tool. kit contains 24 punches: 6 flat and 6 convex hollow, 5 round solid, 7 pump punches, 1 large stake, 1 punch holder and 4 hollow stakes.	<b>0717 000115</b>	<b>1+</b>	<b>£ 240.00</b>
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## SONIC JEWELLERY CLEANER


Using vibration, this small electronic cleaning machine is ideal for jewellery, spectacles, optical equipment, small clock and engineering parts etc. 240v. Includes 2 plastic baskets and transparent lid. Intended for use with water based cleaners. Tank capacity 600ml. Complete with 250ml of concentrated cleaning solution. 190 x 100 x 100mm high.

Price per unit

	<b>ULTRA JEWELLERY CLEANING MACHINE</b> Using vibration, this small electronic cleaning machine is ideal for jewellery, spectacles, optical equipment, small clock and engineering parts. 240v. Includes 2 plastic baskets and transparent lid. Intended for use with water based cleaners. Tank capacity 600ml. Complete with 250ml of concentrated cleaning solution. 190 x 100 x 100mm high.	<b>0970 000315</b>	<b>1+</b>	<b>£ 21.50</b>
	<b>CLEANING CONCENTRATE 250ml</b>	<b>0970 000415</b>	<b>1+</b>	<b>£ 3.60</b>
			<b>2+</b>	<b>£ 3.24</b>

## WHEEL CHUCK

Price per unit

	<b>WHEEL CHUCK 3mm</b> Chuck for holding wheels to be cut in lathes such as Bergeon, Boley, Star, Favourite etc. For cutters up to 3mm thick	<b>0716 000315</b>	<b>1+</b>	<b>£ 41.50</b>
	<b>WHEEL CHUCK 5mm</b> Chuck for holding wheels to be cut in lathes such as Bergeon, Boley, Star, Favourite etc. For cutters up to 5mm thick	<b>0716 000515</b>	<b>1+</b>	<b>£ 41.50</b>

# 11. Tools

## ULTRASONIC CLEANING TANK

Price per unit



### ULTRASONIC CLEANING TANK

Manufactured in the U.K by Walkers, who have over 35 years expertise in the field. Model 80T is best suited to the low volume user who needs a good sized tank. Its stainless steel & aluminium construction means that it will withstand the cleaning fluids used by the clock trade. Cheaper plastic cased machines can quickly get damaged by the drips of fluid that inevitably drop on the case. Ultrasonic Cleaners function by generating powerful sound waves in the fluid. Dirt is dislodged by this rapid movement, and you can see the contamination and grime literally being pulled away from the movement. Many modern movements can be cleaned without the need for dismantling, because the dirt is drawn out of the tiniest places. The speed and efficiency of cleaning using these units, even when the clock has been dismantled and put in a wire basket (optional) is amazing. Opticians, dentists and jewellers also use these machines by filling them with more gentle water based solutions. After cleaning in specialist cleaners such as Horotech, the item should be rinsed in a suitable rinse. There is no need to use rinse in the tank. Busy workshops maintain more than one rinse bath. By initially rinsing in last month's old rinse, contamination of the final rinse is minimised. An old saucepan with a lid makes a good rinse bath in the amateur workshop!

Specifications:






4.7 litre capacity, 300x151x150mm deep internal. PZT transducers. Lid included. 240v. Timer. Automatic heating. No drain tap because ultrasonics eventually damage the weld, causing leaks.

0713 000115 1+ £ 375.00

## ULTRA-VIOLET MARKERS

A large proportion of burglaries involve antiques, jewellery, clocks and other such items. Many of the articles recovered by the police are never traced to their rightful owners, and yet all the police forces in the country have access to ultra-violet lamps to show up postcode marking.

A sensible way of protecting property is by postcode marking, in addition to any photographic recording you may do. Likewise, the use of lamps by antique dealers can serve as a double check on vendor's claims. The range of products available to protect your valuable property includes the UV detector lamp, fine tipped UV felt pen and broad tipped UV felt tip marker, plus scribe. The scribe is particularly useful on metal objects such as silver, where ordinary markings would be polished off.

1 	2 	3 	4 		Buy Online @ www.m-p.co.uk	Call Harvey 24 Hours
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Price per unit

1	ULTRA-VIOLET MARKER, BROAD TIP	0620 000115	1+	£ 1.90
2	ULTRA-VIOLET MARKER, FINE TIP	0620 000215	1+	£ 1.90
3	ULTRA-VIOLET HANDLAMP UV detector for use with UV markers. Uses 4 x AA batteries (not included).	0620 000315	1+	£ 24.60
4	UV HANDLAMP SPARE TUBE Tube for item 0620 000315	0620 000415	1+	£ 8.90

## BENCH VICE

Price per unit



**BENCH VICE** Smooth jawed bench vice with 1 1/4" jaws. Anvil at rear for riveting.

0593 000115 1+ £ 9.90

## AUTOMATIC OILER

Price per unit



**AUTOMATIC OILER** Oil is automatically released when pressure is applied to the tip of this disposable 'pen' oiler. Filled with quality Swiss oil..

0591 000215 1+ £ 5.90

## WATCH OILER SET

Price per unit



**WATCH OILER SET** Set of oilers with plastic handles. Excellent for applying small but precise quantities of oil.

0592 000115 1+ £ 7.20

## WASHING OUT BRUSHES

Price per unit



**WASHING OUT BRUSH** Bone handle with 4 rows of bristles. Resistant to almost any solvent.

0599 000415 1+ £ 4.95

## BRISTLE BRUSHES

With excellent quality hardwood handles and natural bristles.

Price per unit




'GLASGOW' WHITE BRISTLE BRUSH EXTRA SOFT	0598 000115	1+	£ 3.60
'GLASGOW' WHITE BRISTLE BRUSH SOFT	0598 000215	1+	£ 3.40
'GLASGOW' WHITE BRISTLE BRUSH SEMI HARD	0598 000315	1+	£ 3.40
'GLASGOW' WHITE BRISTLE BRUSH HARD	0598 000415	1+	£ 3.40
'GLASGOW' WHITE BRISTLE BRUSH EXTRA HARD	0598 000515	1+	£ 3.40
BLACK BRISTLE BRUSH 4 ROWS Wooden handles, with pure black bristles.	0597 000402	1+	£ 3.20
BLACK BRISTLE BRUSH 6 ROWS Wooden handles, with pure black bristles.	0597 000602	1+	£ 3.90



# 11. Tools



## BRASS SCRATCH BRUSHES

Price per unit

	<b>BRASS SCRATCH BRUSH 4 ROWS</b> Standard brush with four rows	<b>0600 000115</b>	1+	£ 3.76
	<b>BRASS SCRATCH BRUSH 6 ROWS</b> With 6 rows of extra hard brass 'bristles'.	<b>0600 000615</b>	1+	£ 5.80



## HAND REMOVER

Price per unit

	<b>HAND REMOVER</b> Screw action hand remover that will not damage the dial. Ideal for drum movements etc. A precision tool, not a cheap imitation.	<b>0378 000115</b>	1+	£ 5.90
	<b>HAND REMOVER AND PULLER</b>	<b>0378 000215</b>	1+	£ 6.40


## SPIRIT LAMP

Price per unit

	<b>SPIRIT LAMP</b> Heavy glass base for safety. Safety cap. Ideal for re-waxing silvered dials.	<b>0485 000115</b>	1+	£ 4.80
	<b>SPIRIT LAMP WICKS</b> Spare wicks x 6	<b>0485 000615</b>	1+	£ 1.30
			3+	£ 1.17


## GLASSFIBRE SCRATCH PENCIL

Price per unit

	<b>GLASSFIBRE SCRATCH PENCIL</b> Propelling type scratch brush for removing rust and scratches.	<b>0658 000115</b>	1+	£ 5.10
	<b>PACK OF 12 REFILS FOR PENCIL TYPE SCRATCH BRUSH.</b>	<b>0658 001215</b>	1+	£ 5.70


## ROTARY HOLE PUNCH

Price per unit

	<b>ROTARY HOLE PUNCH</b> For making holes in leather, plastic etc.	<b>0922 000115</b>	1+	£ 7.24
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## TOOL CLAMP

Price per unit

	<b>TOOL CLAMP</b> An excellent parallel jawed clamp with almost infinite uses in the workshop. 2" long jaws.	<b>0752 020015</b>	1+	£ 5.40
			2+	£ 4.86

## DUST BLOWER

Price per unit

	<b>DUST BLOWER</b> 4". With non-return valve.	<b>0756 000115</b>	1+	£ 3.20
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## MINIATURE ANVIL

Price per unit


	<b>MINIATURE BENCH ANVIL</b> 3 1/2" long.	<b>0753 000215</b>	1+	£ 8.90
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# 11. Tools

## CLOCKMAKERS HAMMERS


Steel head with wooden handle. Weight is hammer head.

Price per unit

	<b>ROUND CLOCKMAKERS HAMMER 45g</b>	<b>0754 004515</b>	1+	£ 9.60
	<b>ROUND CLOCKMAKERS HAMMER 55g</b>	<b>0754 005515</b>	1+	£ 10.90
	<b>SQUARE CLOCKMAKERS HAMMER 200g</b>	<b>1034 020015</b>	1+	£ 7.60



## PIN HAMMER

Price per unit

	<b>PIN HAMMER 4oz.</b> cross pein pin hammer with drop forged and hardened head.	<b>0768 000415</b>	1+	£ 5.74
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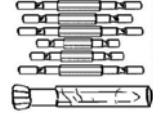

## STEEL RULERS

Price per unit








	<b>STEEL RULER 12"</b> steel ruler with metric and inches permanently etched into the surface.	<b>0766 001215</b>	1+	£ 3.08
	<b>POCKET STEEL RULER.</b> Stainless steel pocket ruler. 150mm - 6 inches Well etched marking ensures long life. Pocket clip acts as a depth gauge and a means of recording a dimension temporarily. Quality stainless steel.	<b>0766 000615</b>	1+ 2+	£ 0.99 £ 0.89

## LET DOWN KEYS, DOUBLE ENDED

Price per unit


	<b>LET DOWN KEYS, DOUBLE ENDED</b> Set of six double-ended steel keys with a plastic handle for letting down the power of wound mainsprings safely. Sizes 1-8, 10, 12, 14 & 16.	<b>0774 000115</b>	1+	£ 35.90
	<b>LET DOWN TOOL FOR BUTTERFLY KEYS</b> Butterfly type that fits over most kinds of butterfly clock key (often with a little modification). Only use steel keys! Handle plus one double ended key holder.	<b>0774 000215</b>	1+	£ 15.70

## GLOVES

1		2		3		4		5		6		7	
Price per unit													
1	<b>INDUSTRIAL GLOVES, MEDIUM</b> Protect your skin from strong workshop chemicals. PVC coated.		<b>0770 000215</b>	1+	£ 2.32								
2	<b>INDUSTRIAL GLOVES, LARGE</b> Protect your skin from strong workshop chemicals. PVC coated.		<b>0770 000315</b>	1+	£ 2.32								
3	<b>DISPOSABLE PLASTIC GLOVES (100)</b> Prevent finger-marking polished surfaces with these simple gloves. Will also give some protection against water-based fluids such as horolene. Because of the simple design one size fits all hands.		<b>0771 010015</b>	1+ 2+	£ 3.30 £ 2.97								
4	<b>STRONG LEATHER GLOVES</b> Protect your hands against the cuts and bruises associated with clock mainsprings, and from sparks whilst grinding or cutting. Made from tough leather.		<b>0772 000315</b>	1+ 3+	£ 4.20 £ 3.15								
5	<b>COTTON GLOVES</b> 12 Pairs of disposable cotton gloves to prevent finger-marks on polished surfaces etc.		<b>1032 000115</b>	1+ 3+	£ 7.90 £ 5.92								
6	<b>BOX OF 100 NITRILE GLOVES</b> Disposable gloves that withstand most spirit based cleaning solutions such as Horotech.		<b>1410 010015</b>	1+ 2+	£ 8.40 £ 7.56								
7	<b>BOX OF 100 LATEX GLOVES</b> 100% pure latex gloves, starch powdered for easy pull on. Ambidextrous fit. One size. Handy dispenser carton.		<b>1176 010015</b>	1+ 2+	£ 8.14 £ 7.33								


## DUST MASKS

Price per unit

	<b>DUST MASK 5pc PACK</b> Pack of 5 masks for protection against non toxic dusts and powders. NOT A RESPIRATORY PROTECTIVE DEVICE, unsuitable for fine particles, vapour etc.	<b>1174 000515</b>	1+	£ 1.68
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## SAFETY SPECTACLES

Price per unit

	<b>SAFETY SPECTACLES</b> Protect your eyes when using machinery or fluids which, if splashed, could ruin your eyesight. Can be used over spectacles. Made from impact resistant polycarbonate to BS.2092, Grade 2, giving clear distortion free viewing.	<b>0773 000115</b>	1+	£ 4.50
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# 11. Tools

## SAFETY GOGGLES

Price per unit



**SAFETY GOGGLES (TO BS2092 GR1)** Soft lightweight frame incorporating direct ventilation, soft face flange and spectacle recess. Polycarbonate lens. Ideal for potentially hazardous jobs involving a risk of eye injury.

**1175 000115** 1+ £ 2.56

## PIVOT LOCATOR

Price per unit



**PIVOT LOCATOR** An excellent tool for aligning pivots with their holes during assembly. 7" long.

**0755 000115** 1+ £ 2.90

## PLIERS

Good quality pliers suitable for all types of clock work. Suitable for cutting small gauge hard wire.

1		2		3		4		5		6		7	
8		Call Harvey our Automated Sales line		Call Harvey for Same day dispatch*		Call Harvey for Postage free delivery*	Call <b>HARVEY</b> on <b>0800 328 9435</b>						

Price per unit

1	<b>PLIERS, SIDE CUTTING</b>	<b>0443 000115</b>	1+	£ 9.95
2	<b>PLIERS, NEEDLE NOSED</b> Smooth jaw for a firm grip in very awkward places.	<b>0941 000215</b>	1+	£ 9.95
3	<b>PLIERS, END CUTTING</b>	<b>0442 000115</b>	1+	£ 12.75
4	<b>PLIERS, FLAT NOSED.</b> With strong smooth jaws.	<b>0433 000115</b>	1+	£ 16.40
5	<b>PLIERS, STRONG END CUTTING</b> For galvanised wire line, piano wire etc. Very strong design.	<b>0442 000215</b>	1+	£ 24.70
6	<b>PLIERS, ROUND BLUNT NOSED</b> Round blunt nosed, smooth jaw for a firm grip in awkward places.	<b>0941 000115</b>	1+	£ 11.70
7	<b>PLIERS, DELICATE SMOOTH FLAT NOSED.</b> With a right-angled tip. Ideal for fine adjustments inside an assembled movement etc.	<b>0433 000315</b>	1+	£ 9.95
8	<b>LONG NOSE PLIERS 8"</b>	<b>1097 000115</b>	1+	£ 9.95

## TWEEZERS

1		2		3		4		<b>M &amp; P</b> Key Suppliers to Clockmakers		Buy Online @ <a href="http://www.m-p.co.uk">www.m-p.co.uk</a>
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Price per unit

1	<b>STEEL TWEEZERS 255mm PLASTIC COATED ENDS</b>	<b>0380 025515</b>	1+	£ 5.90
2	<b>PLASTIC TWEEZERS</b> A pair of nylon tweezers for handling watch batteries and for working on quartz movements in general. 110mm long. Serrated jaws and fine tips for a secure grip.	<b>0380 000515</b>	1+	£ 0.80
3	<b>STAINLESS TWEEZERS AA</b> Quality stainless tweezers.	<b>0380 000215</b>	1+	£ 4.60
4	<b>GIANT TWEEZERS</b> Ideal for moving and locating large parts without touching them. 165mm long.	<b>0380 000415</b>	1+	£ 4.50

## MAGNIFYING TWEEZER

Price per unit



**MAGNIFYING TWEEZER** Combined eyeglass and stainless steel tweezers. Easily adjusted for best focus.

**1096 000115** 1+ £ 3.90

## MICRO GAS TORCH

Price per unit



**GAS SOLDERING TORCH, SMALL** Compact pen torch capable of reaching 1300C. Very easy to use with adjustable flame etc. Uses domestic gas lighter fuel.

**0690 000215** 1+ £ 10.00



**MICRO GAS TORCH** Automatic ignition using ordinary lighter refill. Flame temperature of 1300C. Size 85x 145 x 46mm. Runs up to 1 hour on one fill of gas! Free standing or hand held, this is an excellent and economical torch for jewellery, clocks and model engineering.

**0690 000115** 1+ £ 30.90

# 11. Tools

## MOVEMENT STANDS

Price per unit



**MOVEMENT STAND, CAST** Cast iron stand or 'horse' for testing movements. Adjustable feet, with two sturdy brackets to hold movement plates. Can be used over the edge of a table when testing wall clocks with long pendulums.

0978 000115 1+ £ 49.85

## PENDANT DRILL

Price per unit



**PENDANT DRILL FLXSFT 1/8hp 18000 rpm**  
**26pc ACCESSORY KIT ON 2.4mm ARBORS**

1161 000115 1+ £ 179.50  
 1161 002615 1+ £ 25.75

## VICE WITH VACUUM SUCTION BASE

Price per unit



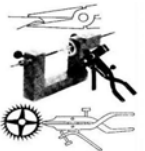
**VICE WITH VACUUM SUCTION BASE**

Ideal for smaller bench or table top tasks. Removable soft rubber jaw covers. Precision machined slide rods assure equally applied jaw pressure. Multi-positional ball swivel. Powerful suction base. To work satisfactorily, it must be used on a smooth flat laminated surface or on a plastic surface such as that used on kitchen worktops. 3" Jaws.

1016 000115 1+ £ 33.00

## ESCAPE WHEEL TOOTH STRAIGHTENER

Price per unit



**ESCAPE WHEEL TOOTH STRAIGHTENER**

Straighten and align the teeth on escape wheels easily and quickly with this ingenious tool. Bent or deformed teeth can be put back where they belong. Locate the wheel in the tool, set the jaws to suit the angle of a correct tooth and then adjust each one in turn. Supplied with full instructions, and can be used on any escape wheel from 400 day to Longcase.

0934 000115 1+ £ 150.50

## DE MAGNETISER

Price per unit



**DE MAGNETISER 240v** Unit for tweezers, screwdrivers etc. Simply press the button and pass the item through the magnetic field 110 x 60 x 30mm high.

1037 000115 1+ £ 24.60

## MAGNETIC PICK-UP TOOL TELESCOPIC

Price per unit



**MAGNETIC PICK-UP TOOL TELESCOPIC** A fully extendable pick up tool with magnetic end. Ideal for the retrieval of nuts, screws and objects lost in remote places.

1172 000115 1+ £ 3.94

## ENGRAVER

Price per unit



**ENGRAVER** Battery-powered diamond tipped engraver suitable for engraving most surfaces including glass, ceramics and metal. Belt-clip and 1.75M power lead. Runs off 6xAA type batteries(not supplied).

1105 000115 1+ £ 12.98

## COTTON APRON

Price per unit



**COTTON APRON** Heavy duty cotton with neck loop, extra long waist ties and large front pocket. Packed in polythene bag with display card.

1173 000115 1+ £ 4.72  
 2+ £ 4.25

## 6 PIECE MEASURING SET

Price per unit



**6 PIECE MEASURING SET** Useful set of precision measuring instruments.

1104 000615 1+ £ 15.46

# 11. Tools

## MAGNIFIERS

Price per unit



**HELPING HANDS HOLDER /MAGNIFIER** Useful bracket suitable for electronic work, model and jewellery making. Complete with fully adjustable holding clips and a 50mm magnifying lens(x 2.5 magnification). The solid cast base improves stability.

1171 000115 1+ £ 5.00



**ILLUMINATED MULTI-ANGLED MAGNIFIER** Plastic illuminated magnifier which can be hand-held or surface mounted. The handle can be converted to a stand for use on a flat surface. When used as a stand the magnifying head can tilt in four positions. Main lens magnification x 2 with the inset x 4. Uses 2 x AA batteries(not included).

1170 000115 1+ £ 8.98

## CYCLOIDAL CLOCK & WATCH WHEEL & PINION CUTTERS

A range of finest quality cutters made from high speed steel hardened and treble tempered under vacuum. This steel, with a hardness circa 68 Rockwell C. maintains a good cutting edge which offers long periods between sharpenings. Brass for wheels should be hard or half-hard, with a typical composition of 61-64% copper, 1-2% lead and the balance zinc. Soft brass will clog the cutter. Steel for pinions should be free cutting silver steel with a typical composition including 1% Carbon, 0.55% Manganese and 0.20 Selenium.

### PINION CUTTERS, 6 LEAVES FLAT BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit



PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 200615	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 250615	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 300615	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 350615	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 400615	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 450615	1+	£ 57.00
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 500615	1+	£ 57.00
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 550615	1+	£ 57.00
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 600615	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 650615	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 700615	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 750615	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 800615	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 850615	1+	£ 57.00
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 900615	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 950615	1+	£ 57.00
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 100615	1+	£ 57.00
PINION CUTTER M:1.10, D:23.09, O:28.0, T:7.00.	1091 110615	1+	£ 75.00
PINION CUTTER M:1.20, D:21.16, O:28.0, T:7.00.	1091 120615	1+	£ 75.00
PINION CUTTER M:1.30, D:19.53, O:28.0, T:7.00.	1091 130615	1+	£ 75.00
PINION CUTTER M:1.40, D:18.14, O:28.0, T:7.00.	1091 140615	1+	£ 75.00
PINION CUTTER M:1.50, D:16.93, O:28.0, T:7.00.	1091 150615	1+	£ 75.00

### PINION CUTTERS, 7 LEAVES FLAT BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit



PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 200715	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 250715	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 300715	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 350715	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 400715	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 450715	1+	£ 57.00
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 500715	1+	£ 57.00
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 550715	1+	£ 38.50
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 600715	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 650715	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 700715	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 750715	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 800715	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 850715	1+	£ 38.50
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 900715	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 950715	1+	£ 57.00
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 100715	1+	£ 57.00
PINION CUTTER M:1.10, D:23.09, O:28.0, T:7.00.	1091 110715	1+	£ 75.00
PINION CUTTER M:1.20, D:21.16, O:28.0, T:7.00.	1091 120715	1+	£ 75.00
PINION CUTTER M:1.30, D:19.53, O:28.0, T:7.00.	1091 130715	1+	£ 75.00
PINION CUTTER M:1.40, D:18.14, O:28.0, T:7.00.	1091 140715	1+	£ 75.00
PINION CUTTER M:1.50, D:16.93, O:28.0, T:7.00.	1091 150715	1+	£ 75.00

### PINION CUTTERS, 8 LEAVES FLAT BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit



PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 200815	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 250815	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 300815	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 350815	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 400815	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 450815	1+	£ 57.00

# 11. Tools

PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 500815	1+	£ 57.00
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 550815	1+	£ 57.00
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 600815	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 650815	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 700815	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 750815	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 800815	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 850815	1+	£ 57.00
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 900815	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 950815	1+	£ 57.00
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 100815	1+	£ 57.00
PINION CUTTER M:1.10, D:23.09, O:28.0, T:7.00.	1091 110815	1+	£ 75.00
PINION CUTTER M:1.20, D:21.16, O:28.0, T:7.00.	1091 120815	1+	£ 75.00
PINION CUTTER M:1.30, D:19.53, O:28.0, T:7.00.	1091 130815	1+	£ 75.00
PINION CUTTER M:1.40, D:18.14, O:28.0, T:7.00.	1091 140815	1+	£ 75.00
PINION CUTTER M:1.50, D:16.93, O:28.0, T:7.00.	1091 150815	1+	£ 75.00

## PINION CUTTERS, 10 LEAVES FLAT BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit

PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 201015	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 251015	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 301015	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 351015	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 401015	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 451015	1+	£ 57.00
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 501015	1+	£ 57.00
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 551015	1+	£ 57.00
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 601015	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 651015	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 701015	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 751015	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 801015	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 851015	1+	£ 57.00
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 901015	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 951015	1+	£ 57.00
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 101015	1+	£ 57.00
PINION CUTTER M:1.10, D:23.09, O:28.0, T:7.00.	1091 111015	1+	£ 75.00
PINION CUTTER M:1.20, D:21.16, O:28.0, T:7.00.	1091 121015	1+	£ 75.00
PINION CUTTER M:1.30, D:19.53, O:28.0, T:7.00.	1091 131015	1+	£ 75.00
PINION CUTTER M:1.40, D:18.14, O:28.0, T:7.00.	1091 141015	1+	£ 75.00
PINION CUTTER M:1.50, D:16.93, O:28.0, T:7.00.	1091 151015	1+	£ 75.00



## PINION CUTTERS, 12 LEAVES FLAT BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit

PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 201215	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 251215	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 301215	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 351215	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 401215	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 451215	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 451615	1+	£ 57.00
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 501215	1+	£ 57.00
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 551215	1+	£ 57.00
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 601215	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 651215	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 701215	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 751215	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 801215	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 851215	1+	£ 57.00
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 901215	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 951215	1+	£ 57.00
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 101215	1+	£ 57.00
PINION CUTTER M:1.10, D:23.09, O:28.0, T:7.00.	1091 111215	1+	£ 75.00
PINION CUTTER M:1.20, D:21.16, O:28.0, T:7.00.	1091 121215	1+	£ 75.00
PINION CUTTER M:1.30, D:19.53, O:28.0, T:7.00.	1091 131215	1+	£ 75.00
PINION CUTTER M:1.40, D:18.14, O:28.0, T:7.00.	1091 141215	1+	£ 75.00
PINION CUTTER M:1.50, D:16.93, O:28.0, T:7.00.	1091 151215	1+	£ 75.00



## PINION CUTTERS, 16 LEAVES FLAT BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit

PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 201615	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 251615	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 301615	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 351615	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 401615	1+	£ 57.00
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 501615	1+	£ 57.00



# 11. Tools

PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 551615	1+	£ 57.00
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 601615	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 651615	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 701615	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 751615	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 801615	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 851615	1+	£ 57.00
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 901615	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 951615	1+	£ 38.50
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 102115	1+	£ 57.00
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 101615	1+	£ 57.00
PINION CUTTER M:1.10, D:23.09, O:28.0, T:7.00.	1091 111615	1+	£ 75.00
PINION CUTTER M:1.20, D:21.16, O:28.0, T:7.00.	1091 121615	1+	£ 75.00
PINION CUTTER M:1.30, D:19.53, O:28.0, T:7.00.	1091 131615	1+	£ 75.00
PINION CUTTER M:1.40, D:18.14, O:28.0, T:7.00.	1091 141615	1+	£ 75.00
PINION CUTTER M:1.50, D:16.93, O:28.0, T:7.00.	1091 151615	1+	£ 75.00

## WHEEL CUTTERS, ROUND BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit



PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 202315	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 252315	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 302315	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 352315	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 402315	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 452315	1+	£ 57.00
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 502315	1+	£ 57.00
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 552315	1+	£ 57.00
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 602315	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 652315	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 702315	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 752315	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 802315	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 852315	1+	£ 57.00
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 902315	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 952315	1+	£ 57.00
PINION CUTTER M:1.00, D:25.4, O:25.5, T:4.50.	1091 102315	1+	£ 57.00

## WHEEL CUTTERS, FLAT BOTTOM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit



PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 202115	1+	£ 57.00
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 252115	1+	£ 57.00
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 302115	1+	£ 57.00
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 352115	1+	£ 57.00
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 402115	1+	£ 57.00
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 452115	1+	£ 57.00
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 502115	1+	£ 57.00
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 552115	1+	£ 57.00
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 602115	1+	£ 57.00
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 652115	1+	£ 57.00
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 702115	1+	£ 57.00
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 752115	1+	£ 57.00
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 802115	1+	£ 57.00
PINION CUTTER M:0.85, D:29.9, O:25.5, T:4.50.	1091 852115	1+	£ 57.00
PINION CUTTER M:0.90, D:28.2, O:25.5, T:4.50.	1091 902115	1+	£ 57.00
PINION CUTTER M:0.95, D:26.7, O:25.5, T:4.50.	1091 952115	1+	£ 57.00
PINION CUTTER M:1.10, D:23.09, O:28.0, T:7.00.	1091 112115	1+	£ 75.00
PINION CUTTER M:1.20, D:21.16, O:28.0, T:7.00.	1091 122115	1+	£ 75.00
PINION CUTTER M:1.30, D:19.53, O:28.0, T:7.00.	1091 132115	1+	£ 75.00
PINION CUTTER M:1.40, D:18.14, O:28.0, T:7.00.	1091 142115	1+	£ 75.00
PINION CUTTER M:1.50, D:16.93, O:28.0, T:7.00.	1091 152115	1+	£ 75.00

## WHEEL CUTTERS, SHORT FORM

M = module in mm. D = Diametral pitch in teeth/inch. O = Outside diameter (nominal). T = Thickness (mm). All cutters have 12 teeth and a Bore Diameter of 7.00 mm except pinion cutters with a modulus smaller than or equal to 0.35mm which have a bore diameter of 3.5mm.

Price per unit



PINION CUTTER M:0.20, D:127, O:14.0, T:2.00.	1091 202215	1+	£ 62.50
PINION CUTTER M:0.25, D:101.6, O:14.0, T:2.00.	1091 252215	1+	£ 62.50
PINION CUTTER M:0.30, D:84.7, O:14.0, T:2.00.	1091 302215	1+	£ 62.50
PINION CUTTER M:0.35, D:72.5, O:14.0, T:2.00.	1091 352215	1+	£ 62.50
PINION CUTTER M:0.40, D:63.5, O:25.0, T:3.25.	1091 402215	1+	£ 62.50
PINION CUTTER M:0.45, D:56.4, O:25.0, T:3.25.	1091 452215	1+	£ 62.50
PINION CUTTER M:0.50, D:50.8, O:25.0, T:3.25.	1091 502215	1+	£ 62.50
PINION CUTTER M:0.55, D:46.2, O:25.0, T:3.25.	1091 552215	1+	£ 62.50
PINION CUTTER M:0.60, D:42.3, O:25.0, T:3.25.	1091 602215	1+	£ 62.50
PINION CUTTER M:0.65, D:39.1, O:25.0, T:3.25.	1091 652215	1+	£ 62.50
PINION CUTTER M:0.70, D:36.3, O:25.0, T:3.25.	1091 702215	1+	£ 62.50
PINION CUTTER M:0.75, D:33.9, O:25.5, T:4.50.	1091 752215	1+	£ 62.50
PINION CUTTER M:0.80, D:31.8, O:25.5, T:4.50.	1091 802215	1+	£ 62.50

## 11. Tools

<b>PINION CUTTER</b> M:0.85, D:29.9, O:25.5, T:4.50.	<b>1091 852215</b>	1+	£ 62.50
<b>PINION CUTTER</b> M:0.90, D:28.2, O:25.5, T:4.50.	<b>1091 902215</b>	1+	£ 62.50
<b>PINION CUTTER</b> M:0.95, D:26.7, O:25.5, T:4.50.	<b>1091 952215</b>	1+	£ 62.50
<b>PINION CUTTER</b> M:1.00, D:25.4, O:25.5, T:4.50.	<b>1091 102215</b>	1+	£ 62.50

### ESCAPEMENT WHEEL CUTTER

Diameter 26mm. Bore 7.00mm. No. of teeth on cutter: 60. R:Radius. P:Pitchless tooth tip thickness. T: Thickness nominal. All dimensions in mm.

To calculate the escape wheel tooth pitch in order to select the right cutter: multiply the tip diameter D by 'pi' then divide by the number of teeth. Example: for a tip diameter D = 1.375" and a No. of teeth N = 29; Pitch =  $3.142 \times 1.375 / 29 = 0.148"$ . Use cutter size B Dead Beat.

Price per unit



<b>RECOIL ESCAPEMENT WHEEL CUTTER 1E</b> R:3.28, P:1.31, T:1.64.	<b>1150 328115</b>	1+	£ 53.00
<b>RECOIL ESCAPEMENT WHEEL CUTTER 2E</b> R:4.10, P:1.64, T:2.05.	<b>1150 410115</b>	1+	£ 53.00
<b>RECOIL ESCAPEMENT WHEEL CUTTER 3E</b> R:5.12, P:2.05, T:2.56.	<b>1150 512215</b>	1+	£ 53.00
<b>RECOIL ESCAPEMENT WHEEL CUTTER 4E</b> R:6.40, P:2.50, T:3.20.	<b>1150 640215</b>	1+	£ 53.00
<b>RECOIL ESCAPEMENT WHEEL CUTTER 5E</b> R:8.00, P:3.20, T:4.00.	<b>1150 803215</b>	1+	£ 53.00
<b>RECOIL ESCAPEMENT WHEEL CUTTER 6E</b> R:10.00, P:4.00, T:4.50.	<b>1150 104015</b>	1+	£ 53.00
<b>RECOIL ESCAPEMENT WHEEL CUTTER 7E</b> R:12.50, P:5.00, T:5.80.	<b>1150 122515</b>	1+	£ 53.00

### DEAD BEAT ESCAPEMENT WHEEL CUTTER

Diameter 30mm. Bore 7.00mm. No. of teeth on cutter: 60. O:Outside diameter of escape wheel. P: Pitchless tooth tip thickness. T: Thickness nominal. D:Diameter nominal. All Dimensions are in inches.

To calculate the escape wheel tooth pitch in order to select the right cutter: multiply the tip diameter D by 'pi' then divide by the number of teeth. Example: for a tip diameter D = 1.375" and a No. of teeth N = 29; Pitch =  $3.142 \times 1.375 / 29 = 0.148"$ . Use cutter size B Dead Beat.

Price per unit



<b>DEAD BEAT ESCAPEMENT WHEEL CUTTER A</b> O:1.75, P:0.183, T:0.200, D:1.181.	<b>1151 175015</b>	1+	£ 53.00
<b>DEAD BEAT ESCAPEMENT WHEEL CUTTER B</b> O:1.42, P:0.148, T:0.162, D:1.181.	<b>1151 142015</b>	1+	£ 53.00
<b>DEAD BEAT ESCAPEMENT WHEEL CUTTER C</b> O:1.08, P:0.113, T:0.123, D:1.181.	<b>1151 108015</b>	1+	£ 53.00
<b>DEAD BEAT ESCAPEMENT WHEEL CUTTER D</b> O:0.75, P:0.078, T:0.086, D:1.181.	<b>1151 075015</b>	1+	£ 53.00

### RADIUSED TOOTH RATCH CUTTER

Diameter 26mm. No. of teeth on cutter: 60. R:Radius. D:Diameter of ratchet. T:Thickness. All Dimensions are in mm.

To calculate the escape wheel tooth pitch in order to select the right cutter: multiply the tip diameter D by 'pi' then divide by the number of teeth. Example: for a tip diameter D = 1.375" and a No. of teeth N = 29; Pitch =  $3.142 \times 1.375 / 29 = 0.148"$ . Use cutter size B Dead Beat.

Price per unit



<b>RADIUSED TOOTH RATCH CUTTER</b> R:4.00, D:8.00, T:2.70.	<b>1152 040815</b>	1+	£ 53.00
<b>RADIUSED TOOTH RATCH CUTTER</b> R:6.00, D:12.00, T:4.00.	<b>1152 061215</b>	1+	£ 53.00
<b>RADIUSED TOOTH RATCH CUTTER</b> R:9.00, D:18.00, T:6.00.	<b>1152 091815</b>	1+	£ 53.00
<b>RADIUSED TOOTH RATCH CUTTER</b> R:13.50, D:27.00, T:9.00.	<b>1152 132715</b>	1+	£ 53.00

### STRAIGHT TOOTH RATCH CUTTER

Diameter 28mm. Bore 7.00mm. No. of teeth on cutter:12. Angles of 60 and 70 degrees. All dimensions are in mm.

To calculate the escape wheel tooth pitch in order to select the right cutter: multiply the tip diameter D by 'pi' then divide by the number of teeth. Example: for a tip diameter D = 1.375" and a No. of teeth N = 29; Pitch =  $3.142 \times 1.375 / 29 = 0.148"$ . Use cutter size B Dead Beat.

Price per unit



<b>STRAIGHT TOOTH RATCH CUTTER 60 DEGREE ANGLE</b>	<b>1153 600715</b>	1+	£ 57.00
<b>STRAIGHT TOOTH RATCH CUTTER 70 DEGREE ANGLE</b>	<b>1153 700715</b>	1+	£ 57.00

### MUSICAL BOX WORM WHEEL CUTTER

Diameter 25mm. Bore 7.00mm. No. of teeth on cutter: 12. SP:Standard pitch. SD:Standard depth. MP:Max pitch. MD:Max depth. T:Tip width of cutter. All dimensions are in mm.

To calculate the escape wheel tooth pitch in order to select the right cutter: multiply the tip diameter D by 'pi' then divide by the number of teeth. Example: for a tip diameter D = 1.375" and a No. of teeth N = 29; Pitch =  $3.142 \times 1.375 / 29 = 0.148"$ . Use cutter size B Dead Beat.

Price per unit



<b>MUSICAL BOX WORM WHEEL CUTTER '00'</b> SP:0.63, SD:0.52, MP:0.80, MD:0.89, T:0.20.	<b>1154 635215</b>	1+	£ 57.00
<b>MUSICAL BOX WORM WHEEL CUTTER '0'</b> SP:0.82, SD:0.67, MP:1.04, MD:1.15, T:0.26.	<b>1154 826715</b>	1+	£ 57.00
<b>MUSICAL BOX WORM WHEEL CUTTER '1'</b> SP:1.10, SD:0.90, MP:1.40, MD:1.55, T:0.35.	<b>1154 110915</b>	1+	£ 57.00
<b>MUSICAL BOX WORM WHEEL CUTTER '2'</b> SP:1.40, SD:1.55, MP:1.80, MD:1.98, T:0.45.	<b>1154 141115</b>	1+	£ 57.00
<b>MUSICAL BOX WORM WHEEL CUTTER '3'</b> SP:1.80, SD:1.47, MP:2.30, MD:2.54, T:0.57.	<b>1154 181415</b>	1+	£ 57.00
<b>MUSICAL BOX WORM WHEEL CUTTER '4'</b> SP:2.30, SD:1.88, MP:2.90, MD:3.24, T:0.73.	<b>1154 231815</b>	1+	£ 57.00

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