



## INDEX

	P. No.
ADAPTOR CHUCK BLOCKS .....	11
ANGLE PLATES (CAST IRON) .....	30
ANGLE CUTTERS .....	28
ARBORS FOR DRILL CHUCKS .....	7
AUTOMATIC CENTRE PUNCH .....	24
 BORING BARS .....	5
BEAM TRAMMELS .....	27
BEARING SCRAPPERS .....	23
 C.I. ADJUSTABLE PARALLEL (PACKINGS) .....	30
CENTRE PUNCHES .....	24
CAST IRON CUBES .....	31
CUTTING-OFF TOOL HOLDERS .....	3
 DEAD (LATHE) CENTRES .....	6
DEPTH GAUGES .....	16
DIE HANDLES .....	18
DRIFTS .....	20
DRILL SLEEVES .....	7
DRILL STANDS .....	20
DRILL CHUCK KEYS .....	19
DRILL MACHINE VICES .....	19
DIAMOND DRESSERS .....	20
 EMERY WHEEL DRESSERS & CUTTERS .....	20
EXTENSION PILOTS .....	22
 FIRM JOINT CALLIPERS .....	15
FIGURE SETS .....	25
 GERMEN TYPE TOOL HOLDERS .....	2
G-CLAMPS .....	24
GRINDING CARRIERS .....	8
 JENNY CALLIPERS .....	16
 KNIFE EDGES .....	29
KNURLS .....	5
KNURLING TOOL HOLDERS .....	4
 LATHE CHUCK KEYS .....	19
LATHE CARRIERS .....	8
LETTER SETS .....	25
 MASTER PIN VICES .....	27
MAGNETIC LINKS .....	13
MAGNETIC BASES .....	11
MAGNETIC CHUCKS .....	10
MAGNETIC RACKS .....	13
MAGNETIC SEPERATORS .....	13
MAGNETIC HOLDERS .....	12
MAGNETIC HOLDFASTS .....	12
MAGNETIC CLAMPS .....	12
MINI MAGNETIC STAND .....	9
MAGNETIC SURFACE GAUGE .....	9
MAGNETIC VEE BLOCKS .....	11

	P.No.
<b>MAGNETS</b>	
POT MAGNETS .....	13
POWER MAGNETS .....	12
POCKET MAGNETS .....	12
BAR MAGNETS .....	13
MACHINIST'S JACKS .....	27
NAIL PUNCHES .....	26
 PARTING (OFF) TOOL HOLDERS .....	3
PLANER & SHAPER TOOL HOLDERS .....	4
PIN VICES .....	26
PRECISION MACHINE VICES .....	19
PIN CHUCK SET .....	27
POCKET RULE .....	16
PROTRACTOR .....	17
PIN PUNCHES (LONG DRIVE) .....	25
PIN PUNCHES (STANDARD) .....	25
PRICK PUNCHES .....	26
 REVOLVING CENTRES .....	6
REVOLVING TUBE CENTRES .....	6
RATCHET BRACES .....	23
<b>REAMERS</b>	
ADJUSTABLE HAND REAMERS .....	21
FIX REAMERS .....	21
RUBBER MALLET .....	27
 SCRIBERS .....	26
SINE BARS .....	30
STEEL PARALLELS (ENG'S & ADJUSTABLE) .....	29
STRAIGHT EDGES .....	28
SPRING CALLIPERS .....	15
SQUARE HEAD CENTRE PUNCHES .....	24
<b>SURFACE GAUGES</b>	
FIXED TYPE .....	8
ADJUSTABLE TYPE .....	8
UNIVERSAL TYPE .....	9
TOOL MAKER'S .....	9
SHEARING MACHINES .....	28
 TAP WRENCHES .....	17
T-TAP WRENCHES .....	18
TURNING TOOL HOLDERS .....	2
TOOL MAKER'S CLAMPS .....	23
TRY SQUARES	
WORKSHOP & A-GRADE .....	14
ADJUSTABLE TRY SQUARES .....	15
GRADUATED TRY SQUARES .....	15
 UNIVERSAL TOOL HOLDERS .....	3
VALVE SEAT & FACE CUTTER SETS .....	22
<b>VEE BLOCKS</b>	
C.I. VEE BLOCKS .....	31
STEEL VEE BLOCKS .....	32
ELONGATED VEE BLOCKS .....	32
TOOL MAKER'S VEE BLOCKS .....	32
UNIVERSAL VEE BLOCKS .....	32
WING COMPASSES .....	16





No. 14S



No. 4S

## 1. "SAGAR" TURNING TOOL HOLDERS

These Turning tool holders are hand forged for maximum strength and rigidity. Tool holders for English type and American type lathes are designed separately. Holders are supplied with Wrench but without Tool Bit.

**WORKSHOP-GRADE**—Hand Forged for greater durability and painted for attractive finish.

**A-GRADE**—Made of finest quality steel. All faces are accurately machined and ground. Available in attractive bright black finish.

Capacity to hold square Tool Bits		For English type Lathes Dimensions (mm)			For American type Lathes Dimensions (mm)			
Inches	No.	L	W	H	No.	L	W	H
1/8"	00	100	12	16	0	100	8	18
3/16"	11	125	12	18	1	100	8	18
1/4"	12	175	16	20	2	125	11	22
5/16"	13	200	18	22	3	150	13	28
3/8"	14	225	20	25	4	180	16	35
7/16"	15	240	22	28	5	205	19	42
1/2"	16	250	25	30	6	225	22	44
5/8"	17	275	28	32	7	250	25	47
3/4"	18	300	30	35	8	280	25	50
7/8"	19	325	32	38	9	300	28	55
1"	20	350	36	40	10	325	30	60

Available in Straight, left hand and Right hand shapes.  
Unit of Pack—One piece in each box.

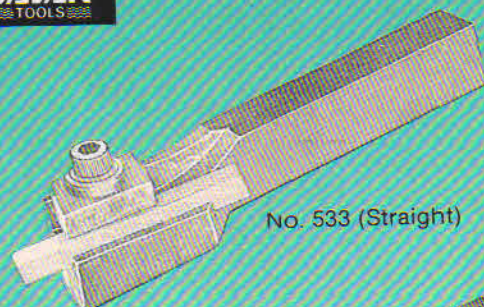
## 2. "SAGAR" ECLIPSE TYPE TOOL HOLDERS

To obtain maximum value of the tool bit it is necessary for the bit to rest on a flat surface. These tool holders which are made from high quality steel, completely fulfill this need.

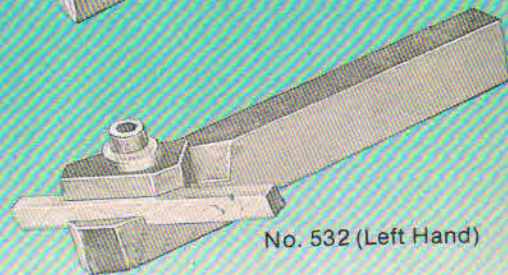
Designed to be used on English type lathes with flat tool rests or 4 way turret tool posts for square tool bits. A clamp is provided so that the tool bit may not move when being used, hence reducing the chance of breakage of the tool bit. Supplied with Wrench but without Tool Bit.

No.	Shape	Capacity to hold Square tool bit.	Dimensions (mm)		
		(Inches)	Length	Width	Height
523	Straight	3/16"—1/4"	130	12	18
522	Left hand	3/16"—1/4"	130	12	18
521	Right hand	3/16"—1/4"	130	12	18
543	Straight	1/4"—5/16"	140	14	22
542	Left hand	1/4"—5/16"	140	14	22
541	Right hand	1/4"—5/16"	140	14	22
533	Straight	5/16"—3/8"	152	16	24
532	Left hand	5/16"—3/8"	152	16	24
531	Right hand	5/16"—3/8"	152	16	24
553	Straight	3/8"—1/2"	185	19	30
552	Left hand	3/8"—1/2"	185	19	30
551	Right hand	3/8"—1/2"	185	19	30

Unit of pack—One piece in each box



No. 533 (Straight)



No. 532 (Left Hand)

## 3. "SAGAR" GERMAN TYPE TOOL HOLDERS

These are specially designed tool holders with accurately machined unusually long channel to provide a true and rigid seat for the tool bit reducing the chance of breakage. They are supplied with Wrench but without Tool Bit.

No.	Capacity to hold square tool bit (Inches)	Dimensions (mm)		
		Length	Width	Height
261	1/4"	110	15	22
262	5/16"	125	20	23
263	3/8"	150	22	28
264	1/2"	175	27	35

Unit of pack—One piece in each box.



No. 263





No. 745

#### 4. "SAGAR" UNIVERSAL TOOL HOLDERS

These are specially designed tool holders extremely useful for light turning work. These are made from high quality steel and are properly machined. They are finished attractively in black mottle. The unique feature is that the tool bit can be adjusted to any required position or angle. Each piece is supplied with Wrench & lever bit but without Tool Bit.

No.	To hold square Tool Bit (Inches)	Dimensions (mm)		
		Length	Width	Height
747	1/4"	120	12	12
746	5/16"	140	15	15
745	3/8"	160	19	19
744	1/2"	185	24	24

Unit of pack—One piece in each box

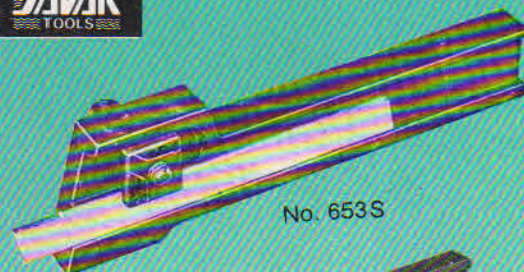
#### 5. "SAGAR" CUTTING-OFF (PARTING) TOOL HOLDERS.

Although primarily designed for holding bevel section cutting-off tools, they can also be used with the "Hollow Ground" type. Manufactured from high quality steel, machined & heat treated consists of a clamp to enable it to hold cutting-off blades of different sizes (within a certain range). No. 633 However, is suitable to hold hollow ground. Supplied with Wrench but without Cut-off Blade.

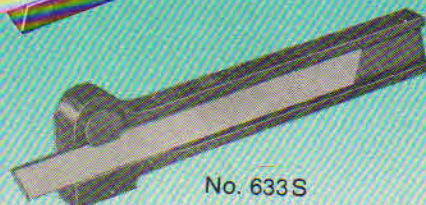
No.	Capacity (Inches)	Size of the Holder		
		Length	Width	Height
633	5/16"	90	8	14
653	1/2"—5/8"	150	12	27
673	3/4"—7/8"	175	15	35
693	1"—1.1/8"	190	19	45

Supplied in Straight, Left hand & Right hand Shapes.

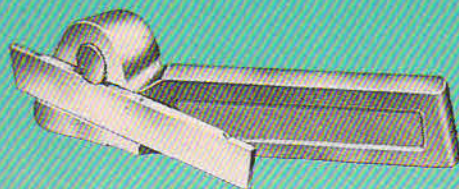
Unit of pack—One piece in each box.



No. 653S



No. 633S



No. 29R



No. 19S

#### 6. "SAGAR" PARTING OFF & SIDE TOOL HOLDERS

They are specially designed to accomodate both parting off & side tool blades. They are properly machined, heat treated and are supplied in attractive black mottle finish. A special cam device enables the blade to be changed when the holder is clamped in tool post and also ensures rapid and positive locking of the blade.

Supplied with Wrench but without cut-off blade.

Straight No.	Right No.	Left No.	Capacity	Size of the Holders		
				Length	Width	Height
19S	29R	29L	3/32"x1/2"	114	9	22
20S	30R	30L	3/32"x5/8"	125	12	24
21S	31R	31L	1/8"x3/4"	150	14	29
22S	32R	32L	1/8"x7/8"	175	16	35
23S	33R	33L	3/16"x1"	200	19	42
24S	34R	34L	3/16"x1.1/8"	225	22	47

Unit of pack—One piece in each box.





No. 130

## 7. "SAGAR" TOOL HOLDERS FOR PLANERS & SHAPERS

These Tool Holders are designed for quick adjustment while planing or shaping either Right hand or Left hand. These are manufactured from high quality steel and are attractively finished in black mottle.

The grooved seats of these Tool Holders enable the Tool Bit to be firmly and solidly supported. Supplied complete with Wrench but without Tool Bit.

No.	Size of Holder (Approx.) mm.			Capacity to hold Bits Inches	
	Length	Height	Width	Square Bit	Flat Bits
127	125	22	11	1/4"	1/4" to 3/8"
128	175	25	12	1/4"	1/4" to 1/2"
129	213	31	16	5/16"	5/16" to 1/2"
130	250	38	19	3/8"	3/8" to 5/8"
131	325	44	25	1/2"	1/2" to 3/4"
132	400	50	31	5/8"	5/8" to 7/8"
133	475	56	47	3/4"	3/4" to 1"

Unit of pack : One piece in each box.

## 8. "SAGAR" KNURLING TOOL HOLDERS

Separately designed for English type and American type Lathes, these Holders are accurately Machined and ground and are supplied in attractive black mottle finish.

These are manufactured from high quality fabricated steel for maximum rigidity and strength. These Holders are supplied with C.S., H.S. or H.S.S. knurls as required.

No.	Size of the Holder (mm)	Size of the Knurls fitted	Nos. of Knurls	Shapes of Knurls fitted
1019	115x15x15	19x6.4x6.4	1	Straight, Diamond or Checkered
1020	125x18x18	19x9.5x6.4	1	—do—
1017	115x12x12	19x9.5x6.4	2	Right & Left
1016	150x25x12	19x9.5x6.4	3	Straight, Diamond or Checkered
1015	165x25x25	19x9.5x6.4	6	Right & Left
1027	165x22x12	16x4.6x6.4	6	Right & Left
1028	165x25x19	16x19x6.4	6	Right & Left

### American Type

No.	Size of the Holder (mm)	Size of the Knurls fitted	Nos. of Knurls	Shapes of Knurls fitted
1755	125x19x8	16x8x5.5	2	Right & Left
1756	138x22x9.5	16x8x5.5	2	Right & Left
1757	165x29x12	19x9.5x6.4	2	Right & Left
1758	190x35x16	19x9.5x6.4	2	Right & Left
1112	125x19x8	16x8x5.5	6	Right & Left
1113	138x22x9.5	16x8x5.5	6	Right & Left
1114	165x29x12	19x9.5x6.4	6	Right & Left
1115	190x35x16	19x9.5x6.4	6	Right & Left

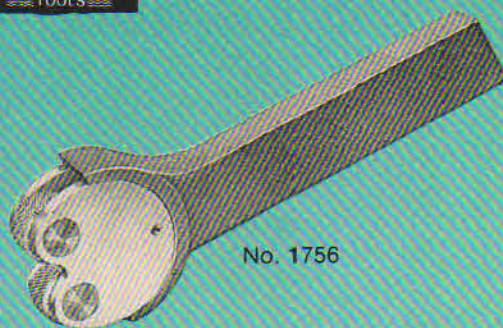
Unit of pack—One piece in each box.

**C.S. KNURLS ARE MADE OF CARBON STEEL.**

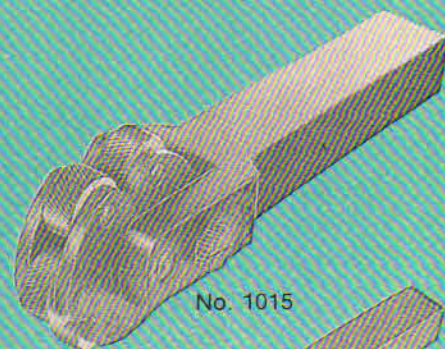
**H.S. KNURLS ARE MADE OF BEST ALLOY STEEL.**

**H.S.S. KNURLS ARE MADE OF HIGH SPEED STEEL.**

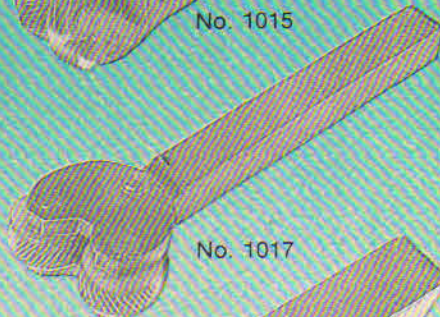
Knurling Tool Holders with Single Knurls and 2 Knurls can be supplied in fine, medium or coarse pitches as required. If no specification is given, these will be fitted with medium pitch knurls. Holders with six knurls are fitted with three pairs of knurls (one right and one left), in fine, medium & coarse pitches.



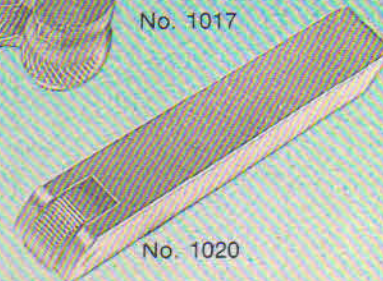
No. 1756



No. 1015

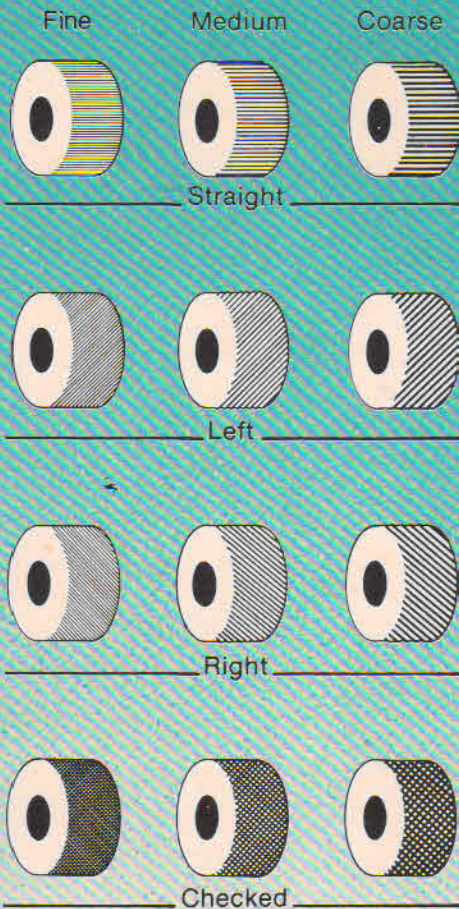


No. 1017



No. 1020





### 9. "SAGAR" SPARE KNURLS

These are made from the best quality steel in all the three grades and are properly heat treated and hardened. They are made to close limits in all respects and precision cut to give clear cut impressions for a long time. The bores of these knurls are concentric and parallel to the cutting faces to ensure uniform clearcut results.

These are available in three grades C.S., H.S. and H.S.S. Whereas, C.S. knurls are made from Carbon Steel, H.S. knurls are made of best quality Alloy Steel and the H.S.S. as the name tells are made of High Speed Steel and are of the most superior quality of knurls. The life of H.S.S. knurls is much more than the other two grades to give you real value of your money.

C.S. and H.S. knurls are available in various pitches whereas H.S.S. knurls can be supplied only in fine, medium and coarse pitches. All the C.S. & H.S. knurls are marked with certain numbers which indicate approximate T.P.I. (Teeth per inch). Actually, the commonly used knurls are in fine, medium and coarse pitches but however other pitches in C.S. and H.S. knurls can also be supplied. The approximate conversion of number given on our H.S. & C.S. knurls is given hereunder:-

Pitches Number	Extra Fine	Fine	Medium	Coarse	Extra Coarse
	40	32	24	16	10

Note :- Numbers are not marked on H.S.S. knurls.

All the knurls are available in five shapes i.e. Straight, Right, Left, Diamond (Male) and Checkered (Female).

Size of knurls		For Knurling Tool Holders
Inches	mm	
3/4x3/8x1/4	19x9.5x6.4	1015, 1016, 1017, 1020 1115, 1114, 1757 & 1758
3/4x1/4x1/4	19x6.4x6.4	1019
5/8x3/16x1/4	16x4.5x6.4	1027
5/8x3/4x1/4	16x19x6.4	1028
5/8x5/16x7/32	16x8x5.5	1112, 1113, 1755, & 1756

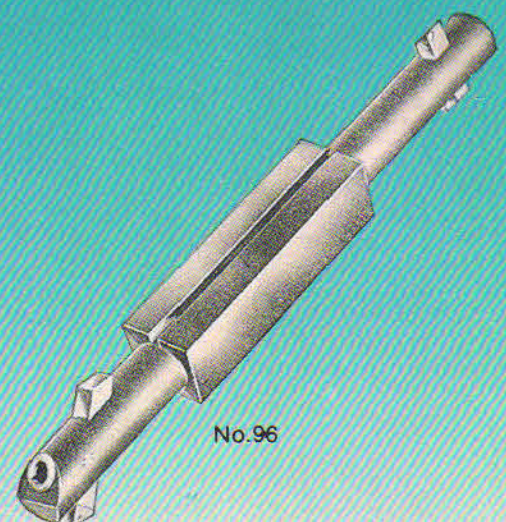
Unit of pack—10 Pieces in each box

### 10. "SAGAR" BORING BARS

Manufactured from high quality steel. Finished attractively in descent colour and accurately machined. Of extreme rigidity and has no caps to work loose or be mislaid. It will bore close upto a shoulder. Supplied with an Allen key but without Tool Bit.

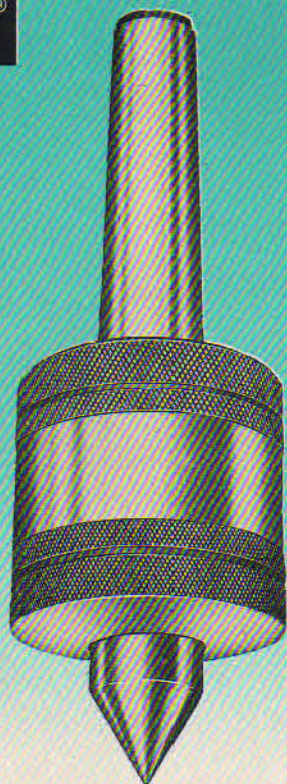
No.	Capacity to hold square bit (Inches)	Size of Bar (mm)		Size of Holder (mm)	
		Length	Dia	Length	Square
92	1/8"	112	9.5	53	12
93	3/16"	140	11	63	15
94	1/4"	170	14	75	19
95	5/16"	225	19	95	25
96	3/8"	275	22	114	29
97	7/16"	325	25	125	32
98	1/2"	400	30	150	40
99	5/8"	450	32	175	44
100	3/4"	500	35	200	48
101	7/8"	550	38	225	50
102	1"	600	45	250	63

Unit of pack : One piece in each box.



No. 96





Male Point

## 11. "SAGAR" REVOLVING CENTRES

**HOUSING**—Made of best quality steel, properly heat treated and ground internally and externally. The important features being its rigid construction of single piece body.

**Nozzle**—Made of best quality chrome-carbon steel hardened, tempered and ground all over. Point Ground after assembly running on its own bearings. Utmost care of Nozzle should be taken while being used and should not ever be dropped.

Ordinarilly would be supplied with nozzle ground to 60° unless otherwise specified. 30° & 90° angles can also be supplied against specific orders. Centres fitted with H.S.S. and carbide tipped nozzles can also be supplied.

**Bearings**—Centres are supplied fitted with one taper roller bearing and one ball bearing which share the radial load between them.

**Triple Bearing** Heavy duty Revolving Centres can also be supplied against orders.

**LUBRICATION**—To sustain Longer life of the bearings and that of the Revolving centres it should be regularly lubricated through grease nipple provided in the body.

Description of the Models available	Morse Taper Numbers Available
Revolving Centres with Male point of chrome carbon steel Nozzles	1, 2, 3, 4, 5, & 6
Revolving Centres with Male point of High speed Steel Nozzles	1, 2, 3, 4, 5, & 6
Revolving centres with Male Point of carbide tipped Nozzles.	1, 2, 3, 4, 5, & 6
Revolving Centres Female Point	1, 2, 3, 4, 5 & 6

Unit of pack—One piece in each box/CNC & NC Centres also available

## 12. "SAGAR" REVOLVING TUBE (PIPE) CENTRES

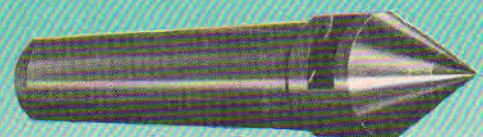
Supplied with coned holes for pipe or tube works. Most suitable for jobs with large diameters.

CAPACITY		MT NO'S Available
MM	Inches	
25—50	1"—2"	2, 3, & 4
30—65	1.1/4"—2.1/2"	2, 3, & 4
38—75	1.1/2"—3"	2, 3, & 4
50—88	2"—3.1/2"	3, 4 & 5
63—100	2.1/2"—4"	4, 5, & 6
75—150	3"—6"	4, 5, & 6
100—200	4"—8"	6

Unit of pack—One piece in each box.



C.S. Male Point



Carbide Tipped



C.S. Half

## 13. "SAGAR" DEAD (LATHE) CENTRES

Manufactured from the finest quality carbon steel, hardend & ground all over accurately to precision limits, permitting high speeds without burring or freezing to the work if used properly.

Dead centres with carbide Tipped points are also available. These are brazed with prescribed carbide Tips for better working and maximum resistance to work Load. Solid High speed steel Dead Centres are made of high quality High Speed Steel.

Model Description	Morse Taper Numbers Available
Plain Carbon Steel	0, 1, 2, 3, 4, 5, & 6
Plain Carbon Steel (Half)	1, 2, 3, 4, 5, & 6
Carbide Tipped	0, 1, 2, 3, 4, 5, & 6
Carbide Tipped (Half)	1, 2, 3, 4, 5, & 6
Solid High Speed Steel	1, 2, 3 & 4
Carbon Steel having Female Point	1, 2, 3, 4, 5, & 6

Centre would be supplied with 60° points unless otherwise specified.

Unit of pack—Five pieces in box (Upto MT No. 4) MT No. 5 & 6 are available in single piece packing.

Centres for NC & CNC machines also available





MT 3-4

#### 14. "SAGAR" MORSE TAPER DRILL SLEEVES

Supplied both in Workshop-grade & A-Grade

**WORKSHOP-GRADE**—These are manufactured from fine quality mild steel. Are ground all over shank and reamed inside. They enable to reuse taper shank Drills when the tang has been broken off. Most suitable for Ordinary workshop use.

**A-GRADE**—These are manufactured from high quality case hardened steel, hardened all over and accurately ground both externally & internally.

MORSE TAPER DESCRIPTION		Unit of Pack
Inside Taper	Outside Taper	
0	1	5
1	2	5
1	3	5
1	4	5
1	5	1
2	3	5
2	4	5
2	5	1
2	6	1
3	4	5
3	5	1
3	6	1
4	5	1
4	6	1
5	6	1

A-Grade sleeves are packed individually.

#### 15. "SAGAR" ARBORS (FOR DRILL CHUCKS)

"SAGAR" Arbors for Drill Chucks are available for all Indian makes like Jug, Praga & Gripp etc. Arbors for imported and threaded chucks are also manufactured.

**Workshop Grade**—Manufactured from finest quality mildsteel and ground all over.

**A-GRADE**: Made from alloy steel completely hardened, tempered and ground to precision limits. Most suitable for imported Drill chucks

**THREADED**: For threaded Drill chucks, high accuracy of morse taper and threads is maintained.

To select right Arbor for your Drill Chuck kindly see the below chart.

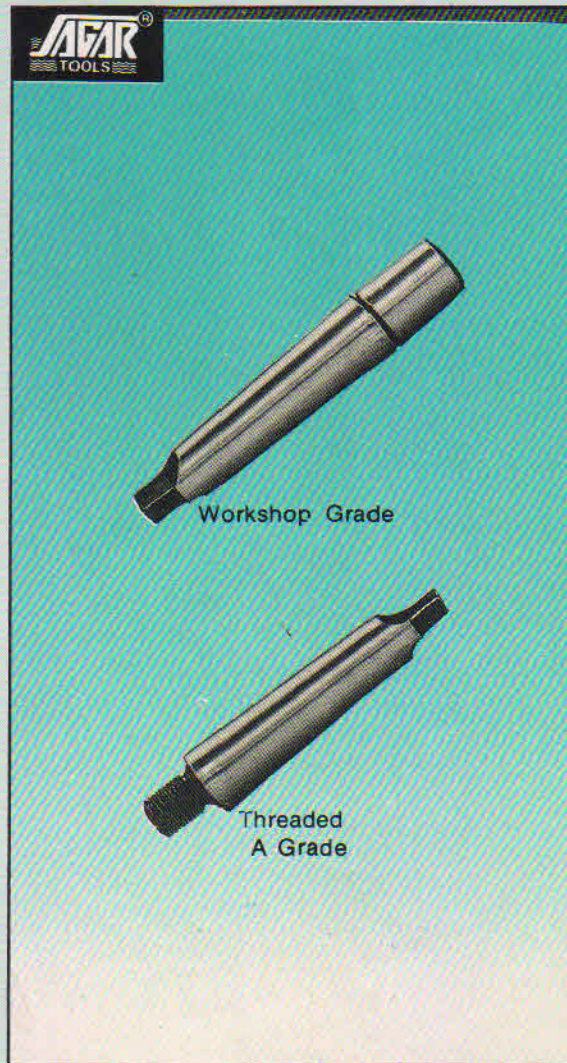
Morse Taper No.	For Drill Chuck Size	Unit of Pack
1	1/4", 3/8" & 1/2"	5
2	1/4", 3/8" 1/2", 5/8" & 3/4"	5
3	1"	1
4	1/2", 5/8", 3/4", & 1"	1

No. of Arbor	Suitable for tapered Hole Drill Chucks
20	Size 1/4" "Jug" No. 20
29A & 29 B	Size 1/4" "Praga" No. 29 for Small hole & 29 B for Big hole.
22	Size 1/4" "Jug" No. 22, "Gripp", "Amba"
31	Size 5/16" No. 24 & 3/8" No. 31, "Jug" "Gripp", "Amba"
34	Size 3/8" & 1/2" "Praga"
40	Size 1/2" "Jug" No. 40, 43, "Gripp", "Amba"
61	Size 5/8" No. 52 & 3/4" No. 61 "Jug" "Gripp", "Amba"
81	Size 3/4" "Praga"
85	Size 1" Jug No. 85, "Praga", "Gripp", "Amba"

#### For Threaded Arbors

No.	Threads	To Suit Threaded Drill Chucks
23	3/8"x24T	No. 23-1/4" & No. 33-3/8" Jug
42	1/2"x20T	No. 21-1/4", No. 25-5/16", No. 32-3/8"
		No. 42-1/2" & No. 54-3/8" Jug
53	5/8"x16T	No. 41 & 44-1/2", No. 53-5/8"
		No. 63-3/4" (Jug)
62	3/4"x16T	No. 62-3/4" (Jug)

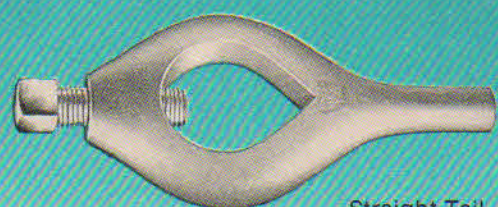
Unit of Pack—One piece in each Box.



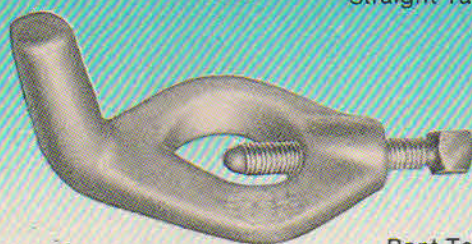
Workshop Grade

Threaded  
A Grade





Straight Tail



Bent Tail

## 16 "SAGAR" LATHE CARRIERS

Made of robust & rigid construction for maximum strength and durability. Supplied in both straight and bent shapes. Sizes above 3" are supplied with two screws instead of one.

Capacity		Capacity	
Inches	mm	Inches	mm
1/4"	6	2 1/4	55
3/8"	10	2 1/2	65
1/2	13	2 3/4	70
3/4	20	3	75
		3 1/4	80
1	25	3 1/2	90
1 1/4	30	4	100
1 1/2	40	4 1/2	115
1 3/4	45	5	125
2	50	6	150

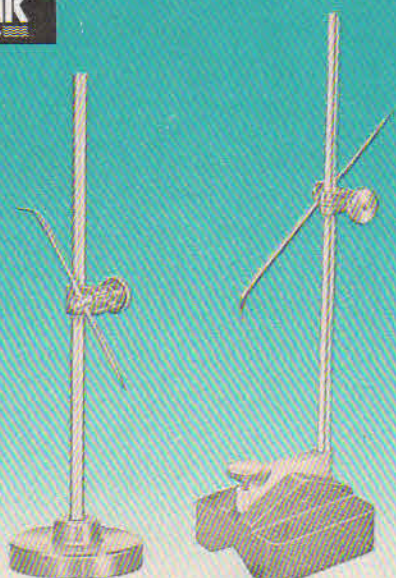
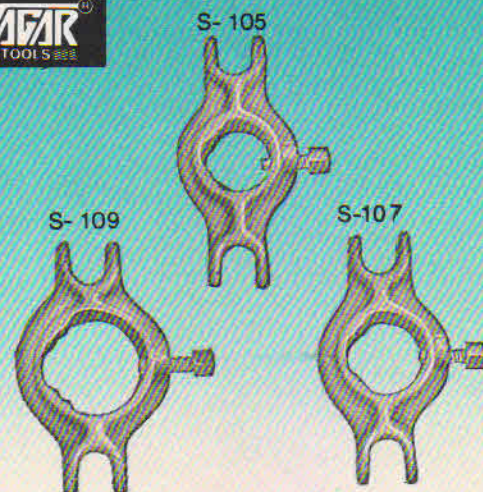
Unit of pack—One piece in each box.

## 17 "SAGAR" GRINDING CARRIERS.

Most suitable for light work on machines. Made of malleable Iron for extreme strength. Most robust construction.

Capacity		Capacity	
No.	mm	No.	mm
S-103	5	S-113	55
S-104	10	S-114	60
S-105	15	S-115	65
S-106	20	S-116	70
S-107	25	S-117	75
S-108	30	S-118	80
S-109	35	S-119	90
S-110	40	S-120	100
S-111	45	S-121	125
S-112	50	S-122	150

Unit of pack—One piece in each box.



No. 404

No. 406

## 18 "SAGAR" SURFACE GAUGES [FIXED & ADJUSTABLE]

FIXED SURFACE GAUGES are available in most rigid construction. Base is of cast Iron, accurately machined. Scribes are made of best quality steel. ADJUSTABLE SURFACE GAUGES are designed for use on both flat and round surfaces. Accurately machined C.I. base with vee groove enables it to be used on round surfaces. Consists of fine adjustment on a rocking pin.

Length of Spindle		No. 404 Dia of Base	No. 406 Dimensions of Base L W H
Inches	mm	mm	mm
6	150	58	52x51x20
9	225	70	64x59x21
12	300	78	71x66x22
18	450	95	95x81x25
20	500	95	95x81x25
25	625	105	106x90x28
30	750	105	106x90x28
36	900	124	145x92x29
40	1000	124	145x92x29

Unit of pack—One piece in each box.





No. 405C

## 19 "SAGAR" UNIVERSAL SURFACE GAUGES

These are of most rigid and durable construction and are accurately ground. Supplied with both steel base and cast Iron base.

As understood from name itself Steel base is made of fine quality steel accurately ground all over. C.I. base is made of cast Iron and painted for attractive finish. However, the bottom is accurately ground.

Vee groove enables them to be used on both flat and round surfaces. Two frictionally held pins are provided in the base for linear work. Spindle and Scriber can be set at any angle.

C.I. Base No.	Steel Base No.	Spindle Length		Size of Base mm L W H
		Inches	mm	
—	403A	4	100	54x41x20
—	403B	4 & 7	100 & 175	54x41x20
—	403C	7	175	54x41x20
605A	405A	9	225	80x62x24
605B	405B	9 & 12	225 & 300	80x62x24
605C	405C	12	300	80x62x24
607A	407A	12	300	104x85x26
607B	407B	12 & 18	300 & 450	104x85x26
607C	407C	18	450	104x85x26
608C	408C	20	500	104x85x26
609C	409C	25	625	120x94x31
610C	410C	30	750	120x94x31

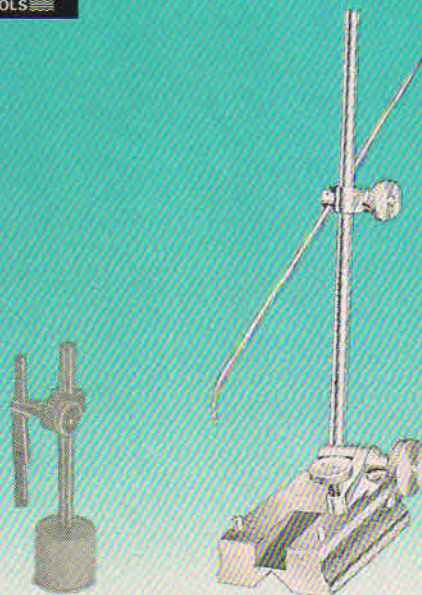
Unit of Pack—One piece in each box.

## 20 "SAGAR" TOOL MAKER'S SURFACE GAUGES

Available with Hardened & Ground Steel base. Bottom grooved for cylindrical work and front recessed for depressing spindle below base line adjustable to any angle with in the range. Two retraceable pins are provided in the base to work on flat surface. Most useful for layout work.

No.	Spindle Length		Size of base mm L W H
	Inches	mm	
357	4 & 7	100—175	56x40x18
358	9 & 12	225—300	80x62x24

Unit of pack—One piece in each box.



No. 701

No. 357

## 21 "SAGAR" MINI MAGNETIC STAND

A universal permanent magnetic stand with high magnetic power. Can be used on any flat ferrous surface. Extra ordinary magnetic power provides maximum rigidity

No.	Size of the base mm		Size of Rod mm	
	Dia	Height	Dia	Length
701	25	25	6.24	88

Unit of pack—One piece in each box.



No. 810

## 22 "SAGAR" MAGNETIC SURFACE GAUGE

A heavy duty version of mini magnetic stand. Designed to hold different types of dials. Can be used both for holding dials or as a surface gauge for scribing lines. It is provided with a scriber and a neutralizing disc at the bottom.

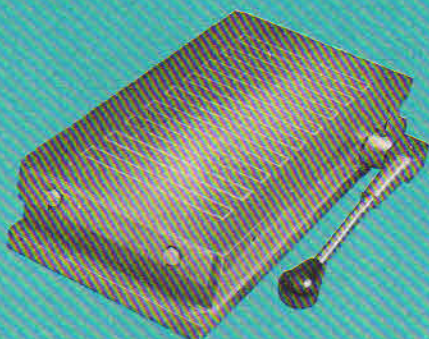
No.	Overall Length mm	Size of base			Magnetic Pull Kgs.
		L	W	H	
810	235	50	34	32	18/20

Unit of pack—One piece in each box.

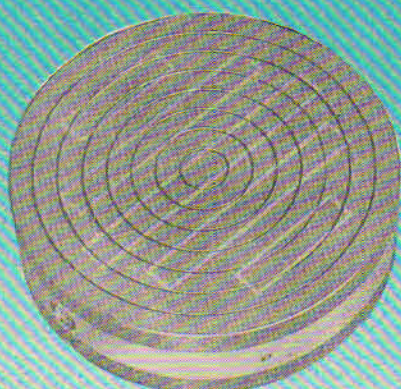




Standard Poles



Close Poles



Standard Poles

## 23 "SAGAR" PERMANENT MAGNETIC CHUCKS

For effective rapid holding of ferrous work pieces, permanent magnetic chuck is a reliable, permanent and an inexpensive source. Since they require no electrical supply, consequently no running costs and no installation charges are involved.

Best quality magnets are used in these chucks. Pole spacing is carefully selected to cover the widest range of workpieces on the upperplate. All like poles are connected to ensure the most effective hold on single work pieces or on partial loads.

The sturdy construction of "SAGAR" magnetic chucks is based on the solid assembly of components. The top plate is made of solid mild steel to ensure greater strength and rigidity.

Rectangular magnetic chucks are supplied with built-in ON-OFF handle whereas circular chucks are supplied with spare handle to magnetize or demagnetize the chuck. They are supplied with both standard poles and close poles spacing.

### DIMENSIONS OF RECTANGULAR CHUCKS

Size Inches	mm	Nos. of Poles		Length of Poles mm	Width of Poles	
		Standard Poles	Close Poles		Standard Poles mm	Close Poles mm
6x3	150x75	4	5	52	16	15
6x4	150x100	4	5	52	16	15
8x4	200x100	5	6	76	18	16
10x5	250x125	5	7	94	21	16
10x6	250x150	5	7	94	21	16
12x6	300x150	6	9	110	21	16
12x8	300x200	6	9	110	21	16
14x6	350x150	8	11	112	21	16
14x8	350x200	8	11	112	21	16
16x6	400x150	9	12	112	21	18
16x8	400x200	9	12	112	21	18
18x6	450x150	10	12	112	21	18
18x8	450x200	10	12	162	21	16
20x6	500x150	11	13	162	21	16
20x8	500x200	11	13	162	21	16
20x10	500x250	11	13	162	21	16
24x8	600x200	12	16	162	25	19
24x10	600x250	12	16	210	25	19
24x12	600x300	12	16	260	25	19
30x10	750x250	15	20	260	25	19
30x12	750x300	15	20	260	25	19

Unit of Pack—One piece in each box.

Sizes above 12"x6" are packed directly in wooden cases.

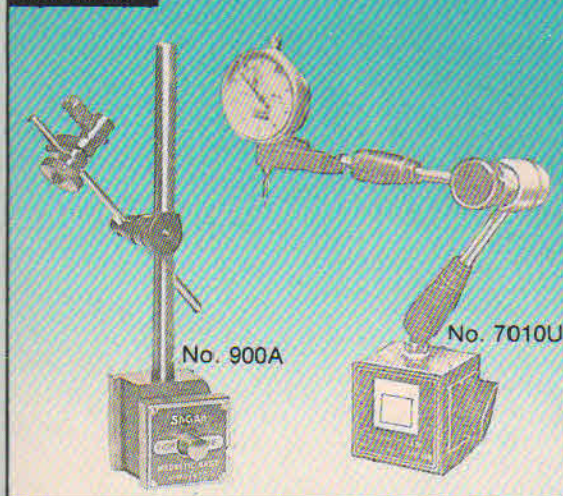
### DIMENSIONS OF CIRCULAR CHUCKS

Size Inches	Outer Dia of Chucks mm	Numbers of Poles		Length of Centre Pole mm	Width of Poles	
		Standard Poles	Close Poles		Standard Poles mm	Close Poles mm
4	100	3	—	70	13	—
5	125	3	—	92	15	—
6	150	4	5	110	18	15
6½	162	4	5	120	18	15
8	200	5	6	160	18	16
9	225	5	7	180	18	16
10	250	5	7	205	21	16
12	300	6	9	255	21	16
14	350	8	11	300	21	16
15	375	8	11	325	21	16
16	400	9	11	345	21	18
18	450	10	12	385	21	18

Unit of pack—One piece in each box.

Sizes above 8" are packed directly in wooden cases.





These units are primarily designed for holding dial gauge indicators. These are equipped with ON-OFF mechanism for controlling the magnetic power. Can be used on any ferrous surface with complete rigidity and dial gauges can be adjusted to almost any position. Provided with cross bar assembly and knuckle joint. All models supplied without Dial gauge.

No.	Particulars	Size of Base mm L W H	Overall Length mm	Dia. of Rod mm	Magnetic Pull (Kgs.)
900A	(Standard)	40x45x50	238	9.3	25/30
900F	(Fine Adj.)	40x45x50	238	9.3	25/30
903	(Standard)	40x45x50	238	12.5	25/30
903F	(Fine Adj.)	40x45x50	238	12.5	25/30
7010	(Standard)	47x62x52	235	12.5	45/50
7010F	(Fine Adj.)	47x62x52	235	12.5	45/50
7010U	(Universal Adj.)	47x62x52	360	9.3	45/50
901B	(Standard)	63x63x76	235	22	45/50
902B	(Standard)	63x63x76	455	22	45/50

Unit of pack—One piece in each box

## 25 "SAGAR" MAGNETIC VEE BLOCKS

These are designed basically to hold cylindrical workpieces for different operations. It is capable of holding itself and the workpiece on any flat ferrous surface including a magnetic chuck without energising the chuck.

A very useful tool for Toolrooms and workshops. Consists of two vees one for workpieces with large diameters and other for workpieces with small diameters. It is fully sealed and is protected against use of collants under normal conditions.

**Hardened & Ground** Magnetic Vee Blocks are also supplied in No. 934, 936 & 938. Both the working faces are hardened reducing wear & tear chances for a longer period.

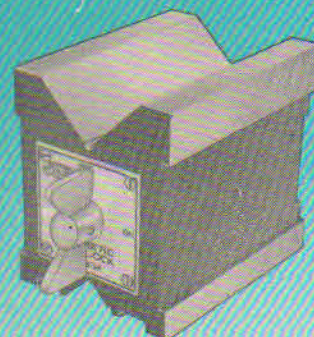
Supplied both in Single pieces and matched pairs.

No.	Size (mm) L W H	Holding Capacity (mm)
932	65x60x50	38
933	80x65x60	48
934	100x95x75	62
936	150x95x75	65
938	200x150x100	90

Unit of pack—One pair or one piece in each box as desired.

### EXPORT QUALITY MAGNETIC VEE BLOCKS

No. 934E SIZE APPORX 100x95x70 mm can also be supplied in singles or pairs.



No. 934



No. 849.

## 26 "SAGAR" ADAPTOR CHUCK BLOCKS

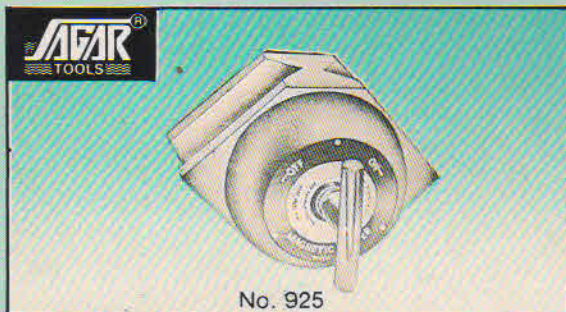
Specially designed to hold magnetically any small ferrous part which cannot be mounted on Magnetic Chucks. These are automatically magnetised when the Magnetic Chuck is magnetised.

Supplied in matched pairs both with Flat Face as well as Vee Face.

No.	Size (Inches) L W H	Description
850 F	3x2.1/4x1.3/8	Flat Face
850 V	3x2.1/4x1.3/8	Vee Face
849 F	4x3x2	Flat Face
849 V	4x3x2	Vee Face

Unit of Pack—One pair in each box.





## 27 "SAGAR" MAGNETIC HOLDER

A compact magnetic unit consisting of powerful Alcomax permanent magnets providing much greater magnetic power. It incorporates of plain and vee faces to hold round bars, ferrous plates and sheets. The plain face is meant to hold flat sections. The flux is controlled with a rotating handle.

No.	Body Size	Overall Height
	mm	mm
925	108x98	150

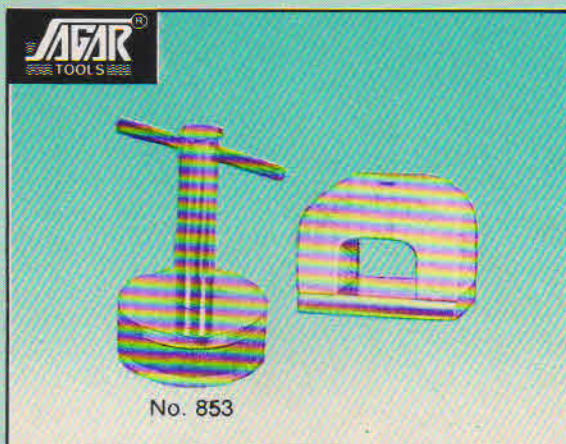
Unit of Pack-One piece in a wooden box.

## 28 "SAGAR" MAGNETIC HOLDFASTS (Heavy duty pot magnets)

Designed for workholding of ferrous metals. These are heavy duty versions of pot magnets. They are used where high gripping power is needed but not attraction from distance. It is provided with a neutralizing disc which can be removed by using the jack off screw.

No.	Size	Magnetic Pull (Kgs.)
	Inches	
675	1.3/4x1.3/4	20/22
676	2.1/4x2.1/4	30/32
677	2.3/4x2.3/4	50/55

Unit of Pack-One piece in each box.



## 29 "SAGAR" POWER MAGNETS

They are available in different designs to give maximum power and efficiency. Primarily designed to hold ferrous parts or for sorting out ferrous parts from other components.

No.	Description
851C	Discontinued
852C	Discontinued
853C	Discontinued
851	With T-Handle Dia 65mm x 20mm thick
852	With T-Handle Dia 75mm x 20mm thick
853	With T-Handle Dia 100mm x 20mm thick
854	With T-Handle Dia 125mm x 20mm thick
831	U-Type taper magnet without centre hole
831C	U-Type straight with centre hole.

Unit of Pack-One piece in each box.

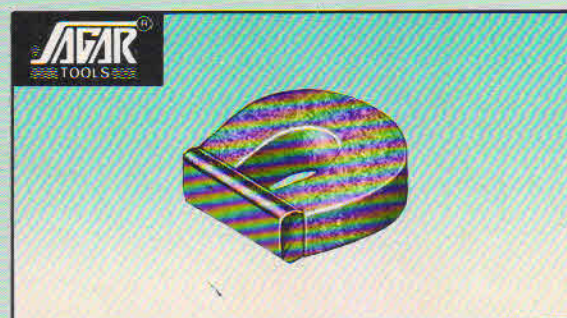
## 30 "SAGAR" POCKET MAGNETS

These are meant for light duty inspection and Laboratory work. Most useful because of its small size and high power.

No.	Description
701	Small
802	Medium
903	Large.

Supplied with neutralizing disc.

Unit of Pack-Five Pcs. in each box.



## 31 "SAGAR" MAGNETIC QUICK CLAMPS

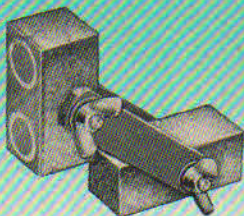
Primarily designed for quick and accurate holding of ferrous tubes and sheets during welding. However they can be used also in jigs and assemblies.

These are capable of holding jobs at angles of 180°, 90°, 60°, 45°, 30°. Most useful tool in welding kits.

No.	Dimensions (mm)	Pull (Kgs.)
851	100x65	15/20
852	125x100	20/25

Unit of Pack-One piece in each box.





No. 921

**32 "SAGAR" ADJUSTABLE MAGNETIC LINKS**

These are specially designed for jobs where quick angular clamping of sheet metal is required. Consists of two rectangular blocks each of which has two powerful magnets to exert maximum grip on the workpiece. Two blocks can be adjusted at any position by using wing nuts. Their small size enables them to be used in confined areas.

No.	Size mm		
	L	W	H
920	50x25x25		
921	75x38x25		

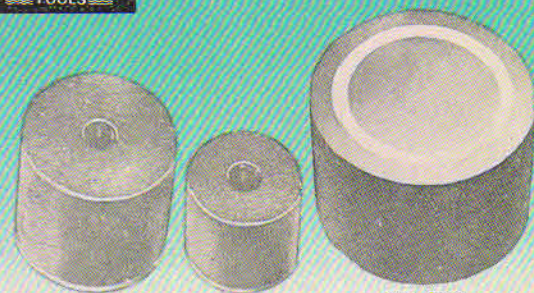
Unit of Pack-One piece in each box.

**33 "SAGAR" POT MAGNETS**

These are compact units with round magnets embodied in mild steel body with aluminium rings acting as insulators. These are primarily designed to act as gripping magnets. They are provided with tapped holes and as such can be used in other assemblies.

No.	Diameter mm	Height mm	Pull (App.) Kgs.
831	18	15.75	2
832	20	19	3.5
833	28	25.5	6
834	35	30	12

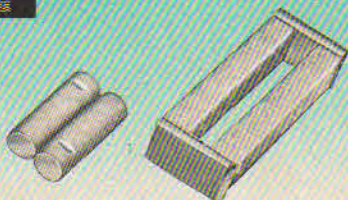
Unit of pack-Five Pcs. in each box.



No. 833

No. 831

No. 834



No. 805R

No. 807

**34 "SAGAR" BAR MAGNETS**

Primarily designed for Laboratory use. Having Flat and Round shapes in single piece construction. Supplied with chrome plated keepers in pairs.

Rectangular		Circular	
No.	Size (mm)	No.	Size (mm)
805	50x16x9.5	805R	50x12.7
806	75x16x9.5	806R	75x12.7
807	100x16x9.5	807R	100x12.7

Unit of Pack-One pair in each box.

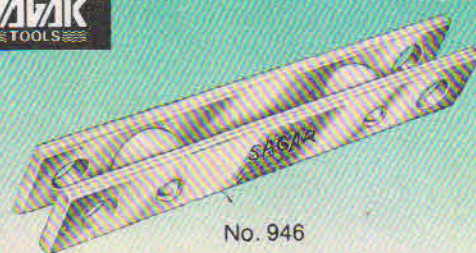
**35 "SAGAR" MAGNETIC RACKS**

These are meant for use as tool racks for all types of light weight tools. Made of permanent magnets fitted between mild steel pieces. They solve many space problems as they can be fitted on walls with the help of nails.

Can also be used in jigs and fixtures.

No.	Size (mm)
945	150
946	225
947	300

Unit of Pack-One piece in each box.



No. 946



No. 826

**36 "SAGAR" MAGNETIC SEPERATORS**

Specifically designed for seperating ferrous sheets or particles. Most usefull in workshops for cleaning machine beds, and in tea gardens.

Can be demagnetized by simply pulling up the handle.

No.	Size (mm)			Description
	L	W	H	
826	175x120x11			Light Duty
827	195x135x14			Heavy Duty





### 37 "SAGAR" ENGINEERS TRY SQUARES

#### (a) WORKSHOP GRADE

These are workshop grade Try Squares. Stocks are accurately ground & blades fitted most accurately.

Sizes		Dimensions of stock (mm)			Dimensions of Blade (mm)		
Inches	mm	L	W	T	L	W	T
2"	50	50x20x12			50x20x1.5		
3"	75	62x20x12			80x20x1.5		
4"	100	75x20x12			105x20x1.5		
6"	150	100x24x12			158x25x1.8		
8"	200	125x26x15			208x32x1.8		
9"	225	140x29x16			230x32x1.8		
10"	250	150x38x20			254x38x1.9		
12"	300	175x38x20			308x38x1.9		
16"	400	225x45x22			410x47x2.4		
18"	450	250x45x22			412x50x2.4		
20"	500	275x45x22			516x50x2.4		
24"	600	325x60x28			550x55x2.4		
30"	750	375x70x35			690x75x4.7		
36"	900	450x80x38			830x82x6.3		
40"	1000	500x88x44			935x88x6.3		
42"	1050	525x88x46			980x88x6.3		
48"	1200	600x95x45			1125x102x7.9		
60"	1500	750x120x55			1405x112x9.5		
64"	1600	800x120x55			1505x125x9.5		
72"	1800	900x145x70			1680x150x12.5		
80"	2000	1000x145x70			1885x150x12.5		

Unit of Pack-One piece in each box upto 12". Bigger sizes are supplied in strong wooden sheaths.

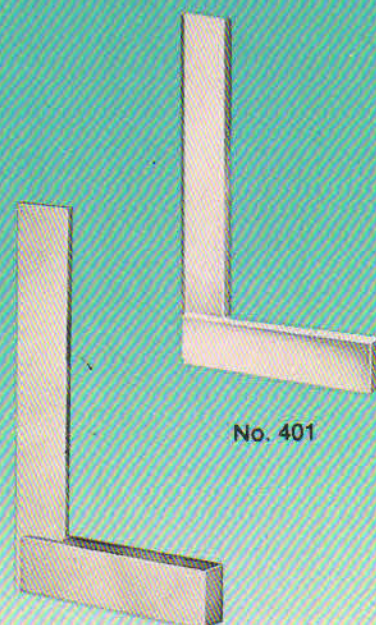
#### (b) A-GRADE

These are precision grade squares manufactured from high quality steel. They are much more accurate than workshop grade squares. Blades are hardened and accurately ground. Stock is made of fine quality steel and is accurately ground.

These are available both in Square edge No. 400 and Bevel edge No. 401.

Size		Dimensions of stock mm			Dimensions of Blade mm		
Inches	mm	L	W	T	L	W	T
2"	50	50x20x10			56x20x1.8		
3"	75	60x20x12			82x20x1.8		
4"	100	75x20x12			108x20x2		
6"	150	100x27x15			158x26x2.3		
8"	200	125x31x15			210x31x2.3		
9"	225	137x31x15			235x31x2.3		
10"	250	150x36x19			256x37x3.5		
12"	300	175x45x22			320x47x4.5		
16"	400	225x57x26			410x57x5.0		
18"	450	250x60x26			462x63x6.4		
20"	500	275x60x30			515x63x6.4		
24"	600	325x63x32			545x63x6.4		
28"	700	375x75x38			625x75x6.4		

Unit of Pack-One piece in each box upto 12". Bigger sizes are supplied in wooden boxes.



No. 401

No. 400



### 38 "SAGAR" ADJUSTABLE TRY SQUARES

They are accurately ground on all the working faces, and can be set to any position instantly by using a knurled screw provided in the stock. The blade can be set at any position.

Supplied with four different combinations.

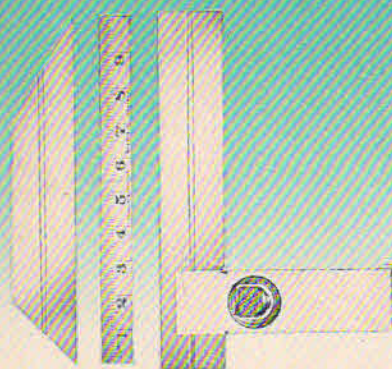
No. 414 with one plain square edge blade.

No. 414A with one plain sq. edge blade & one 45°/60° angular blade.

No. 414C with one plain square edge blade and one graduated blade.

No. 414C with one plain square edge blade, one 45°/60° angular blade and one graduated blade.

Length of blade		Length of Stock
Inches	mm	
4"	100	65
6"	150	89
8"	200	100
10"	250	112
12"	300	125



No. 414C

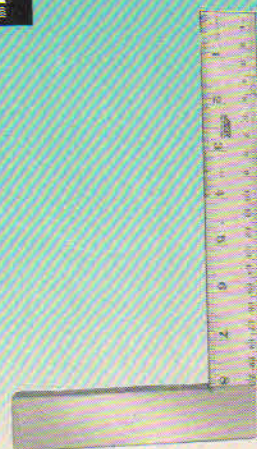
### 39 "SAGAR" GRADUATED TRY SQUARES

Size 4" has graduations in 32nds and 64ths on one end and mm on other end. Size 6", 8" & 10" have graduations in 16ths, 32nds & 64ths on one end and 1/2 mm on other end.

Sizes graduated on both sides have graduations in 16ths, 32nds & 64ths on one end and 1/2 mm on the other end.

Sizes		Dimensions of Stock			Dimensions of Blade	
mm		mm			mm	
		L	W	T	W	T
4"	100	75	20	12	18	1.8
6"	150	105	22	15	24	2
8"	200	130	28	16.8	30	2
10"	250	156	36	16.8	37	2.2
12"	300	179	36	18.3	37	2.2
18"	450	254	50	26	50	2.7
24"	600	330	50	26	50	2.7

Unit of Pack-One piece in each box upto 12". Sizes 18" & 24" are supplied in strong wooden boxes.



### 40 "SAGAR" CALLIPERS & DIVIDERS

#### (a) SPRING CALLIPERS

WORKSHOP GRADE (Inside No. 51, Outside No. 52, Divider No. 50 & Jenny No. 56)

These are the most frequently used callipers. Due to the spring on the top they can be adjusted to any size within the size range. A centrally located nut is provided for opening and closing of callipers.

#### (b) A-GRADE CALLIPERS

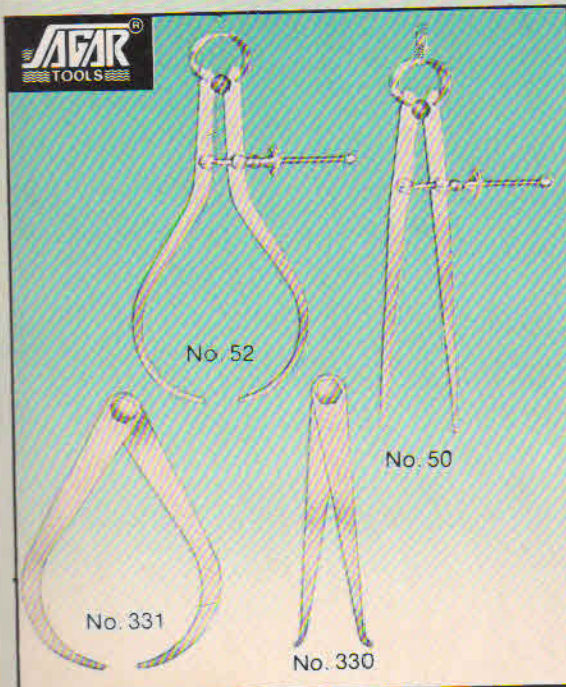
Made of low carbon steel properly hardened and tempered legs. Nut is made of best quality steel for precision setting. Legs are properly machined, finished in black & white. Available in sizes upto 12". Each piece is packed individually.

#### (c) FIRM JOINT CALLIPERS

(Inside No. 330, Outside No. 331, Divider No. 333 Jenny No. 332)

These are supplied with a high tension joint so that it can be adjusted to the required size. These are made from best quality steel and properly finished.

Inches	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
MM	75	100	150	200	250	300	350	400	450	500	600
Unit of Pack	5	5	5	5	5	5	3	3	3	3	3
Inches	30"	36"	40"	48"	60"	72"					
MM	750	900	1000	1200	1500	1800					
Unit of Pack	1	1	1	1	1	1					







No. 336

No. 341

#### 41 "SAGAR" FIRM JOINT (ODD LEG) JENNY CALLIPERS.

These are supplied with one end straight and one end bent. It enables to mark on round pieces while one leg has an adjustable point. No. 336 Plain leg & No. 341 with Locating spur

Inches	4"	6"	8"	10"	12"	18"	24"
mm	100	150	200	250	300	450	600
Unit of Pack	5	5	5	5	5	1	1

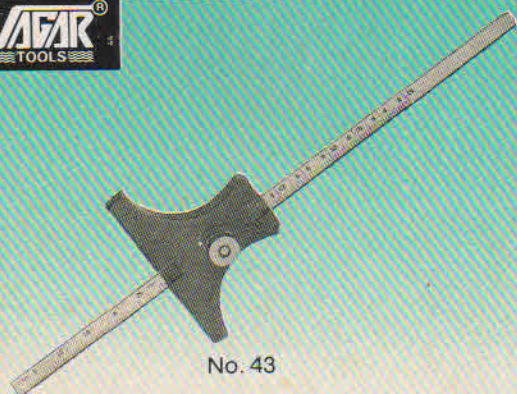
#### 42 "SAGAR" WING COMPASSES (ARM DIVIDERS) NO. 350

Most robust & rigid construction. Supplied with tempered points. Suitable for heavy duty work.

Inches	6"	8"	10"	12"	18"	24"
mm	150	200	250	300	450	600
Unit of Pack	5	5	5	5	1	1



No. 350



No. 43

#### 43 "SAGAR" DEPTH GAUGES

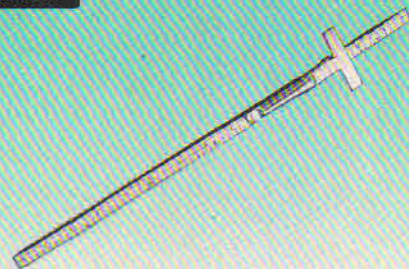
The head is made of best quality steel. Properly ground to precision finish. Available in shiny finish. Properly finished and tempered steel rule is fitted in a slot in the head. Rule is accurately graduated. A knurled nut is provided in the head for quick adjustment of the steel rule. Rule is graduated in Inches, 16ths, 32nds & 64ths on one side and millimeters and half millimeters on the other

No.	SIZES		Unit of pack—
	Inches	Cms	
43	6	15	5
44	12	30	5

#### 44 "SAGAR" POCKET RULE (NO. 45)

A six inches narrow Stainless Steel rule provided with a special clip to keep the rule in the pocket. The rule is accurately graduated in inches on one end and millimeters on the other end.

Unit of pack—Ten pieces on a display card and two cards in one box.

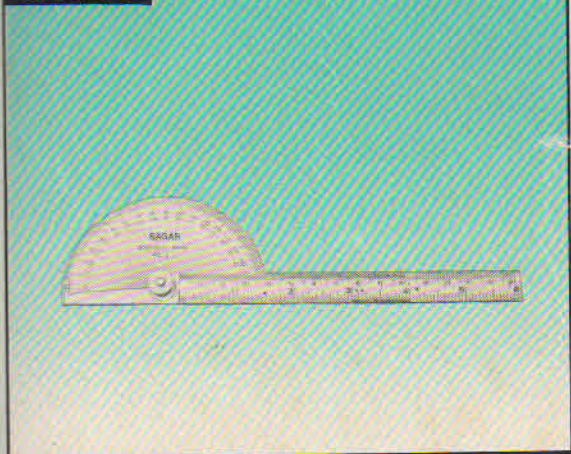




#### 45. "SAGAR" PROTRACTOR (No. 42)

Made of Stainless Steel an ideal tool for Engineers & machinists. Consists of a semi-circular head with double graduations from 0° to 180° and a graduated blade of 8" length which is graduated upto 6"—15cms. on one end and millimeters on the other end. The steel rule can be adjusted by using a brass nut provided in the head.

Unit of pack—Each piece packed in Visual packing, five pieces in each box.



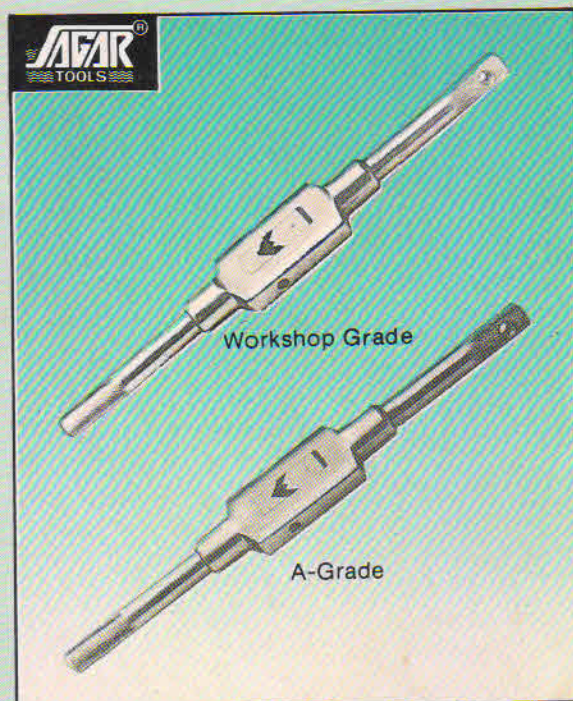
#### 46 "SAGAR" ADJUSTABLE TAP WRENCHES.

Made from best quality steel. The Jaws are made from high quality carbon steel which is properly hardened for much longer life than ordinary Tap wrenches. These are used for holding taps and Reamers under ordinary circumstances where there is enough room for rotation of the wrench.

A-GRADE. Tap Wrenches made of solid steel body and attractively finished with hardened jaws can also be supplied upto size 1½"

No.	Capacity to hold taps (Inches)	Description of Reamers	Overall Length
2	1/16—1/4	H-Z to H-2	169
3	3/32—3/8	H-Y to H-4	220
4	5/32—1/2	H-1 to H-5	276
6	1/4—3/4	H-1 to H-6	350
7	5/16—1	H-3 to H-8	435
8	3/8—1.1/4	H-4 to H-13	540
9	1/2—1.1/2	H-5 to H-15	625
10	3/4—2	H-7 to H-18	1128
11	3/4—2.1/2	H-9 to H-19	1187

Unit of pack—Five pieces in each box upto 1/2". Bigger sizes are packed individually



#### 47. "SAGAR" MINI TAP WRENCHES

Available in both M&W Warrior types. Used where limited space is available

**No. 203 & 204 (Warrior Type)**

Precision built most useful for light tapping work on delicate jobs.

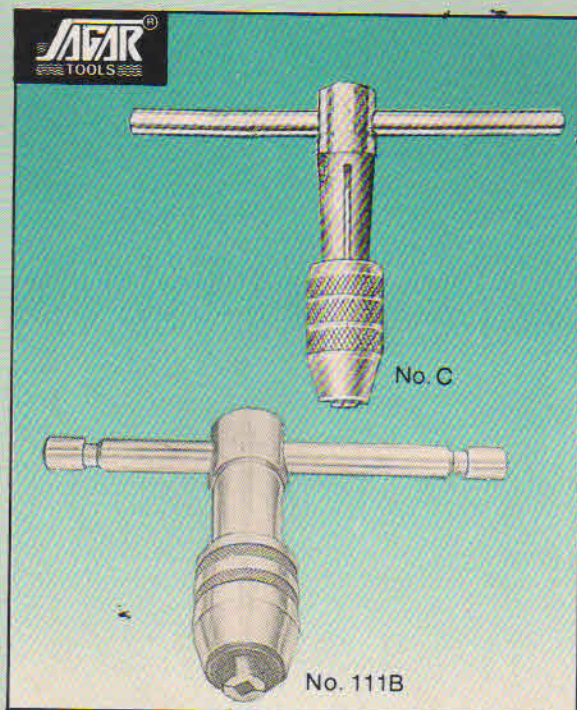
**No. 103 & 104 (M & W Type)**

Suitable for light tapping works. A small lock nut provided rules out any possibility of breakage of tap due to loose gripping—Knurled body helps a better gripping.

No.	Tap Capacity Inches	Overall Length
203	0—1/4	95
204	0—3/8	210
103	0—1/4	95
104	0—3/8	125

Unit of pack—Ten pieces in each box.





#### 48 "SAGAR" T-TAP WRENCHES

##### (a) WORKSHOP GRADE

Designed specially for Tapping in bores and in places where the area is confined and it is not possible to use adjustable Tap wrench. A chuck made of equally slotted jaws provides a firm grip.

No.	Tap Capacity (Inches)	Overall Length mm
A	1/16—3/16	60
B	5/32—1/4	70
C	3/16—5/16	80
D	1/4—1/2	88

Unit of pack - five Pcs. in each Box.

##### (b) REMOVABLE JAWS (A-GRADE)

Their unique feature is their replaceable jaws. The jaws are Properly hardend & tempered. Sliding handle enables the wrench to be adjusted in desired position

No.	Tap Capacity (Inches)	Overall Length
111A	1/16—5/32	63
111B	5/32—1/4	75
111D	1/4—1/2	97

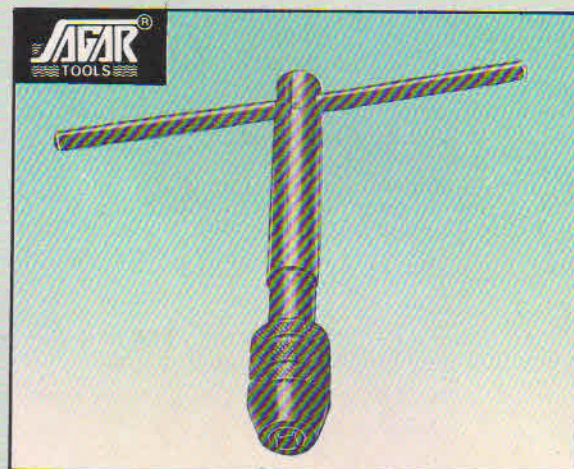
Unit of pack Five Pcs. in each box.

#### 49. "SAGAR" LONG HANDLED T-TAP WRENCHES.

These are specially designed for tapping in depths. The removeable handle enables the wrench to be adjusted in desired position.

No.	Available Lengths (Inches)	Tap Capacity (Inches)
AS	6, 9 & 12	1/16—3/16
BS	6, 9 & 12	5/32—1/4
CS	6, 9 & 12	3/16—5/16
DS	6, 9 & 12	1/4—1/2

Unit of pack—One piece in each box.



#### 50. "SAGAR" ROUND DIE STOCK HANDLES

These are speacilly designed for holding round dies. The centre portion of the handle is made out of best quality steel, available in single piece construction. Four accurately tapped holes are provided in the centre. One adjusting screw and three grub screws. Both the handles are knurled for better gripping.

No.	For Holding dies of OD (Inches)	Overall Length mm
120	5/8	129
121	13/16	160
122'	1	220
123	1.5/16	262
124	1.1/2	318
125	2	395
126	2.1/4	425
127	2.1/2	476
128	3	560
129	3.1/2	747
130	4	900

Unit of pack—Five pieces in each box upto 1.1/2". Uppers sizes are packed individually.



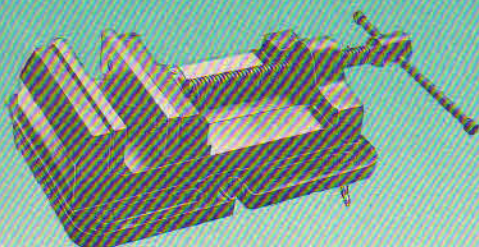


### 51. "SAGAR" DRILL MACHINE VICES

These are extra heavy duty vices made to bear extra pressure. Made from close grain cast Iron. Its specially designed patrons are responsible for its robust construction. The continuous screw made of the best quality steel puts extra pressure on the job. The jaws are made of best quality steel and are Properly tempered. Both the jaws have Vee grooves to hold round jobs. The handle is chrome finished for prevention against rust. The base has two slots on each side for screwing the vice to the machine table.

Size		Capacity	Overall Length	Overall Width
Inches	mm	mm	mm	mm
3	75	100	216	130
4	100	125	254	168
5	125	150	282	190
6	150	175	325	230
8	200	225	400	275
12	300	350	612	200

Unit of pack—One piece each in card board box upto 5". Sizes 8" & 12" are packed in woden cases.



### 52. "SAGAR" PRECISION MACHINE VICES.

These vices are specially made for accurate jobs. Made from close grain cast Iron, accurately ground all over to precision Limits. Can be used flat or on sides. The jaws have Vee grooves for holding round jobs.

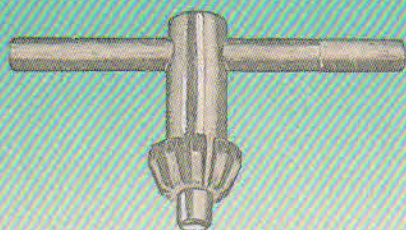
No.	Size Inches	Opening Inches	Base Size Inches
MV-1	1.1/2	1.1/2	
MV-2	2.1/2	2.1/2	6.3/4x2.1/2

Unit of pack—One piece in each box.

Precision grinding vices are also available. See page No. 33



NO. MV-2



### 53. "SAGAR" DRILL CHUCK KEYS.

These are made from best quality steel. The teeth are divided accurately to suit diffrent makes of Drill chucks. The teeth are properly tempered for Longer life.

Available for Jug, Paraga and other Indian makes

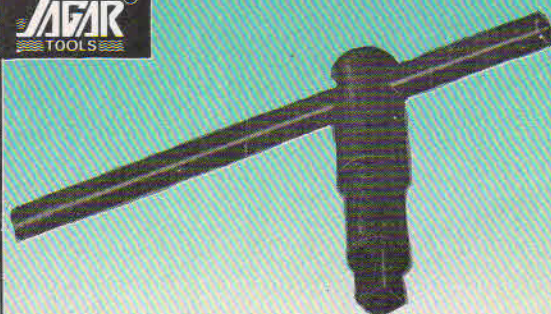
NO.	For Drill Chuck	Unit of pack
	Size	
SK-71	1/4"	5
SK-72	3/8"	5
SK-73	1/2"	5
SK-74	3/4"	5

EG 2C & SD 4C Keys are also available.

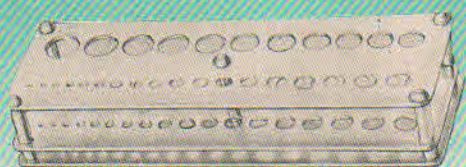
### 54. "SAGAR" LATHE CHUCK KEYS

These are made from fine quality steel. Properly heat treated for Longer Life. The Square size is maintained accurately.

No.	Size of Square Inches	Unit of Pack
CK-80	1/4	1
CK-81	5/16	1
CK-82	3/8	1
CK-83	7/16	1
CK-84	1/2	1
CK-85	9/16	1
CK-86	5/8	1
CK-87	11/16	1
CK-88	3/4	1







No. 52

## 55. DRILL STANDS.

These are light weight Stands designed for holding a large variety of drills in very Less Space. Any required drill can be taken out just at a glance as each hole is individually marked thereby saving a lot of time.

No.	Description	Range	No. of holes
52	Inches	1/16" — 1/2"	29
52M	Inches	1/16" — 1/4"	13
49	Millimetres	1 — 13mm	25
49M	Millimetres	1 — 7mm	13
51	Numbers	No. 1 to 60	60
50	Letters	A to Z	26

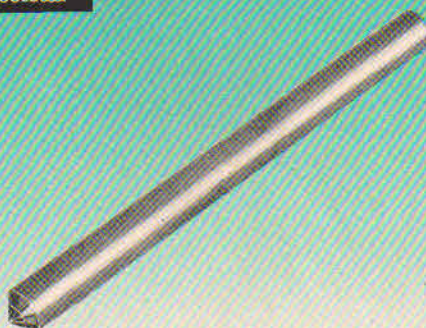
Unit of pack—One piece in each box.

## 55. "SAGAR" EJECTING DRILL DRIFTS

These are specifically designed for driving out taper shank drills from sockets. It prevents damage to expensive tools and spindles, these are properly heat treated and tempered.

M.T NO.	For Morse Taper No.	Overall Length
0	0-1	86
1	1-2	114
2	2-3	142
3	3-4	155
4	4-5	175
5	5-6	242
6	6-7	254

Unit of pack—Five Pieces in each box.



## 57. "SAGAR" DIAMOND DRESSERS (SINGLE POINT)

These are made from the prescribed quality of Industrial diamonds. All the diamonds are properly braced for Longer life and are fully guaranteed till used properly. Designed for dressing grinding wheels and making them reuseable. Supplied in different carat weights.

They should be inclined at an angle at 10° to 15° to the horizontal wheel radius, pointing in the direction of the rotation of the wheel so that the sharper point may be maintained. Dressing should be started from the highest point.

Carat Size	0.16	0.25	0.35	0.50	0.75	1.00	
Rod Size (Inches)	6x1/2	6x1/2	6x1/2	6x1/2	6x1/2	6x1/2	
Carat Size	1.50	2.00	2.50	3.00	3.50	4.00	5.00
Rod Size (Inches)	6x1/2	6x1/2	6x1/2	6x5/8	6x5/8	6x5/8	6x5/8

Unit of pack: one piece in each box.

Unit of pack- one piece in each box.

## 58. "SAGAR" EMERY WHEEL DRESSERS & CUTTERS. (HUNTINGTON TYPE)

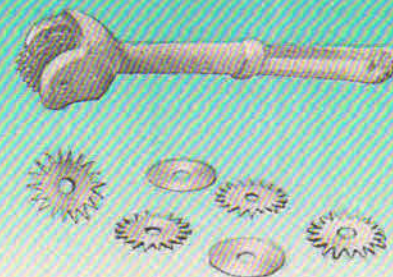
These are most suitable for reconditioning of grinding wheels and for removing metal particles which stick to the wheel during grinding. Cutters are made of finest quality alloy steel. They are properly heat treated and tempered and are finished in attractive black finish. Handles are made of best quality cast Iron and are painted for attractive finish.

No.	Length of Handle	No. of Cutters	Cutter Size Dia x Bore x Width mm	For Wheels upto Dia mm
0	250	4	30x6.3x11	500
1	262	4	38x12.7x12	750
2	350	4	60x15x23	Larger Wheels

Note : Spare cutters are also supplied in all sizes.

Unit of pack—One piece in each box.

Spare cutters are supplied 10 sets in each box.







14, Narayan Dhuru Street,  
1st Floor, BOMBAY-400 002

### 59. "SAGAR" ADJUSTABLE HAND REAMERS.

These are meant for light cuts by hand operations by the use of wrenches. A square tong at the end of shank enables it to be gripped in a Tap wrench.

Blades are made of very fine quality cutting steel. The cutting faces of blades are properly ground. They can be adjusted to any size within the range of the reamer. Sizes can be adjusted by moving the blades in accurately tapered slots.



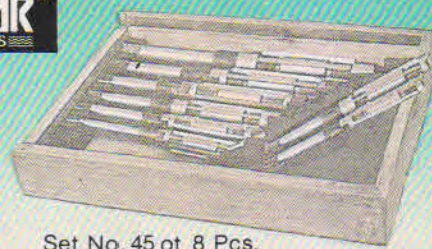
No.	SIZE RANGE		No. of Blades
	Inches	mm	
H-V	1/4-9/32	6.34-7.14	4
H-W	9/32-5/16	7.14-7.94	4
H-Z	5/16-11/32	7.94-8.73	4
H-Y	11/32-3/8	8.73-9.52	4
H-1	3/8-13/32	9.52-10.31	6
H-2	13/32-7/16	10.31-11.11	6
H-3	7/16-15/32	11.11-11.90	6
H-4	15/32-17/32	11.90-13.49	6
H-5	17/32-19/32	13.49-15.08	6
H-6	19/32-21/32	15.08-16.66	6
H-7	21/32-23/32	16.66-18.25	6
H-8	23/32-25/32	18.25-19.84	6
H-9	25/32-27/32	19.84-21.43	6
H-10	27/32-15/16	21.43-23.81	6
H-11	15/16-1.1/16	23.81-26.98	6
H-12	1.1/16-1.3/16	26.98-30.15	6
H-13	1.3/16-1.11/32	30.15-34.13	6
H-14	1.11/32-1.1/2	34.13-38.10	6
H-15	1.1/2-1.13/6	38.10-46.03	6
H-16	1.13/16-2.7/32	46.03-56.35	6
H-17	2.7/32-2.3/4	56.35-69.85	6
H-18	2.3/4-3.11/32	69.85-84.93	6
H-19	3.11/32-4	84.93-100	6
H-20	4-4.3/4	100-120	6
H-21	4.3/4-5.1/2	120-140	6

Note : Spare blade sets are supplied against orders.

Unit of pack—One piece in each box.

### 60. "SAGAR" ADJUSTABLE HAND REAMER SETS IN WOODEN BOXES.

SET NO.	DESCRIPTION OF REAMERS	UNIT OF PACK
9	4 Pcs. (HV to HY)	1 Set
44	9 Pcs. (H-4 to H-12)	1 Set
45	8 Pcs. (H-4 to H-11)	1 Set
46	3 Pcs. (H-1 to H-3)	1 Set
47	5 Pcs. (H-12 to H-16)	1 Set
48	11 Pcs. (H-4 to H-14)	1 Set



Set No. 45 of 8 Pcs.



### 61. "SAGAR" FIXED HAND REAMERS.

Made from high quality carbon steel and are property heat treated and tempered. All the cutting edges are accurately ground.

Sizes Inches	Sizes mm	Sizes Inches	Sizes mm	Sizes Inches	Sizes mm
1/4	6	13/32	11	23/32	18
17/64	6.5	7/16	11.5	3/4	19
9/32	7	15/32	12	25/32	20
19/64	7.5	1/2	13	13/16	21
5/16	8	17/32	13.5	7/8	22
21/64	8.5	9/16	14	15/16	24
11/32	9	19/32	15	1	25
23/64	9.5	5/8	16	1.1/8	28
3/8	10	21/32	16.5	1.1/4	30
25/64	10.5	11/16	17		

Unit of pack—One piece in each box.





No. H-14

## 62. "SAGAR" SCREW-ON EXTENSION PILOTS.

These are used for extending length of Reamers. Supplied with sliding taper bush.

No.	Suitable for Reamers Sizes	
	Inches	mm
H-V	1/4-9/32	6.34-7.14
H-W	9/32-5/16	7.14-7.94
H-Z	5/16-11/32	7.94-8.73
H-Y	11/32-3/8	8.73-9.52
H-1	3/8-13/32	9.52-10.31
H-2	13/32-7/16	10.31-11.11
H-3	7/16-15/32	11.11-11.90
H-4	15/32-17/32	11.90-13.49
H-5	17/32-19/32	13.49-15.08
H-6	19/32-21/32	15.08-16.66
H-7	21/32-23/32	16.66-18.25
H-8	23/32-25/32	18.25-19.84
H-9	25/32-27/32	19.84-21.43
H-10	27/32-15/16	21.43-23.81
H-11	15/16-1.1/16	23.81-26.98
H-12	1.1/16-1.3/16	26.98-30.15
H-13	1.3/16-1.11/32	30.15-34.13
H-14	1.11/32-1.1/2	34.13-38.10
H-15	1.1/2-1.13/16	38.10-46.03
H-16	1.13/16-2.7/32	46.03-56.35
H-17	2.7/32-2.3/4	56.35-69.85
H-18	2.3/4-3.11/32	69.85-84.93

Unit of Pack—One piece in each box.

## 63. "SAGAR" VALVE SEAT & FACE CUTTER SETS.

These are manufactured from fine quality carbon steel. They are properly heat treated and tempered for Longer Life, all the cutting edges are accurately ground for best finish. SC-10 and upper sizes are supplied in wooden boxes. Smaller sets are supplied in hard board boxes.

No. of Set	Sizes of seat & Face cutters included (Inches)	Size of Bore cutters Included (Inches)
SC-3 3 Pcs Set	1.5/16 & 1.7/16 (45°) (2 Nos. Guides, 1 No. Handle, Rod & Pin).	1.3/8 (20°)
SC-4 4 Pcs set	1.5/16, 1.7/16 & 1.3/8 (45°) (2 No.s Guides, 1 No. Handle Rod & Pin).	1.3/8 (20°).
SC-5 5 Pcs set	1.5/16, 1.3/8, 1.1/2, 1.11/16 (45°) (2 No's Guides, 1 No Handle, Rod & Pin)	1.9/16 (20°)
SC-10 10 Pcs set	1.3/16, 1.1/4, 1.5/16, 1.3/8, 1.1/2, 1.11/16 & 1.3/4 (all 45°) & 1.11/16 (30°) (8 Nos Guides, 2 Handles & Rods 1 Pin).	1.1/4 & 1.9/16 (20°)
SC-12 12 Pcs set	Contents of set no. SC-10 & cutter of Size 2.1/16 (45°)	1.1/4, 1.9/16 & 1.3/4 (20°)
SC-15 (15 Pcs set)	Contents of set no. SC-12 & three extra cutters 1.7/16, 1.5/8 & 2.1/8 (45°)	1.1/4, 1.9/16 & 1.3/4 (20°)
SC-20 (20 Pcs set)	Contents of set no. SC-15 and four extra cutters 1.1/8", 1.7/8", 2" & 2.1/4	1.1/4, 1.9/16" 1.3/4 & 2" (20°).

Note—Loose cutters can also be supplied

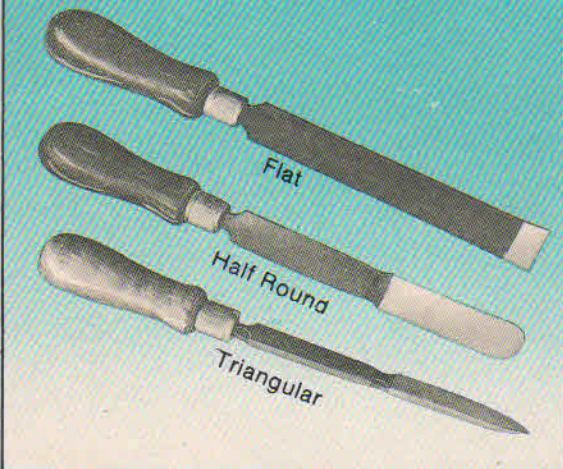
Unit of pack—One set in each box.



No. SV-1

No. SV-10





#### 64. "SAGAR" BEARING SCRAPERS

These are used primarily designed for scrapping machined surfaces or machine beds. Any high spots can be removed by using them. Made from best quality file steel. They are fitted with polished wooden handles for firm grip.

Inches	Sizes		Description of Shapes available	Unit of Pack
		mm		
4"		100	Flat, Triangular & Half Round	5
5"		125	—do—	5
6"		150	—do—	5
8"		200	—do—	5
10		250	—do—	5
12"		300	—do—	5

Also available in sets of 3 Pcs. One Pc. each of all three shapes

#### 65. "SAGAR" ENGINEERS RATCHET BRACES

These are primarily designed for lying railway tracks and other places where electricity operated drill machines cannot be used. Body and Ratchet gears are made of close grain steel casting and Nozzle is made of best quality alloy steel tempered for better working.

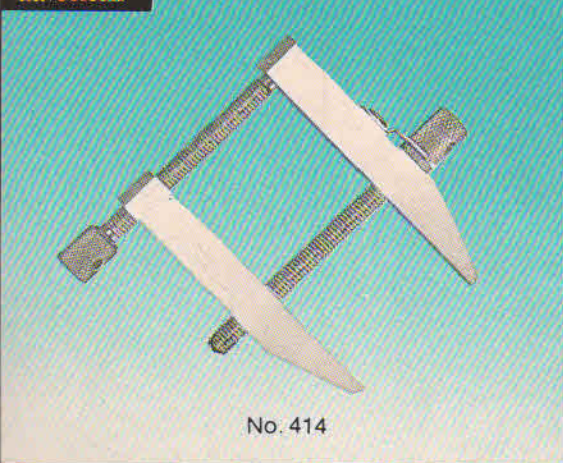
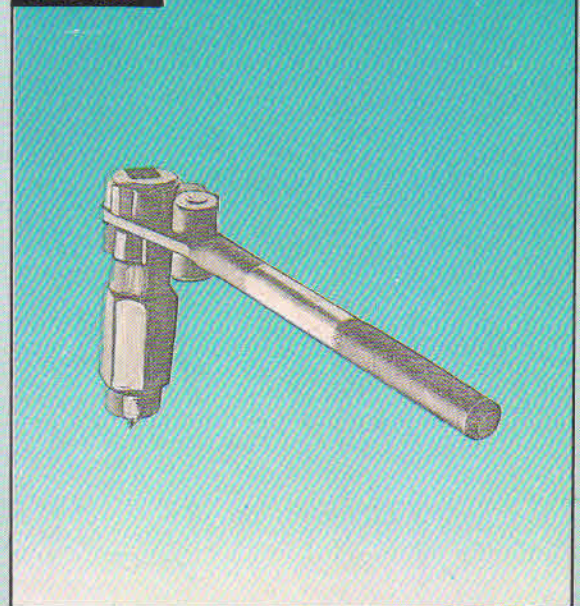
FOR SQUARE SHANK DRILLS

Overall Length Inches 12" 14" 16" 18" 20" 24"  
mm 300 350 400 450 500 600

FOR TAPER SHANK DRILLS

MT NO.	FOR DRILL Sizes (Inches)	SIZES Available (Inches)
1	1/16-17/32	12, 14
2	9/16-59/64	12, 14, 16, 18
3	15/16-1.9/32"	16, 18, 20, 24

Unit of pack—One piece in each box.



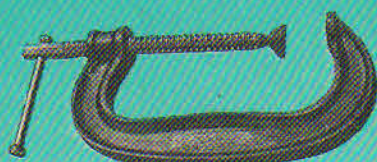
#### 66. "SAGAR" TOOL MAKERS CLAMPS

Designed for maximum strength & rigidity. Jaws are case hardened and accurately ground on all faces. These are extremely useful for holding together the jobs during drilling, tapping or any other operation, a spring clip holds the loose jobs in alignment while clamp is being opened or closed.

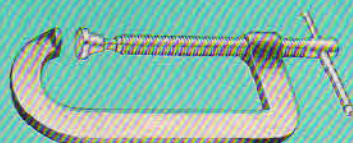
No.	Size of the Jaws (mm)	Opening Capacity (mm.)
410	50x10	30
411	75x12	55
412	100x15	70
413	125x18	88
414	150x18	125
415	200x24	150
416	250x24	175
417	300x27	200

Unit of pack—One piece in each box.





Malleable



Forged

## 67. "SAGAR" G-CLAMPS MALLEABLE IRON BODY.

Made of fine quality malleable casting and most suitable for light duty work as wood work. Have ribbed malleable frame for added strength. A Swivel shoe is provided to adapt itself to any angle.

### FORGED STEEL BODY

These are of rigid construction suitable for heavy duty jobs such as machining. Made from fabricated Steel frame for extra strength. A swivel shoe is provided to adapt itself to any work angle.

Sizes		Clamping Capacity	
Inches	mm	Inches	mm
1	25	0-1	0-25
2	50	0-2	0-50
3	75	0-3	0-75
4	100	0-4	0-100
5	125	0-5	0-125
6	150	0-6	0-150
8	200	1-8	25-200
10	250	2-10	50-250
12	300	3-12	75-300
14	350	4-14	100-350
16	400	5-16	125-400
18	450	6-18	150-450
20	500	8-20	200-500
24	600	12-24	300-600

Unit of pack—One piece in each box.

Drop forged C- clamps also available - Ask for details

## 68. "SAGAR" AUTOMATIC CENTRE PUNCH.

A Truly automatic tool. When depressed down a sharp blow results due to the spring action and desired punch mark is obtained. No hammering is needed with this tool.

Overall Length—5"—125 mm.

Unit of pack—Packed visually, 5 Pcs. in one box.

## 69. "SAGAR" SQUARE HEAD CENTRE PUNCHES.

Made from fine quality tool steel and are hardened and tempered for Longer life. The square head on the top gives a much Larger striking face which decreases the risk of slipping of hammer and prevents rolling off.

No.	Tip Dia		Length x Dia
	Inches	mm	
181A	1/8	3.2	100 x 9.5
181B	5/32	4	100 x 9.5
181C	3/16	4.8	100 x 9.5
181D	1/4	6.4	100 x 9.5

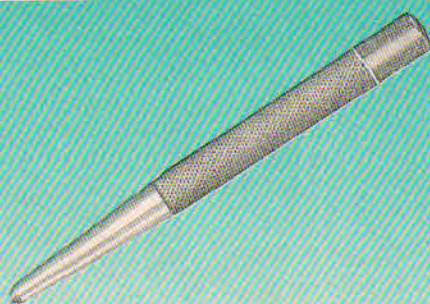
Unit of pack—Five pieces in each box.



Automatic



Square Head



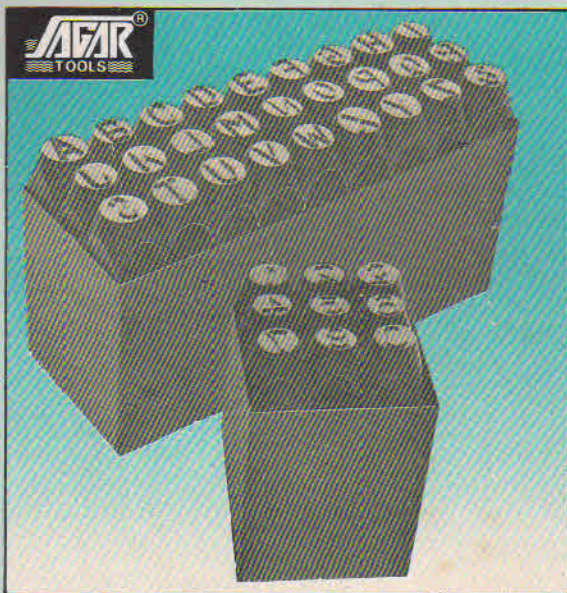
## 70. "SAGAR" CENTRE PUNCHES

Used for punching marks prior to drilling which enables the drill to be guided to desired locations without slipping and thus reducing the risk of breakage

No.	Tip Dia		Length x Dia
	Inches	mm	mm
81A	1/8	3.2	100 x 8
81B	5/32	4	100 x 9.5
81C	3/16	4.8	100 x 9.5
81D	1/4	6.4	100 x 9.5
81S Set of above 4 Pcs.			
81E	1/4	6.4	150 x 9.5
81EE	5/16	8	125 x 12.7
81F	3/8	9.5	150 x 15.8
81G	1/2	12.7	175 x 19

Unit of pack—Five pieces in each box and one set per box.





## 71. "SAGAR" LETTER & FIGURE PUNCHES

Made to precision Limits on machined blanks drawn from fine quality steel. These are properly heat treated and tempered for Longer life so that the punches can work for a long time without distortion. Figure set consists of a sticks 0 to 8 No. 6 can be reversed to make No. 9. Letter set consists of 27 Sticks A to Z and &.

Size	Length	
	Inches	(Inches)
1/16	1.5	2.1/2
3/32	2.3	2.1/2
1/8	3.1	2.5/8
5/32	3.9	2.5/8
3/16	4.7	2.3/4
1/4	6.3	2.3/4
5/16	7.9	3
3/8	9.5	3.1/4
1/2	12.7	3.1/2
5/8	15.8	3.1/2
3/4	19	3.1/2
1	25.4	3.1/2

Unit of pack—One set in each box. Combined sets also available

## 72. "SAGAR" PIN PUNCHES

Specially desinged to drive out pins. Supplied in both single piece construction and inserted type. Series 161 is for single piece construction and 84 is for inserted.

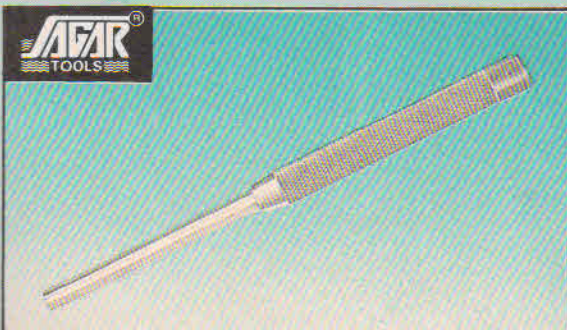
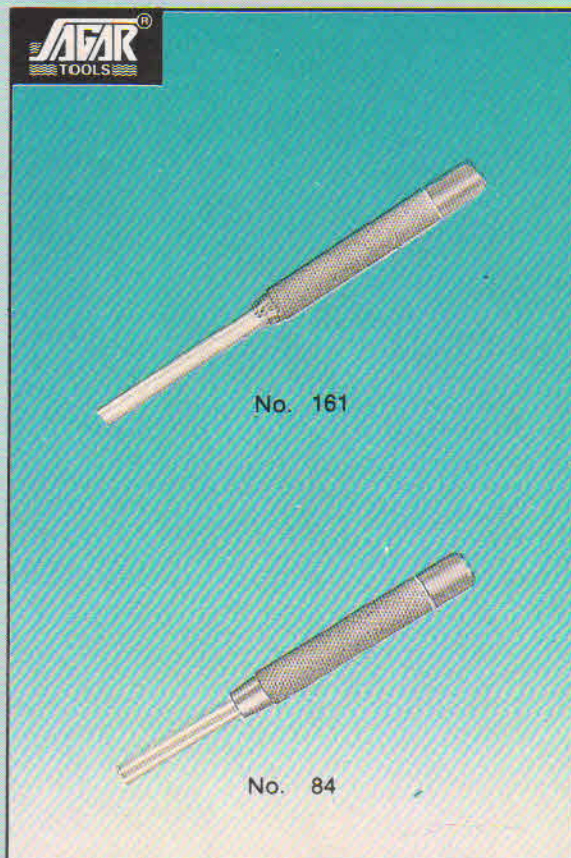
### PIN PUNCHES (PARALLEL) SERIES 161

No.	Tip Dia		Length x Dia
	Inches	mm	
161AA	1/16	1.6	100 x 7.1
161A	3/32	2.4	100 x 7.1
161B	1/8	3.2	100 x 7.1
161C	3/16	4.8	100 x 8
161D	1/4	6.4	100 x 9.5
161S Set of above five pieces			
161E	5/16	8	150 x 12.7
161F	3/8	9.5	175 x 14.3
161G	1/2	12.7	175 x 19

### PIN PUNCHES (inserted) SERIES 84

No.	Tip Dia		Length x Dia
	Inches	mm	
84A	1/16	1.6	100x7.1
84B	3/32	2.4	100x7.1
84C	1/8	3.2	100x8
84D	3/16	4.8	100x9.5
84S Set of above four pieces			
84E	1/4	6.4	125x11.1
84F	5/16	8	150x12.7
84G	3/8	9.5	175x14.3
84H	1/2	12.7	175x19

Unit of Pack—Five pieces in each box.  
Sets are packed individually.



## 73. "SAGAR" LONG DRIVE PIN PUNCHES (INSERTED)

Available only in inserted type. Extra length helps it to be used in more depth. Knurled body portion 4.1/2" Punch Section 3.1/2

NO.	Tip Dia		Length x Dia
	Inches	mm	
86A	1/8	3.2	200 x 11
86B	3/16	4.8	200 x 12.7
86C	1/4	6.4	200 x 12.7
86D	5/16	8	200 x 12.7
86E	3/8	9.5	200 x 12.7
86S set of above five pieces			

Unit of pack—Five pieces in each box. Sets are packed individually





#### 74. "SAGAR" NAIL PUNCHES

Used for driving out nails. Extremely useful for carpenters, craftsmen and model makers etc. Point is not pointed to prevent breakage.

NO.	Tip Dia		Length x Body Dia
	Inches	mm	
82A	1/16	1.6	100 x 8
82B	3/32	2.4	100 x 8
82C	1/8	3.2	100 x 8
82D	5/32	4.	100 x 8
82E	3/16	4.8	100 x 9.5

82S Set of above five pieces

Unit of pack—Five pieces in each box. Sets are packed individually.

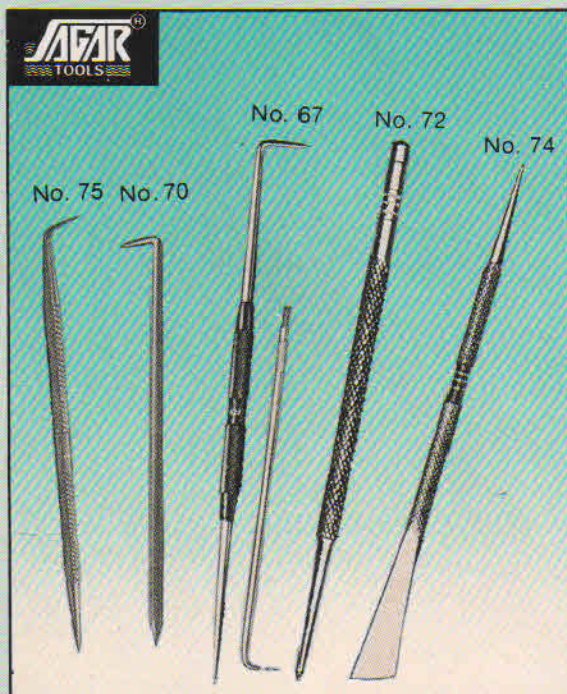
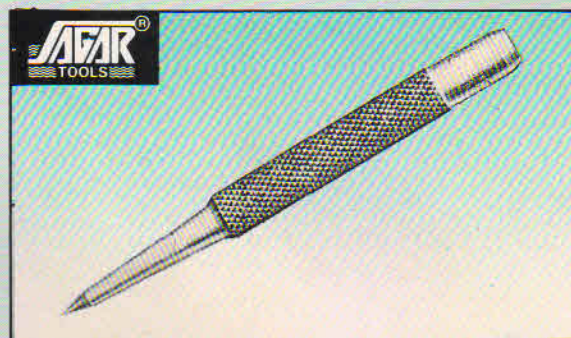
#### 75. "SAGAR" PRICK PUNCHES

A extremely useful tool for model makers. Tips are ground carefully to give sharp impressions and Longer life.

NO.	Tip Dia		Length x Body Dia
	Inches	mm	
83A	5/64	2	100 x 7.1
83B	3/32	2.4	100 x 8
83C	1/8	3.2	100 x 8
83D	5/32	4	100 x 9.5

83S Set of above four pieces.

Unit of pack—Five pieces in each box. Sets are packed individually.



#### 76. "SAGAR" ENGINEER'S STEEL SCRIBERS.

These are made from fine quality drawn carbon steel. They are properly hardend and tempered for Longer life. The points are sharpened evenly for clear marking. Knurling is provided for better gripping on all scribers except No. 70.

NO	DESCRIPTION	Sizes Available mm
67	Double end supplied with three detachable points. One straight 75mm and two bent 75 & 150 mm	225 — 300
70	Plain body. One end Straight other bent Dia 4 mm	175
72	Machinists Scribers. Single ended Dia 4.5 mm	112, 160 & 200
74	Knife edge. Jointers Striking Kinfe at one end and other end Straight Dia 6 mm.	175
75	Double ended, One end straight and other end. Dia 6 mm	175, 200 & 225
77	Double ended scribers with two detachable points. One Straight & other end bent	175

Unit of pack—Ten pieces in each box.

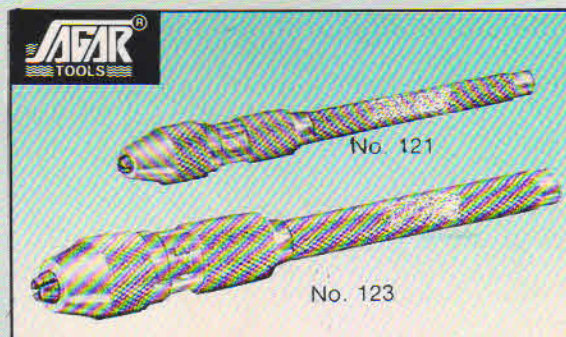
Set No. S -20-Set of 4 Pcs packed visually in English

#### 77. "SAGAR" PIN VICES (CHUCK TYPE)

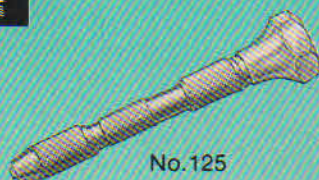
These are designed for gripping small tools, micro drills, Pins and Wires. The hollow body enables to hold length through the body. The jaws can be adjusted by using a knurled head. Clean Knurling provided for better gripping.

NO.	Capacity mm	Overall Length mm	Unit of pack
121	0-0.8	85	5
122	0.8-1.3	90	5
123	1.3-3.1	95	5
124	3.1-4.8	105	5

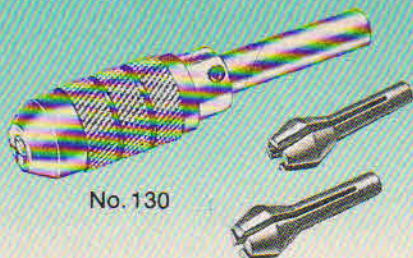
120 Set of above four pieces. Packed individually.







No. 125



No. 130

#### 78. "SAGAR" MASTER PIN VICE.

A extremely useful tool for watch makers. A 4 in 1 combination with two reversible collets on both ends, all combines into one compact unit. Used for holding drills, wire and small tools.

No.	Overall Length	Capacity
	mm	Inches
125	92	0-1.25

#### 79. "SAGAR" PIN CHUCK SET.

Extremely useful tool, designed for holding small drills. Can be gripped in a Drill chuck. Also used on automatic lathes. Supplied with 3 interchangeable collets.

No.	Overall length	Description
	(mm)	
130	60	Chuck with three collets 0-1/32", 1/32"-1/16" 1/16"-3/32"

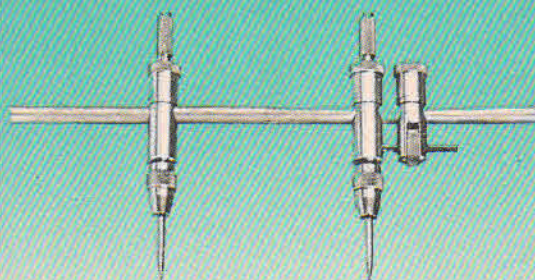
Unit of pack—Each set packed individually

#### 80. "SAGAR" MACHINISTS JACKS

A Handy tool for general workshops and tool rooms. Made from steel casting. A adjustable screw and tilting swivel head is provided for postianing. A Lock nut and pin are provided for locking.

Description	Height Range (mm)	
	Minimum	Maximum
Mini	75	100
Heavy Duty	100	135

Unit of pack—One piece in each box.



No. 251A

#### 81. "SAGAR" BEAM TRAMMELS.

A extremely useful instrument for Draughtsmen, Tool makers and machinists. It is a precision tool, a fine adjustment screw is capable of transforming and checking measurements of radius beyond range of ordinary dividers. Supplied in chrome finish. Arrangement is maintained by trans Located on flat face of the beam.

No.	Size of the Beam	To Scribe Circles of Dia
	mm	mm
251A	265	450
251B	365	650
251C	500	900

##### Attachments

No. 251D—Coupling with extra beam of 500 mm. (when used with 251C It will scribe Circle of 1800 mm)

No. 251E—Ball points & holder

No. 251H—Steel Point & Socket

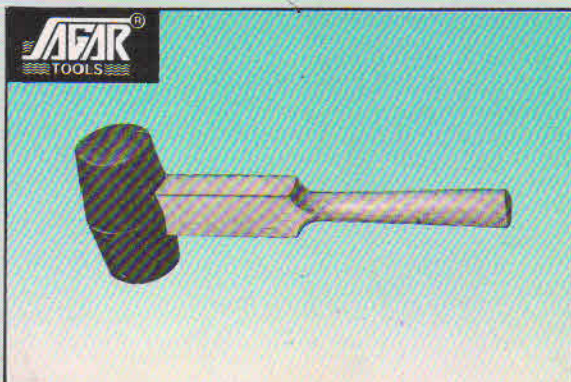
No. 251J—Needle point

No. 251K—Pen attachment

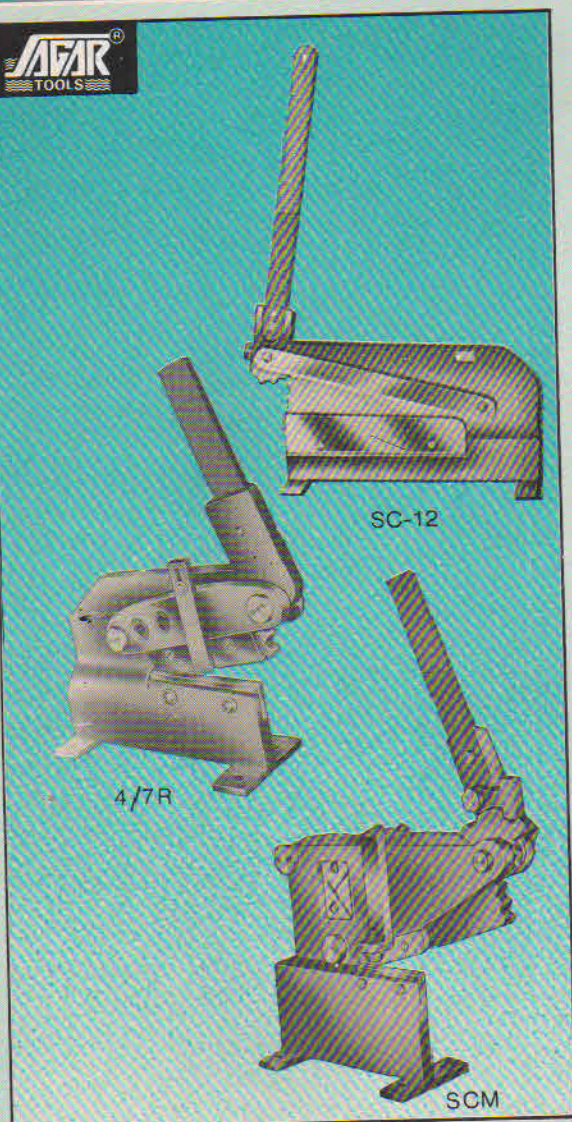
#### 82. "SAGAR" RUBBER MALLET.

Heavy duty, light weight unbreakable hammers designed specially for dentors. Its speciality being not leaving any marks of denting if used properly. Supplied with polished wodden handles.

Dia of head (Inches)	Unit of pack
1"	5
1.1/4"	5
1.1/2	2
1.3/4	2
2	2
2.1/4	2
2.1/2	2
3	2







### 83. "SAGAR" HAND OPERATED SHEARING MACHINES

"SAGAR" presents a complete range of shearing machines & angles cutters. Each machine is provided with a appropriate handle. Machines are made from fine quality steel and blades are made from speacial quality High Carbon Steel and are properly tempered and hardend for longer life

#### HAND SHEARS.

No.	Length of Blade (Approx) mm	Inches	CUTTING CAPACITY				Nett Weight (Approx) Kgs.
			Round Maximum Dia. mm	M.S. Sheets Maximum Thickness Gauge	M.S. Sheets Maximum Thickness mm		
SC-6	150	6	6.5	16	2.5		12
SC-8	200	8	11.0	10	4.5		20
SC-10	250	10	12.5	10	5.5		26
SC-12	300	12	12.5	10	6.0		30
SC-14	350	14	12.5	10	6.5		34
SC-16	400	16	12.5	10	6.5		40
SC-18	450	18	12.5	10	6.5		44
SC-20	500	20	12.5	10	6.5		65
SC-24	600	10	12.5	10	6.5		100

#### EXTRA HEAVY DUTY SHEAR No. 4/7R

No.	Length of Blade mm	Thickness of Body mm	CUTTING CAPACITY				Sheet mm
			Round mm	Flat mm	Square mm	Strip mm	
4/7R	200	25	12	6	12	38	3

#### ANGLE CUTTERS

No.	Length of Blade mm	Thickness of Body mm	Angle	CUTTING CAPACITY (mm)			
				Flat	Square	Round	Sheet
SCS	200	19	38	6	9.5	9.5	3
SCM	200	25	50	8	12.5	12.5	4
SCB	200	34	62	9.5	14	14	5

### 84. "SAGAR" ENGINEERS STRAIGHT EDGES.

Extremely useful for general purpose work. Made from high grade carbon steel and are hardend & ground upto size 12". Upper sizes are ground but unhard. Supplied both in square edge and bevel edge. Available in heavy section as well as light section.

309 Heavy Section with Square edge.

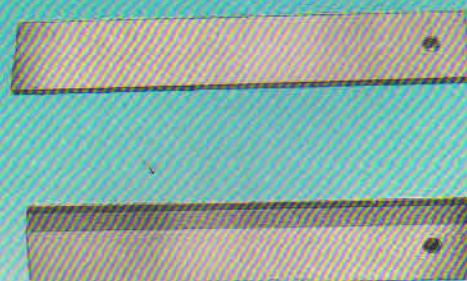
309B Heavy Section with Bevel edge.

308 Light Section with Square edge.

308B Light Section with bevel edge.

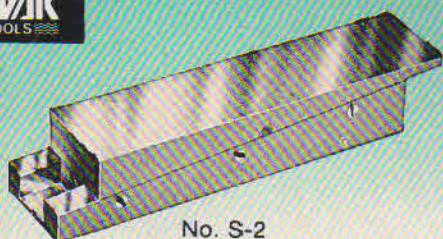
SIZE		Light Section		Heavy Section	
Inches	mm	width mm	Thickness mm	Width mm	Thickness mm
6"	150	25	3	30	4.5
10"	250	30	4.5	45	6
12"	300	30	4.5	45	6
18"	450	45	6	55	8
20"	500	45	6	55	8
24"	600	55	8	70	10
30"	750	—	—	70	11
36"	900	—	—	75	11
40"	1000	—	—	75	11
48"	1200	—	—	88	12

Unit of Pack—One piece in each box.



No. 308B





No. S-2

## 88. "SAGAR" C.I. ADJUSTABLE PARALLELS PACKINGS

DISCONTINUED

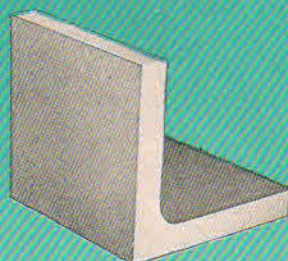
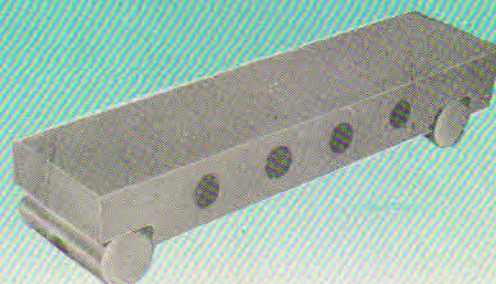
## 89. "SAGAR" SINE BARS (STANDARD MODEL)

These are made from special steel and are accurately ground and hardened all over. It consists of two rollers made of fine quality alloy steel. The size of sine Bar is the length from the centre of one roller to the centre of other roller. These are generally used for measuring sine angles and for set ups on surface plates. Any desired angle can be set up by raising one end of the Sine Bar by gauge blocks.

No.	SIZE		Accuracy in Parallelism mm
	Inches	mm	
S-404	4	100	.001
S-405	5	125	.001
S-406	6	150	.0015
S-408	8	200	.002
S-410	10	250	.002
S-412	12	300	.002

**ECONOMY MODEL**—These are Light weight sine bars reducing the weight of body and rollers. This reduces the cost of sine Bar without effecting its accuracy. Available only in size 5".

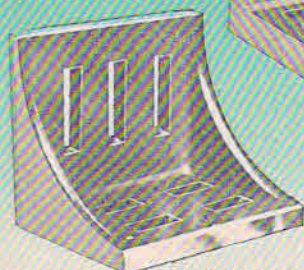
Unit of Pack—One piece in each box.



Plain



Open-end



Webbed-end

## 90. "SAGAR" C.I. ANGLE PLATES

A range of angle plates is made both in plain and slotted types, with slotted types further available in open end and webbed end types. Manufactured from close grain Cast Iron. All the working faces are ground to 90° and true to each other. Jobs can be clamped to Angle plate with the help of clamps. Angle plates can also be bolted to machine table.

### PLAIN ANGLE PLATES

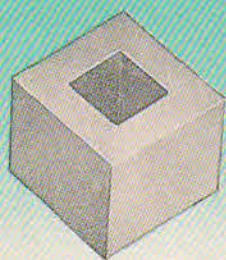
NO.	DIMENSIONS (mm.)			THICKNESS mm
	LENGTH	WIDTH	HEIGHT	
31	100	100	100	20
32	125	100	100	22
33	125	125	125	25
34	150	125	125	25
35	150	150	150	28
36	200	150	150	28
37	200	200	200	31
38	250	200	200	33
39	250	250	250	33
40	300	250	250	36
41	300	300	300	36

### SLOTTED ANGLE PLATES.

OPEN END	WEBBED END	DIMENSIONS (mm.)		
		L	W	H
299	199	75	63	50
300	200	88	75	63
301	201	112	88	75
302	202	150	125	112
303	203	175	138	112
304	204	200	150	125
305	205	225	175	150
306	206	250	200	150
307	207	300	225	200

Unit of pack—One piece in each box.





No. 60

## 91. "SAGAR" CAST IRON CUBES

Made of close grain Cast Iron. Ground all over. All faces are true each other.

No.	SIZE (mm)			Thickness mm
	Length	Width	Height	
58	50	50	50	12
59	63	63	63	16
60	75	75	75	19
61	100	100	100	22
62	125	125	125	25
63	150	150	150	28
64	200	200	200	30

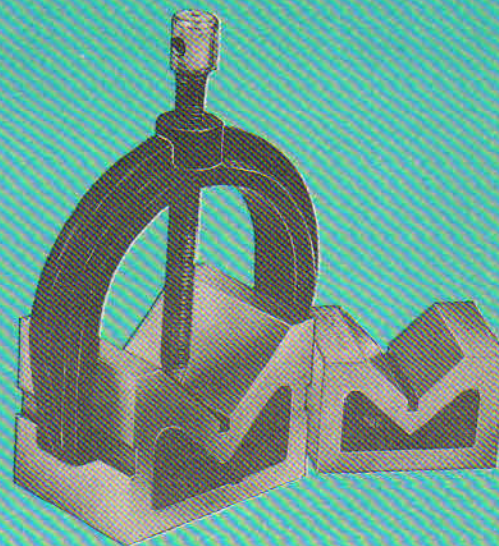
Unit of Pack—One piece in each box.

## 92. "SAGAR" CAST IRON VEE BLOCKS.

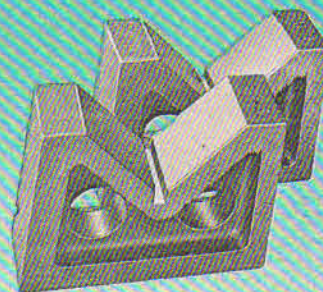
Made from best quality close grain Cast Iron. They are accurately machined and ground to close limits. Generally used to hold round jobs for machining and for Layout work. The Vee's are ground accurately at 90°. All the sizes except 230 and 230B are available with one side Vee. These are supplied in matched pairs. Each pair is supplied with a clamp if desired.

No. W/O Clamp	No. With Clamp	Dimensions L W H	Width Across Top of Vee	Capacity
		mm	mm	mm
203	230	50x38x38	30	38
203B	230B	75x38x38	30	38
210	220	50x38x25	30	38
210A	220A	63x47x28	40	50
211	221	75x56x31	50	63
211A	221A	75x50x50	50	63
211B	221B	75x63x38	50	63
211C	221C	75x63x63	50	63
212	222	100x75x38	70	88
212A	222A	100x63x63	70	88
212B	222B	100x75x75	70	88
212C	222C	100x88x63	70	88
212D	222D	100x88x88	70	88
213	223	125x88x44	88	110
213A	223A	125x75x75	88	110
213B	223B	125x100x100	88	110
213C	223C	125x125x125	88	110
214	224	150x100x50	100	125
214A	224A	150x100x100	100	125
214B	224B	150x125x125	100	125
214C	224C	150x150x150	100	125
215	225	175x125x56	125	156
216	226	200x150x63	140	175
216A	226A	200x150x75	140	175
216B	226B	200x150x100	140	175
216C	226C	200x150x150	140	175
217	227	225x169x75	160	200
218	228	250x175x88	180	225
218A	228A	250x175x100	180	225
219	229	300x200x88	200	250
219A	229A	300x200x100	200	250

Unit of pack—One set each in a box.

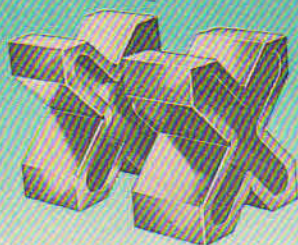


No. 224A



No. 212





No. S-512

### 93. "SAGAR" C.I. UNIVERSAL VEE BLOCKS.

This is a precision vee block for accurate jobs like quality control & Toolroom Jobs. Capable of holding square and round jobs. All the sides are ground. Vee grooves are ground parallel to sides and base. It has four 90° vees. Supplied only without clamps

No.	Dimensions		
	W	L	H
S-510	100	63	100
S-511	100	80	100
S-512	200	100	200
S-513	120	120	60
S-514	150	150	75
S-515	190	190	90

Unit of pack—One pair in each box.

### 94 "SAGAR" ELONGATED VEE BLOCKS

A precision built vee block most suitable for quality control work and for general purpose workshop use. All the sides are ground. Can hold square or round jobs. Manufactured from high quality alloy steel. They can also be individually used for layout work.

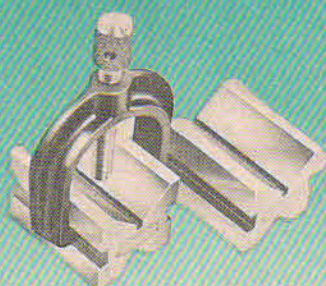
No.	DIMENSIONS		
	L	W	H.
520	160	50	35
521	200	63	50
522	300	100	63
523	100	40	32
524	200	70	50
525	300	100	65

Special sizes are also available on request

Unit of pack - One set in each box.



No. 521



No 504B

### 95. "SAGAR" STEEL VEE BLOCKS

These are made of prescribed quality alloy steel. They are precision ground and hardened for maximum life. Hardened body reduces wear and tear. They can hold the job securely with the clamps provided for milling drilling or any other operation. Supplied in matched pairs as such that 90° Vee in each block is in alignment to the other Vee block of the pair.

One side Vee W/o Clamp	One Side Vee with one Clamp	Both Sides Vee with one clamp	Dimensions IS L W H	Capacity (mm)
501	501A	501B	50x30x30	30
502	502A	502B	50x40x40	40
503	503A	503B	63x50x50	50
504	504A	504B	80x63x63	63
505	505A	505B	100x80x80	80
506	506A	506B	125x90x90	90
507	507A	507B	150x100x100	100

Series A & B are Supplied with one MI Clamp to secure the job on the vee block.

Unit of pack—One pair in each box.

### 96. "SAGAR" TOOL MAKER'S STEEL VEE BLOCK & CLAMP

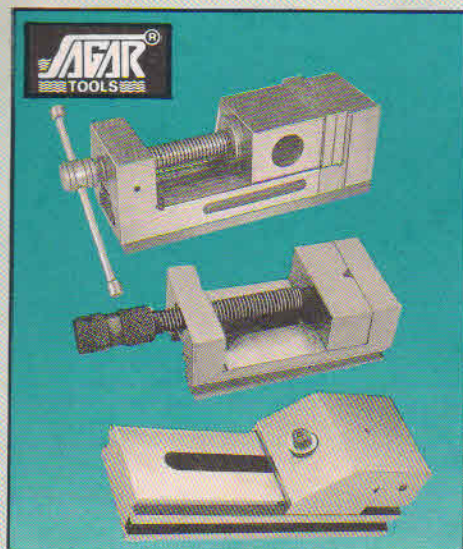
This is specially designed vee block. It has unique features which are not found in ordinary vee blocks. A clamp is provided with a adjustable side screw to properly secure a job during any operation. The vee block has four tapped holes so that it can be bolted to angle plate, it can also be attached to magnetic chuck. Made of special tool steel. Ground to precision limits. The block is 48mm square, the base is 90mm. The shaft holding capacity is 30mm.

No.	Description mm	Capacity mm
508B	48x90	30

Unit of pack—One piece in each box.







### PRECISION GRINDING VICES :

These grinding vices are widely used for grinding, milling, jig boring, spark erosion and many other applications. These are made from high quality steel and heat treated for better performance. All Working faces are ground in squareness to each other to give accurate parallelity and perpendicularity. One jaw in all vices is fixed and is an integral part of body to give more rigidity.

	MODEL No	OVERALL LENGTH	OVERALL WIDTH	OVERALL HEIGHT	WIDTH OF JAWS	CAPACITY
HMV Series	HMV-1	190mm	60mm	70mm	60mm	60mm
	HMV-2	265mm	70mm	85mm	70mm	70mm
MMV Series	MMV-1	112mm	58.5mm	43mm	58.5mm	55mm
GMV Series	GMV-A-O	178mm	74mm	63mm	74mm	98mm
	GMV-A-P	178mm	74mm	63mm	74mm	98mm

### ELECTROMAGNETIC CHUCKS.

A new addition in our range which has been introduced after extensive research to give a quality better than conventional chucks. Guaranteed for years of trouble free service. Supplied both with In-built control panel and spare control panel. Works at 220 volts.

Inches	12X6	18X6	18X8	20X8	24X8
mm	300X150	450X150	450X200	500X200	600X200
Inches	24X10	24X12	30X10	30X12	40X10
mm	600X250	600X300	750X250	750X300	1000X250
Inches	40X12	48X10	48X12	60X12	60X18
mm	1000X300	1200X250	1200X300	1500X300	1500X450
Inches	72X12	72X18			
mm	1800X300	1800X450			

### CIRCULAR

Inches	6.1/2	8	9	12	14	16
mm	162	200	225	300	350	400
Inches	18	20	24	30	36	40
mm	450	500	600	750	900	1000
Inches	48	60	72			
mm	1200	1500	1800			

OTHER SIZES ARE AVAILABLE ON REQUEST

### DE-MAGNETISERS

These are widely used in Tool Room and machine shops. They are of extensive use in manufacturing of Die tools, cutters etc. Supplied in plate type.

Size	Unit of Pack
Inches mm	
6X3 150X75	1
8X4 200X100	1
12X6 300X150	1

Operates on 220 volts.

