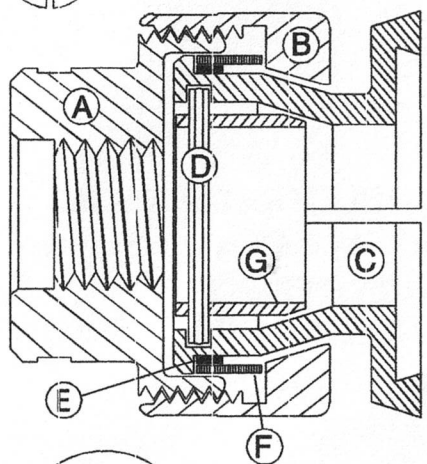
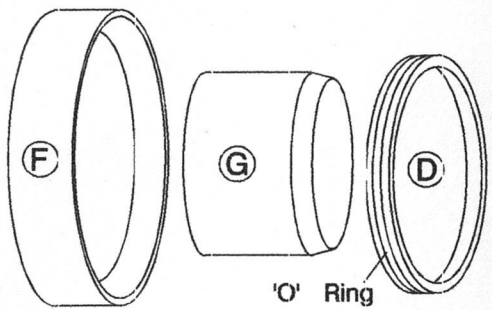
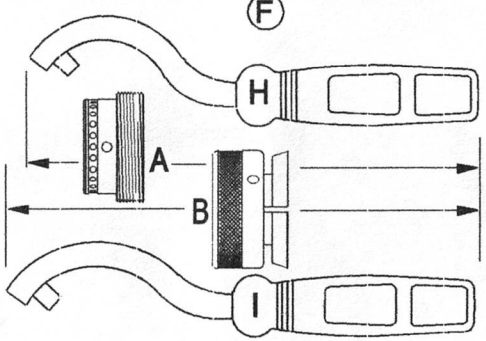
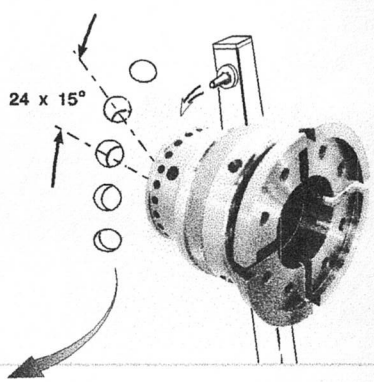
DUPLEX

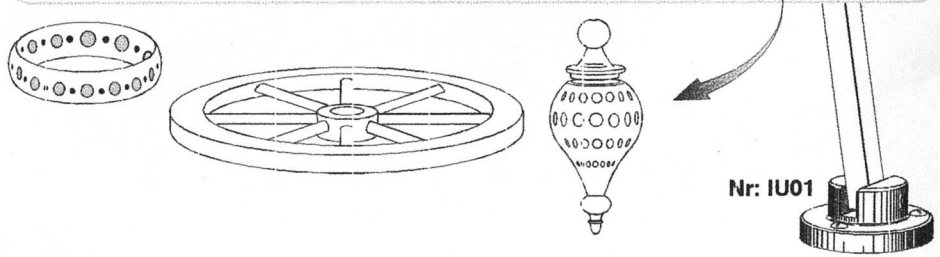








2	180°	1+13
3	120°	1+9+17
4	90°	1+7+13+19
6	60°	1+5+9+13+17+21
8	45°	1+4+7+10+13+16+19+22
12	30°	1+3+5+7+9+11+13+15+17+19+21+23
24	15°	1+2+3+4+.....22+23+24



Dear Customer,

Thank you for your decision to invest in a Duplex Chuck, and if you are new to our products, welcome to our ever growing circle of international user friends. We are sure that it will soon become a constant helpmate in your projects. Existing Multistar users will need little reassurance regarding their choice.

We know you will be impatient to put your new chuck to work, but please take a few minutes to familiarize yourself with it, and how to get the best performance out of it. For our part we have tried to keep this booklet mercifully short, and we hope, relevant to your needs!

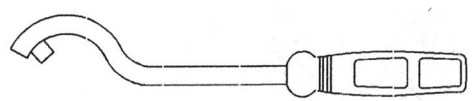
Yours faithfully, Multistar.

IDENTIFYING THE PARTS: The cross section drawing opposite shows the component parts that make up the Duplex Chuck. Should the need arise, all items are obtainable from anywhere in the world, via your tool dealer, or direct from Mulistar. Simply quote the following 'Pt No":-

Ref	Pt No	Description
A	TH**	Duplex Body
B	CS21	Outer Shell
C	JA**	Jaws (JA09 shown)
D	CS30	Inner Ring (with 'O' Ring fittec)
E	CS10	Blue Rubber Band
F	CS05	Expansion Ring
G	CS06	Expansion Plug
H	CS01	Body Spanner
I	CS02	Outer Shell Spanner

Long versions of the spanner are obtainable for both the Body and Outer Shell. The Pt Nos are as follows:-

CS01L - Long Body Spanner
CS02L - Long Shell Spanner



GUARANTEE AND PRODUCT SUPPORT STATEMENT

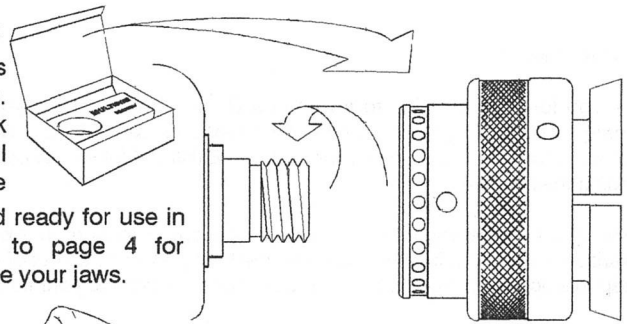
This product is guaranteed against faulty materials and workmanship for a period of two years from the date of purchase, and will be replaced or repaired at the discretion of Multistar Machine and Tool Limited.
The guarantee excludes defects arising from misuse, accidental damage, fair wear and tear, or consequential loss howsoever arising. Charges will be made for any repairs caused by such exclusions, or where the guarantee period has expired. In such cases notification of the cost will be made, and if accepted, paid for in advance.

NOTE: Any claim made under this guarantee must be supported with proof of original purchase, and return postage must be included.

If responsibility for the defect lies with Multistar then this money together with your postage cost will be refunded when the corrected item is returned to you.
In the event of a fault occuring Multistar undertake to act promptly, and will give priority to resolving the problem in the shortest possible time. Typically three working days.
Moreover, product support beyond the guarantee period will be given the same level of priority.
In the interests of product improvement Multistar reserve the right to make design changes without prior notification.

MULTISTAR MACHINE AND TOOL LIMITED
Tel: 01255 479789 Fax: 01255 433376
International Telephone +44 1255 479789

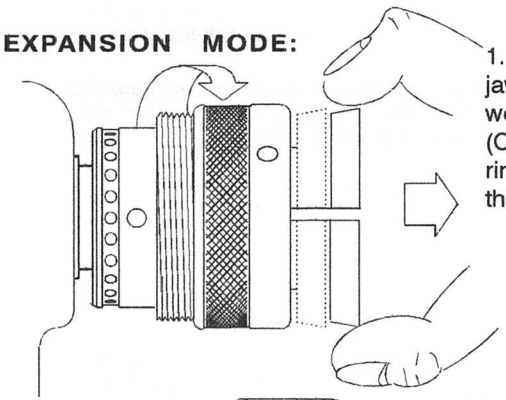
GETTING STARTED:



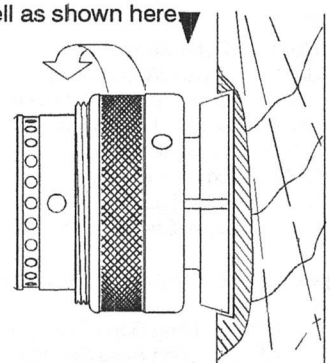
Firstly ensure the spindle is clean and free from damage. Then carefully screw the chuck on to the spindle by hand until it is fully seated. Do not use

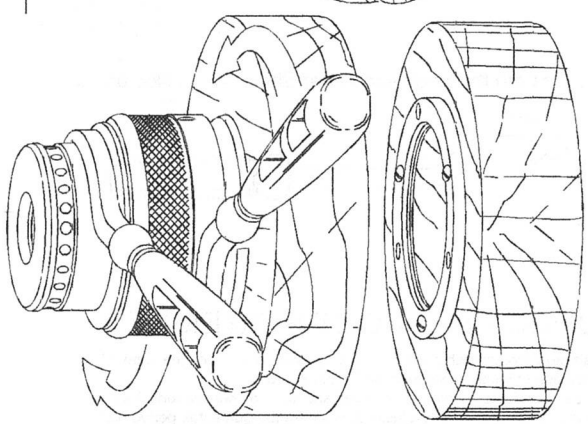
The chuck is normally supplied ready for use in expansion mode. If not go to page 4 for instructions on how to assemble your jaws.

EXPANSION MODE:



1. Partially unscrew Outer Shell (B) and pull jaws forward to allow them to enter the workpiece. Then push to expand the Jaws (C) into the prepared recess (or faceplate ring to turn a recess), whilst hand tightening the Outer Shell as shown here.





2. Fit spanners (H and I) to Body (A) & Outer Shell (B). Partially tighten, then rotate to check concentricity, and reseat if necessary. Finally tighten before turning. Avoid over tightening.

REMOVING THE WORKPIECE:

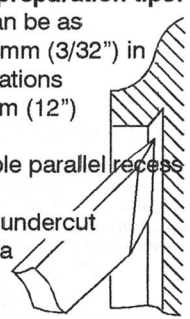
Fit the spanners the other way around (180°). A sharp tap with the heel of your hand on the Outer Shell spanner will help to unlock the chuck more easily. If the workpiece does not release readily, try 'waggling' or pushing the jaws sideways to free it.

Workpiece preparation tips:

Recesses can be as shallow as 2mm (3/32") in many applications below 300mm (12") diameter.

Often a simple parallel recess is preferred with a slight undercut formed with a Skew Chisel

Eg: ►

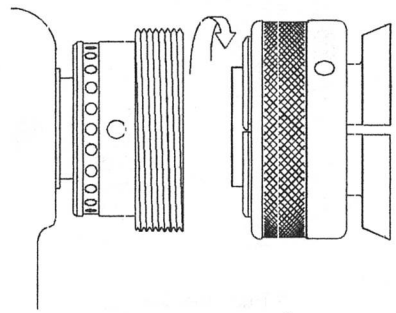


However, if a dovetail form is required, ensure the dovetail is slightly shallower than the angle of the jaws.

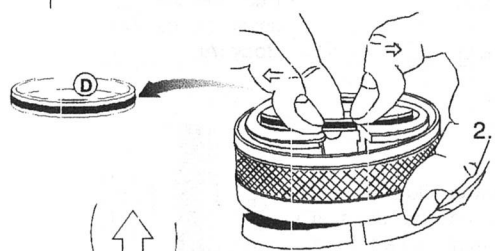
Many other forms will be determined with a little practice.

SAFETY: Always remove spanners immediately after

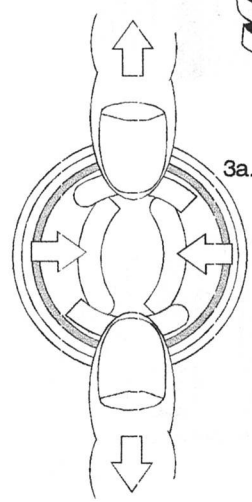
CHANGE TO COMPRESSION MODE:



1. Unscrew Outer Shell (B) / Jaw (C) assembly, and place face down on a flat surface, then remove Expansion Plug (G).

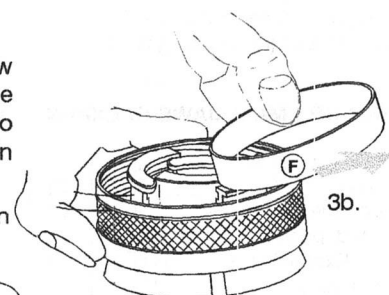


2. Reach across the chuck and pull two Jaw segments (C) apart with the thumb of one hand, & the index finger of the other, and hold, whilst removing the Inner Ring (D) with your other thumb.

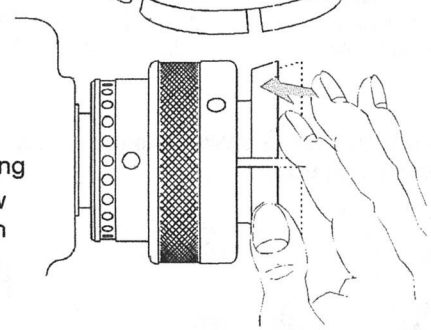


3a. Pull two opposite Jaw segments (C) to allow the other two segments to collapse inwards as shown in

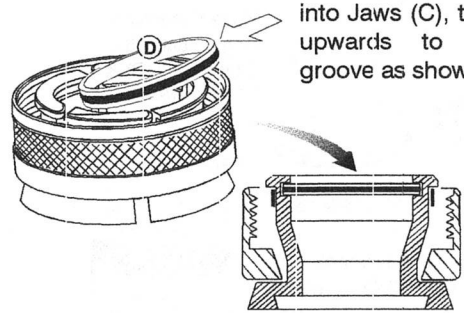
Then remove the Expansion Ring (F) as shown in 3b.



3b.

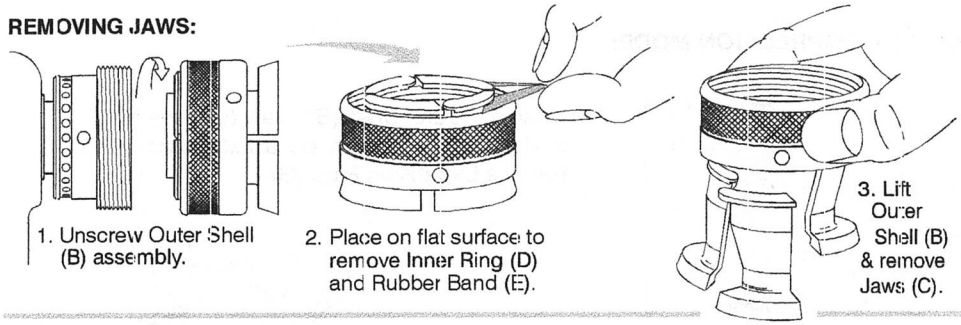


4. Rearrange Jaws (C), & plunge the Inner Ring into Jaws (C), then draw upwards to seat in groove as shown below.



5. Push Jaws (C) into the Body (A), then scre on Outer Shell (B). Ensure Jaws (C) are full seated to rear of Body (A). The chuck is read for use in Compression Mode.

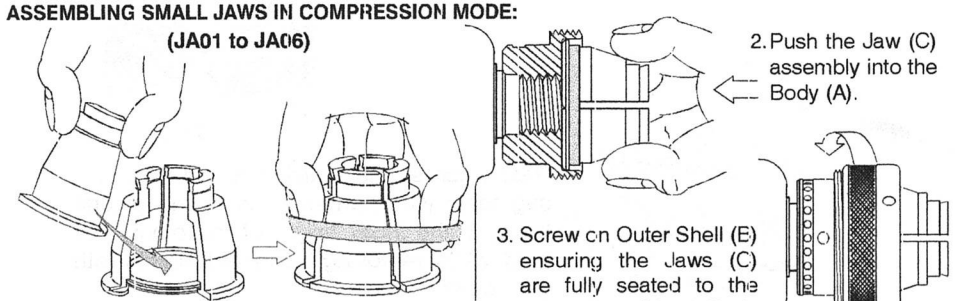
REMOVING JAWS:



1. Unscrew Outer Shell (B) assembly.
2. Place on flat surface to remove Inner Ring (D) and Rubber Band (E).
3. Lift Outer Shell (B) & remove Jaws (C).

ASSEMBLING SMALL JAWS IN COMPRESSION MODE:

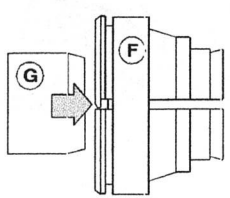
(JA01 to JA06)



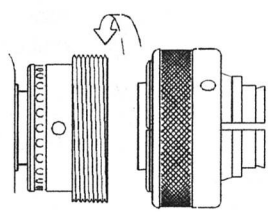
1. Place Inner Ring (D) on a flat surface & position jaw segments around. Then fit the Elastic Band (E)- avoiding twists.
2. Push the Jaw (C) assembly into the Body (A).
3. Screw on Outer Shell (B) ensuring the Jaws (C) are fully seated to the back of the Chuck Body (A).
   The Chuck is now ready

SETTING UP SMALL JAWS IN EXPANSION MODE:

4. Place the Expansion Ring (F) over the Jaws (C), and position the Expansion Plug (G) inside the Jaw assembly.

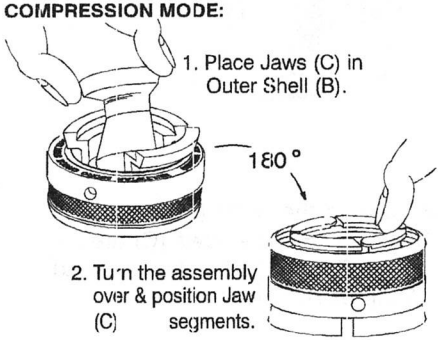


5. Place the Jaw Assembly in the Outer Shell (B), and screw onto the Chuck Body (A). The Jaws should enter the Body automatically. The chuck is now ready for use.



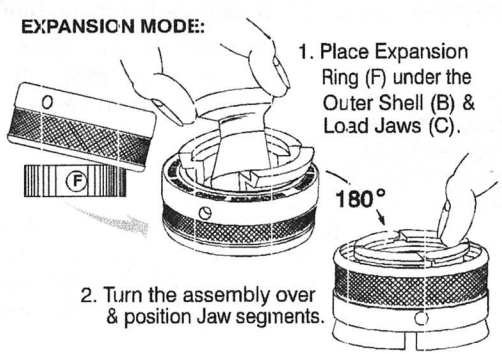
SETTING UP LARGE JAWS (JA08 TO JA10):

COMPRESSION MODE:



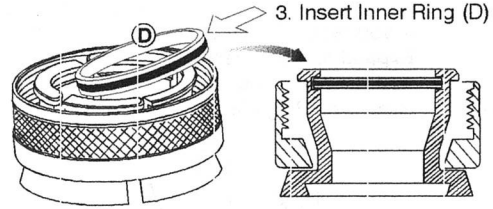
1. Place Jaws (C) in Outer Shell (B).
2. Turn the assembly over & position Jaw (C) segments.

EXPANSION MODE:

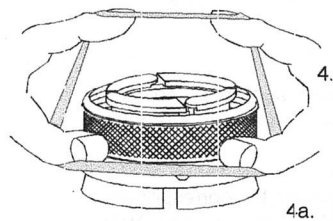


1. Place Expansion Ring (F) under the Outer Shell (B) & Load Jaws (C).
2. Turn the assembly over & position Jaw segments.

SETTING UP LARGE JAWS IN COMPRESSION MODE - Continued:

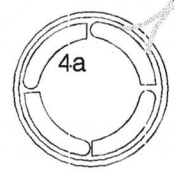


3. Insert Inner Ring (D)

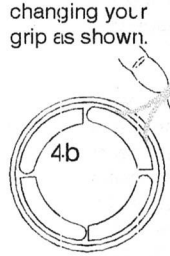


4. Stretch Elastic Band (E) trying not to twist it. Then follow this Sequence.

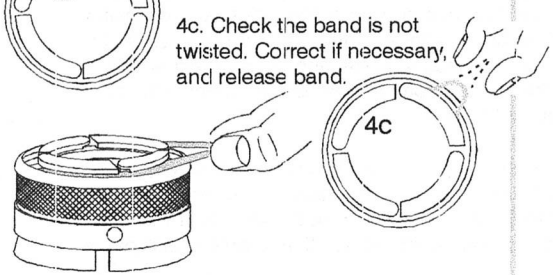
4a. Retain grip on the band with on



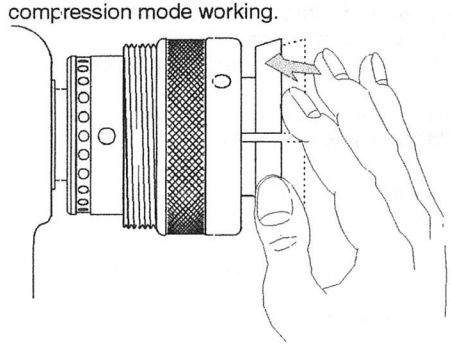
4b. Hold the band whilst changing your grip as shown.



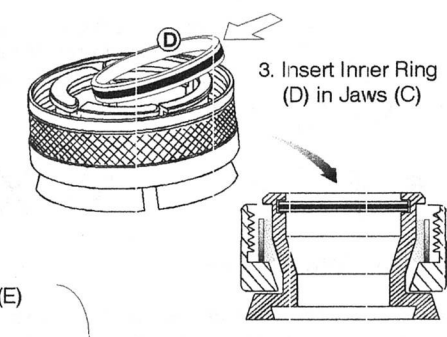
4c. Check the band is not twisted. Correct if necessary, and release band.



5. Push Jaws (C) into Body (A) and screw on Outer Shell (B) until threads on Body (A) are covered. Then ensure the Jaws are fully seated in the Body (A), and the Chuck is ready for compression mode working.



SETTING UP LARGE JAWS IN EXPANSION MODE - Continued:

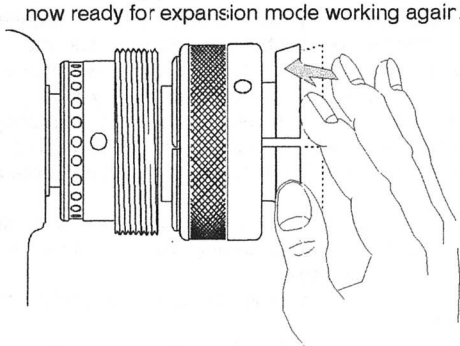


3. Insert Inner Ring (D) in Jaws (C)

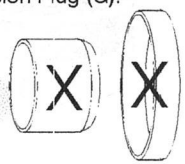
4. Fit the Rubber Band (E) over the Jaws (C) as shown opposite.

5. Fit the Expansion Plug (G) into the Jaws (C), taper end first.

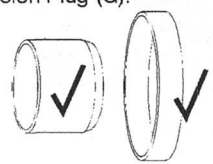
6. Push Jaws (C) into Body (A) and screw on Outer Shell (B) about one turn. The Chuck is now ready for expansion mode working again.



If you want the Jaws to **Compress** do not fit the Expansion Ring (F) or Expansion Plug (G).



If you want the Jaws to **Expand** fit the Expansion Ring (F) and the Expansion Plug (G).



SET UP GUIDANCE NOTES

CONCENTRICITY: Your chuck has been extensively tested to ensure a high standard of accuracy. If all appears well, skip the remainder of this section. However, if you have a problem please try these procedures before contacting us for assistance:-

Clean & check your spindle registers & thread for damage that could prevent the corresponding chuck surfaces seating correctly, and if necessary, carefully correct with a very fine file. Note: Lathes without an axial register (plain diameter), or both (only a locking nut on the thread) are inherently more prone to eccentricity, and there is little that can be done short of replacing the spindle. In the case of a slack fit due to a poor or worn spindle thread PTFE plumber's tape can be helpful.

Check your spindle for concentricity, and the bearings for 'play', even small inaccuracies & wear will be exaggerated by the chuck. If no discernible defect is found, fit the Chuck Body only, and observe the inside face & bore (where the Jaws fit) whilst the lathe is running at it's lowest speed. A further guide can be obtained by positioning the tool rest against these faces, and checking any deviation with pieces of thin paper whilst the lathe spindle is rotated by hand (if possible by pulling the drive belt, as this helps to minimise the contribution of bearing play). If either of the bore faces appear to deviate by more than two thickness of paper there is a problem with either the spindle or the Chuck Body. If this occurs contact Multistar.

If it is satisfactory, screw on the Outer Shell/Jaw assembly, & correctly fit a chuck accessory in the Jaws, and observe running. Note: Jaws will not run concentrically unless the chuck is locked onto a surface. For this purpose use a Faceplate Ring in expansion mode, or a bore mounted accessory in compression mode, Eg: Pinchuck, Screwchuck, etc). If a problem still exists contact Multistar.
NOTE: If you are sending a chuck back ensure return postage is enclosed. This and your postage will be refunded if the fault lies with Multistar.

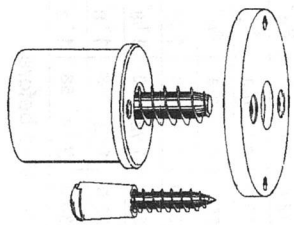
TOOL CARE: Very little maintenance is required, but we do recommended keeping the components free of abrasive grit, lacquers, etc. Particularly avoid build up in the Shell/Body operating threads which could possible lead to seizure. An old tooth brush is ideal for this.
We know wood turners don't like oil very much, but a little lubrication on the operating threads reduces wear, and can prevent more serious problems.
The Chuck is made from a superior steel which is less prone to rusting, however, if you wet turn or keep the chuck in a problem atmosphere, protect it with WD40 or similar after use.

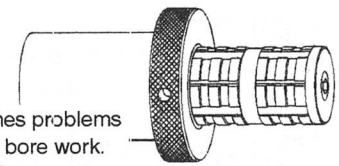
SAFETY: The chuck has been designed with safety very much in mind, but it should be recognised that wood turning requires good & safe working practices to which we would highlight the following:-

1. Ensure work is secure before starting the lathe & never leave tightening tools in the chuck.
2. Keep chisels, & fingers, etc, away from the chuck jaws when the lathe is running,

ACCESSORIES & WORKHOLDING OPTIONS

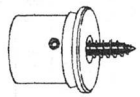
NOTE: All accessories come with a relevant usage guide sheet.

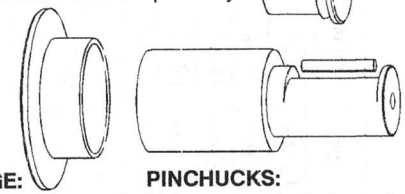




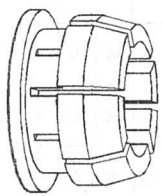
EXPANDING MANDREL: Unique tool which overcomes problems of mounting, & remounting bore work. Vis: Peppermills, awkward lumps, etc.

Small Screwchucks: Low cost facility matched to JA03 and JA04 Jaws respectively.





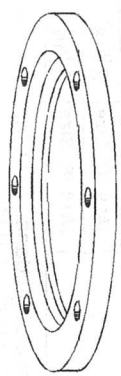
VARIFORM SCREWCHUCK SET: Most versatile, and quickest initial mount from knobs up to 300mm (12")+ bowls. Direct fit to JA06 : JA08 : JA09 : JA10 Jaws, or Accessory collet.



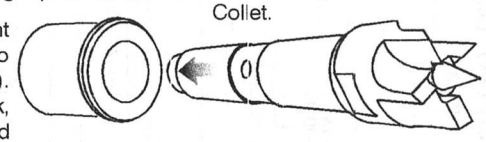
ACCESSORY COLLET: Ultimate hold for all bore mounting accessories. Eg: Pinchucks, Expanding Mandel, Large Screwchuck, etc. Use in

BASAL FLANGE: Essential jaw protection and support for Pinchucks, Mandrels, etc, whilst providing a simple means of holding smaller dia unsupported work projecting up to about 10"

PINCHUCKS: Not an easy technique, but offers a simple bored hole mount (sawtooth/forstner bit essential) for awkward lumps of branch, root, wet bowl blanks, etc. Requires a Basal Flange or Accessory Collet.

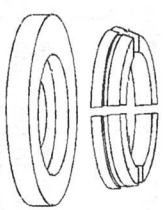


UNIVERSAL CARRIERS: Mount any Morse Taper shank tool direct to chuck jaws (JA06 to JA10). Enhances between centres work, whilst protecting your spindle, and bearings. Available in 1:2:3 Morse.

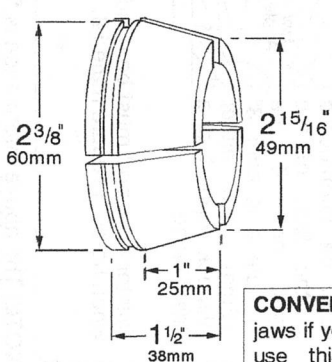


FACEPLATE RINGS: Range to match all jaws from JA06 to JA10. Excellent initial mount which is faster, and more versatile than conventional faceplates.

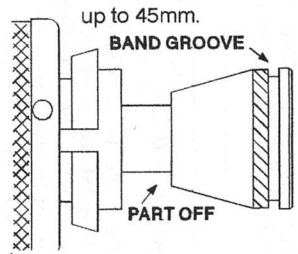
SPLIT RINGS: Provide the most positive grip available for projected turnings (goblets, vases, etc). Use in lieu of Jaws. Minimum timber section of 30mm (1.1/4") in round or square. Available in three sizes (see price



SELF-MADE WOODEN JAWS



SELF-MADE WOODEN JAWS: Make in suitable hardwood, like Beech, with any size or shape of bore up to 45mm.



1. Turn form, & recess base if spindle projects in Chuck Body
2. Turn rubber band groove, then turn down shaded dia to 57mm (2.1/4") for Body clearance.
3. Form bore to size you require, then part off.

CONVERTOR RING: For self-made jaws if you need greater flexibility, or use this technique for 'shaped'

4. Saw slots to within 3/32" (2mm) of base, & slice apart.
5. Mark sequence of

DUPLEX CHUCK SYSTEM **WORKPIECE PREPARATION CHART**

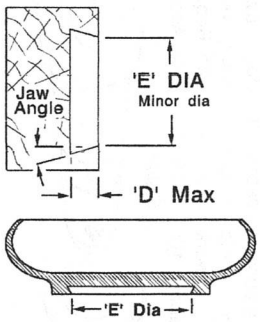
A larger A4 size plastic sealed wall chart version is also available

EXPANSION MODE

Turn the recess to 'E' dia in accordance with the size given against the jaws you intend to use, and to the required depth. Then cut the dovetail angle.

A dovetail is the most efficient form, but the actual angle is not too critical. A clean, sharp corner to engage the jaws is more important.

80% of a dovetail's strength can be achieved by cutting a shallow, sharp groove at the base of a straight recess with a skew chisel. For this you may need to increase the recess dia by approx 1mm.

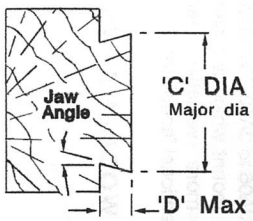


JAW REF	SIZE	E DIAMETER IMPERIAL	E DIAMETER METRIC	D = MAX DEPTH IMPERIAL	D = MAX DEPTH METRIC	JAW ANGLE
JA01	1/4" Mini	9/16"	14	3/16"	5	12°
JA02	1/2" Mini	11/16"	18	3/16"	5	12°
JA03	3/4" Mini	15/16"	23	3/16"	5	12°
JA04	'A' Size	1 3/16"	31	3/16"	5	12°
JA06	'B' Size	1 11/16"	43	3/16"	5	12°
JA08	'C' Size	2 5/16"	57	5/16"	8	12°
JA09	'D' Size	2 15/16"	75	5/16"	8	12°
JA10	'E' Size	3 7/16"	87	5/16"	8	12°

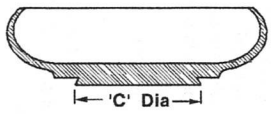
COMPRESSION MODE

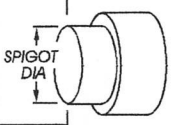
Turn the base to 'C' dia in accordance with the size given against the jaws you intend to use, and to the required depth. Then cut the dovetail, or other form as

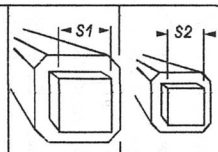
If you want to hold on a plain bore spigot it must be shouldered to the face of the jaws, and if the workpiece is over 3" (75mm) use either tailstock support, or a Basal Flange.



Tailstock support must be used when holding square material.

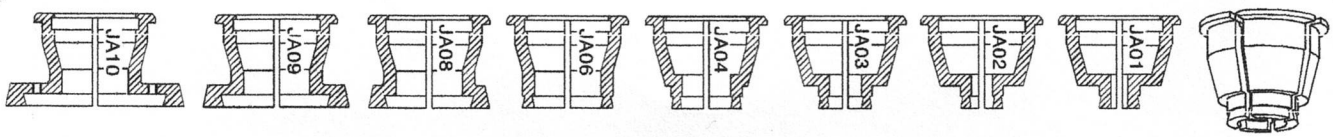






JAW REF	SIZE	C DIAMETER IMPERIAL	C DIAMETER METRIC	D = MAX DEPTH IMPERIAL	D = MAX DEPTH METRIC	JAW ANGLE	PLAIN BORE SPIGOT DIA IMPERIAL	PLAIN BORE SPIGOT DIA METRIC	S1 SQUARE DRIVE *** IMPERIAL	S1 SQUARE DRIVE *** METRIC	S2 SQUARE DRIVE *** IMPERIAL	S2 SQUARE DRIVE *** METRIC
JA01	1/4" Mini	Plain bore		n/a		n/a	1/4"	6.5	n/a	n/a	5/32"	4/7
JA02	1/2" Mini	9/16"	15	3/16"	5	12°	1/2"	12.5	n/a	n/a	3/8"	10
JA03	3/4" Mini	13/16"	20	3/16"	5	12°	3/4"	19.0	n/a	n/a	1/2"	13
JA04	'A' Size	1 1/16"	27	3/16"	5	12°	1"	25.5	n/a	n/a	3/4"	19
JA06	'B' Size	1 9/16"	40	3/16"	5	12°	1 1/2"	38.0	n/a	n/a	1 1/8"	28
JA08	'C' Size	2 1/16"	53	3/16"	5	20°	1 1/2"	38.0	1 1/2"	40	1 1/8"	28
JA09	'D' Size	2 9/16"	65	3/16"	5	20°	1 1/2"	38.0	1 7/8"	48	1 1/8"	28
JA10	'E' Size	3 1/16"	78	3/16"	5	20°	1 1/2"	38.0	2 1/4"	58	1 1/8"	28

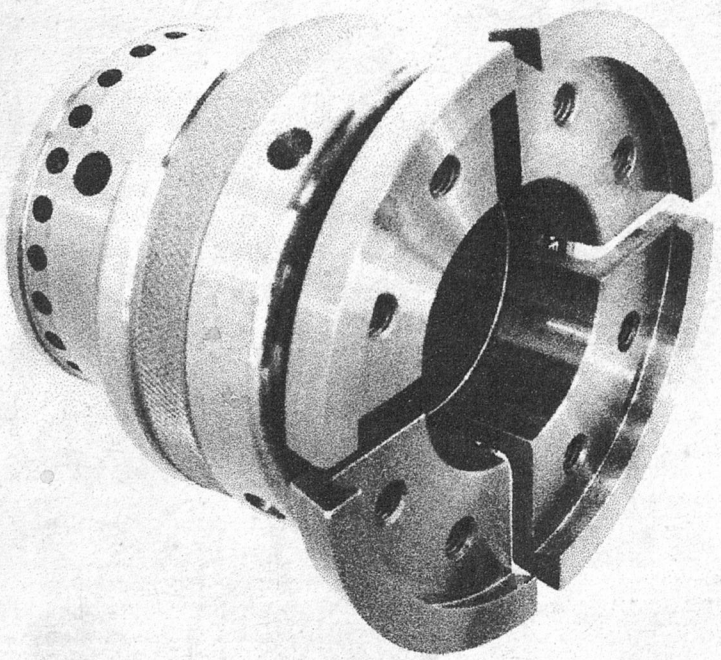
NOTE: The above information is for general guidance only, therefore, any critical dimensions must be tested before proceeding. Metric equivalents & tolerance = +/- 0.5mm



MULTISTAR

DUPLEX

INSTRUCTION BOOKLET
BEDIENUNGSANLEITUNG
MODE D'EMPLOY
ISTRUZIONI PER L'USO



MULTISTAR
LEADERSHIP IN WORKHOLDING