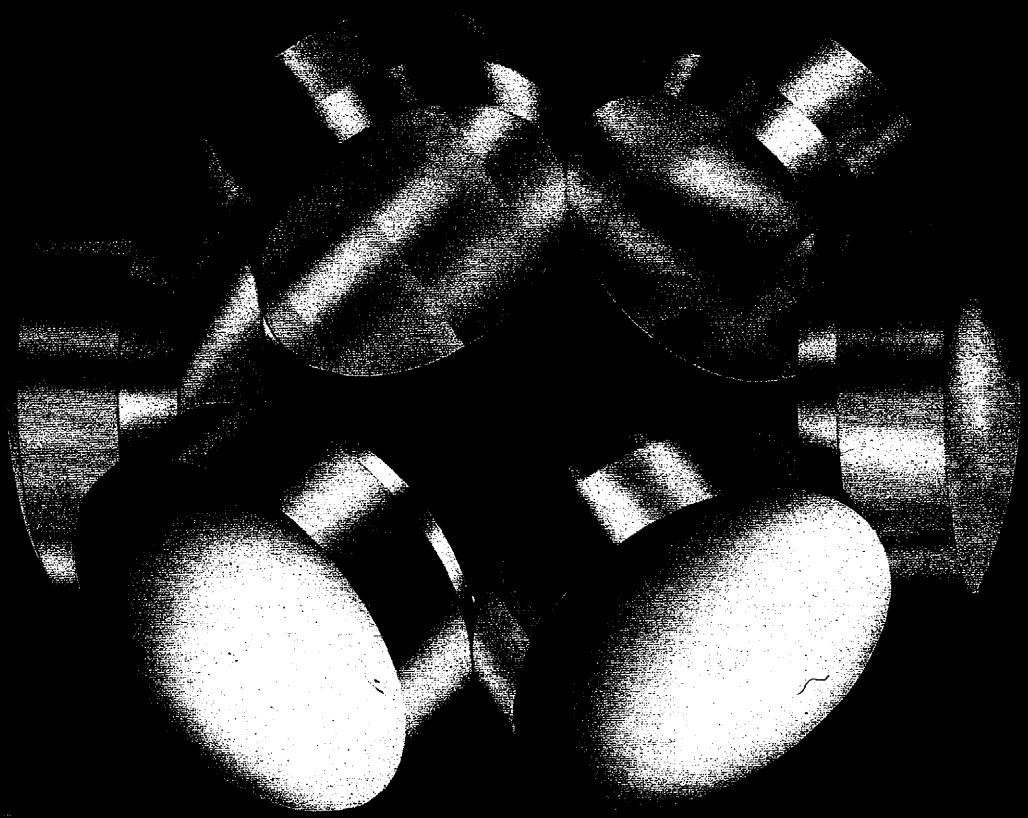
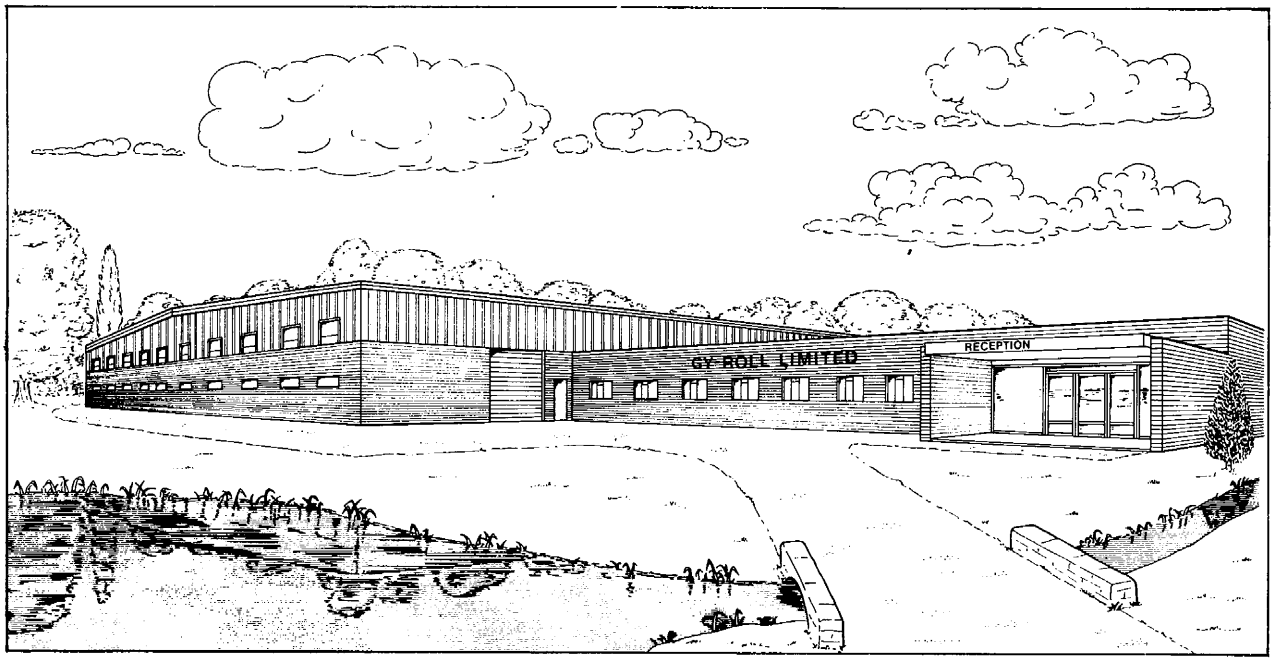
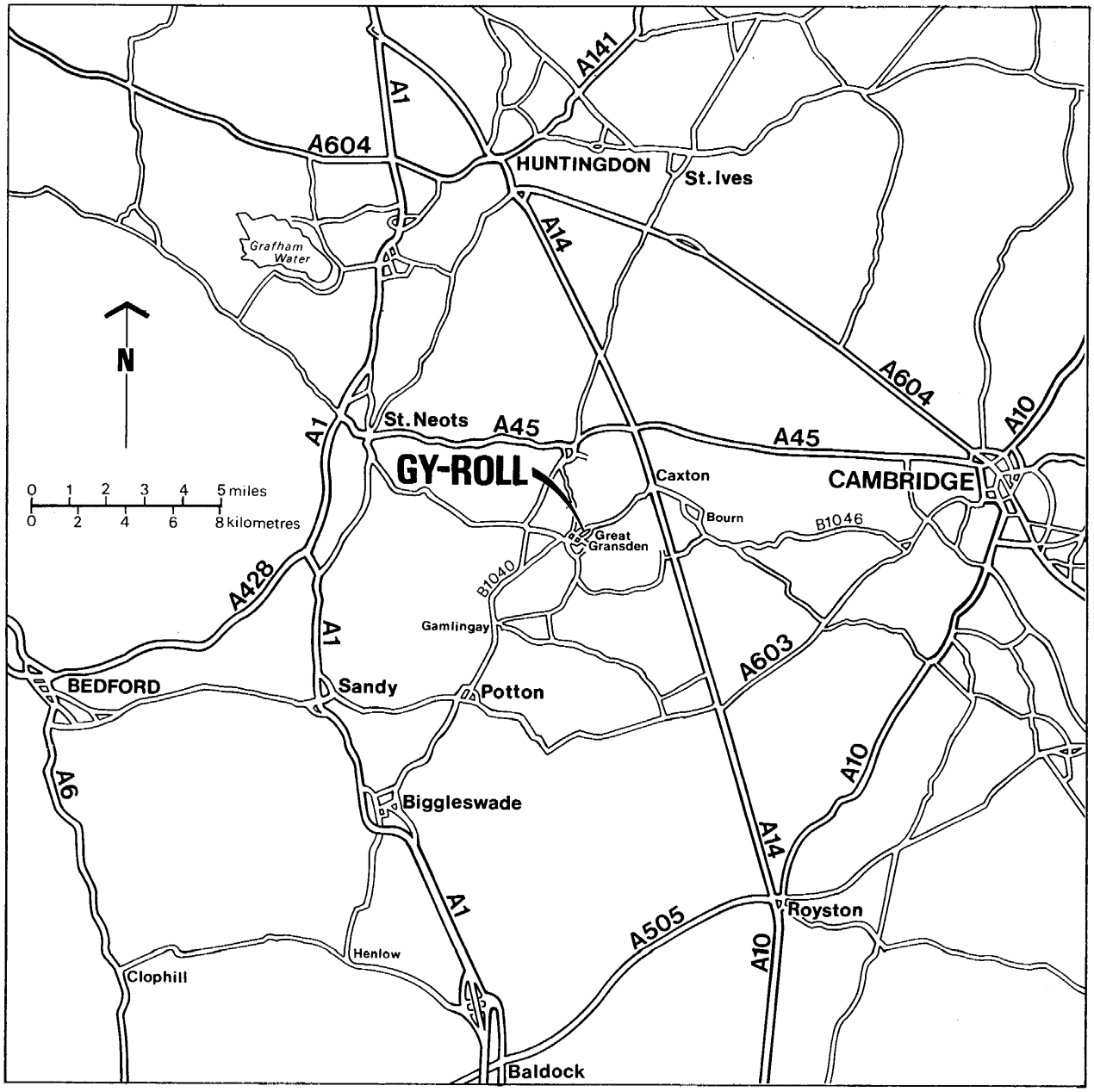
Multi-spindle heads for drilling and tapping



Gy-Roll Limited


GY-ROLL LIMITED
RECEPTION


A141
A1
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HUNTINGDON
St. Ives
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Grafham Water
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GY-ROLL
Caxton
CAMBRIDGE
0 1 2 3 4 5 miles
0 2 4 6 8 kilometres
Bourn
B1046
Great Gransden
B1040
A428
Gamlingay
A1
A603
BEDFORD
Sandy
Potton
A6
A10
Biggleswade
A14
A1
Royston
A505
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Henlow
Clophill
Baldock

Contents

AIR TOOLS AND EQUIPMENT LTD.
DON SMITH
SALES ENGINEER - WELLINGTON
MOBILE 025 933 097
Head Office: 405 E Avenue Road, Hastings
Phone or Fax (06) 876-8935

Introduction

Gy-Roll twin spindle and Multi-spindle heads are specially designed for use with small self-feed drilling units. These self-feed drills are primarily intended for the drilling and tapping of small holes. As it is more often necessary to drill a group of small holes instead of a single hole and since such groups are often on close centres, it is important that a head specially designed for these units be capable of drilling on the closest possible centres. The minimum centre distance for Gy-Roll heads is approximately twice the maximum drill diameter.

Since the heads may be run at high speeds, particular care has been given to the design of the bearings for the internal gearing and spindles. All journal bearings are precision ground and needle bearings have caged rollers so that friction and subsequent wear is kept to a minimum. Axial spindle load is taken by a patented roller thrust bearing with a rating at least three times greater than a ball thrust bearing of an equivalent outside diameter.

Standard drilling adaptors and reversing tapping adaptors are supplied to suit most self-feed drilling units and air motors. Special adaptors for other units can be quoted for.

Heads can be supplied for general workshop use with a taper shank arbor for fitting directly into a drilling machine spindle or with a standard flange or spigot location for adapting to a drilling machine quill.

Technical Description

Gy-Roll standard adjustable centre heads should be set in the following manner:

(a) The turrets are rotated to bring the spindles to the required centre distance or pitch circle diameter.

(b) In cases where a particular spindle setting is frequently required setting rings can be provided for quickly locating the spindles in their relative positions.

(c) When setting the spindle centre distance the head can also be turned relative to the drill unit adaptor. This adjustment may be necessary in order to line up the spindles with the holes to be drilled or tapped.

Gy-Roll adjustable centre heads are suitable for drilling or tapping 2 holes, 3 holes equi-spaced in a straight line and 3 or 4 holes equi-spaced on a common PCD. The spindle arrangements available for adjustable centre heads are shown on page 7. See notes on page 14 showing manner of twin spindle adjustment.

Where there are applications for heads where the hole pattern cannot be attained by means of the standard spindle adjustment, fixed centre multi-spindle heads can be provided. These heads are specifically made to suit any form of hole pattern. Maximum collet capacity and minimum centre distance for the type 400, 650, 800, 950 and 1250 fixed centre heads are shown on page 7. For economy in manufacture, availability of spares and early delivery, many parts such as spindles, gears and bearings etc. are common to both the standard adjustable and the fixed centre heads.

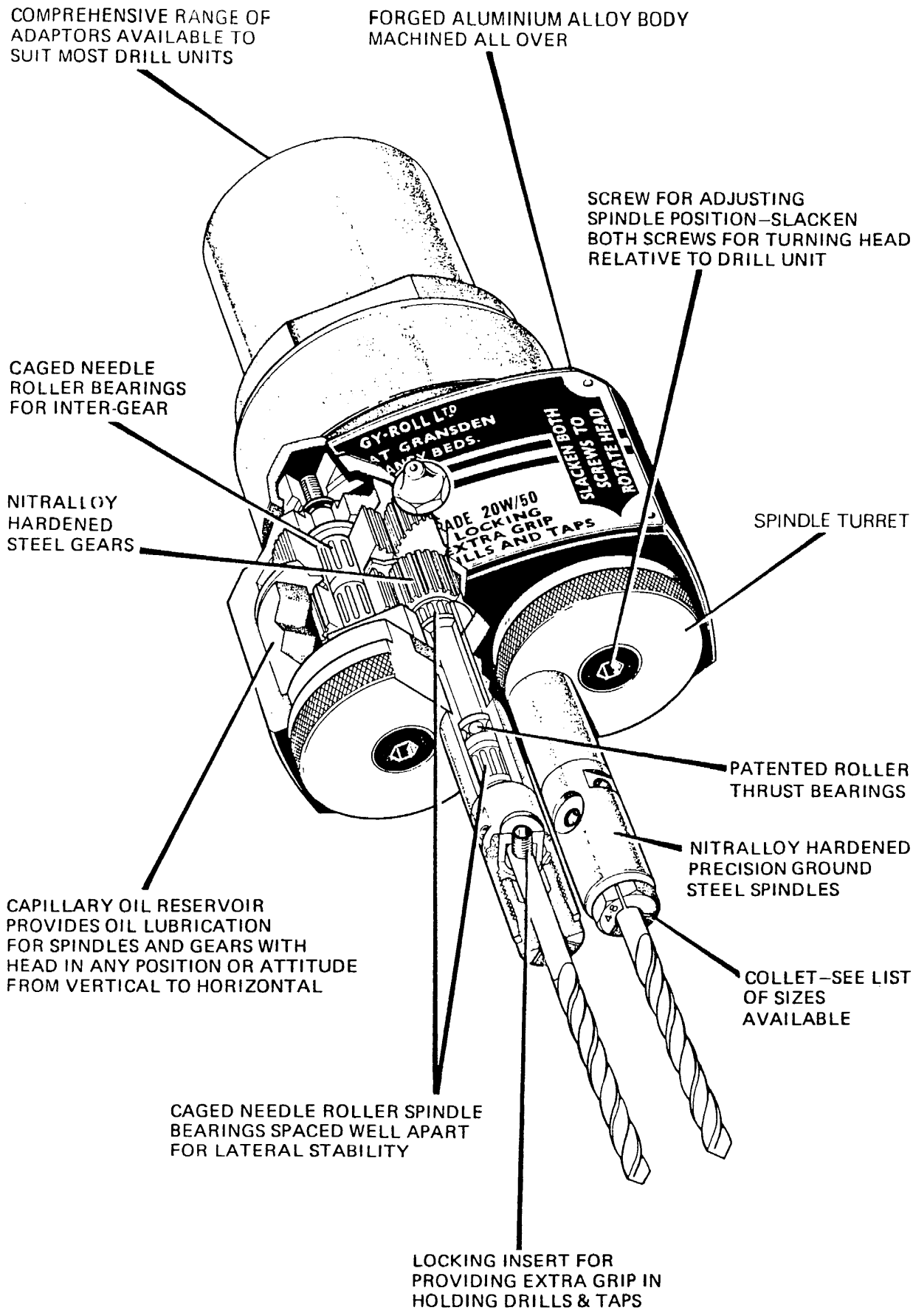
When ordering Gy-Roll fixed centre multi-spindle heads, it is essential to supply a drawing of the component to be drilled or tapped.

Where accurate hole positions are required, it is always necessary to support the drills in close proximity to the work by means of drill bushes. Under these conditions it is therefore essential that either bushed jigs or bush plates are used with both adjustable and fixed centre heads.

The screw back type of collet used in all Gy-Roll heads provides the maximum drilling capacity in relation to spindle diameter. The type 950 head can be also supplied with drill chucks. The type 1250 head is available with either the screw back type collet, drill chucks or the automotive type of drill adaptor sleeve.

The lubricating system in all Gy-Roll heads is designed in such a way that oil is released by capillary action from reservoirs as and when it is needed. The oil reservoirs provide oil to the spindles with the head in any position from vertical to horizontal. The oil is of a standard motor grade which is easily obtainable.

Gy-Roll patented roller thrust bearings are fitted to the spindles of all drilling and tapping heads.


COMPREHENSIVE RANGE OF ADAPTORS AVAILABLE TO SUIT MOST DRILL UNITS
FORGED ALUMINIUM ALLOY BODY MACHINED ALL OVER
SCREW FOR ADJUSTING SPINDLE POSITION–SLACKEN BOTH SCREWS FOR TURNING HEAD RELATIVE TO DRILL UNIT
CAGED NEEDLE ROLLER BEARINGS FOR INTER-GEAR
NITRALLOY HARDENED STEEL GEARS
SPINDLE TURRET
PATENTED ROLLER THRUST BEARINGS
NITRALLOY HARDENED PRECISION GROUND STEEL SPINDLES
CAPILLARY OIL RESERVOIR PROVIDES OIL LUBRICATION FOR SPINDLES AND GEARS WITH HEAD IN ANY POSITION OR ATTITUDE FROM VERTICAL TO HORIZONTAL
COLLET–SEE LIST OF SIZES AVAILABLE
CAGED NEEDLE ROLLER SPINDLE BEARINGS SPACED WELL APART FOR LATERAL STABILITY
LOCKING INSERT FOR PROVIDING EXTRA GRIP IN HOLDING DRILLS & TAPS
SLACKEN BOTH SCREWS TO ROTATE HEAD

Gy-Roll Drilling Heads

It is important that the following instructions are passed on to the personnel responsible for using the Gy-Roll drilling heads.

Recommended method for holding drills in spindles

Important

Use only the spanners provided for the head.
Do not overtighten the collet.
The locking insert must be used to provide a positive drive for the drill.

The ring spanner should be used for tightening the collet. The open-ended spanner is for holding the collet spindle to prevent it from turning. Do not hold on any other spindle than the one in which the collet is being tightened otherwise undue strain may be transferred to the gearing.

All straight shank drills have a tendency to slip when held in a collet or chuck. It is therefore important that the locking insert is always used for holding all sizes of drills. With the exception of the drills too large to enter the locking insert, it is only necessary to grind a single flat on the shank end of the drill. The length of the flat should be approximately equal to the diameter of the locking insert. The depth of the flat should be 1/3 of the drill diameter.

A flat of these proportions will not interfere with holding the drill in a normal chuck but when used in a Gy-Roll spindle provides a positive drive comparable with the tang drive on a taper shank drill. The locking insert is only really effective if there is a flat on the end of the drill.

Drills too large to enter the locking insert should have an approximate square ground onto the end of the shank. The shape of the square is not critical provided that it freely enters into the locking insert.

When the drill is first put into the collet it is important that it is held with a grip light enough to locate the drill yet still allowing it to move rotationally and axially in the collet.

The screws in the locking insert should be adjusted so that the locking insert is in the centre of the spindle when gripping the drill. Check the end float of the locking insert to ensure that it moves freely.

When inserting the drill into the locking insert be sure that one of the screws locates squarely on the ground flat of the drill, and that the drill is pushed into the locking insert as far as it will go. The collet should now be firmly closed after which the screws in the locking insert are finally tightened. If the locking insert screws are lost they should be replaced with similar screws. It is important that the dog end or gripping end of the screw is flat.

When spindles are working on close centres check that the locking insert screws clear the screws in adjacent spindles.

In cases where the spindles are too close together to use the ring spanner for tightening the collet, the open ended spanner has to be used. In such cases the collet should be progressively tightened by applying the spanner to alternative collet flats. If a spare short handled open spanner is not available a long spanner may be used for holding the spindle. The short handled spanner can then be used for tightening the collet.

Continued overleaf.

Lubrication

Gy-Roll heads are lubricated with oil as specified on the name plate.

It is most important to ensure that grease is never used as this will clog up the lubricating system.

The oil in a Gy-Roll head is carried in a polyurethane felted foam block. It is fed by capillary action to the gears and bearing extremities. The oil absorbed in the polyurethane block is adequate for lubricating the entire head. There should be no free oil floating around in the head. Any indication of oil dripping from the spindles or any other part of the head means there is an excess of oil in the head.

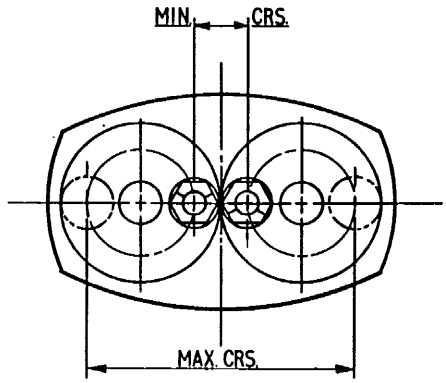
Oil is pumped into the head by means of the nipple in the side of the body. Two to three strokes of an oil gun should provide sufficient lubrication for approximately 500 running hours. If there is an excess of oil in the head it can be drained off by running the head with the lubricating nipple or oil plug removed.

It is important to appreciate that the Gy-Roll lubricating system is not based on an oil bath as with this system the oil would settle in a different part of the head according to how the head was mounted. This could adversely effect lubrication to bearings at the extremities of the head while other bearings may be flooded causing unnecessary agitation of the oil and overheating of spindles if they were run at high speed.

It is most important to ensure grease is never used. If there is any risk of someone pumping grease into the head it is safer to replace the lubricating nipple with an oil plug. The nipple can then be put back at the appropriate time interval when the head is due for a further injection of oil.

TWIN SPINDLE ADJUSTABLE HEAD

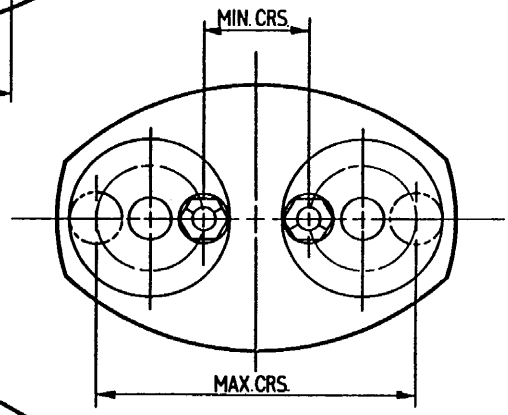
TYPE	DRILL IN.	DRILL MM	TAP UNC	TAP MM	CENTRES MIN.	CENTRES MAX.	CENTRES MIN.	CENTRES MAX.
400	5/32	4	6	4	.375	2.125	9.5	54.0
650	1/4	6.5	10	5	.500	2.500	12.7	63.5
800	5/16	8	1/4	6	.625	3.125	16.0	79.0
950	3/8	9.5	5/16	8	.750	3.750	19.0	95.0
1250	1/2	13	3/8	10	1.00	5.00	25.0	127.0



ON ALL HEADS THE ADAPTOR, BODY AND SPINDLE ARE THE SAME LENGTH AS THE STANDARD TWIN SPINDLE ADJUSTABLE OF THE SAME TYPE

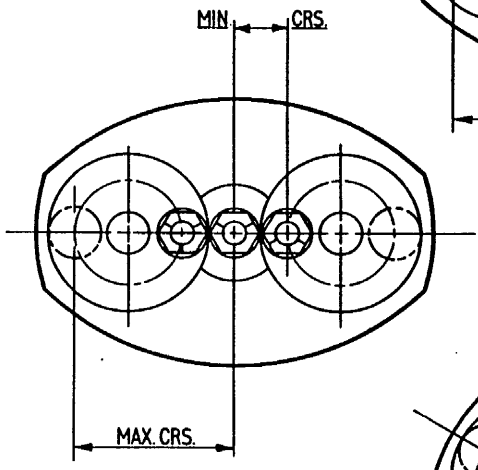
TWIN SPINDLE EXTRA REACH ADJUSTABLE HEAD

TYPE	DRILL IN.	DRILL MM	TAP UNC	TAP MM	CENTRES MIN.	CENTRES MAX.	CENTRES MIN.	CENTRES MAX.
400	5/32	4	6	4	.75	2.500	19.0	63.5
650	1/4	6.5	10	5	1.000	3.000	25.4	76.0
800	5/16	8	1/4	6	1.250	3.750	31.8	95.2
950	3/8	9.5	5/16	8	1.500	4.500	38.0	114.3
1250	1/2	13	3/8	10	2.000	6.000	50.0	152.4



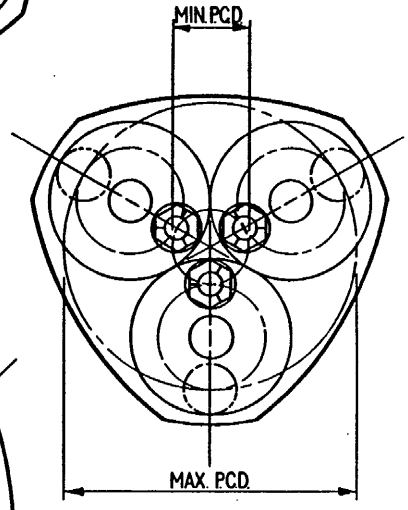
THREE SPINDLE IN LINE ADJUSTABLE HEAD

TYPE	DRILL IN.	DRILL MM	TAP UNC	TAP MM	CENTRES MIN.	CENTRES MAX.	CENTRES MIN.	CENTRES MAX.
400	1/8	3.2	6	4	.375	1.250	9.5	31.7
650	3/16	5	8	5	.500	1.500	12.7	38.1
800	1/4	6.5	12	5	.625	1.875	16.0	47.6
950	9/32	7	1/4	7	.750	2.250	19.0	57.1
1250	3/8	9.5	5/16	9	1.000	3.000	25.0	76.2



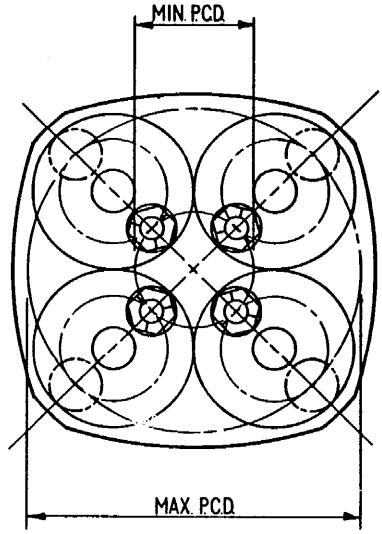
THREE SPINDLE ADJUSTABLE HEAD ✳

TYPE	DRILL IN.	DRILL MM	TAP UNC	TAP MM	P.C.D. MIN.	P.C.D. MAX.	P.C.D. MIN.	P.C.D. MAX.
400	1/8	3.2	6	4	.565	2.320	14.4	58.9
650	3/16	5	8	5	.735	2.730	18.6	69.3
800	1/4	6.5	12	5	.915	3.415	23.3	86.7
950	9/32	7	1/4	7	1.100	4.100	27.9	104.1
1250	3/8	9.5	5/16	9	1.445	5.485	36.7	139.2



FOUR SPINDLE ADJUSTABLE HEAD ✳

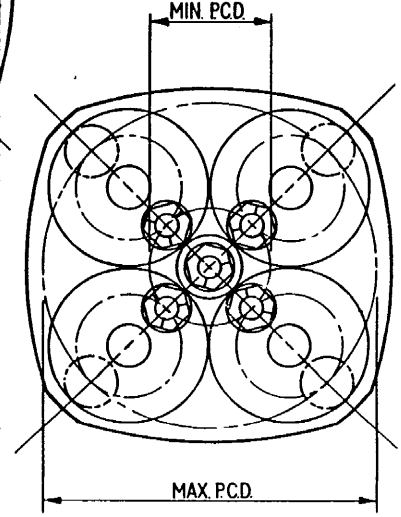
TYPE	DRILL IN.	DRILL MM	TAP UNC	TAP MM	P.C.D. MIN.	P.C.D. MAX.	P.C.D. MIN.	P.C.D. MAX.
400	1/8	3.2	5	3.5	.890	2.645	22.7	67.2
650	3/16	5	8	4.5	1.125	3.120	28.5	79.2
800	1/4	6.5	8	5	1.405	3.900	35.7	99.1
950	9/32	7	12	7	1.680	4.680	42.7	118.9
1250	3/8	9.5	1/4	7	2.225	6.260	56.5	159.0



FIVE SPINDLE ADJUSTABLE HEAD ✳

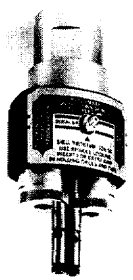
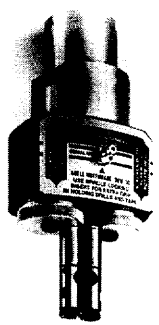
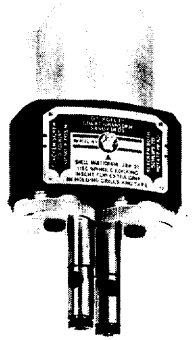
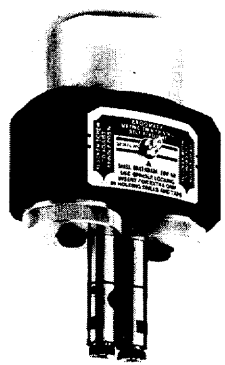
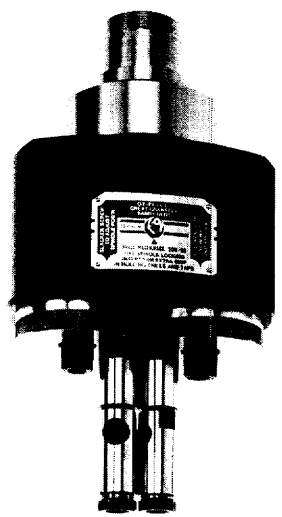
TYPE	DRILL IN.	DRILL MM	TAP UNC	TAP MM	P.C.D. MIN.	P.C.D. MAX.	P.C.D. MIN.	P.C.D. MAX.
400	1/8	3.2	5	3	.890	2.645	22.7	67.2
650	3/16	5	6	4	1.125	3.120	28.5	79.2
800	1/4	6.5	8	5	1.405	3.900	35.7	99.1
950	9/32	7	12	5	1.680	4.680	42.7	118.9
1250	3/8	9.5	12	7	2.225	6.260	56.5	159.0

✳ NOTE THESE HEADS CAN ONLY BE USED WHEN HOLES ARE EQUI-SPACED AND ON A COMMON P.C.D.



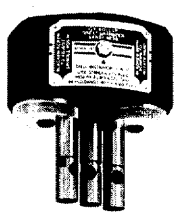
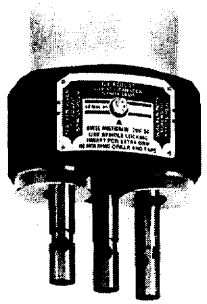
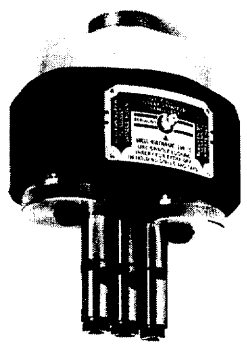
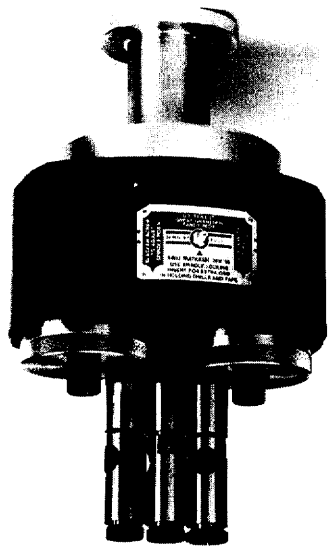
ALL DRILL & TAP SIZES ARE FOR MILD STEEL. FOR OTHER MATERIALS SEE SHEETS No. 15,16 & 17.

Twin Spindle Adjustable Centre Heads

Type 400	Type 650	Type 800	Type 950	Type 1250
Centre Distances: 9.5mm to 54.0mm (3/8" to 2.1/8")	Centre Distances: 12.7mm to 63.5mm (1/2" to 2.1/2")	Centre Distances: 16mm to 79.0mm (5/8" to 3.1/8")	Centre Distances: 19.0mm to 95.0mm (3/4" to 3.3/4")	Centre Distances: 25.0mm to 127mm (1.00" to 5.00")
Drill sizes up to: 4.0mm (5/32")	Drill sizes up to: 6.5mm (1/4")	Drill sizes up to: 8.0mm (5/16")	Drill sizes up to: 9.5mm (3/8")	Drill sizes up to: 13.0mm (1/2")
Tap sizes up to: 4.0mm (5/32")	Tap sizes up to: 5.0mm (3/16")	Tap sizes up to: 6.0mm (1/4")	Tap sizes up to: 8.0mm (5/16")	Tap sizes up to: 10.0mm (3/8")
				

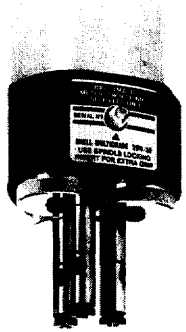
Drilling and tapping capacities apply to mild steel; for other materials see pages 15 and 16.

Three Spindle In-Line Adjustable Centre Heads

Type 400	Type 650	Type 800	Type 950	Type 1250
Centre Distances: 9.5mm to 31.7mm (3/8" to 1.1/4")	Centre Distances: 12.7mm to 38.1mm (1/2" to 1.1/2")	Centre Distances: 16mm to 47.6mm (5/8" to 1.7/8")	Centre Distances: 19.0mm to 57.1mm (3/4" to 2.1/4")	Centre Distances: 25.0mm to 76.2mm (1.00" to 3.00")
Drill sizes up to: 3.2mm (1/8")	Drill sizes up to: 5.0mm (3/16")	Drill sizes up to: 6.5mm (1/4")	Drill sizes up to: 7.0mm (9/32")	Drill sizes up to: 9.5mm (3/8")
Tap sizes up to: 4.0mm (5/32")	Tap sizes up to: 5.0mm (3/16")	Tap sizes up to: 5.0mm (7/32")	Tap sizes up to: 7.0mm (1/4")	Tap sizes up to: 9.0mm (5/16")
				

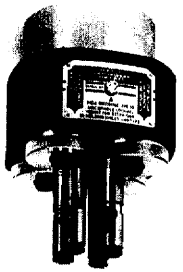
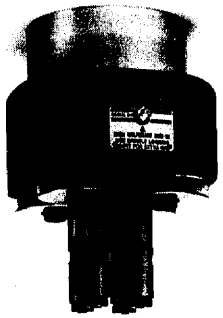
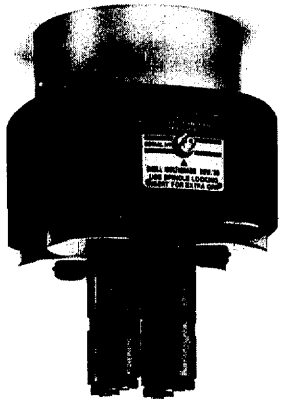
Drilling and tapping capacities apply to mild steel; for other materials see pages 15, 16 and 17.

Three Spindle Adjustable Centre Heads

Type 400	Type 650	Type 800	Type 950	Type 1250
Pitch Circle Dia. 14.4mm to 58.9mm (.565" to 2.32")	Pitch Circle Dia. 18.6mm to 69.3mm (.735" to 2.73")	Pitch Circle Dia. 23.3mm to 86.7mm (.915" to 3.415")	Pitch Circle Dia. 27.9mm to 104.1mm (1.10" to 4.10")	Pitch Circle Dia. 36.7mm to 139.2mm (1.445" to 5.485")
Drill sizes up to: 3.2mm (1/8")	Drill sizes up to: 5.0mm (3/16")	Drill sizes up to: 6.5mm (1/4")	Drill sizes up to: 7.0mm (9/32")	Drill sizes up to: 9.5mm (3/8")
Tap sizes up to: 4.0mm (5/32")	Tap sizes up to: 5.0mm (3/16")	Tap sizes up to: 5.0mm (7/32")	Tap sizes up to: 7.0mm (1/4")	Tap sizes up to: 9.0mm (5/16")
				

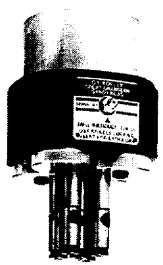
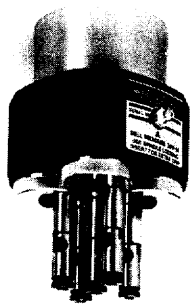
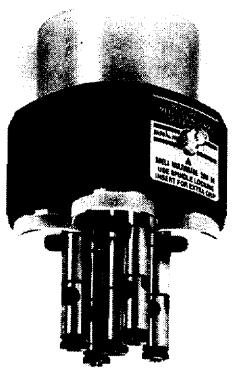
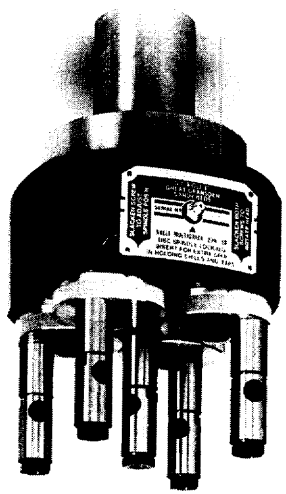
Drilling and tapping capacities apply to mild steel; for other materials see pages 15, 16 and 17.

Four Spindle Adjustable Centre Heads

Type 400	Type 650	Type 800	Type 950	Type 1250
Pitch Circle Dia. 22.7mm to 67.2mm (.89" to 2.645") Drill sizes up to: 3.2mm (1/8") Tap sizes up to: 3.5mm (1/8")	Pitch Circle Dia. 28.5mm to 79.2mm (1.125" to 3.12") Drill sizes up to: 5.0mm (3/16") Tap sizes up to: 4.5mm (5/32")	Pitch Circle Dia. 35.7mm to 99.1mm (1.405" to 3.90") Drill sizes up to: 6.5mm (1/4") Tap sizes up to: 5.0mm (5/32")	Pitch Circle Dia. 42.7mm to 118.9mm (1.68" to 4.68") Drill sizes up to: 7.0mm (9/32") Tap sizes up to: 7.0mm (7/32")	Pitch Circle Dia. 56.5mm to 159mm (2.225" to 6.26") Drill sizes up to: 9.5mm (3/8") Tap sizes up to: 7.0mm (1/4")
				

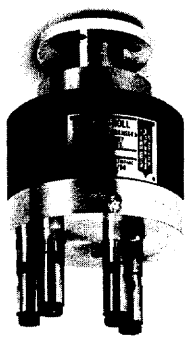
Drilling and tapping capacities apply to mild steel; for other materials see pages 15, 16 and 17.

Five Spindle Adjustable Centre Heads

Type 400	Type 650	Type 800	Type 950	Type 1250
Minimum centre distance between any two spindles: 9.5mm (3/8")	Minimum centre distance between any two spindles: 12.7mm (1/2")	Minimum centre distance between any two spindles: 16.0mm (5/8")	Minimum centre distance between any two spindles: 19.0mm (3/4")	Minimum centre distance between any two spindles. 25mm (1.00")
Pitch Circle Dia. 22.7mm to 67.2mm (.89" to 2.645")	Pitch Circle Dia. 28.5mm to 79.2mm (1.125" to 3.12")	Pitch Circle Dia. 35.7mm to 99.1mm (1.405" to 3.90")	Pitch Circle Dia. 42.7mm to 118.9mm (1.68" to 4.68")	Pitch Circle Dia. 56.5mm to 159mm (2.225" to 6.26")
Drill sizes up to: 3.2mm (1/8")	Drill sizes up to: 5.0mm (3/16")	Drill sizes up to: 6.5mm (1/4")	Drill sizes up to: 7.0mm (9/32")	Drill sizes up to: 9.5mm (3/8")
Tap sizes up to: 3.0mm (1/8")	Tap sizes up to: 4.0mm (5/32")	Tap sizes up to: 5.0mm (5/32")	Tap sizes up to: 5.0mm (7/32")	Tap sizes up to: 7.0mm (7/32")
				

The five spindle adjustable heads may be used as a four spindle on a common P.C.Dia. or a three spindle in line or as a dual twin spindle head.

Multi-Spindle Fixed Centre Heads

Type 400	Type 650	Type 800	Type 950	Type 1250
Minimum centre distance between any two spindles: 9.5mm (3/8")	Minimum centre distance between any two spindles: 12.7mm (1/2")	Minimum centre distance between any two spindles: 16.0mm (5/8")	Minimum centre distance between any two spindles: 19.0mm (3/4")	Minimum centre distance between any two spindles: 25mm (1.00")
Spindle centres may be in any position within a circle diameter of 54.0mm (2.1/8")	Spindle centres may be in any position within a circle diameter of 63.5mm (2.1/2")	Spindle centres may be in any position within a circle diameter of 79.0mm (3.1/8")	Spindle centres may be in any position within a circle diameter of 95.0mm (3.3/4")	Spindle centres may be in any position within a circle diameter of 127mm (5.00")
				

For maximum drill sizes see page 15. For maximum tapping sizes see pages 16 and 17.

The minimum spindle P.C.Dia.for fixed centre heads is substantially less than that for 3 and 4 spindle adjustable centre heads.

INSTRUCTIONS RELATING TO SPINDLE ADJUSTMENT

For Simple Spindle Adjustment the X–X and Y–Y Axis of the Component shown in Fig. 1 should coincide with the X–X and Y–Y Axis of the Drill Head and Drilling Unit as shown in Fig. 2. The Spindles should then be adjusted in the manner shown in Figs. 3 and 4.

IMPORTANT
If this procedure is not followed and both Spindles are moved out to one side of the Head any subsequent Spindle Adjustment will result in the necessity of having to re-adjust the relationship between the Drilling Unit and the Component.

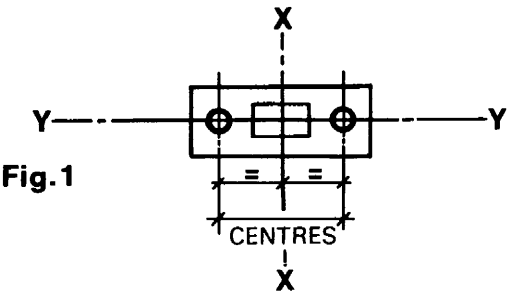


Fig.1

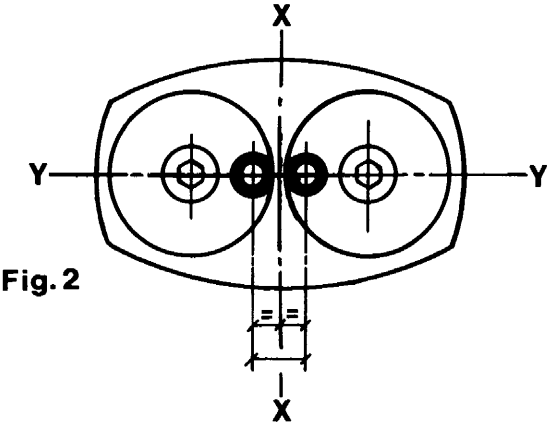


Fig.2

Fig 2. shows the Twin Spindle Head with the Spindles set to the minimum centres.

To adjust the Spindles as shown in Fig. 3 slacken both screws A and rotate both Turrets in the direction indicated by the arrows to the approximate centres that are required.

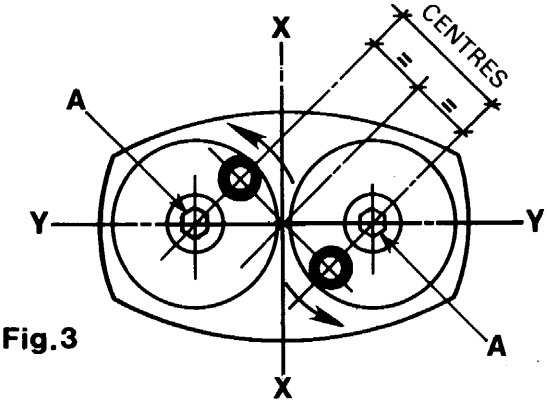


Fig.3

Rotate the complete Drill Head Assembly to bring both Spindles to the required Y–Y Axis as shown in Fig.4. Finally adjust Spindle Centres on Axis Y–Y to suit gauge or drill bushes and tighten screws A securely.

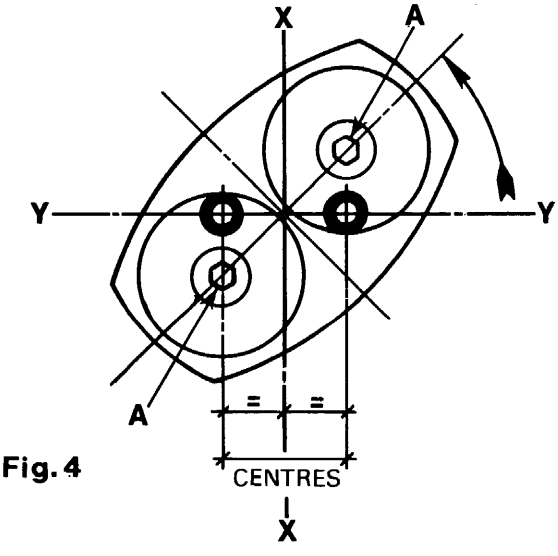


Fig.4

DRILLING CAPACITIES FOR GY-ROLL MULTI-SPINDLE HEADS.

Due to the possibility of unequal drill thrusts it is advisable in the cases of 3, 4 and 5 spindle heads to reduce the drill size per spindle to $\frac{3}{4}$ of that shown in the chart below.

HEAD TYPE	MAX. COLLET SIZE MM.	MIN. CENTRES IN.	MIN. CENTRES MM	MAX. R.P.M.	MAX. DRILL SIZE IN. MM. ALUM. & BRASS ✳		MILD STEEL		ALLOY STEEL		THRUST RATING PER SPINDLE lb. † DYN. THRUST	THRUST AT MAX. R.P.M.	THRUST 2/3 MAX. R.P.M.	THRUST 1/3 MAX. R.P.M.	MAX. SPINDLE TORQUE lb - in
400	4	3/8	9.5	10 000	3/16	5	5/32	4	5/32	4	350	32	36	44	19.2
650	6.5	1/2	12.7	7 000	5/16	8	1/4	6.5	7/32	5.5	746	75	85	105	26.4
800	8	5/8	16	6 000	3/8	9.5	5/16	8	9/32	7	1 156	122	138	170	50.4
950	9.5	3/4	19	5 000	7/16	11	3/8	9.5	11/32	9	1 457	162	183	226	79.2
1250	13	1	25	3 500	9/16	14	1/2	13	13/32	10	2 500	310	350	431	120

✳ These drill shanks must be reduced to maximum collet size.

† The above Dynamic Ratings are calculated for GY-ROLL Twin Spindle Heads with a working life of 5 000 hours.

The Dynamic Thrust Rating may be used for any other working life and spindle speed by the following equation.

$$At = \frac{Dt}{10/3\sqrt{\frac{Lh \times R.P.M.}{16\,666}}}$$

where : At = Applied Thrust.
Dt = Dynamic Thrust.
Lh = Life in Hours.
R.P.M. = Spindle Speed.

To convert pounds-force to newtons multiply by 4.44822.

To convert pounds-inches to newton-metre multiply by 0.11298.

TAPPING CAPACITIES FOR GY-ROLL HEADS

The following sizes are based on optimum cooling and cutting conditions. The tap sizes shown represent the Max. size that can be held in a spindle. Smaller tap sizes are shown where the torque of the tap would be higher than that recommended for the head. When taps reach the stage where they require sharpening the torque loading is **substantially higher.**

*Figures shown are maximum torque ratings for head. The maximum rating of tapping unit should be similar.

To convert torque to horsepower:

$$\text{Horsepower} = \frac{\text{Torque} \times \text{R.P.M.}}{63\,000}$$

Single Spindle Heads.

Head Type	Max. Torque Rating lb in.	Material	I.S.O. Metric Coarse	I.S.O. Metric Fine	U.N.C.	U.N.F.	B.A.	B.S.W.	B.S.F	B.S.P.
650	52.8	Aluminium Brass M.S. EN40	8 x 1.25 8 x 1.25 7 x 1 5 x 0.8	8 x 1 8 x 1 8 x 1 8 x 0.75	5/16 x 18 5/16 x 18 1/4 x 20 #10 x 24	5/16 x 24 5/16 x 24 5/16 x 24 1/4 x 28	All All All # 1	5/16 x 18 5/16 x 18 1/4 x 20 3/16 x 24	5/16 x 22 5/16 x 22 9/32 x 26 7/32 x 28	1/8 x 28 1/8 x 28 1/8 x 28 --------
950	158.4	Aluminium Brass M.S. EN40	12 x 1.75 12 x 1.75 11 x 1.5 9 x 1.25	12 x 1.5 12 x 1.5 12 x 1.5 12 x 1 10 x 1.25	1/2 x 13 1/2 x 13 3/8 x 16 5/16 x 18	1/2 x 20 1/2 x 20 1/2 x 20 3/8 x 24	All All All All	1/2 x 12 1/2 x 12 3/8 x 16 5/16 x 18	1/2 x 16 1/2 x 16 7/16 x 18 3/8 x 20	1/8 x 28 1/8 x 28 1/8 x 28 1/8 x 28

Twin Spindle Fixed and Adjustable Heads.

Head Type	Max. * Torque rating lb in.	Material	I.S.O. Metric Coarse.	I.S.O. Metric Fine	U.N.C.	U.N.F.	B.A.	B.S.W.	B.S.F.	B.S.P.
400	38.4	Aluminium Brass M.S. EN40	4 x 0.7 4 x 0.7 4 x 0.7 4 x 0.7	4 x 0.5 4 x 0.5 4 x 0.5 4 x 0.5	#6 x 32 #6 x 32 #6 x 32 #5 x 40	#6 x 40 #6 x 40 #6 x 40 #6 x 40	# 4 # 4 # 4 # 4	5/32 x 32 5/32 x 32 5/32 x 32 1/8 x 40	------- ------- ------- -------	-------- -------- -------- --------
650	52.8	Aluminium Brass M.S. EN40	5 x 0.8 5 x 0.8 5 x 0.8 4.5 x 0.75	5.5 x 0.5 5.5 x 0.5 5.5 x 0.5 5.5 x 0.5	#12 x 24 #12 x 24 #10 x 24 #8 x 32	#12 x 28 #12 x 28 #12 x 28 #8 x 36	# 1 # 1 # 1 # 3	7/32 x 24 7/32 x 24 3/16 x 24 5/32 x 32	7/32 x 28 7/32 x 28 7/32 x 28 -------	------- ------- ------- --------
800	100.8	Aluminium Brass M.S. EN40	6 x 1.0 6 x 1.0 6 x 1.0 5 x 0.8	6 x 0.75 6 x 0.75 6 x 0.75 6 x 0.75	1/4 x 20 1/4 x 20 1/4 x 20 #10 x 24	1/4 x 28 1/4 x 28 1/4 x 28 1/4 x 28	All All All # 1	1/4 x 20 1/4 x 20 1/4 x 20 3/16 x 24	1/4 x 26 1/4 x 26 1/4 x 26 7/32 x 28	------- ------- ------- -------
950	158.4	Aluminium Brass M.S. EN40	8 x 1.25 8 x 1.25 8 x 1.25 7 x 1	8 x 1 8 x 1 8 x 1 8 x 0.75	5/16 x 18 5/16 x 18 5/16 x 18 #12 x 24	5/16 x 24 5/16 x 24 5/16 x 24 1/4 x 28	All All All All	5/16 x 18 5/16 x 18 9/32 x 20 7/32 x 24	5/16 x 22 5/16 x 22 5/16 x 22 9/32 x 26	1/8 x 28 1/8 x 28 1/8 x 28 1/8 x 28
1250	240	Aluminium Brass M.S. EN40	12 x 1.75 12 x 1.75 10 x 1.5 8 x 1.25	12 x 1.5 12 x 1.5 12 x 1.25 12 x 1	1/2 x 13 7/16 x 14 3/8 x 16 1/4 x 20	1/2 x 20 1/2 x 20 1/2 x 20 3/8 x 24	All All All All	1/2 x 12 7/16 x 14 5/16 x 18 9/32 x 20	1/2 x 16 1/2 x 16 7/16 x 18 5/16 x 22	1/8 x 28 1/8 x 28 1/8 x 28 1/8 x 28

TAPPING CAPACITIES FOR GY-ROLL HEADS

Three Spindle Fixed and Adjustable Heads.

Head Type	Max. * Torque Rating lb in.	Material	I.S.O. Metric Coarse	I.S.O. Metric Fine	U.N.C.	U.N.F.	B.A.	B.S.W.	B.S.F.	B.S.P.
400	38.4	Aluminium	4 x 0.7	4 x 0.5	#6 x 32	#6 x 40	# 4	5/32 x 32	-------	-------
		Brass	4 x 0.7	4 x 0.5	#6 x 32	#6 x 40	# 4	5/32 x 32	-------	-------
		M.S.	4 x 0.7	4 x 0.5	#6 x 32	#6 x 40	# 4	5/32 x 32	-------	-------
		EN40	3 x 0.5	4 x 0.5	#5 x 40	#6 x 44	# 5	1/8 x 40	-------	-------
650	52.8	Aluminium	5 x 0.8	5.5 x 0.5	#12 x 24	#12 x 28	# 1	7/32 x 24	7/32 x 28	-------
		Brass	5 x 0.8	5.5 x 0.5	#12 x 24	#12 x 28	# 1	7/32 x 24	7/32 x 28	-------
		M.S.	5 x 0.8	5.5 x 0.5	#8 x 32	#10 x 32	# 2	5/32 x 32	3/16 x 32	-------
		EN40	3.5 x 0.6	5.5 x 0.5	#5 x 40	#6 x 40	# 4	1/8 x 40	-------	-------
800	100.8	Aluminium	6 x 1.0	6 x 0.75	1/4 x 20	1/4 x 28	All	1/4 x 20	1/4 x 26	-------
		Brass	6 x 1.0	6 x 0.75	1/4 x 20	1/4 x 28	All	1/4 x 20	1/4 x 26	-------
		M.S.	5 x 0.8	6 x 0.75	#12 x 24	1/4 x 28	All	7/32 x 24	1/4 x 26	-------
		EN40	5 x 0.8	6 x 0.75	#8 x 32	#10 x 32	# 2	5/32 x 32	3/16 x 32	-------
950	158.4	Aluminium	8 x 1.25	8 x 1	5/16 x 18	5/16 x 24	All	5/16 x 18	5/16 x 22	1/8 x 28
		Brass	8 x 1.25	8 x 1	5/16 x 18	5/16 x 24	All	5/16 x 18	5/16 x 22	1/8 x 28
		M.S.	7 x 1	8 x 1	1/4 x 20	5/16 x 24	All	1/4 x 20	9/32 x 26	1/8 x 28
		EN40	5 x 0.8	8 x 0.75	#10 x 24	1/4 x 28	# 1	3/16 x 24	7/32 x 28	-------
1250	240	Aluminium	12 x 1.75	12 x 1.5	1/2 x 13	1/2 x 20	All	7/16 x 14	1/2 x 16	1/8 x 28
		Brass	11 x 1.5	12 x 1.5	3/8 x 16	1/2 x 20	All	3/8 x 16	7/16 x 18	1/8 x 28
		M.S.	9 x 1.25	12 x 1	5/16 x 18	3/8 x 24	All	5/16 x 18	3/8 x 20	1/8 x 28
		EN40	7 x 1	11 x 0.75	#12 x 24	1/4 x 28	All	7/32 x 24	9/32 x 26	1/8 x 28

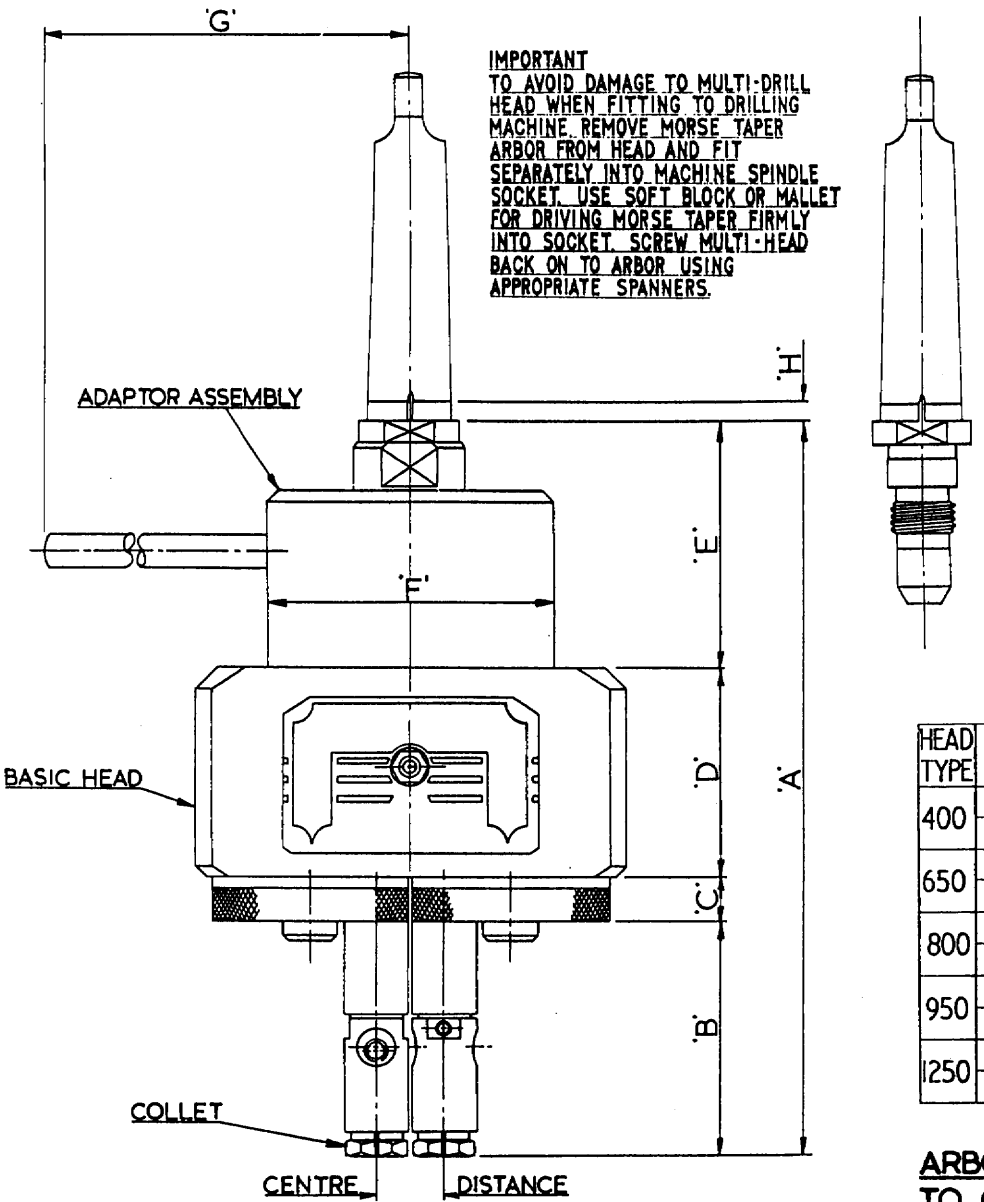
Four Spindle Fixed and Adjustable Heads.

Head Type	Max. * Torque Rating lb in.	Material	I.S.O. Metric Coarse	I.S.O. Metric Fine	U.N.C.	U.N.F.	B.A.	B.S.W.	B.S.F.	B.S.P.
400	38.4	Aluminium	4 x 0.7	4 x 0.5	#6 x 32	#6 x 40	# 4	5/32 x 32	-------	-------
		Brass	4 x 0.7	4 x 0.5	#6 x 32	#6 x 40	# 4	5/32 x 32	-------	-------
		M.S.	3.5 x 0.6	4 x 0.5	#5 x 40	#6 x 40	# 4	1/8 x 40	-------	-------
		EN40	3 x 0.5	4 x 0.5	#3 x 48	#4 x 48	# 6	3/32 x 48	-------	-------
650	52.8	Aluminium	5 x 0.8	5.5 x 0.5	#12 x 24	#12 x 28	# 1	7/32 x 24	7/32 x 28	-------
		Brass	5 x 0.8	5.5 x 0.5	#10 x 24	#12 x 28	# 1	3/16 x 24	7/32 x 28	-------
		M.S.	4.5 x 0.75	5.5 x 0.5	#8 x 32	#8 x 36	# 2	5/32 x 32	-------	-------
		EN40	3 x 0.5	5 x 0.5	#5 x 40	#6 x 40	# 5	1/8 x 40	-------	-------
800	100.8	Aluminium	6 x 1.0	6 x 0.75	1/4 x 20	1/4 x 28	All	1/4 x 20	1/4 x 26	-------
		Brass	6 x 1.0	6 x 0.75	1/4 x 20	1/4 x 28	All	1/4 x 20	1/4 x 26	-------
		M.S.	5 x 0.8	6 x 0.75	#8 x 32	#12 x 28	# 1	5/32 x 32	7/32 x 28	-------
		EN40	4.5 x 0.75	5.5 x 0.5	#8 x 32	#8 x 36	# 3	5/32 x 32	-------	-------
950	158.4	Aluminium	8 x 1.25	8 x 1	5/16 x 18	5/16 x 24	All	5/16 x 18	5/16 x 22	1/8 x 28
		Brass	8 x 1.25	8 x 1	5/16 x 18	5/16 x 24	All	9/32 x 20	5/16 x 22	1/8 x 28
		M.S.	7 x 1	8 x 0.75	#12 x 24	1/4 x 28	All	7/32 x 24	9/32 x 26	1/8 x 28
		EN40	5 x 0.8	7 x 0.75	#8 x 32	#10 x 32	# 2	5/32 x 32	3/16 x 32	-------
1250	240	Aluminium	12 x 1.75	12 x 1.5	7/16 x 14	1/2 x 20	All	7/16 x 14	1/2 x 16	1/8 x 28
		Brass	10 x 1.5	12 x 1.25	3/8 x 16	1/2 x 20	All	5/16 x 18	7/16 x 18	1/8 x 28
		M.S.	7 x 1.0	11 x 1	1/4 x 20	3/8 x 24	All	9/32 x 20	5/16 x 22	1/8 x 28
		EN40	5 x 0.8	10 x 0.75	#12 x 24	1/4 x 28	All	7/32 x 24	1/4 x 26	-------

Five Spindle Fixed and Adjustable Heads.

Head Type	Max. * Torque rating lb in.	Material	I.S.O. Metric Coarse	I.S.O. Metric Fine	U.N.C	U.N.F.	B.A.	B.S.W.	B.S.F.	B.S.P.
400	38.4	Aluminium	4 x 0.7	4 x 0.5	#6 x 32	#6 x 40	# 4	5/32 x 32	------	------
		Brass	4 x 0.7	4 x 0.5	#6 x 32	#6 x 40	# 4	5/32 x 32	------	------
		M.S.	3 x 0.5	4 x 0.5	#5 x 40	#6 x 40	# 5	1/8 x 40	------	------
		EN40	3 x 0.5	3.5 x 0.35	#3 x 48	#4 x 48	# 6	3/32 x 48	------	------
650	52.8	Aluminium	5 x 0.8	5.5 x 0.5	#12 x 24	#12 x 28	# 1	7/32 x 24	7/32 x 28	------
		Brass	5 x 0.8	5.5 x 0.5	#8 x 32	#10 x 32	# 2	5/32 x 32	3/16 x 32	------
		M.S.	4 x 0.7	5.5 x 0.5	#6 x 32	#8 x 36	# 4	1/8 x 40	------	------
		EN40	3 x 0.5	4 x 0.5	#4 x 40	#5 x 44	# 5	3/32 x 48	------	------
800	100.8	Aluminium	6 x 1.0	6 x 0.75	1/4 x 20	1/4 x 28	All	1/4 x 20	1/4 x 26	------
		Brass	6 x 1.0	6 x 0.75	#12 x 24	1/4 x 28	All	7/32 x 24	1/4 x 26	------
		M.S.	5 x 0.8	6 x 0.75	#8 x 32	#10 x 32	# 2	5/32 x 32	3/16 x 32	------
		EN40	4 x 0.7	5.5 x 0.5	#6 x 32	#8 x 36	# 4	1/8 x 40	------	------
950	158.4	Aluminium	8 x 1.25	8 x 1	5/16 x 18	5/16 x 24	All	5/16 x 18	5/16 x 22	1/8 x 28
		Brass	7 x 1.0	8 x 1	1/4 x 20	5/16 x 24	All	5/16 x 18	5/16 x 22	1/8 x 28
		M.S.	5 x 0.8	8 x 0.75	#12 x 24	1/4 x 28	All	7/32 x 24	1/4 x 26	------
		EN40	5 x 0.8	5.5 x 0.5	#8 x 32	#10 x 32	# 2	5/32 x 32	3/16 x 32	------
1250	240	Aluminium	11 x 1.5	12 x 1.5	3/8 x 16	1/2 x 20	All	3/8 x 16	7/16 x 18	1/8 x 28
		Brass	9 x 1.25	10 x 1.25	5/16 x 18	7/16 x 20	All	5/16 x 18	3/8 x 20	1/8 x 28
		M.S.	7 x 1.0	9 x 1.0	#12 x 24	5/16 x 24	All	7/32 x 24	9/32 x 26	1/8 x 28
		EN40	5 x 0.8	8 x 0.75	#8 x 32	#12 x 28	# 1	5/32 x 32	7/32 x 28	------

ARBOR MOUNTED HEADS



HEAD TYPE	MIN. CENTRES INCH	MIN. CENTRES MM	MAX. CENTRES INCH	MAX. CENTRES MM
400	3/8	9.5	2 1/8	54.0
650	1/2	12.7	2 1/2	63.5
800	5/8	16.0	3 1/8	79.0
950	3/4	19.0	3 3/4	95.0
1250	1	25.0	5	127.0

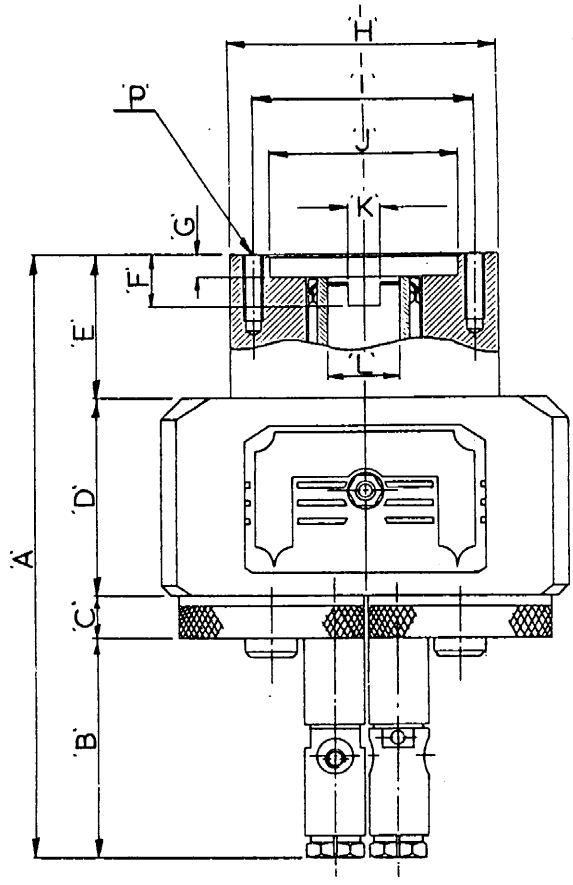
HEAD TYPE	MAX. COLLET INCH	MAX. COLLET MM
400	5/32	4.0
650	1/4	6.5
800	5/16	8.0
950	3/8	9.5
1250	1/2	13.0

HEAD TYPE	COLLET	BASIC HEAD	ADAPTOR ASSEMBLY No.1 MT.	No.2 MT.	No.3 MT.	No.4 MT.
400	P1809	P3035	P3185/1	P3185/2		
650	P1039	P2277	P3157/1	P3157/2		
800	P3464	P3462		P4161/1	P4161/2	
950	P1052	P2324		P3127/1	P3127/2	
1250	P2847	P2801			P3693/1	P3693/2

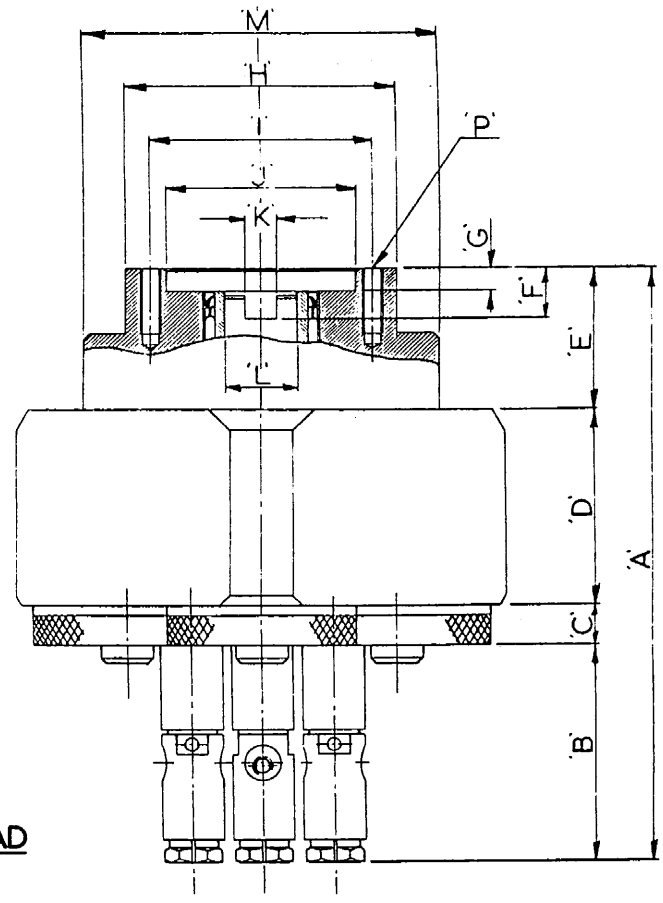
HEAD TYPE	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H' No.1 MT.	'H' No.2 MT.	'H' No.3 MT.	'H' No.4 MT.
400	7 37/64	1 15/32	23/32	1 13/16	3 37/64	2 7/32	6 63/64	5/32	7/32		
	192.5	37.3	18.3	46.0	90.9	56.4	177.4	4.0	5.6		
650	6 37/64	2	23/64	1 13/16	2 13/16	2 7/32	6 63/64	5/32	7/32		
	167.1	50.8	9.1	46.0	71.4	56.4	177.4	4.0	5.6		
800	7 23/32	2 27/64	7/16	2 1/16	2 51/64	2 23/32	7 15/64		7/32	7/32	
	196.0	61.5	11.1	52.4	71.0	69.0	183.8		5.6	5.6	
950	8 23/64	2 11/16	1/2	2 3/8	2 51/64	3 7/32	7 31/64		7/32	7/32	
	212.3	68.3	12.7	60.3	71.0	81.8	190.1		5.6	5.6	
1250	12 1/4	3 15/16	11/16	3 1/16	3 15/16	4 7/32	7 1/2			7/32	19/64
	311.1	100.0	17.5	93.7	100.0	107.2	190.5			5.6	7.5

ARBORS OTHER THAN MORSE CAN BE MANUFACTURED TO CUSTOMERS OWN SPECIFICATIONS

SPIGOT MOUNTED HEADS



TWIN SPINDLE ADJUSTABLE HEAD



MULTI-SPINDLE ADJUSTABLE HEAD

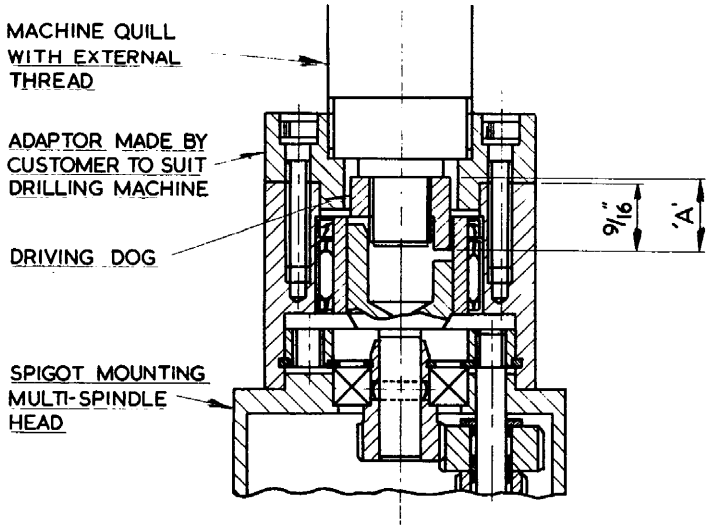
HEAD TYPE	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'
400	5 9/16	1 15/32	23/32	1 13/16	1 9/16	5/8	9/32	1 15/16
	141.3	37.3	18.3	46.0	39.7	15.9	7.1	49.2
650	5 55/64	2	23/64	1 13/16	1 11/16	5/8	9/32	2 7/32
	148.8	50.8	9.1	46.0	42.9	15.9	7.1	56.4
800	6 5/8	2 27/64	7/16	2 1/16	1 23/32	5/8	9/32	2 23/32
	168.3	61.5	11.1	52.4	43.7	15.9	7.1	69.1
950	7 5/16	2 11/16	1/2	2 3/8	1 3/4	5/8	9/32	3 7/32
	185.7	68.3	12.7	60.3	44.4	15.9	7.1	81.8
1250	10 13/32	3 15/16	1 1/16	3 11/16	2 3/32	5/8	5/16	4 7/32
	264.3	100.0	17.5	93.7	53.2	15.9	7.9	107.2

HEAD TYPE	'I'	'J'	'K'	'L'	'M'	'P'
400	1.378	1.0630 / 1.0638	.375 / .385	13/16	2 7/16	M5
	35.0	27.00 / 27.02	9.52 / 9.78	20.6	61.9	
650	1.654	1.2992 / 1.3002	.375 / .385	.8661	2 7/8	M5
	42.0	33.00 / 33.03	9.52 / 9.78	22.0	73.0	
800	2.126	1.7323 / 1.7335	.375 / .385	.8661	3 19/32	M6
	54.0	44.00 / 44.03	9.52 / 9.78	22.0	91.3	
950	2.638	2.2441 / 2.2453	.375 / .385	.8661	4 7/32	M6
	67.0	57.00 / 57.03	9.52 / 9.78	22.0	107.2	
1250	3.543	3.0709 / 3.0720	.375 / .385	1.1811	5 15/32	M8
	90.0	78.00 / 78.03	9.52 / 9.78	30.0	138.9	

HEAD TYPE	MAX. COLLET	
	INCH	MM
400	5/32	4.0
650	1/4	6.5
800	5/16	8.0
950	3/8	9.5
1250	1/2	13.0

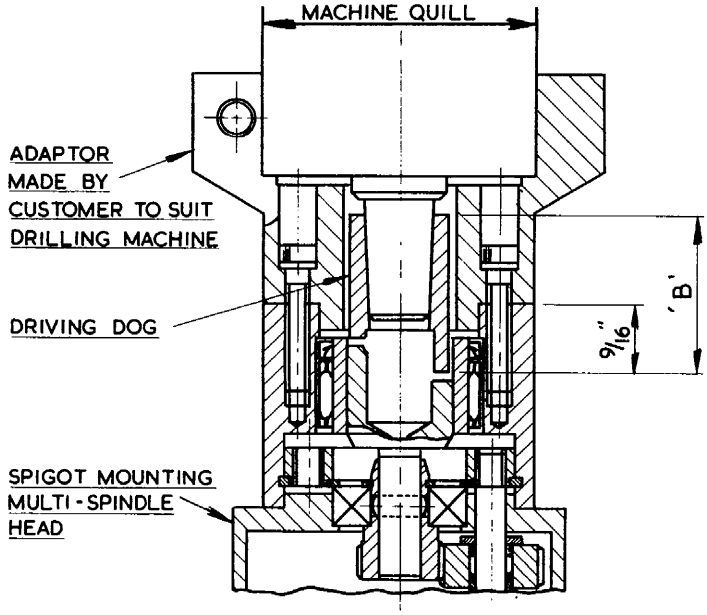
ADAPTOR & DOG NUT SELECTION CHART

GY-ROLL LIMITED



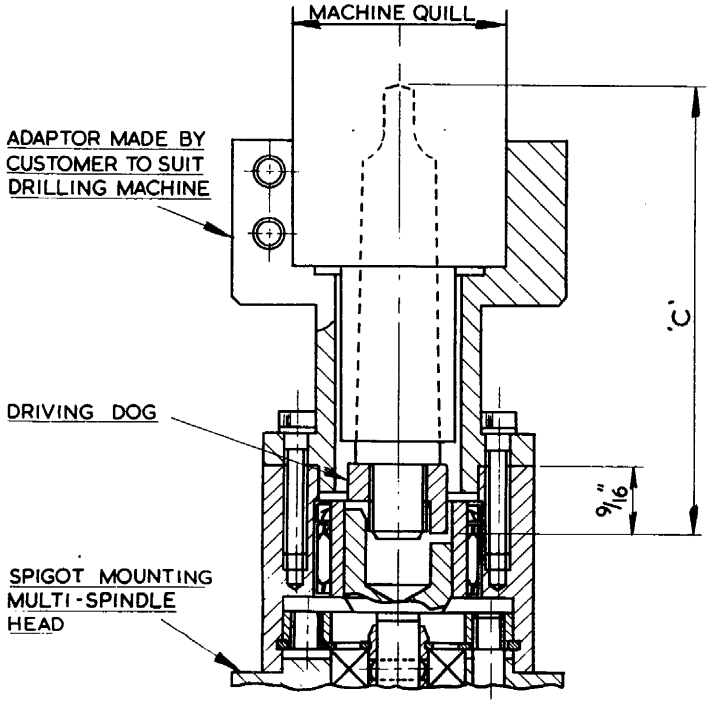
STD. DRIVING DOGS FOR THREADED SPINDLES

THREAD SIZE	PART No. * 22⅝ DOG DIA.	PART No. * 30⅝ DOG DIA.	HEAD TYPE 400	650	800	950	1250	DIMENSION 'A'
3/8" X 24 UNF	P1053		X	X	X	X		17/32"
1/2" X 20 UNF	P1121		X	X	X	X		19/32"
1/2" X 20 UNF		P3869				X	X	13/16"
5/8" X 16 UNF	P2241		X	X	X	X		1 1/32"
5/8" X 16 UNF		P3094				X	X	15/16"



STD. DRIVING DOGS FOR SPINDLES WITH CHUCK TAPERS

	TAPER SIZE	PART No. * 22⅝ DOG DIA.	PART No. * 30⅝ DOG DIA.	HEAD TYPE 400	650	800	950	1250	DIMENSION 'B'
	JACOBS No. 1	P1149		X	X	X	X		1 1/32"
	JACOBS No. 2	P1752		X	X	X	X		1 9/32"
	JACOBS No. 2		P3252				X	X	1 5/16"
	JACOBS No. 33	P1897		X	X	X	X		1 11/32"
	JACOBS No. 33		P3647				X	X	1 3/8"
	JACOBS No. 6	P3437		X	X	X	X		1 17/32"
	B 10	P2069		X	X	X	X		29/32"
	B 12	P2091		X	X	X	X		1 3/32"
	B 16	P3652		X	X	X	X		1 15/32"
*	B 18	P3608		X	X	X	X		1 29/32"
*	B 22	P3689		X	X	X	X		2 9/32"



STD. DRIVING DOGS WITH TAPER SHANKS

TAPER SIZE	PART No. * 22⅝ DOG DIA.	PART No. * 30⅝ DOG DIA.	HEAD TYPE 400	650	800	950	1250	DIMENSION 'C'
MORSE No. 1	P3712		X	X	X	X		3 3/32"
MORSE No. 2	P3713		X	X	X	X		3 23/32"
MORSE No. 2		P3529				X	X	4 7/32"
MORSE No. 3	P3714		X	X	X	X		4 19/32"

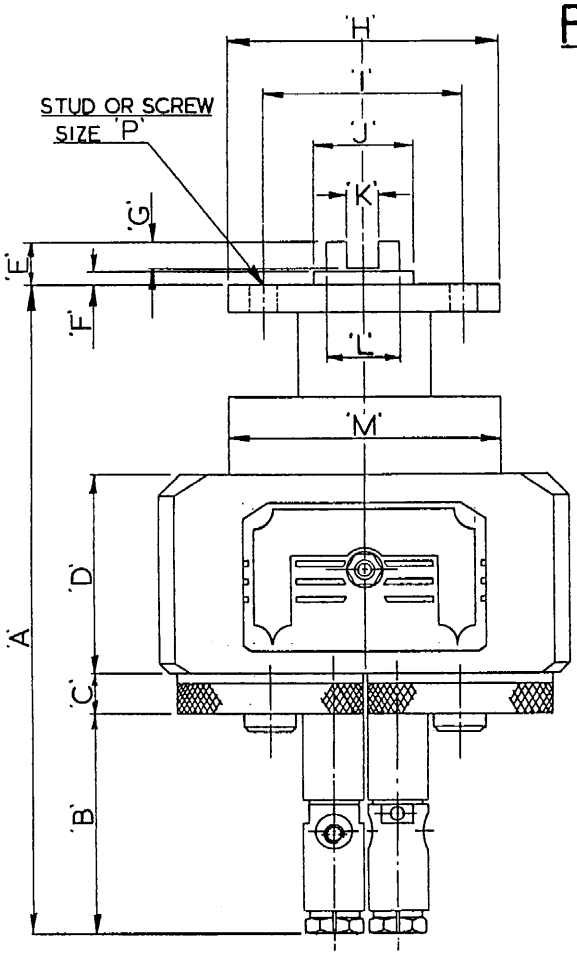
* DOG DIAMETERS ARE EITHER 22⅝ OR 30⅝ AS STATED ABOVE WITH THE FOLLOWING EXCEPTIONS

P3608	25⅝
P3689	31⅝

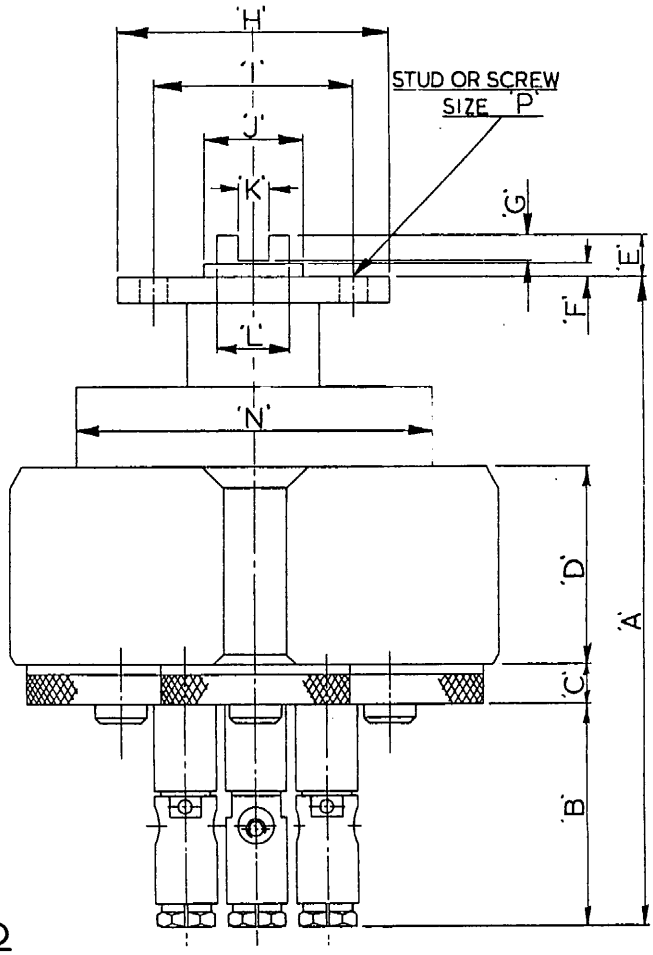
P3529	42⅝
P3714	26⅝

FOR DIMENSIONS OF SPIGOT MOUNTING HEADS SEE PAGE 19

FLANGE MOUNTED HEADS



TWIN SPINDLE ADJUSTABLE HEAD



MULTI-SPINDLE ADJUSTABLE HEAD

HEAD TYPE	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'
400	5 15/16	1 15/32	23/32	1 13/16	.495	5/32	5/16	2.460
	150.8	37.3	18.3	46.0	12.6	4.0	8.0	62.5
650	6 15/64	2	23/64	1 13/16	.512	5/32	5/16	2.460
	158.4	50.8	9.1	46.0	13.0	4.0	8.0	62.5
800	7 3/64	2 27/64	7/16	2 1/16	.512	5/32	5/16	2 23/32
	179.0	61.5	11.1	52.4	13.0	4.0	8.0	69.1
950	7 13/16	2 11/16	1/2	2 3/8	.512	5/32	5/16	3 7/32
	198.4	68.3	12.7	60.3	13.0	4.0	8.0	82.0
1250	11	3 15/16	11/16	3 11/16	.512	5/32	5/16	4 7/32
	279.4	100.0	17.5	93.7	13.0	4.0	8.0	107.2

HEAD TYPE	'I'	'J'	'K'	'L'	'M'	'N'	'P'
400	1.9705 1.9665	1.1811 1.1807	.374 .386	.8661	1 15/16	2 7/16	1/4
	50.05 49.95	30.00 29.99	9.5 9.8	22.0	49.2	61.9	M6
650	1.9705 1.9665	1.1811 1.1807	.374 .386	.8661	2 7/32	2 7/8	1/4
	50.05 49.95	30.00 29.99	9.5 9.8	22.0	56.4	73.0	M6
800	2.1673 2.1634	1.1811 1.1807	.374 .386	.8661	2 23/32	3 19/32	1/4
	55.05 54.95	30.00 29.99	9.5 9.8	22.0	69.1	91.3	M6
950	2.3642 2.3602	1.1811 1.1807	.374 .386	.8661	3 7/32	4 7/32	5/16
	60.05 59.95	30.00 29.99	9.5 9.8	22.0	81.8	107.2	M8
1250	3.3484 3.3445	1.5748 1.5744	.374 .386	1.1811	4 7/32	5 15/32	3/8
	85.05 84.95	40.00 39.99	9.5 9.8	30.0	107.2	138.9	M10

HEAD TYPE	MAX. COLLET	
	INCH	MM
400	5/32	4.0
650	1/4	6.5
800	5/16	8.0
950	3/8	9.5
1250	1/2	13.0

Minimum Spindle Centres:
9.5mm (3/8")
Maximum Spindle Centres:
54.0mm (2.1/8")
Drill sizes up to maximum of:
4.0mm (5/32")

Specify drill size when ordering head.

Collet Sizes Available:

1.00mm to 4.0mm
In 0.1mm Steps

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

This head is also suitable for tapping up to a maximum of 4.0mm (5/32") with a lead screw or pitch controlled tapping unit.

Tap shank and thread size must be specified when ordering head.

Locking screws for extra grip in holding drills or taps.

Collet P.1809

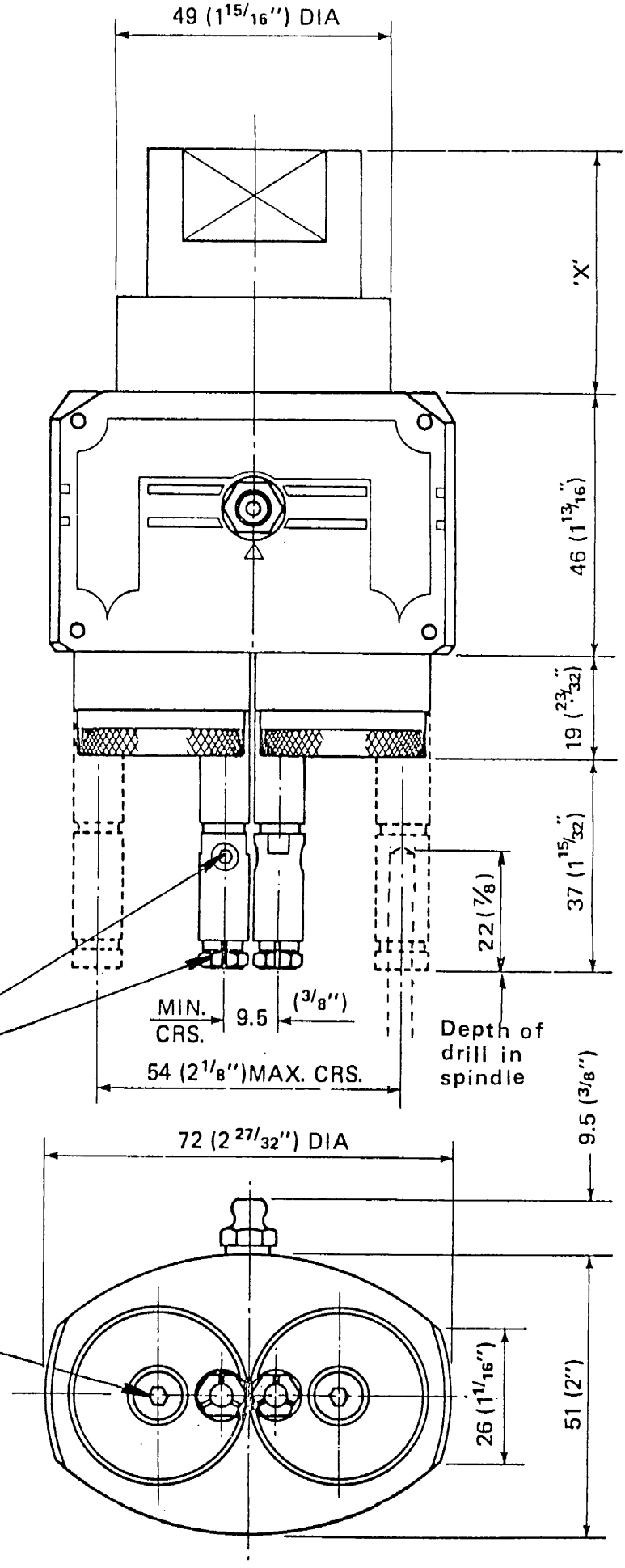
Use 8mm Ring Spanner for tightening collet when fitting drill or tap.

Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1

Maximum Spindle Speed:
10,000 R.P.M.



TYPE 400 ADJUSTABLE TWIN SPINDLE DRILLING HEAD

Minimum Spindle Centres:
9.5mm (3/8")
Maximum Spindle Centres:
54.0mm (2.1/8")
Tap sizes up to maximum of:
4.0mm (5/32)

Specify tap thread and shank size when ordering head.

Collet Sizes Available:

1.0mm to 4.0mm
In 0.1mm Steps

Self-reversing mechanism for tapping heads fitted to self-feed drills.

Where head is required for fitting to lead screw or pitch controlled tapping unit the standard GY-ROLL Drilling Head should be used.

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

Locking screws for extra grip in holding taps.

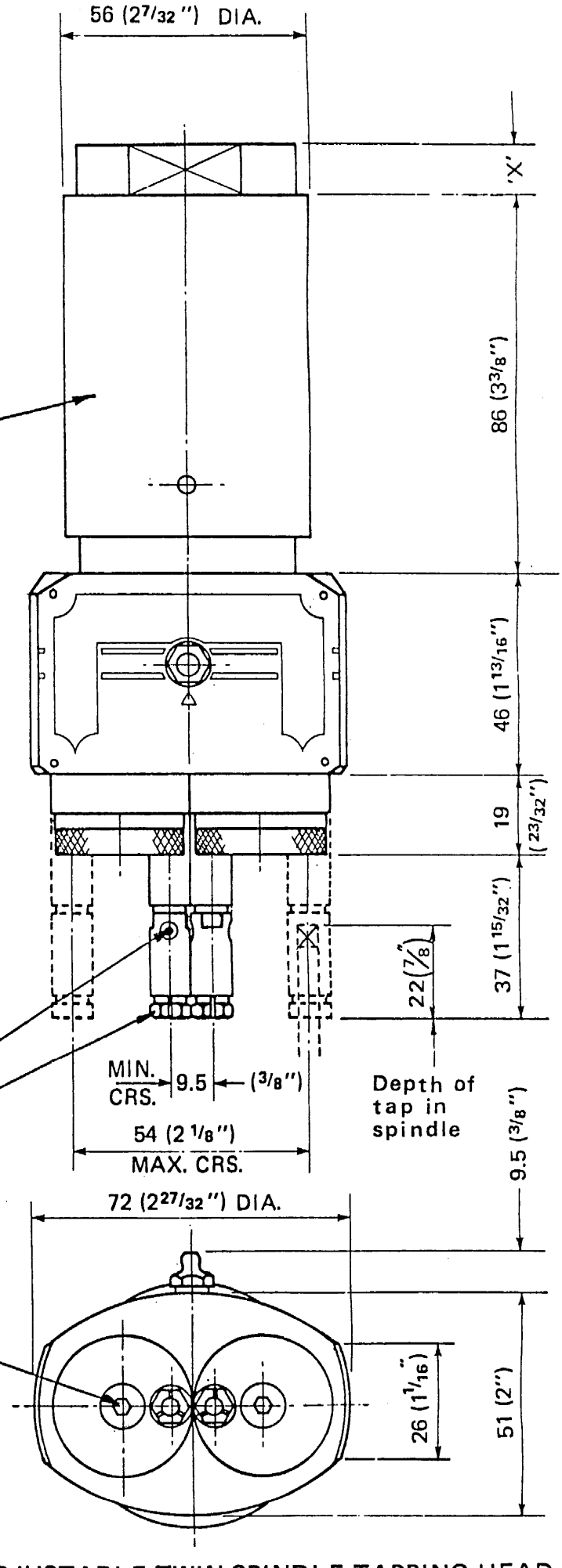
Collet P.1809

Use 8mm Ring Spanner for tightening collet when fitting tap.

Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1



TYPE 400 ADJUSTABLE TWIN SPINDLE TAPPING HEAD

Minimum Spindle Centres:
12.7mm (1/2")
Maximum Spindle Centres:
63.5mm (2.1/2")
Drill sizes up to maximum of:
6.5mm (1/4")

Specify drill size when ordering head.

Collet Sizes Available:

1.0mm to 6.5mm
In 0.1mm Steps

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

This head is also suitable for tapping up to a maximum of 5.0mm (3/16") with a lead screw or pitch controlled tapping unit.

Tap shank and thread size must be specified when ordering head.

Locking Insert for extra grip in holding drills or taps.

Collet P.1039

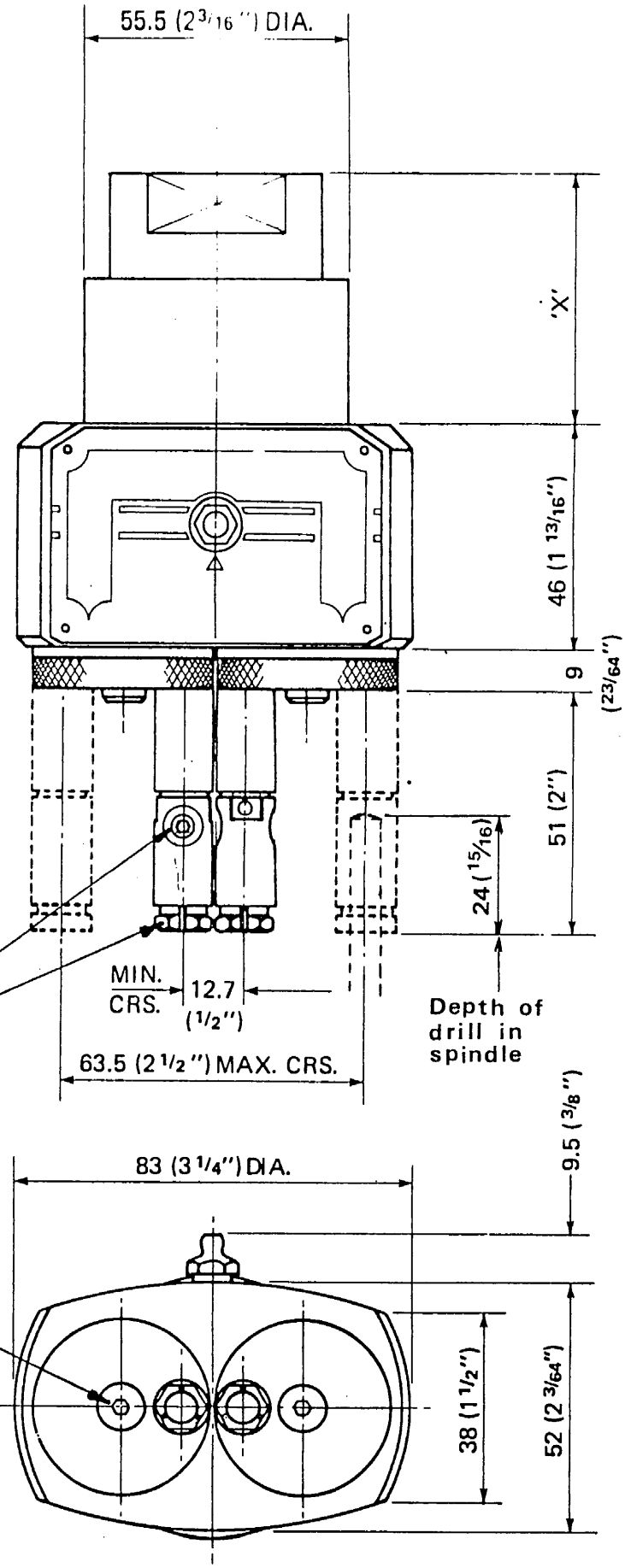
Use 11 mm Ring Spanner for tightening collet when fitting drill or tap.

Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1

Maximum Spindle Speed :
7,000 R.P.M.



TYPE 650 ADJUSTABLE TWIN SPINDLE DRILLING HEAD

Minimum Spindle Centres:
12.7mm (1/2")
Maximum Spindle Centres:
63.5mm (2.1/2")
Tap sizes up to maximum of:
5.0mm (3/16")

Specify tap thread and shank size when ordering head.

Collet Sizes Available:

1.0 mm to 5.0mm
In 0.1mm Steps

Self-reversing mechanism for tapping heads fitted to self-feed drills.

Where head is required for fitting to lead screw or pitch controlled tapping unit the standard GY-ROLL Drilling Head should be used.

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

Locking Insert for extra grip in holding tap.

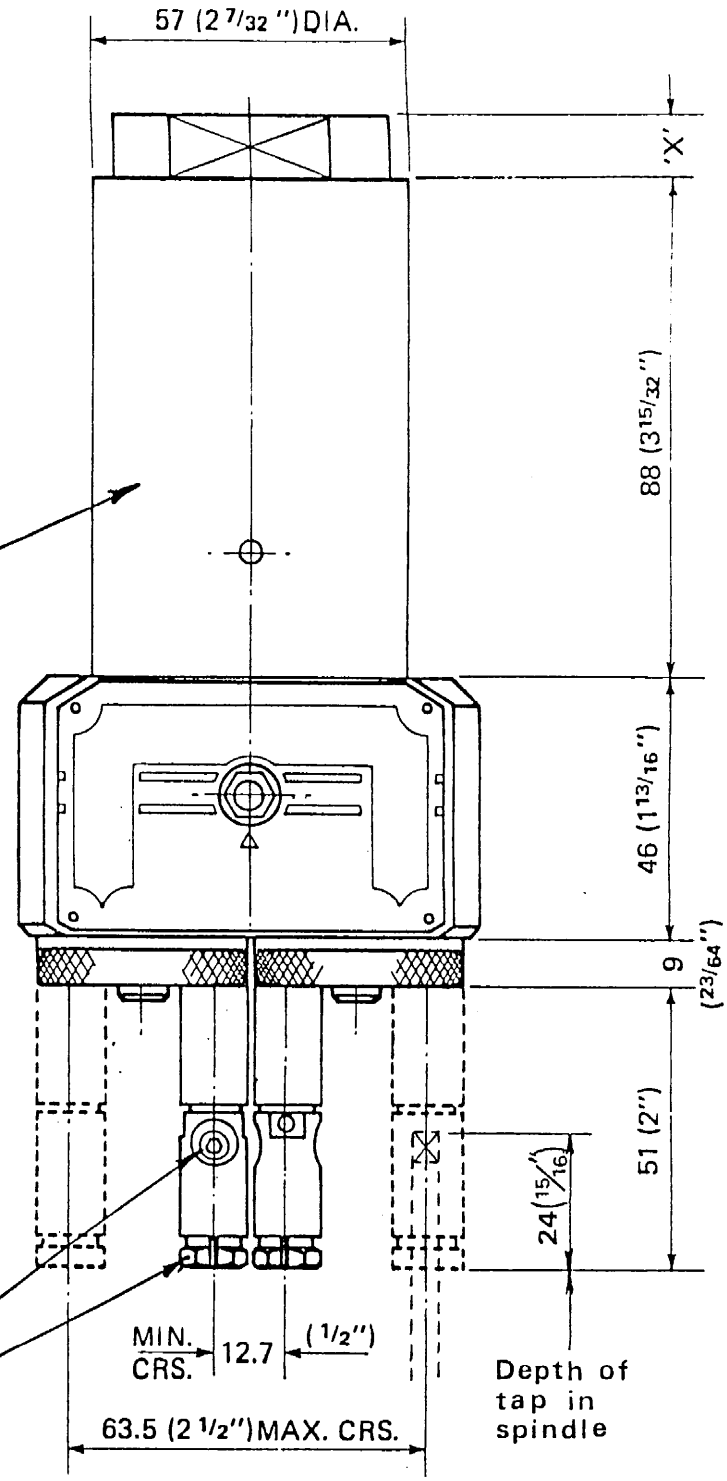
Collet P.1039

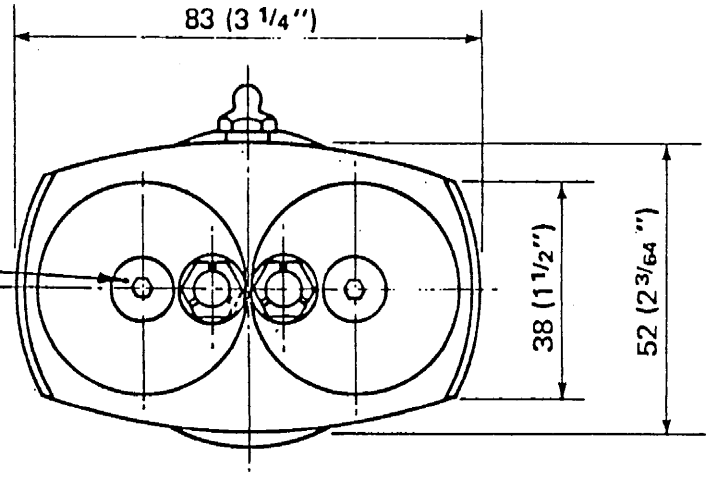
Use 11 mm Ring Spanner for tightening collet when fitting drill or tening collet when fitting tap.

Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1





TYPE 650 ADJUSTABLE TWIN SPINDLE TAPPING HEAD

Minimum Spindle Centres:
16.0 mm (5/8")
Maximum Spindle Centres:
79.0 mm (3.1/8")
Drill sizes up to maximum of:
8.0 mm (5/16")
Specify drill size when ordering head.

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

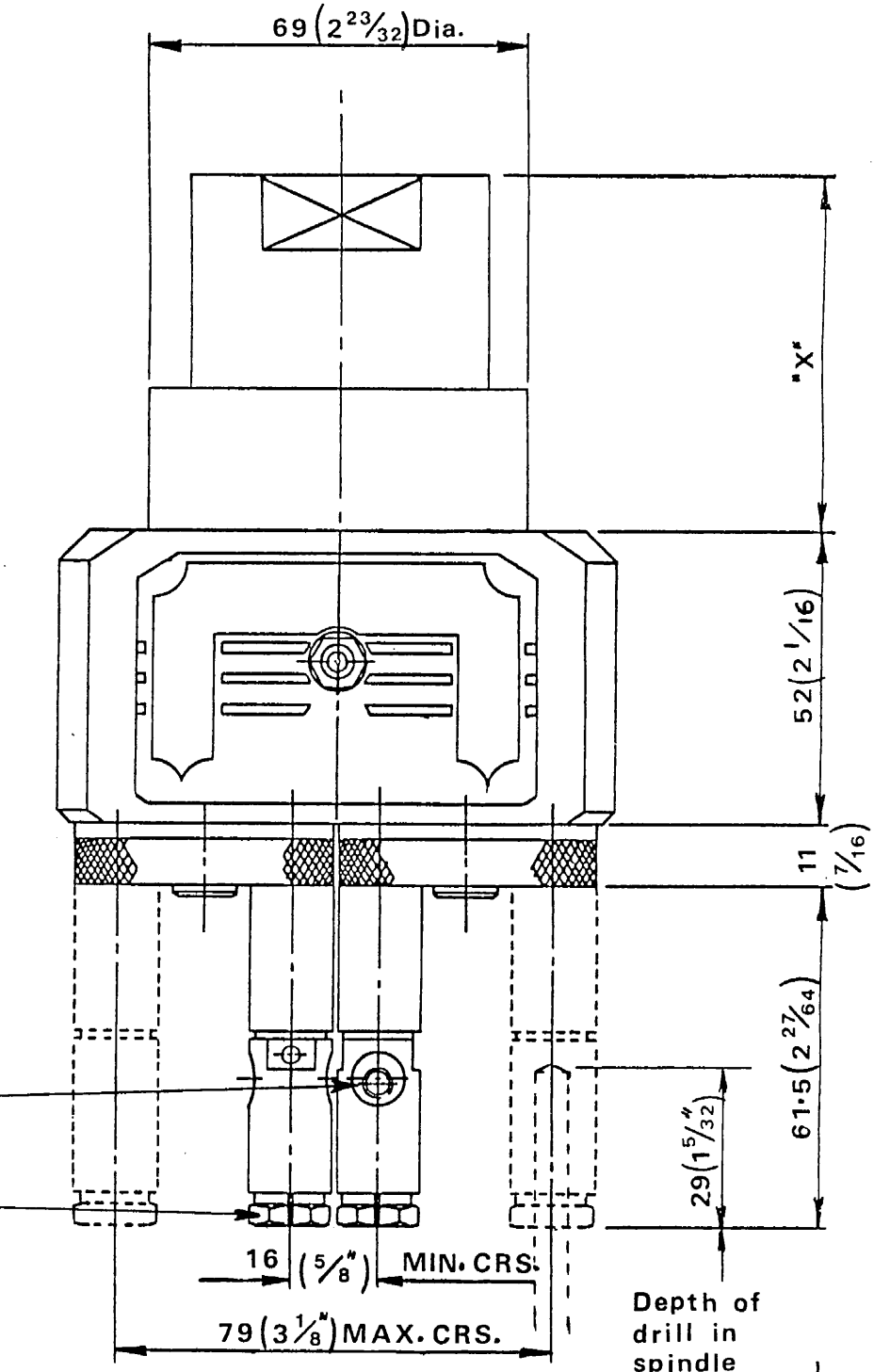
This head is also suitable for tapping up to a maximum of 6.0mm (1/4") with a lead screw or pitch controlled tapping unit.

Tap shank and thread size must be specified when ordering head.

Locking Insert for extra grip in holding drills or taps.

Collet P.3464

Use 13 mm Ring Spanner for tightening collet when fitting drill or tap.

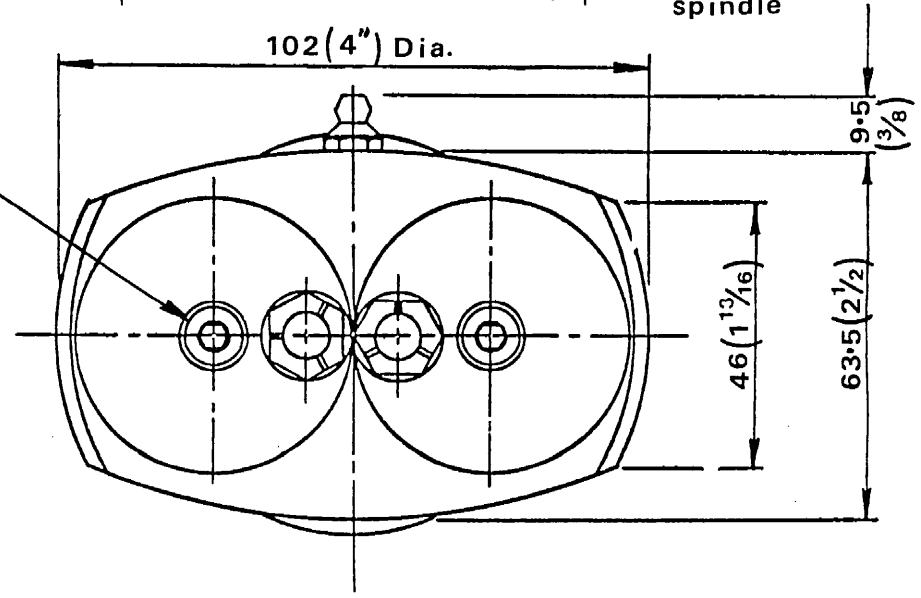


Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1

Maximum Spindle Speed:
6,000 R.P.M.



TYPE 800 ADJUSTABLE TWIN SPINDLE DRILLING HEAD

Minimum Spindle Centres:
16.0 mm (5/8")
Maximum Spindle Centres:
79.0 mm (3 1/8")
Tap sizes up to maximum of:
M6 -- -- -- -- (1/4")

Specify tap thread and shank size when ordering head.

Collet Sizes Available:

1.0 mm to 6.5mm
In 0.1mm Steps

Self-reversing mechanism for tapping heads fitted to self-feed drills.

Where head is required for fitting to lead screw or pitch controlled tapping unit the standard GY-ROLL Drilling Head should be used.

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

Locking Insert for extra grip in holding tap.

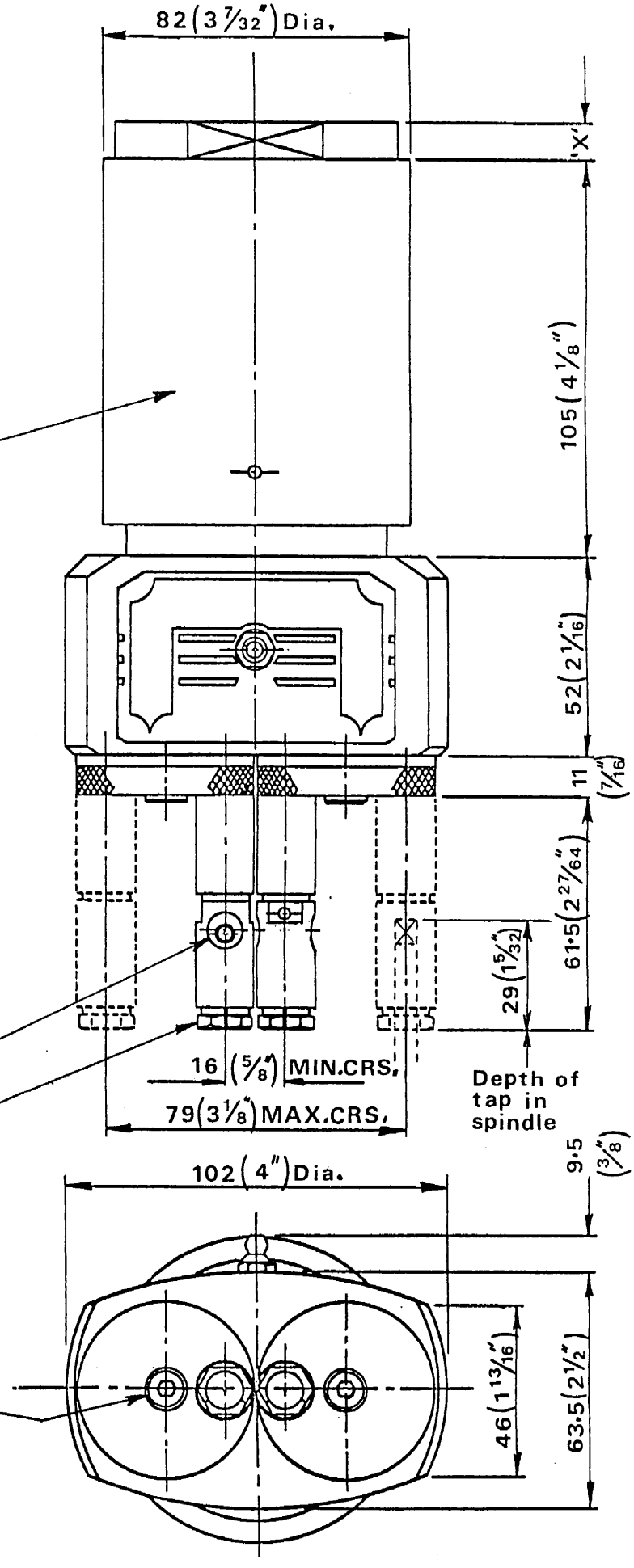
Collet P.3464

Use 13 mm Ring Spanner for tightening collet when fitting drill or tening collet when fitting tap.

Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1



TYPE 800 ADJUSTABLE TWIN SPINDLE TAPPING HEAD

Minimum Spindle Centres:
19.0mm (3/4")
Maximum Spindle Centres:
95.0mm (3.3/4")
Drill sizes up to maximum of:
9.5mm (3/8")

Specify drill size when ordering head.

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

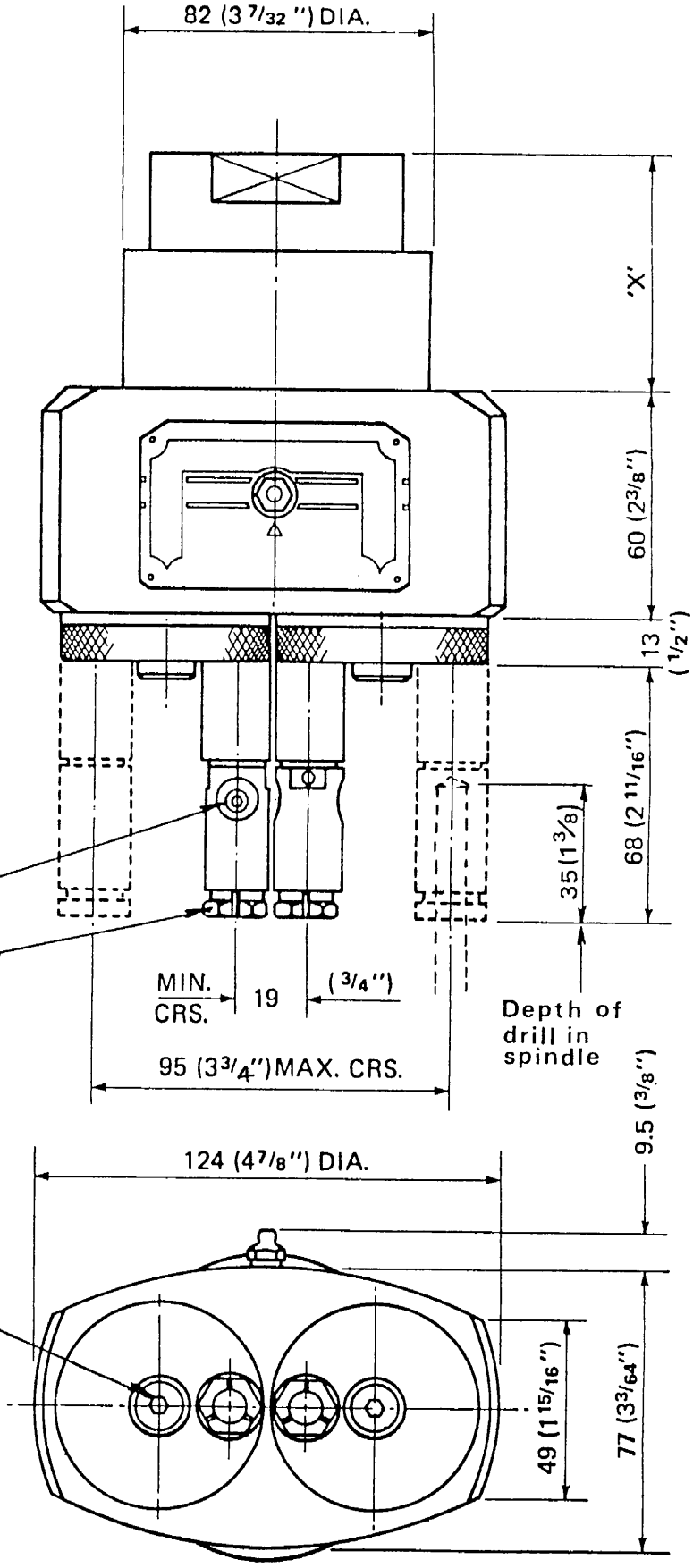
This head is also suitable for tapping up to a maximum of 8.0mm (5/16") with a lead screw or pitch controlled tapping unit.

Tap shank and thread size must be specified when ordering head.

Locking Insert for extra grip in holding drills or taps.

Collet P.1052

Use 15 mm Ring Spanner for tightening collet when fitting drill or tap.



Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1

Maximum Spindle Speed:
5,000 R.P.M.

TYPE 950 ADJUSTABLE TWIN SPINDLE DRILLING HEAD

Minimum Spindle Centres:
19.0mm (3/4")
Maximum Spindle Centres:
95.0mm (3.3/4")
Tap sizes up to maximum of:
8.0mm (5/16")

Specify tap thread and shank size when ordering head.

Collet Sizes Available:

2.0mm to 8.0 mm
In 0.1mm Steps

Self-reversing mechanism for tapping heads fitted to self-feed drills.

Where head is required for fitting to lead screw or pitch controlled tapping unit the standard GY-ROLL Drilling Head should be used.

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

Locking Insert for extra grip in holding tap.

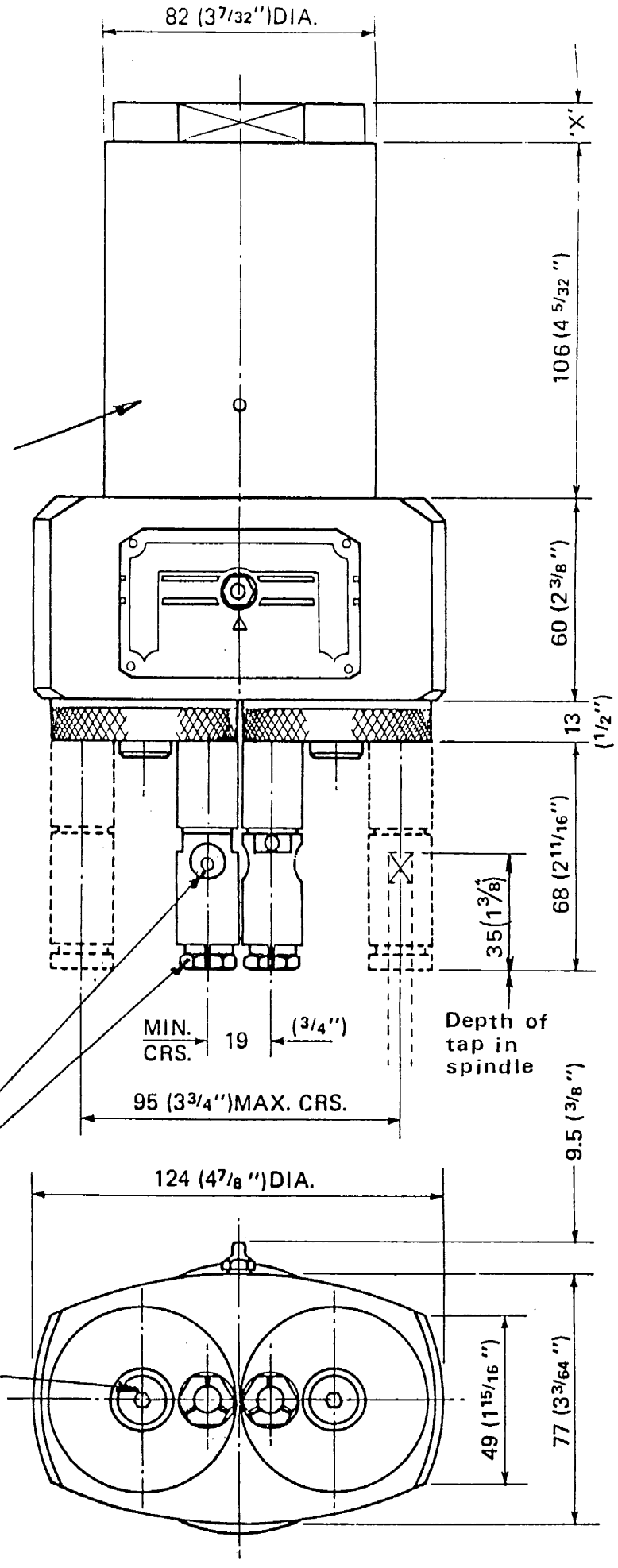
Collet P.1052

Use 15mm Ring Spanner for tightening collet when fitting tap.

Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1



TYPE 950 ADJUSTABLE TWIN SPINDLE TAPPING HEAD

Minimum Spindle Centres:
25.0mm (1.00")
Maximum Spindle Centres:
127.0mm (5.00")
Drill sizes up to maximum of'
13.0mm (1/2")

Collet Sizes Available:

6.5mm to 13.0mm
In 0.1mm Steps

Specify drill size when ordering head.

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

This head is also suitable for tapping up to a maximum of 10.0mm (3/8") with a lead screw or pitch controlled tapping unit.

Tap shank and thread size must be specified when ordering head.

Locking Insert for extra grip in holding drills or taps.

Collet P.2847

Use 22 mm Ring Spanner for tightening collet when fitting drill or tap.

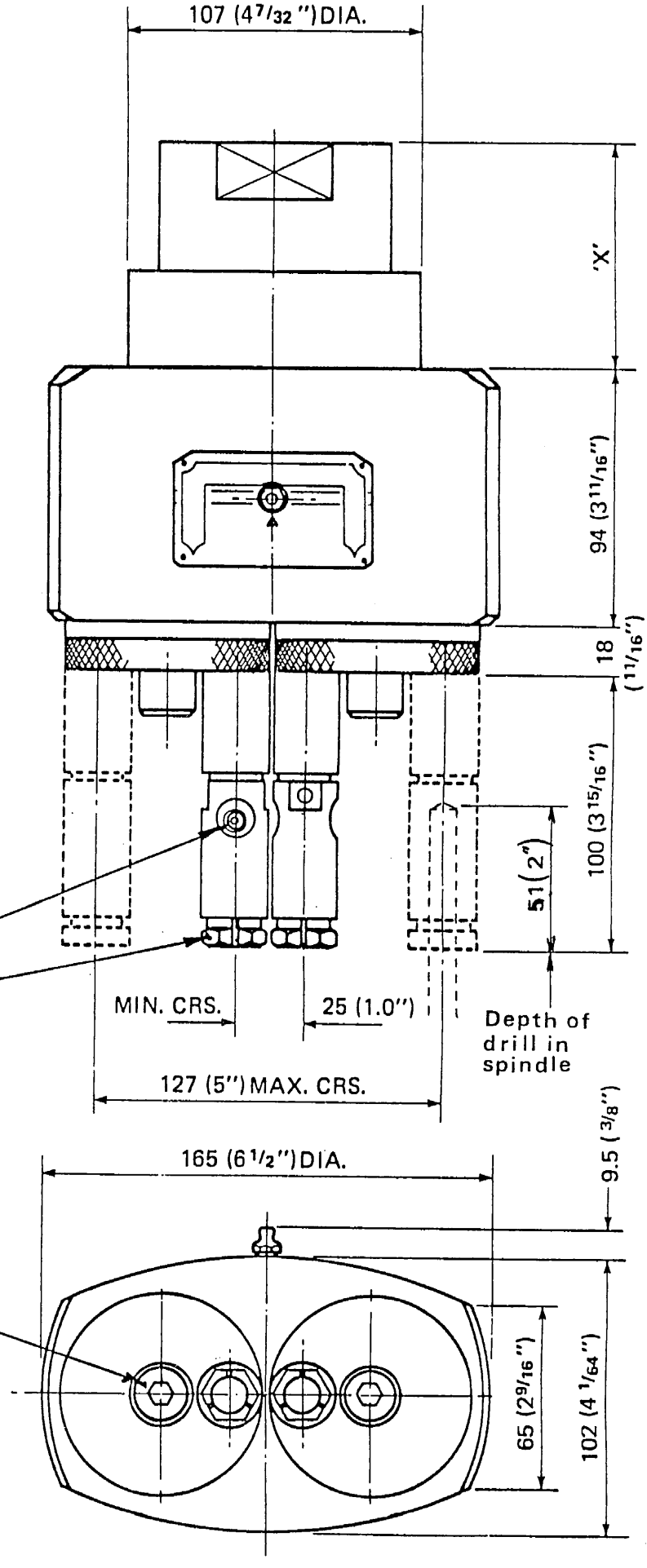
This head is also available fitted with spindles to take morse taper sleeves instead of collets. See overleaf

Slacken screw to adjust spindle position.

Slacken both screws to roate head relative to self-feed unit.

Ratio of gearing in head
Input to Output : 1 : 1

Maximum Spindle Speed:
3,500 R.P.M.



TYPE 1250 ADJUSTABLE TWIN SPINDLE DRILLING HEAD

Minimum Spindle Centres:
25.0mm (1.00")
Maximum Spindle Centres:
127.00mm (5.00")
Drill sizes up to maximum of:
No. 1 Morse Taper

Specify drill size when ordering head. Maximum drill size ;
14,0 mm (35/64")

Dimension marked 'X' varies according to the type of self-feed unit used. This dimension is kept to a minimum to keep the head as compact as possible.

Standard Adaptors available for most self-feed drilling units. Special Adaptors for other units can be quoted for.

This head is also suitable for tapping up to a maximum of 10.0mm (3/8") with a lead screw or pitch controlled tapping unit.

Lock Nut providing depth control for drilling by adjustment of morse taper sleeve.

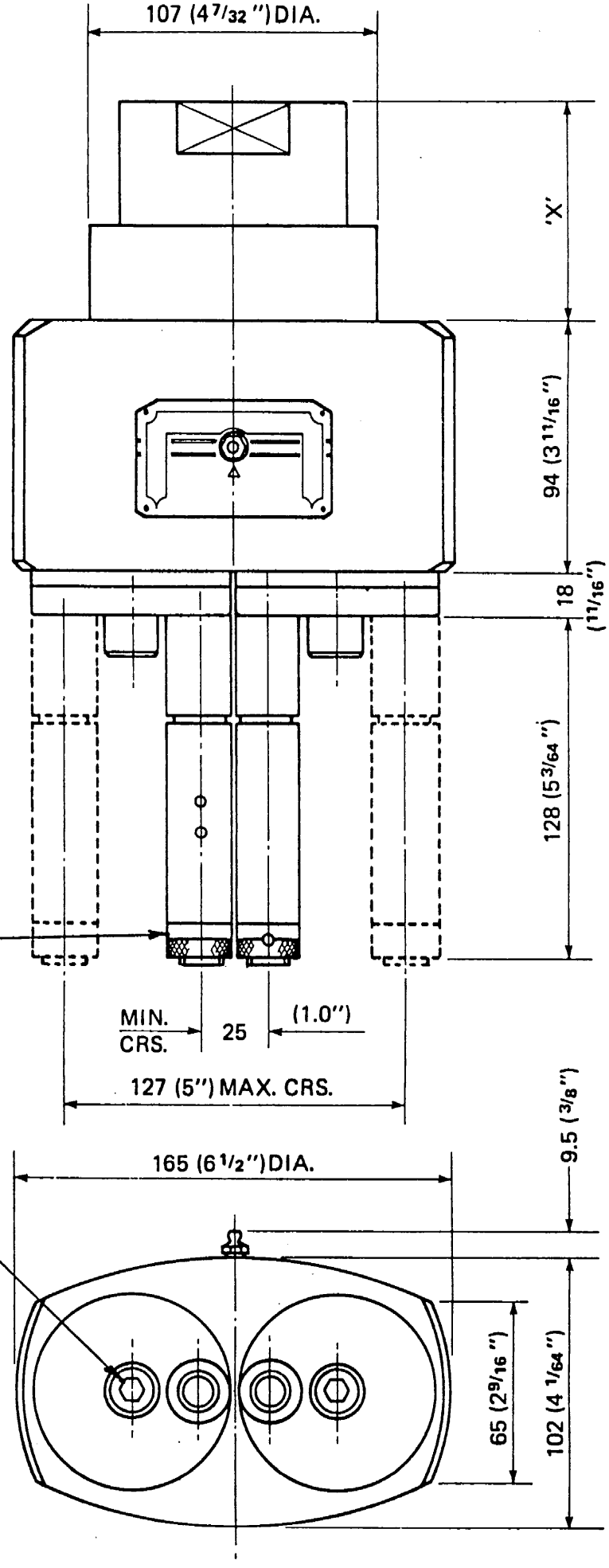
This head is also available fitted with spindles to take standard GYROLL collets. See overleaf.

Slacken screw to adjust spindle position.

Slacken both screws to rotate head relative to self-feed unit.

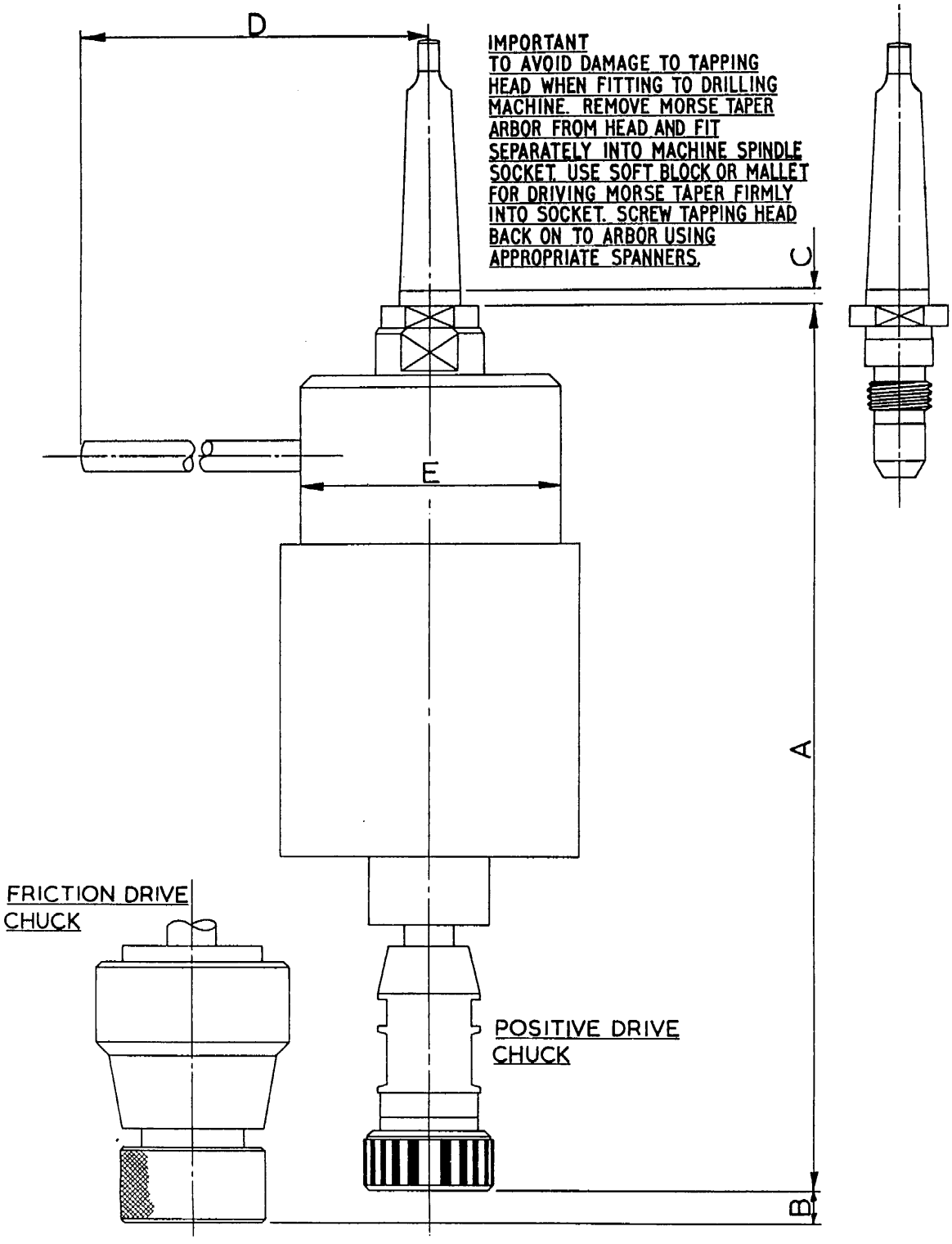
Ratio of gearing in head
Input to Output : 1 : 1

Maximum Spindle Speed:
3,500 R.P.M.



TYPE 1250 ADJUSTABLE TWIN SPINDLE DRILLING HEAD

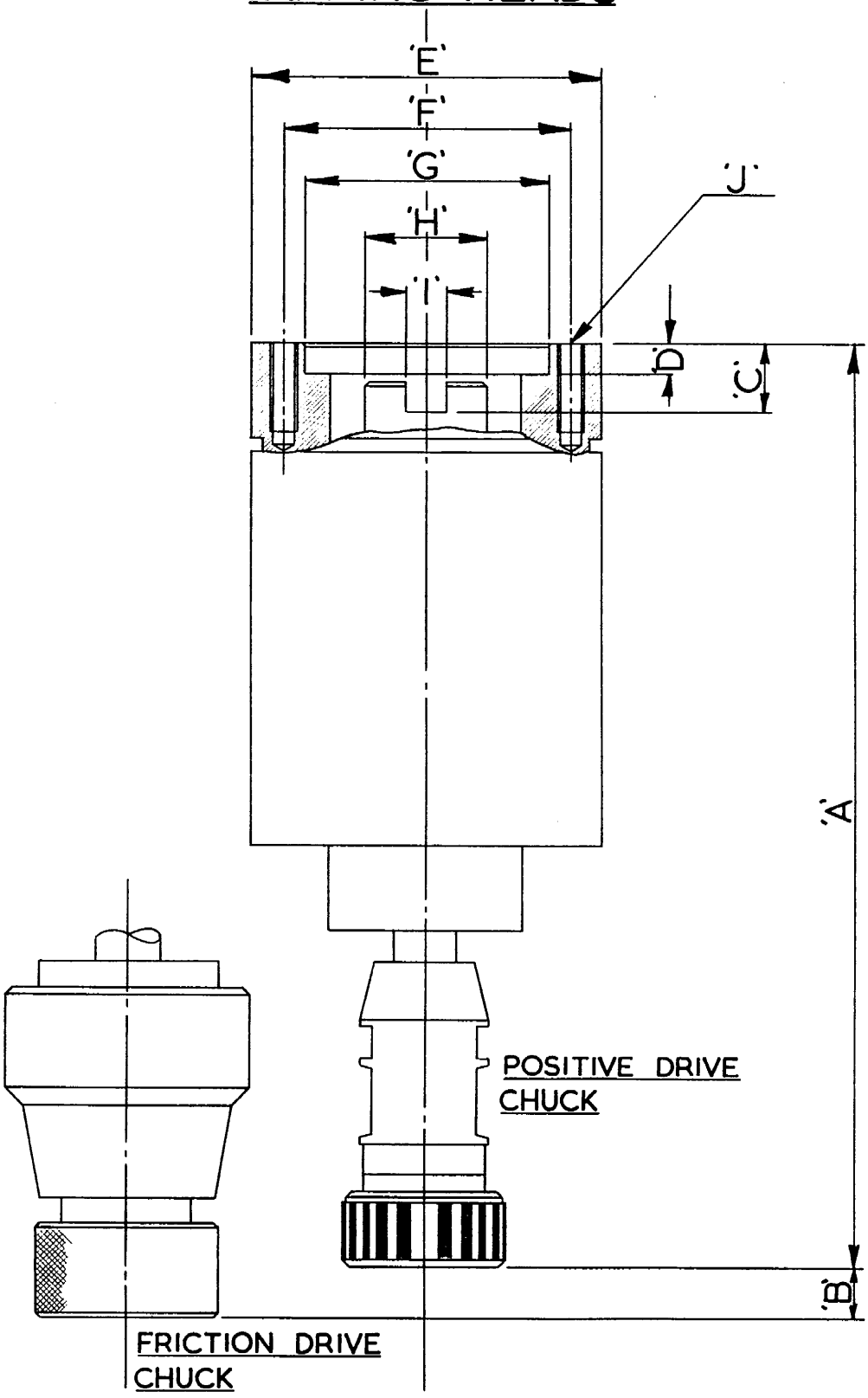
ARBOR MOUNTING SINGLE SPINDLE TAPPING HEADS



HEAD TYPE	'A'	'B'	'C'			'D'	'E'
			No.1 M.T.	No.2 M.T.	No.3 M.T.		
650	8 57/64	1/8	5/32	7/32		6.867	1 63/64
	225.8	3.2	4.0	5.6		174.4	50.4
950	10 13/32	3/8		7/32	7/32	7.367	2 63/64
	264.3	9.5		5.6	5.6	187.1	75.8

FOR TAPPING CAPACITIES SEE PAGE 16

SPIGOT MOUNTING SINGLE SPINDLE TAPPING HEADS



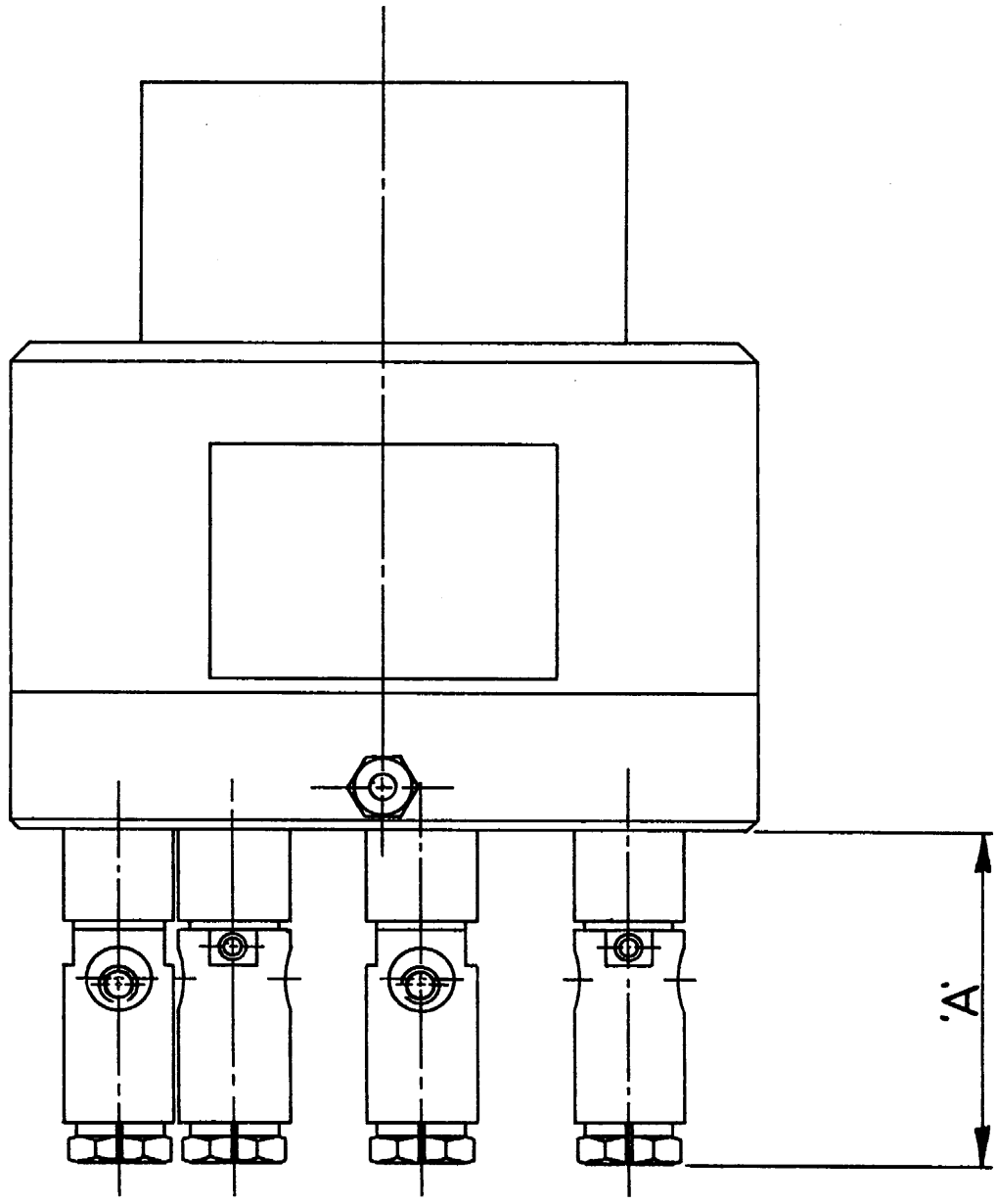
HEAD TYPE	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'I'	'J'
650	2 3/4	1/8	5/8	9/32	2 7/32	1.654	1.2992 / 1.3002	.8661	.375 / .385	M5
	196.8	3.2	15.9	7.1	56.4	42.0	33.00 / 33.03	22.0	9.52 / 9.78	
950	8 21/32	3/8	5/8	9/32	3 7/32	2.638	2.2441 / 2.2453	1.125	.375 / .385	M6
	219.9	9.5	15.9	7.1	81.8	67.0	57.00 / 57.03	28.6	9.52 / 9.78	

FOR TAPPING CAPACITIES SEE PAGE 16

GY-ROLL STANDARD COLLET SIZES

SIZE	EQUIVALENTS			STANDARD TYPES					SIZE	EQUIVALENTS			STANDARD TYPES				
M/M	Inch		No.	400	650	800	950	1250	M/M	Inch		No.	400	650	800	950	1250
1.0		.039	61	X	X	X	-	-	7.0		.276		-	-	X	X	X
1.1		.043	57	X	X	X	-	-	7.1	9/32	.280		-	-	X	X	X
1.2	3/64	.047	56	X	X	X	-	-	7.2		.283		-	-	X	X	X
1.3		.052	55	X	X	X	-	-	7.3		.287		-	-	X	X	X
1.4		.055	54	X	X	X	-	-	7.4		.291		-	-	X	X	X
1.5		.059	53	X	X	X	-	-	7.5		.295		-	-	X	X	X
1.6	1/16	.063	52	X	X	X	-	-	7.6	19/64	.299		-	-	X	X	X
1.7		.067	51	X	X	X	-	-	7.7		.303		-	-	X	X	X
1.8		.071	50	X	X	X	-	-	7.8		.307		-	-	X	X	X
1.9		.075	48	X	X	X	-	-	7.9	5/16	.311		-	-	X	X	X
2.0	5/64	.079	47	X	X	X	X	-	8.0		.315		-	-	X	X	X
2.1		.083	45	X	X	X	X	-	8.1		.319		-	-	-	X	X
2.2		.087	44	X	X	X	X	-	8.2		.323		-	-	-	X	X
2.3		.091	43	X	X	X	X	-	8.3	21/64	.327		-	-	-	X	X
2.4	3/32	.094	42	X	X	X	X	-	8.4		.331		-	-	-	X	X
2.5		.098	40	X	X	X	X	-	8.5		.335		-	-	-	X	X
2.6		.102	38	X	X	X	X	-	8.6		.339		-	-	-	X	X
2.7		.106	36	X	X	X	X	-	8.7	11/32	.342		-	-	-	X	X
2.8	7/64	.110	35	X	X	X	X	-	8.8		.346		-	-	-	X	X
2.9		.114	33	X	X	X	X	-	8.9		.350		-	-	-	X	X
3.0		.118	32	X	X	X	X	-	9.0		.354		-	-	-	X	X
3.1		.122	31	X	X	X	X	-	9.1	23/64	.358		-	-	-	X	X
3.2	1/8	.126		X	X	X	X	-	9.2		.362		-	-	-	X	X
3.3		.130	30	X	X	X	X	-	9.3		.366		-	-	-	X	X
3.4		.134	29	X	X	X	X	-	9.4		.370		-	-	-	X	X
3.5		.138		X	X	X	X	-	9.5	3/8	.375		-	-	-	X	X
3.6	9/64	.142	28	X	X	X	X	-	9.6		.378		-	-	-	-	X
3.7		.146	26	X	X	X	X	-	9.7		.382		-	-	-	-	X
3.8		.150	25	X	X	X	X	-	9.8		.386		-	-	-	-	X
3.9		.154	23	X	X	X	X	-	9.9	25/64	.390		-	-	-	-	X
4.0	5/32	.157	22	X	X	X	X	-	10.0		.394		-	-	-	-	X
4.1		.161	20	-	X	X	X	-	10.1		.398		-	-	-	-	X
4.2		.165	19	-	X	X	X	-	10.2		.402		-	-	-	-	X
4.3		.169	18	-	X	X	X	-	10.3	13/32	.406		-	-	-	-	X
4.4	11/64	.173	17	-	X	X	X	-	10.4		.410		-	-	-	-	X
4.5		.177	16	-	X	X	X	-	10.5		.414		-		-	-	X
4.6		.181	14	-	X	X	X	-	10.6		.418		-	-	-	-	X
4.7		.185	13	-	X	X	X	-	10.7	27/64	.422		-	-		-	X
4.8	3/16	.189	12	-	X	X	X	-	10.8		.425		-	-	-	-	X
4.9		.193	10	-	X	X	X	-	10.9		.429		-	-	-	-	X
5.0		.197	9	-	X	X	X	-	11.0		.433		-	-	-	-	X
5.1		.201	7	-	X	X	X	-	11.1	7/16	.437		-	-	-	-	X
5.2	13/64	.205	5	-	X	X	X	-	11.2		.441		-	-	-	-	X
5.3		.209	4	-	X	X	X	-	11.3		.445		-	-	-	-	X
5.4		.213	3	-	X	X	X	-	11.4		.449		-	-	-	-	X
5.5		.216		-	X	X	X	-	11.5	29/64	.453		-	-	-	-	X
5.6	7/32	.220	2	-	X	X	X	-	11.6		.457		-	-	-	-	X
5.7		.224		-	X	X	X	-	11.7		.461		-	-	-	-	X
5.8		.228	1	-	X	X	X	-	11.8		.465		-	-	-	-	X
5.9		.232		-	X	X	X	-	11.9	15/32	.469		-	-	-	-	X
6.0	15/64	.236		-	X	X	X	-	12.0		.472		-	-	-	-	X
6.1		.240		-	X	X	X	-	12.1		.476		-	-	-	-	X
6.2		.244		-	X	X	X	-	12.2		.480		-	-	-	-	X
6.3		.248		-	X	X	X	-	12.3	31/64	.484		-	-	-	-	X
6.4	1/4	.252		-	X	X	X	-	12.4		.488		-	-	-	-	X
6.5		.256		-	X	X	X	X	12.5		.492		-	-	-	-	X
6.6		.260		-	-	X	X	X	12.6		.496		-	-	-	-	X
6.7	17/64	.264		-	-	X	X	X	12.7	1/2	.500		-	-	-	-	X
6.8		.268		-	-	X	X	X	12.8		.504		-	-	-	-	X
6.9		.272		-	-	X	X	X	12.9		.508		-	-	-	-	X
									13.0		.512		-	-	-	-	X

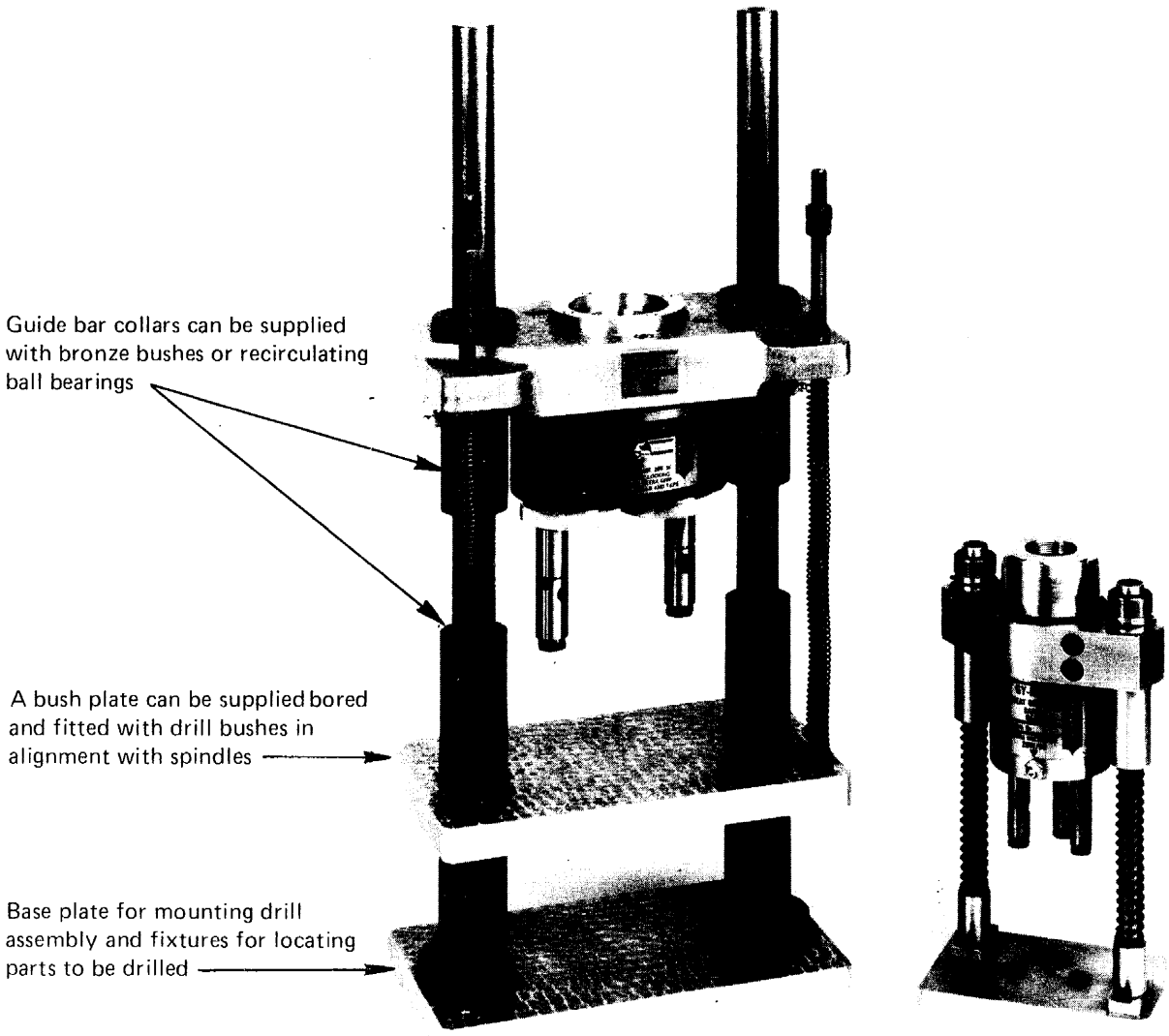
SPINDLES OF SPECIAL LENGTHS
FOR FIXED CENTRE MULTI-SPINDLE HEADS



HEAD TYPE	'A'						
	STD. SP. LENGTH	SPECIAL SPINDLE LENGTHS					
400	1 29/64	1 45/64	1 61/64	2 13/64	2 29/64		
	36.9	43.3	49.6	56.0	62.3		
650	1 19/32	1 27/32	2 3/32	2 11/32	2 19/32	2 27/32	3 3/32
	40.5	46.8	53.2	59.5	65.9	72.2	78.6
800	1 63/64	2 23/64	2 47/64	3 7/64	3 31/64	3 55/64	4 15/64
	50.4	59.9	69.5	79.0	88.5	98.0	107.6
950	2 1/4	2 3/4	3 1/4	3 3/4	4 1/4	4 3/4	
	57.1	69.8	82.5	95.2	107.9	120.6	
1250	3 17/64	3 49/64	4 17/64	4 49/64	5 17/64	5 49/64	6 17/64
	82.9	95.6	108.3	121.0	133.7	146.4	159.1

Adaptors For Bush Plates

Guide bars can be supplied for mounting a self feed driller or tapper on to a base plate. This type of assembly can also incorporate a bush plate as shown below.



Guide bars can also be supplied complete with yoke attachment to eliminate radial play between the drill unit and the multi-spindle head.