

RAGLAN


5 in. Centre Lathe

The RAGLAN LATHE is supplied either with a Norton type Quick Change Gearbox or without according to a customer's wishes. The following illustrations and charts show the Gear Train arrangements for each type. Useful formulae are also included.

This supplement endeavours to cover every standard screw thread of the following groups, within the ranges shown in brackets.

- a British-Unified-American-Pipe Threads (4 T.P.I. - 60 T.P.I.)
- b Metric Threads (0.4 - 6.0 mm PITCH)
- c B.A. Threads (8 B.A. - 0 B.A.)
- d Diametral Pitch Worms (12 D.P. - 48 D.P.)

The charts for B.A. Threads give alternative gear selections to enable a customer to select the one giving the accuracy he may require, and whether plus or minus.

A wide range of threads can be cut with the standard set of changewheels supplied with each lathe. Where, however, special changewheels are required the charts are marked thus: 

A SPARES LIST is included to facilitate the ordering of special changewheels. Identification should be made by quoting the PART NUMBER and LATHE SERIAL NUMBER.

RAGLAN ENGINEERING CO. (1954) LTD.

RALEIGH STREET. NOTTINGHAM

Telephone 77215/6

GEAR TRAINS

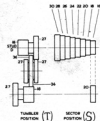
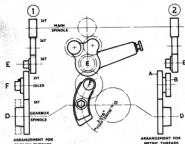
LEADSCREW EITHER LATHE - 8 T.P.I.
ALTERNATIVE ARRETS MARKED ① AND ②

SCREW CUTTING FORMULÆ

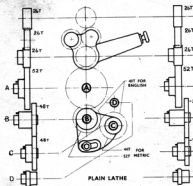
For the calculation of Changewheels for screwcutting any required pitch of thread.

BRITISH - UNIFIED - AMERICAN - PIPE - THREADS

GEARBOX LATHE (CHANGEWHEELS 14 D.P.)



PLAIN LATHE (CHANGEWHEELS 16 D.P.)



LATHE FITTED WITH QUICK CHANGE GEARBOX

ENGLISH THREADS:

Arr. 1

$$T.P.I. = \frac{2}{3} \times \frac{\text{Stud D} \times \text{Tumbler ratio} \times \text{Sector Position}}{\text{Stud E}}$$

To obtain a convenient changewheel selection compounding may be necessary, in which case the following formula applies:-

Arr. 2

$$T.P.I. = \frac{2}{3} \times \frac{\text{Stud D} \times \text{Gear B} \times \text{Tumbler ratio} \times \text{Sector Position}}{\text{Stud E} \times \text{Gear A}}$$

METRIC THREADS:

Arr. 2. When Gear A = 39T; Gear B = 33T; Stud D = 50T.

$$\text{Pitch in mm} = \frac{3}{2} \times \frac{\text{Stud E}}{\text{Tumbler Ratio} \times \text{Sector position}}$$

NOTE: Tumbler ratio $\frac{2}{1}$ With Lever at position A

Tumbler ratio $\frac{1}{1}$ with Lever at position B

Tumbler ratio $\frac{1}{2}$ with Lever at position C

It should be noted that Gears A and D have a fixed centre distance of 3.178 inches (the centre distance of 39T and 50T, 14 D.P.). Any special gears compounding must take this into account.

LATHE WITHOUT QUICK CHANGE GEARBOX

ENGLISH THREADS:

$$\text{Arr. 1 } T.P.I. = \frac{B}{A} \times \frac{D}{C} \times 16$$

$$\text{Arr. 2 } T.P.I. = \frac{B}{A} \times \frac{D}{C} \times \frac{Y}{X} \times 16$$

METRIC THREADS:

Arr. 2 Place 52T Gear at X and 44T at Y

$$\text{then Pitch in mm} = \frac{16}{3} \times \frac{A}{B} \times \frac{C}{D}$$

N.B. The cutting of threads coarser than 4 T.P.I. is not recommended due to high gearing-up action between Spindle and Leadscrew.

T.P.I.	GEARBOX LATHE ①					PLAIN LATHE ①			
	E	F	D	T	S	A	B	C	D
4	40	39	50	C	16	60	30	60	30
4½	"	"	"	"	18	"	"	48	27
5	"	"	"	"	20	"	"	48	30
(5½)	"	"	"	"	22	"	"	48	33
6	"	"	"	"	24	"	"	48	36
(6½)	"	"	"	"	26	"	"	48	39
7	"	"	"	"	28	"	"	48	42
(7½)	"	"	"	"	30	"	"	48	45
8	"	"	"	B	16	"	"	45	45
9	"	"	"	"	18	"	"	32	36
10	"	"	"	"	20	"	"	36	45
11	"	"	"	"	22	"	"	32	44
11½	32	43	46	"	20	"	"	32	46
12	40	39	50	"	24	"	"	32	48
13	"	"	"	"	26	"	"	32	52
14	"	"	"	"	28	45	45	48	42
(15)	"	"	"	"	30	60	30	32	60
16	"	"	"	A	16	60	30	30	60
18	"	"	"	"	18	45	45	32	36
19	36	32	57	B	30	45	45	32	39
20	40	39	50	A	20	30	60	48	30
22	"	"	"	"	22	45	45	32	44
24	"	"	"	"	24	45	45	32	48
26	"	"	"	"	26	45	45	32	52
27	32	35	54	"	20	45	45	32	54
28	40	39	50	"	28	30	60	48	42
30	"	"	"	"	30	"	"	48	45
32	20	"	"	"	16	"	"	45	45
36	"	"	"	"	18	"	"	32	36
40	"	"	"	"	20	"	"	36	45
44	"	"	"	"	22	"	"	32	44
48	"	"	"	"	24	"	"	32	48
(52)	"	"	"	"	26	"	"	32	52
56	"	"	"	"	28	"	"	32	56
60	"	"	"	"	30	"	"	32	60

Non-Standard Gears Marked ☐ See Special Gears List.

(B)

METRIC THREADS

[illegible]

B.A. THREADS

B.A. N°	GEARBOX LATHE ②						NOML PITCH (mm)	PITCH ERROR (mm)
	E	B	A	D	T	S		
8	16	33	39	50	A	28	.43	-.0012
	15	"	"	"	"	28		+0.0030
7	18	"	"	"	"	28	.48	+0.0024
	21	"	"	"	"	30		-.0047
6	17	"	"	"	"	24	.53	+0.0015
	22	"	"	"	"	28	.59	-.0004
5	23	"	"	"	"	26		+0.0037
	21	"	"	"	"	24	.66	-.0033
4	29	"	"	"	"	30	.73	-.0046
	28	"	"	"	"	26		-.0018
2	26	"	"	"	"	24	.81	+0.0030
	24	"	"	"	"	20	.90	+0.0006
0	40	"	"	"	"	30	1.0	+0.0006

B.A No.	PLAIN LATHE ②						NOM'L PITCH (MM)	PITCH ERROR (MM)
	A	B	X	Y	C	D		
8	30	60	52	44	22	48	.43	- .0001
	"	"	"	"	23	50		+ .0015
7	"	"	"	"	21	41	.48	+ .0005
	"	"	"	"	23	45		- .0005
6	"	"	"	"	30	53	.53	+ .0010
	"	"	"	"	31	55		- .0013
5	"	"	"	"	34	54	.59	+ .0006
	"	"	"	"	32	51		- .0014
4	"	"	"	"	38	54	.66	+ .0001
	"	"	"	"	33	47		- .0014
3	"	"	"	"	35	45	.73	- .0004
	"	"	"	"	39	50		+ .0017
2	"	"	"	"	39	44	.81	+ .0001
	"	"	"	"	44	51		- .0007
1	"	"	"	"	48	50	.90	+ .0005
	"	"	"	"	46	48		- .0010
0	"	"	"	"	48	45	1.0	+ .0006
	"	"	"	"	47	44		- .0008

DIAMETRAL PITCH WORMS

D.P.	GEARBOX LATHE ①					PLAIN LATHE ①			
	E	F	D	T	S	A	B	C	D
12	↑	↑	↑	C	24	↑	↑	64	24
14				C	28			64	28
16				B	16			60	30
18				B	18			48	27
20				B	20			48	30
22				B	22			48	33
24				B	24			48	36
26	44	54	35	B	26	55	35	48	39
28				B	28			48	42
30				B	30			48	45
32				A	16			45	45
36				A	18			32	36
40				A	20			36	45
44				A	22			32	44
48	↓	↓	↓	A	24	↓	↓	32	48

The above gears have been calculated on the value of π , 22 i.e. 3.1428 being acceptable

CHANGEWHEELS (INCLUDED AS STANDARD EQUIPMENT)

GEARBOX LATHE (14 D.P.)			PLAIN LATHE (16 D.P.)	
Posn	Teeth	Part No	Teeth	No off
E	20	243 A	30	2
E	40	40T	32	1
E	42	42T	36	1
E	44	44T	42	1
F(A)	39	243A/1	44	1*
B	33	33T	45	2
D	50	240/50	48	2*
			49	1
			52	1*
			60	2

ALL PLAIN LATHE GEARS MAY BE USED IN POSITIONS A, B, C. OR D
GEARS MARKED * ARE DRILLED SPECIALLY TO FIT IN POSNS X AND Y

NON-STANDARD CHANGEWHEELS

(Available on Request)

GEARBOX LATHE (14 D.P.)			PLAIN LATHE (16 D.P.)		
No of Teeth	Part Number	Price	No of Teeth	Part Number	Price
15(E)	243A/15		21	21/PL	
16(E)	243A/16		22	22/PL	
17(E)	243A/17		23	23/PL	
18(E)	243A/18		24	24/PL	
21(E)	243A/21		27	27/PL	
22(E)	243A/22		28	28/PL	
23(E)	243A/23		31	31/PL	
24(E)	24T/GL		33	33/PL	
26(E)	26T/GL		34	34/PL	
28(E)	28T/GL		35	35/PL	
29(E)	29T/GL		38	38/PL	
32(E)	32T/GL		39	39/PL	
32(F)	32T/GL		41	41/PL	
35(F)	35T/GL		46	46/PL	
35(D)	240/35		47	47/PL	
43(F)	43T/GL		50	50/PL	
46(D)	240/46		51	51/PL	
36(E)	36T/GL		53	53/PL	
54(F)	54T/GL		54	54/PL	
54(D)	240/54		55	55/PL	
57(D)	240/57		56	56/PL	
			64	64/PL	

For Gearbox Changewheels the Stud Position is shown in brackets thus - (D). Where (F) is indicated, reversal of the standard 39 teeth Idler Gear (without reversing Gear D) enables the non-standard changewheel to itself act as an idler, with the 39T Gear acting merely as its carrier