

Cutting Worm Gears - DP and MOD threads on the Mini-Lathe

The tables below show useful change wheel combinations for thread cutting Diametral (DP) and module (MOD) threads on the Mini-Lathe.

The optional change wheels highlighted in red and green are required for some threads in addition to the standard gears supplied with the machine.

Metric Leadscrew 1.5mm								
Diametral Pitches from 20 to 80 DP								
DP #	Pitch		Change wheels				Result mm	Error mm
	Inch	mm	A	B	C	D		
20	0.157	3.990	57	50	70	30	3.990	< 0.001
22	0.143	3.627	57	55	70	30	3.627	< 0.001
24	0.131	3.325	57	45	70	40	3.325	< 0.001
26	0.121	3.069	57	50	45	25	3.078	+0.009
28	0.112	2.850	57	Idler		30	2.850	< 0.001
30	0.105	2.660	57	45	70	50	2.660	< 0.001
32	0.098	2.494	57	55	80	50	2.487	-0.007
34	0.092	2.347	57	50	55	40	2.351	0.004
36	0.087	2.217	57	50	65	50	2.223	0.006
38	0.083	2.100	57	65	80	50	2.105	0.005
40	0.079	1.995	57	50	70	60	1.995	< 0.001
44	0.071	1.814	57	55	70	60	1.814	< 0.001
48	0.065	1.662	57	55	75	70	1.666	+0.004
52	0.060	1.535	57	50	45	50	1.539	0.004
56	0.056	1.425	57	Idler		60	1.425	< 0.001
60	0.052	1.330	57	50	35	45	1.330	< 0.001
64	0.049	1.247	57	55	20	25	1.244	-0.003
68	0.046	1.173	57	50	55	80	1.176	0.003
72	0.044	1.108	57	55	25	35	1.110	+0.002
76	0.041	1.050	57	50	40	65	1.052	+0.002
80	0.039	0.997	57	50	35	60	0.998	0.001

Imperial Leadscrew 16TPI								
Diametral Pitches from 20 to 80 DP								
DP #	Pitch		Change wheels				Result mm	Error mm
	Inch	mm	A	B	C	D		
20	0.157	3.990	80	50	55	35	3.991	0.001
22	0.143	3.627	80	Idler		35	3.629	0.002
24	0.131	3.325	40	30	55	35	3.326	0.001
26	0.121	3.069	80	65	55	35	3.070	+0.001
28	0.112	2.850	40	35	55	35	2.851	0.001
30	0.105	2.660	80	35	55	75	2.661	0.001
32	0.098	2.494	55	Idler		35	2.495	0.002
34	0.092	2.347	55	35	75	80	2.339	-0.008
36	0.087	2.217	40	35	55	45	2.217	< 0.001
38	0.083	2.100	55	50	60	50	2.096	-0.004
40	0.079	1.995	40	50	55	35	1.996	0.001
44	0.071	1.814	40	Idler		35	1.814	< 0.001
48	0.065	1.662	55	35	40	60	1.663	+0.001
52	0.060	1.535	55	65	40	35	1.535	< 0.001
56	0.056	1.425	40	35	55	70	1.426	0.001
60	0.052	1.330	40	35	55	75	1.330	< 0.001
64	0.049	1.247	55	60	30	35	1.247	< 0.001
68	0.046	1.173	55	Idler		75	1.164	-0.009
72	0.044	1.108	55	45	40	70	1.109	+0.001
76	0.041	1.050	30	50	55	50	1.048	+0.002
80	0.039	0.997	30	75	55	35	0.998	< 0.001

Metric Leadscrew 1.5mm							
Module Pitches from Mod 0.1 to Mod 1.25							
Mod #	Pitch mm	Change wheels				Result mm	Error mm
		A	B	C	D		
0.1	0.314	20	70	55	75	0.314	< 0.001
0.2	0.628	55	70	40	75	0.629	+0.001
0.3	0.942	55	70	60	75	0.943	+0.001
0.4	1.257	55	75	40	35	1.257	< 0.001
0.5	1.571	55	60	40	35	1.571	< 0.001
0.6	1.885	55	50	80	70	1.886	+0.001
0.7	2.199	70	75	55	35	2.200	+0.001
0.75	2.356	55	Idler		35	2.357	+0.001
0.8	2.513	80	75	55	35	2.514	+0.001
0.9	2.827	60	50	55	35	2.829	+0.002
1.00	3.142	55	35	40	30	3.143	+0.001
1.25	3.927	55	35	50	30	3.929	+0.002

Imperial Leadscrew 16TPI							
Module Pitches from Mod 0.1 to Mod 1.25							
Mod #	Pitch mm	Change wheels				Result mm	Error mm
		A	B	C	D		
0.1	0.314	25	80	40	63	0.315	+0.001
0.2	0.628	25	Idler		63	0.630	+0.002
0.3	0.942	70	75	40	63	0.941	-0.001
0.4	1.257	50	Idler		63	1.260	+0.003
0.5	1.571	63	50	55	70	1.572	+0.001
0.6	1.885	70	75	80	63	1.881	-0.004
0.7	2.199	60	55	80	63	2.199	< 0.001
0.75	2.356	50	45	40	30	2.352	-0.004
0.8	2.513	57	60	50	30	2.514	+0.001
0.9	2.827	57	40	50	40	2.828	+0.001
1.00	3.142	55	50	45	25	3.143	+0.001
1.25	3.927	65	50	57	30	3.921	-0.006

Errors are shown positive (+ve) when the result gives a larger pitch than target value

Note: Additional gears beyond those supplied with your machine may also be required to cut some threads.

We stock a range of individual plastic gears and metal gear sets. The information provided should be used as guidance only. Users should check specifications for suitability for their applications.

Our thanks to:
 Brian Wood, author of the book **Gearing of Lathes for Screwcutting**
 Published by The Crowood Press, Marlborough, SN8 2HR.