

## Metric Threads

## For 8TPI Leadscrew

(Page 1)

| MM Size            | 0.2     | 0.25    | 0.3    | 0.35   | 0.4    | 0.45   | 0.5    | 0.55   | 0.6    | 0.65   | 0.7    |
|--------------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| TPI                | 127     | 101.6   | 84.6   | 72.571 | 63.5   | 56.4   | 50.8   | 46.18  | 42.3   | 39.077 | 36.286 |
| Gears 1            | 21/50   | 21/40   | 21/50  | 21/40  | 21/50  | 21/40  | 20/40  | 20/40  | 21/40  | 21/40  | 21/40  |
| Gears 2            | 21/60   | 21/60   | 21/60  | 21/50  | 21/70  | 21/50  | 21/50  | 30/60  | 30/50  | 21/50  | 21/50  |
| Gears 3            | 30/70   | 30/70   | 45/70  | 35/70  |        | 45/70  | 45/60  | 45/65  | 45/75  | 65/70  |        |
| which gives(tpi)   | 126.984 | 101.587 | 84.656 | 72.562 | 63.492 | 56.437 | 50.793 | 46.2   | 42.328 | 39.072 | 36.072 |
| error %            | -0.01   | -0.01   | 0.07   | -0.01  | -0.01  | 0.07   | -0.01  | 0.04   | 0.07   | -0.01  | -0.59  |
| <b>Alternative</b> |         |         |        |        |        |        |        |        |        |        |        |
| Gears 1            |         | 20/50   | 20/60  | 20/40  | 20/50  | 20/38  | 20/40  | 20/50  | 20/40  | 20/30  | 20/40  |
| Gears 2            |         | 20/50   | 20/70  | 20/45  | 20/55  | 30/60  | 30/60  | 20/50  | 30/50  | 20/65  | 20/50  |
| Gears 3            |         | 30/60   |        | 30/60  | 65/75  | 35/65  | 46/73  | 65/60  | 46/73  |        | 55/50  |
| which gives(tpi)   |         | 100     | 84     | 72     | 63.461 | 56.457 | 50.783 | 46.154 | 42.319 | 39     | 36.36  |
| error %            |         | -1.57   | -0.71  | -0.79  | -0.06  | 0.10   | -0.03  | -0.06  | 0.04   | -0.20  | 0.20   |
| <b>Alternative</b> |         |         |        |        |        |        |        |        |        |        |        |
| Gears 1            |         |         |        |        | 20/50  |        | 20/50  | 20/46  | 20/50  |        | 20/34  |
| Gears 2            |         |         |        |        | 30/60  |        | 20/55  | 20/50  | 20/50  |        | 30/40  |
| Gears 3            |         |         |        |        | 46/73  |        | 65/60  |        | 65/55  |        | 3060   |
| which gives(tpi)   |         |         |        |        | 63.478 |        | 50.769 | 46     | 42.308 |        | 36.26  |
| error %            |         |         |        |        | -0.03  |        | -0.06  | -0.39  | 0.02   |        | -0.07  |
| <b>Alternative</b> |         |         |        |        |        |        |        |        |        |        |        |
| Gears 1            |         |         |        |        |        |        | 20/38  |        | 20/38  |        | 20/50  |
| Gears 2            |         |         |        |        |        |        | 20/40  |        | 30/50  |        | 35/55  |
| Gears 3            |         |         |        |        |        |        | 30/50  |        | 30/50  |        | 65/75  |
| which gives(tpi)   |         |         |        |        |        |        | 50.6   |        | 42.2   |        | 36.264 |
| error %            |         |         |        |        |        |        | -0.39  |        | -0.24  |        | -0.06  |

## Metric Threads

## For 8TPI Leadscrew

(Page 2)

| MM Size            | 0.75   | 0.8    | 0.85    | 0.9    | 0.95    | 1      | 1.1    | 1.2    | 1.25   | 1.3    | 1.4     |
|--------------------|--------|--------|---------|--------|---------|--------|--------|--------|--------|--------|---------|
| TPI                | 33.86  | 31.75  | 29.88   | 28.2   | 26.737  | 25.4   | 23.09  | 21.16  | 20.32  | 19.538 | 18.143  |
| Gears 1            | 21/40  | 21/50  | 20/38   | 21/25  | 21/40   | 21/40  | 20/35  | 21/25  | 21/40  | 21/25  | 21/25   |
| Gears 2            | 35/50  | 45/75  | 35/50   | 21/40  | 38/50   | 45/75  | 40/55  | 30/50  | 45/60  | 21/40  | 35/50   |
| Gears 3            | 45/70  |        | 40/55   | 45/70  | 45/60   |        | 50/60  | 45/60  |        | 65/70  | 45/60   |
| which gives(tpi)   | 33.862 | 31.746 | 29.857  | 28.219 | 26.734  | 25.397 | 23.1   | 21.164 | 20.317 | 19.536 | 18.141  |
| error %            | 0.01   | -0.01  | -0.08   | 0.07   | -0.01   | -0.01  | 0.04   | 0.02   | -0.01  | -0.01  | -0.01   |
| <b>Alternative</b> |        |        |         |        |         |        |        |        |        |        |         |
| Gears 1            | 30/40  | 20/50  | 20/50   | 20/38  | 20/40   | 20/40  | 21/40  | 30/50  | 30/40  | 20/30  | 35/50   |
| Gears 2            | 30/60  | 46/73  | 40/60   | 35/65  | 30/50   | 46/73  | 45/50  | 46/73  | 46/60  | 40/65  | 46/73   |
| Gears 3            | 46/73  |        |         |        |         |        | 55/75  |        | 50/73  |        |         |
| which gives(tpi)   | 33.855 | 31.739 | 30      | 28.228 | 26.6    | 25.391 | 23.088 | 21.159 | 20.313 | 19.5   | 18.137  |
| error %            | -0.01  | -0.03  | 0.40    | 0.10   | -0.51   | -0.04  | -0.01  | -0.00  | -0.03  | -0.19  | -0.03   |
| <b>Alternative</b> |        |        |         |        |         |        |        |        |        |        |         |
| Gears 1            | 20/38  | 20/50  |         | 20/40  | 20/30   | 20/35  | 20/30  | 20/45  | 25/38  | 20/38  | 35/50   |
| Gears 2            | 30/50  | 40/55  |         | 45.5   | 20/45   | 30/50  | 20/50  | 20/50  | 30/50  | 30/50  | 40/55   |
| Gears 3            | 45/60  | 65/75  |         | 46/73  |         | 55/60  | 65/50  | 65/55  |        | 65/50  | 65/75   |
| which gives(tpi)   | 33.7   | 31.731 |         | 28.216 | 27      | 25.45  | 23.077 | 21.154 | 20.26  | 19.487 | 18.132  |
| error %            | -0.47  | -0.06  | -100.00 | 0.06   | 0.98    | 0.20   | -0.06  | -0.03  | -0.30  | -0.26  | -0.06   |
| <b>Alternative</b> |        |        |         |        |         |        |        |        |        |        |         |
| Gears 1            | 20/50  | 20/35  |         | 20/38  |         | 20/30  | 20/46  | 30/38  | 20/38  | 20/50  |         |
| Gears 2            | 38/65  | 20/50  |         | 30/50  |         | 20/50  | 40/50  | 30/50  | 45/60  | 45/45  |         |
| Gears 3            |        | 55/50  |         | 45/50  |         | 65/55  |        | 40/50  |        |        |         |
| which gives(tpi)   | 34.211 | 31.818 |         | 28.148 |         | 25.385 | 23     | 21.1   | 20.26  | 19.565 |         |
| error %            | 1.04   | 0.21   | -100.00 | -0.18  | -100.00 | -0.06  | -0.39  | -0.28  | -0.30  | 0.14   | -100.00 |

## Metric Threads

## For 8TPI Leadscrew

| (Page 3)           | Metric Threads |        |        |        |        |        |        |       |       | For 8TPI Leadscrew |   |
|--------------------|----------------|--------|--------|--------|--------|--------|--------|-------|-------|--------------------|---|
| MM Size            | 1.5            | 1.6    | 1.75   | 1.8    | 2      | 2.25   | 2.5    | 2.75  | 3     | 0                  | 0 |
| TPI                | 16.933         | 15.875 | 14.514 | 14.1   | 12.7   | 11.28  | 10.16  | 9.236 | 8.46  |                    |   |
| Gears 1            | 21/40          | 21/25  | 21/20  | 21/25  | 21/40  | 21/40  | 21/30  | 21/20 | 21/25 |                    |   |
| Gears 2            | 45/50          | 45/75  | 35/50  | 30/40  | 60/50  | 45/40  | 45/40  | 30/40 | 45/40 |                    |   |
| Gears 3            |                |        | 45/60  | 45/50  |        | 60/50  |        | 55/50 |       |                    |   |
| which gives(tpi)   | 16.931         | 15.873 | 14.512 | 14.109 | 12.698 | 11.287 | 10.158 | 9.235 | 8.466 |                    |   |
| error %            | -0.01          | -0.01  | -0.01  | 0.06   | -0.02  | 0.06   | -0.02  | -0.01 | 0.07  |                    |   |
| <b>Alternative</b> |                |        |        |        |        |        |        |       |       |                    |   |
| Gears 1            | 30/40          | 40/50  | 35/40  | 45/50  | 21/30  | 45/40  | 46/40  | 46/40 | 45/30 |                    |   |
| Gears 2            | 46/73          | 46/73  | 46/73  | 46/73  | 45/50  | 46/73  | 50/73  | 55/73 | 46/73 |                    |   |
| Gears 3            |                |        |        |        |        |        |        |       |       |                    |   |
| which gives(tpi)   | 16.928         | 15.869 | 14.509 | 14.106 | 12.698 | 11.285 | 10.156 | 9.233 | 8.464 |                    |   |
| error %            | -0.03          | -0.04  | -0.03  | 0.04   | -0.02  | 0.04   | -0.04  | -0.03 | 0.05  |                    |   |
| <b>Alternative</b> |                |        |        |        |        |        |        |       |       |                    |   |
| Gears 1            | 20/50          | 20/25  | 30/38  | 35/38  | 46/73  | 20/25  | 30/35  |       | 30/38 |                    |   |
| Gears 2            | 65/55          | 40/55  | 35/50  | 40/65  |        | 30/38  | 55/60  |       | 60/50 |                    |   |
| Gears 3            |                | 65/75  |        |        |        | 45/40  |        |       |       |                    |   |
| which gives(tpi)   | 16.923         | 15.866 | 14.476 | 14.114 | 12.696 | 11.259 | 10.18  |       | 8.4   |                    |   |
| error %            | -0.06          | -0.06  | -0.26  | 0.10   | -0.03  | -0.19  | 0.20   |       | -0.71 |                    |   |
| <b>Alternative</b> |                |        |        |        |        |        |        |       |       |                    |   |
| Gears 1            | 20/35          | 20/35  | 20/40  | 30/40  | 45/50  | 25/35  | 25/38  |       |       |                    |   |
| Gears 2            | 30/40          | 40/50  | 55/50  | 38/50  | 50/65  |        | 60/55  |       |       |                    |   |
| Gears 3            | 55/50          | 55/50  |        |        |        |        |        |       |       |                    |   |
| which gives(tpi)   | 16.96          | 15.909 | 14.54  | 14.035 | 12.71  | 11.2   | 10.13  |       |       |                    |   |
| error %            | 0.16           | 0.21   | 0.18   | -0.46  | 0.08   | -0.71  | -0.30  |       |       |                    |   |

Note: Exact "whole number " tpi shown

thus.

Note2: below 1% error will not usually be apparent.