KINGSTON ENGINEERING

DATA SHEET #2
Power Screw Products

Kingston Engineering has been manufacturing Right Hand/Left Hand, single/multi-start, cut thread Power Transmission Screws and Nuts for over 60 years and currently offers a full range of thread forms suitable for mechanical power transmission, all conforming to British, European or American Standards.

Our nominal capacity range for Screw products is 10 to 200 mm diameter by 6 metres (3/8" to 8" dia by 20') length in one piece, but any practical length with seamless jointing. For Nuts we can accommodate up to 1 metre diameter and 2,000 kg (40" dia and 4,400 lbs). Full associated machining services are available from our comprehensive workshops.

For the efficient transmission of power, imperial based Acme and metric based Trapezoidal thread forms are very similar and by far the most common in use. To assist in the choice where these thread forms would satisfy your application, we show overleaf two Screw Selection Tables.

Both tables show recommended maximum values based on good quality, medium carbon steel to 080M40, single start Screws and SAE660 Phosphor Bronze or Grade 250 Cast Iron Nuts, with good surface finish to all thread flank faces and a factor of safety of 2. In practice it is advisable to keep well inside these recommended maximum figures.

For general engineering applications we offer our Stock Range of Acme and Trapezoidal Power Screws and Nuts. This provides an economic, off-the-shelf choice covering 12mm to 60mm diameter and 0.5" to 2.50" dia screws available at a length to suit your application and each with a full range of compatible nuts. Please click on Data Sheet 3 - Standard Screw Stock, which gives full details. Where your application is for a specific requirement, for example Multi-Start, Modified Square, Stub Acme or Buttress thread forms, or is outside the range of the tables, please speak to our Technical Sales staff who will be pleased to advise, aided by our own Screw Design Software and many years, broad, practical experience. We promise a speedy response to your quotation request, are committed to maintaining delivery promises, and will not willingly be beaten on price for components within our normal capacity.

Other Screw related products

- Self-reversing Screw and Follower assemblies - used for the level winding of line, rope, cable and hawser on to storage drums. Nominal manufacturing capacity similar to that for Power Transmission Screws.
- Special purpose applications - for example: - Product feed screws - with variable pitch if required. Finned cooling tubes.
- Telescopic screw assemblies. Multi-start valve actuator assemblies.
- Pen Stock screw assemblies.

Screw Selection Tables

For assistance please ring Kingston Screw Sales on +44 (0)1482 325676 and speak to our technical sales staff.

Table 1 - This table show the maximum recommended axial load on the Screw/Nut assembly for various screws across a range of axial speeds. The table is based on providing the Maximum Allowable Bearing Pressure between Screw and Nut, which is the most common limiting factor, whilst still achieving a reasonable working life.

Table 1a - Example (Acme threads - table figures in lb.) Find suitable screw to move 500 lb vertically at a speed of 45"/ min. From the table the 48"/min. column shows that a 1" diameter by 5 TPI (Teeth per Inch) is suitable for loads up to 730lbs.

SCREW		Axial load speed required - inches per minute											
Dia.Inch	TPI	6	12	18	24	30	36	42	48	54	60	66	72
0.500	10	1,400	1,100	830	630	470	350	270	200	150	110	80	60
0.625	8	2,100	1,600	1,210	910	680	510	390	290	220	160	120	90
0.750	8	2,700	1,900	1,350	950	670	480	340	240	170	120	80	60
1.000	5	5,300	3,900	3,000	2,200	1,700	1,200	970	**730**	550	410	310	230
1.250	4	8,800	6,600	5,000	3,700	2,800	2,100	1,600	1,200	920	690	520	390
1.500	4	10,000	7,100	5,000	3,500	2,500	1,800	1,200	900	630	450	320	220
2.000	3	20,000	14,000	10,000	7,190	5,090	3,600	2,500	1,800	1,200	900	640	450
2.500	2	33,000	25,000	19,000	14,000	10,000	8,200	6,200	4,600	3,500	2,600	2,000	1,500

Table 1b - Example (Trapezoidal threads - table figures in kg.) Find suitable screw to move 200 kg vertically at a speed of1,100 mm per min. From the table the 1,200 mm per min. column shows that a 25 mm diameter by 5 mm pitch is suitable for loads up to 330 kg.

SCREW		Axial load speed required - millimeters per minute											
Dia.mm	Pitch	150	300	450	600	700	900	1000	1200	1300	1500	1600	1800
12	3	660	500	380	280	210	160	120	90	60	50	30	20
16	4	970	730	550	410	310	230	170	130	100	70	50	40
20	4	1220	860	610	430	300	210	150	100	70	50	30	20
25	5	2400	1810	1360	1030	770	580	440	**330**	250	180	140	100
32	6	4010	3020	2280	1710	1290	970	730	550	410	310	230	170
40	6	4600	3260	2300	1630	1150	810	570	400	290	200	140	100
50	8	9210	6520	4610	3260	2310	1630	1150	810	580	410	290	200
60	10	15380	11590	8740	6580	4960	3740	2820	2120	1600	1200	910	680

Table 2 - This table shows the maximum recommended axial load (in lbs) on the Screw/Nut assembly for various screws across a range of unsupported lengths (in inches), to avoid buckling when the Screw is loaded in compression and is acting as a column.

SCREW	Axial load speed required - millimeters per minute										
Dia.inch	6	12	18	24	30	36	48	60	72	84	96
0.500	1,700	1,500	1,040	625	408	285	161	104	72	53	40
0.625	2,690	2,510	2120	1,460	975	690	392	252	175	129	99
0.750	4,400	4,220	3,840	3,220	2,310	1,660	955	615	428	314	240
1.000	6,975	6,800	6,500	6,000	5,275	4,170	2,500	1,630	1,140	840	645
1.250	10,900	10,750	10,450	10,050	9,400	8,500	5,850	3,900	2,760	1,830	1,260
1.500	17,800	17,600	17,300	16,850	16,200	15,400	12,850	9,250	6,630	4,200	2,260
2.000	31,700	31,500	31,250	30,800	30,200	29,450	27,300	24,200	19,600	11,500	7,550
2.500	43,900	43,600	43,350	43,100	42,600	41,800	40,100	37,500	34,000	29,100	23,400