

Standard performances screw jacks series

- Load capacity ranging from 5 kN to 200 kN
- Linear speed up to 40 mm/s (up to 100 mm/s on request)
- Input speed up to 1500 r/min
- Operating duty cycle up to 30% over a 10 minute period, or 20% over a 1 hour period, at 25°C environment temperature



Series SJ Technical Specification

SIZE		SJ 5	SJ 10	SJ 25	SJ 50	SJ 80	SJ 200	
Max lifting load	kN	5	10	25	50	80	200	
Acme lift screw	dia × pitch	Tr 18 × 4	Tr 22 × 5	Tr 30 × 6	Tr 40 × 7	Tr 55 × 9	Tr 70 × 12	Tr 80 × 12
Available ratios	RH	1 : 4	–	–	–	–	–	
	RV	1 : 6.25	1 : 4	1 : 6	1 : 7	1 : 7	1 : 7	
	RN	1 : 12.5	1 : 16	1 : 18	1 : 14	1 : 14	–	
	RL	1 : 25	1 : 24	1 : 24	1 : 28	1 : 28	1 : 28	
Stroke [mm] for 1 input turn	RH	1	–	–	–	–	–	
	RV	0.64	1.25	1	1	1.28	1.71	
	RN	0.32	0.31	0.33	0.5	0.64	–	
	RL	0.16	0.21	0.25	0.25	0.32	0.43	
Max permissible operating power [kW]	RH	0.40	–	–	–	–	–	
	RV	0.40	0.60	1.2	2.4	2.5	4	
	RN	0.20	0.30	0.7	1.7	1.8	–	
	RL	0.17	0.25	0.6	1.2	1.2	3.2	
Max starting torque required at full load [Nm]	RH	3.8	–	–	–	–	–	–
	RV	2.5	9	19.9	44.1	77	325	360
	RN	1.7	3.5	8.3	24.8	47	–	–
	RL	1	2.5	7.6	18	34	125	138
Starting efficiency	RH	0.25	–	–	–	–	–	–
	RV	0.25	0.26	0.20	0.18	0.18	0.19	0.17
	RN	0.21	0.20	0.16	0.15	0.15	–	–
	RL	0.16	0.16	0.13	0.11	0.11	0.12	0.11
Running efficiency at 1500 r/min	RH	0.35	–	–	–	–	–	–
	RV	0.34	0.36	0.34	0.32	0.33	0.36	0.35
	RN	0.29	0.28	0.27	0.28	0.29	–	–
	RL	0.25	0.25	0.25	0.23	0.24	0.25	0.24
Reactive torque of screw at max load [Nm]		8	20	65	165	368	1180	1300
Housing material		Aluminium alloy EN 1706 - AC-AISi10Mg T6		Cast iron EN 1561 - GJL-250				
Weight without screw and protection tube [kg]		1.5	2.3	10.4	25	35	75	
Weight for every 100 mm of screw [kg]		0.16	0.23	0.45	0.8	1.6	2.5	3.4

Efficiency figures at other speeds on page 9

Based upon the linear speed needed and maximum dynamic load applied, pick the effective lifting speed and input torque - power required from the relevant screwjack table below. Intermediate figures for input torque - power can be calculated by direct interpolation.

PLEASE, NOTE! The red figures in the tables indicates operational restrictions due to thermal limits. Selection of screw jacks using these figures should only be carried out in consultation with our office.

When your selection is made within the areas shaded red, you will need to reduce duty cycle or choose the next size screwjack in order to allow effective heat dissipation.

n_1 = input speed T_1 = input torque required P_1 = input power required

SJ 5					LIFTING LOAD																							
					5 kN								3 kN								1 kN							
n ₁	Lifting speed mm/s				Ratios								Ratios								Ratios							
					RH		RV		RN		RL		RH		RV		RN		RL		RH		RV		RN		RL	
	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁		
r/min	RH	RV	RN	RL	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW		
1500	25.0	16.0	8.0	4.0	1.9	0.29	1.3	0.20	0.7	0.12	0.5	0.07	1.1	0.17	0.8	0.12	0.4	0.07	0.3	0.04	0.4	0.06	0.3	0.04	0.1	0.02	0.1	0.01
1000	16.7	10.7	5.3	2.7	2.0	0.21	1.4	0.14	0.8	0.09	0.5	0.05	1.2	0.12	0.8	0.09	0.5	0.05	0.3	0.03	0.4	0.04	0.3	0.03	0.2	0.02	0.1	0.01
750	12.5	8.0	4.0	2.0	2.1	0.16	1.4	0.11	0.8	0.07	0.5	0.04	1.3	0.10	0.8	0.07	0.5	0.04	0.3	0.03	0.4	0.03	0.3	0.02	0.2	0.01	0.1	0.01
500	8.3	5.3	2.7	1.3	2.3	0.12	1.5	0.08	0.9	0.05	0.6	0.03	1.4	0.07	0.9	0.05	0.5	0.03	0.3	0.02	0.5	0.02	0.3	0.02	0.2	0.01	0.1	0.01
300	5.0	3.2	1.6	0.8	2.4	0.08	1.6	0.05	1.0	0.03	0.6	0.02	1.5	0.05	1.0	0.03	0.6	0.02	0.4	0.01	0.5	0.02	0.3	0.01	0.2	0.01	0.1	0.01
100	1.7	1.1	0.5	0.3	2.8	0.03	2.0	0.02	1.1	0.01	0.7	0.01	1.7	0.02	1.2	0.01	0.7	0.01	0.4	0.01	0.6	0.01	0.4	0.01	0.2	0.01	0.1	0.01
50	0.8	0.5	0.3	0.1	3.1	0.02	2.0	0.01	1.2	0.01	0.7	0.01	1.8	0.01	1.2	0.01	0.7	0.01	0.4	0.01	0.6	0.01	0.4	0.01	0.2	0.01	0.1	0.01

SJ 10				LIFTING LOAD																																			
				10 kN								8 kN								6 kN								2 kN											
n ₁ r/min				Lifting speed mm/s				Ratios								Ratios								Ratios								Ratios							
								RV		RN		RL		RV		RN		RL		RV		RN		RL		RV		RN		RL									
				T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁								
				Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW										
1500	31.3	7.8	5.2	5.6	0.87	1.8	0.28	1.3	0.21	4.4	0.70	1.4	0.22	1.1	0.17	3.3	0.52	1.1	0.17	0.8	0.13	1.1	0.17	0.4	0.06	0.3	0.04												
1000	20.8	5.2	3.5	5.5	0.63	1.8	0.19	1.4	0.15	4.7	0.49	1.5	0.15	1.1	0.12	3.5	0.37	1.1	0.12	0.8	0.09	1.2	0.12	0.4	0.04	0.3	0.03												
750	15.6	3.9	2.6	6.0	0.47	1.9	0.15	1.5	0.11	4.8	0.38	1.5	0.12	1.2	0.09	3.6	0.28	1.2	0.09	0.9	0.07	1.2	0.10	0.4	0.03	0.3	0.02												
500	10.4	2.6	1.7	6.4	0.34	2.0	0.11	1.6	0.08	5.1	0.27	1.6	0.08	1.3	0.07	3.9	0.20	1.2	0.06	1.0	0.05	1.3	0.07	0.4	0.02	0.3	0.02												
300	6.3	1.6	1.1	6.6	0.21	2.1	0.07	1.7	0.05	5.3	0.17	1.7	0.05	1.3	0.04	4.0	0.13	1.3	0.04	1.0	0.03	1.3	0.04	0.4	0.01	0.3	0.01												
100	2.1	0.5	0.4	7.1	0.08	2.3	0.02	2.0	0.02	5.7	0.06	1.8	0.02	1.6	0.02	4.3	0.05	1.4	0.02	1.2	0.01	1.4	0.02	0.5	0.01	0.4	0.01												
50	1.1	0.3	0.2	7.4	0.04	2.5	0.01	2.1	0.01	5.9	0.03	2.0	0.01	1.7	0.01	4.4	0.02	1.5	0.01	1.3	0.01	1.5	0.01	0.5	0.01	0.4	0.01												

SJ 25				LIFTING LOAD																							
				25 kN						20 kN						15 kN						5 kN					
n ₁	Lifting speed mm/s			Ratios						Ratios						Ratios						Ratios					
				RV		RN		RL		RV		RN		RL		RV		RN		RL		RV		RN		RL	
				T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁
r/min	RV	RN	RL	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
1500	25.0	8.3	6.3	11.7	1.83	4.8	0.76	3.9	0.61	9.3	1.47	3.9	0.60	3.1	0.49	7.0	1.10	2.9	0.45	2.3	0.37	2.3	0.37	1.0	0.15	0.8	0.12
1000	16.7	5.6	4.2	12.2	1.28	5.0	0.53	4.1	0.43	9.8	1.03	4.0	0.42	3.3	0.34	7.3	0.77	3.0	0.32	2.5	0.26	2.4	0.26	1.0	0.11	0.8	0.09
750	12.5	4.2	3.1	12.7	1.00	5.2	0.41	4.2	0.33	10.2	0.80	4.2	0.33	3.4	0.27	7.6	0.60	3.1	0.24	2.5	0.20	2.5	0.20	1.0	0.08	0.9	0.07
500	8.3	2.8	2.1	13.5	0.71	5.5	0.29	4.5	0.24	10.8	0.56	4.4	0.23	3.6	0.19	8.1	0.42	3.3	0.17	2.7	0.14	2.7	0.14	1.1	0.06	0.9	0.05
300	5.0	1.7	1.3	14.1	0.44	5.8	0.18	4.8	0.15	11.3	0.35	4.6	0.15	3.9	0.12	8.5	0.27	3.5	0.11	2.9	0.09	2.8	0.09	1.2	0.04	1.0	0.03
100	1.7	0.6	0.4	15.1	0.16	6.5	0.07	5.5	0.06	12.1	0.13	5.2	0.05	4.4	0.05	9.0	0.09	3.9	0.04	3.3	0.03	3.0	0.03	1.3	0.01	1.1	0.01
50	0.8	0.3	0.2	15.8	0.08	6.9	0.04	6.0	0.03	12.6	0.07	5.5	0.03	4.8	0.02	9.5	0.05	4.1	0.02	3.6	0.02	3.2	0.02	1.4	0.01	1.2	0.01

Max duty cycle for series SJ is 30% over a 10 minute period or 20% over a 1 hour period at 25°C ambient

Series SJ

Performance tables

SJ 50		LIFTING LOAD																							
		50 kN						35 kN						25 kN						10 kN					
		RV			RN			RL			RV			RN			RL			RV			RN		
n ₁	Lifting speed mm/s	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁
r/min	RV	RN	RL	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
1500	25.0	12.5	6.3	25.0	3.92	14.4	2.26	8.5	1.34	17.5	2.74	10.0	1.58	6.0	0.94	12.5	1.96	7.2	1.13	4.3	0.67	5.0	0.78	2.9	0.45
1000	16.7	8.3	4.2	26.5	2.78	15.3	1.60	9.1	0.96	18.6	1.94	10.7	1.12	6.4	0.67	13.3	1.39	7.6	0.80	4.6	0.48	5.3	0.56	3.1	0.32
750	12.5	6.3	3.1	27.4	2.15	16.0	1.25	9.5	0.74	19.2	1.51	11.1	0.87	6.6	0.52	13.7	1.08	7.9	0.62	4.7	0.37	5.5	0.43	3.2	0.25
500	8.3	4.2	2.1	28.8	1.51	16.4	0.86	10.0	0.52	20.2	1.06	11.5	0.60	7.0	0.37	14.4	0.75	8.2	0.43	5.0	0.26	5.8	0.30	3.3	0.17
300	5.0	2.5	1.3	30.5	0.96	17.4	0.55	10.8	0.34	21.3	0.67	12.2	0.38	7.6	0.24	15.2	0.48	8.7	0.27	5.4	0.17	6.1	0.19	3.5	0.11
100	1.7	0.8	0.4	33.0	0.35	19.3	0.20	12.5	0.13	23.1	0.24	13.5	0.14	8.8	0.09	16.5	0.17	9.7	0.10	6.3	0.07	6.6	0.07	3.9	0.04
50	0.8	0.4	0.2	35.0	0.18	21.0	0.11	13.6	0.07	24.3	0.13	14.5	0.08	9.5	0.05	17.4	0.09	10.3	0.05	6.8	0.04	7.0	0.04	4.1	0.02

SJ 80		LIFTING LOAD																							
		80 kN						60 kN						40 kN						20 kN					
		RV			RN			RL			RV			RN			RL			RV			RN		
n ₁	Lifting speed mm/s	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁
r/min	RV	RN	RL	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
1500	32	16.0	8.0	50.2	7.88	29.1	4.57	16.3	2.56	37.6	5.91	21.8	3.43	12.2	1.92	25.1	3.94	14.6	2.29	8.15	1.28	12.5	1.97	7.28	1.14
1000	21.4	10.7	5.3	53.4	5.59	30.2	3.16	17.0	1.78	40.0	4.19	22.6	2.37	12.7	1.33	26.7	2.80	15.1	1.58	8.49	0.89	13.3	1.40	7.55	0.79
750	16.1	8.0	4.0	53.8	4.22	32.6	2.56	17.7	1.39	40.3	3.17	24.4	1.92	13.3	1.04	26.9	2.11	16.3	1.28	8.86	0.70	13.4	1.06	8.15	0.64
500	10.7	5.3	2.7	58.2	3.05	34.0	1.78	18.5	0.97	43.7	2.29	25.5	1.33	13.9	0.73	29.1	1.52	17.0	0.89	9.26	0.48	14.6	0.76	8.49	0.44
300	6.4	3.2	1.6	63.7	2.00	35.1	1.10	22.3	0.70	47.7	1.50	26.3	0.83	16.8	0.53	31.8	1.00	17.5	0.55	11.2	0.35	15.9	0.50	8.77	0.28
100	2.1	1.1	0.5	66.2	0.69	37.6	0.39	24.0	0.25	49.7	0.52	28.2	0.30	18.0	0.19	33.1	0.35	18.8	0.20	12.0	0.13	16.6	0.17	9.40	0.10
50	1.1	0.5	0.3	69.0	0.36	40.7	0.21	25.5	0.13	51.7	0.27	30.6	0.16	19.1	0.10	34.5	0.18	20.4	0.11	12.7	0.07	17.2	0.09	10.2	0.05

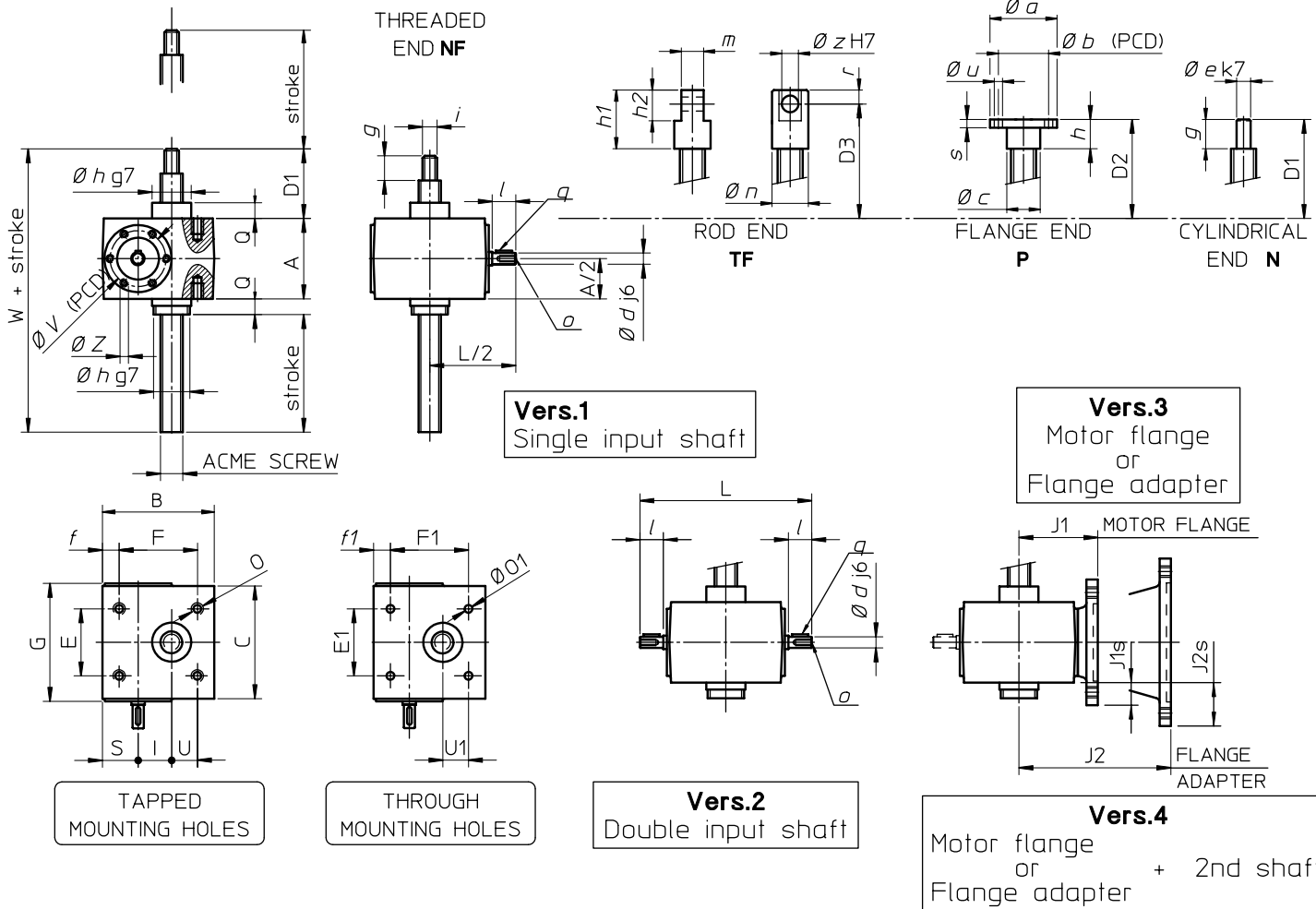
SJ 200			LIFTING LOAD															
			200 kN				150 kN				100 kN				50 kN			
n ₁	Lifting speed mm/s		RV		RL		RV		RL		RV		RL		RV		RL	
			T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁	T ₁	P ₁
r/min	RV	RL	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
1500	42.9	10.7	156	24.5	56.8	8.93	117	18.4	42.6	6.70	78.0	12.3	28.4	4.46	39.0	6.12	14.2	2.23
1000	28.6	7.1	171	17.9	65.0	6.80	128	13.4	48.7	5.10	85.3	8.93	32.5	3.40	42.6	4.46	16.2	1.70
750	21.4	5.4	182	14,3	68,2	5,35	136	10.7	51.2	4.02	91.0	7.14	34.1	2.68	45.5	3.57	17.1	1.34
500	14.3	3.6	195	10.2	71.8	3.76	146	7.65	53.9	2.82	97.5	5.10	35.9	1.88	48.7	2.55	18.0	0.94
300	8.6	2.1	218	6.86	80.3	2.52	164	5.14	60.2	1.89	110	3.43	40.1	1.26	54.6	1.71	20.1	0.63
100	2.6	0.7	248	2.60	97.5	1.02	186	1.95	73.1	0.77	124	1.30	48.7	0.51	62.0	0.65	24.4	0.26
50	1.4	0.4	273	1.43	105	0.55	205	1.07	78.7	0.42	137	0.71	52.5	0.27	68.2	0.36	26.3	0.14

Series SJ – efficiency figures

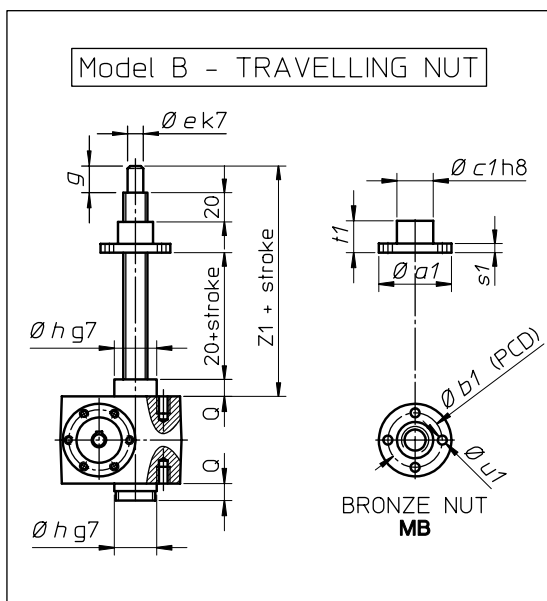
n ₁ [r/min]	SJ 5				SJ 10			SJ 25			SJ 50			SJ 80			SJ 200	
	RH	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RL
1500	0.35	0.34	0.29	0.25	0.36	0.28	0.25	0.34	0.27	0.25	0.32	0.28	0.23	0.33	0.29	0.24	0.35	0.24
1000	0.33	0.32	0.28	0.24	0.34	0.27	0.24	0.32	0.26	0.24	0.30	0.26	0.22	0.31	0.27	0.23	0.32	0.21
750	0.32	0.31	0.27	0.23	0.33	0.26	0.23	0.31	0.25	0.23	0.29	0.25	0.21	0.30	0.26	0.22	0.30	0.20
500	0.30	0.29	0.26	0.21	0.31	0.25	0.21	0.29	0.24	0.22	0.28	0.24	0.20	0.29	0.25	0.21	0.28	0.19
300	0.29	0.28	0.25	0.20	0.30	0.24	0.20	0.28	0.23	0.20	0.26	0.23	0.18	0.27	0.24	0.19	0.25	0.17
100	0.27	0.26	0.23	0.17	0.28	0.22	0.17	0.26	0.20	0.18	0.24	0.21	0.16	0.25	0.22	0.17	0.22	0.14
50	0.26	0.25	0.21	0.16	0.27	0.20	0.16	0.25	0.19	0.17	0.23	0.19	0.15	0.24	0.20	0.16	0.20	0.13
Starting	0.22	0.22	0.19	0.15	0.23	0.18	0.14	0.2	0.16	0.13	0.18	0.15	0.11	0.20	0.17	0.13	0.17	0.11

SIZE	SJ 5	SJ 10	SJ 25	SJ 50	SJ 80	SJ 200	
ACME SCREW	Tr 18 × 4	Tr 22 × 5	Tr 30 × 6	Tr 40 × 7	Tr 55 × 9	Tr 70 × 12	Tr 80 × 12
A	62	76	82	118	160	176	
B	100	110	160	200	220	280	
C	86	96	130	160	170	230	
D1 (closed)	51	62	81	90	108	118	
D2 (closed)	52	63	83	92	110	120	
D3 (closed)	77	93	118	137	160	210	
E	52	63	81	115	134	180	
E1	56	80	102	130	120	180	
F	60	78	106	150	175	230	
F1	80	85	131	165	180	230	
G	90	100	136	165	165	–	
I	25	30	50	63	63	90	
L	135	165	221.5	269	269	350	
O (thread × depth)	M8 × 14	M8 × 15	M10 × 15	M12 × 16	M20 × 30	M30 × 45	
Ø O1	9	9	11	13	17	26.5	
Q	12	18	23	32	40	40	
S	37	40	50	59	74	75	
U	21	29	42	63	60	90	
U1	28	30	48	60	63	90	
Ø V (PCD)	46	46	64	63	63	–	
W	125	156	186	240	308	334	
Z (thread × depth)	M6 × 13 (4 holes)	M5 × 10	M5 × 10	M6 × 14	M6 × 14	–	
Z1	111	127	151	185	228	268	248
Ø a	68	75	100	120	150	180	
Ø a1	68	75	100	120	130	180	190
Ø b (PCD)	45	55	75	85	110	130	
Ø b1 (PCD)	50	56	75	90	105	140	150
Ø c	25	30	40	50	70	85	
Ø c1	30	40	50	60	75	100	110
Ø d	9	14	19	24	24	30	
Ø e	12	15	20	30	40	50	60
f	23	21	36	35	22	25	
f1	10	15	17	17	20	25	
g	19	24	38	38	48	58	
h	20	25	40	40	50	60	
Ø h	30	38.7	46	60	90	120	
h1	60	75	100	120	140	210	
h2	30	40	50	70	80	120	
i	M12 × 1.75	M16 × 1.5	M20 × 1.5	M30 × 2	M42 × 3	M56 × 3	
l	20	30	40	50	50	55	
m	20	25	30	40	50	75	
Ø n	32	38	48	68	78	108	
o (thread × depth)	M4 × 8	M6 × 14	M8 × 16	M8 × 16	M8 × 16	M10 × 18	
q	3 × 3 × 15	5 × 5 × 20	6 × 6 × 30	8 × 7 × 40	8 × 7 × 40	8 × 7 × 45	
r	15	20	25	35	40	60	
s	8	10	12	15	20	25	
s1	12	12	15	25	20	35	30
t1	40	45	50	75	100	130	110
Ø u × n° holes	Ø 7 × 4	Ø 9 × 4	Ø 11 × 4	Ø 17 × 4	Ø 21 × 4	Ø 26 × 6	
Ø u1 × n° holes	Ø 7 × 4	Ø 9 × 4	Ø 11 × 4	Ø 17 × 4	Ø 17 × 4	Ø 26 × 6	Ø 18 × 4
Ø z	14	20	25	35	40	60	
J1	56 B5/B14: 57.5	63 B5/B14: 62	63/71 B5: 102	80 B5: 100	80 B5: 100	–	
J1s	56 B5: 29 56 B14: 9	63 B5: 37 63 B14: 7	63 B5: 29 71 B5: 39	80 B5: 41	80 B5: 20	–	
J2	63 B5: 98	71 B5: 122 71 B14: 131	80 B5: 182 80 B14: 176 90 B5: 182 90 B14: 182	90 B5: 200 90 B14: 200 100 B5: 220 100 B14: 220	90 B5: 200 90 B14: 200 100/112 B5: 220 100/112 B14: 220	100/112 B5: 252.5 100/112 B14: 252.5	
J2s	63 B5: 39	71 B5: 47 71 B14: 15	80 B5: 59 80 B14: 19 90 B5: 59 90 B14: 29	90 B5: 41 90 B14: 11 100 B5: 66 100 B14: 21	90 B5: 20 90 B14: – 100/112 B5: 45 100/112 B14: –	100/112 B5: 37 100/112 B14: –	

Model A - TRAVELLING SCREW



Model B - TRAVELLING NUT



SIZE	SJ 5	SJ 10	SJ 25	SJ 50	SJ 80	SJ 200
$\emptyset T$	35	40	50	65	102	130
b						
exec. T	37	43	48	57	65	75
exec. T + SN	87	93	128	137	155	155
exec. T + FCM	86	93	98	-	-	-
exec. T + FCP	87	93	98	107	115	115
$\emptyset H$	55	70	85	115	-	-
Q1	21	18	25	32	-	-
$\emptyset T1$	45	55	70	90	100	140
b1						
exec. AR	86	88	105	112	165	175
exec. AR + FCP	96	98	115	132	165	175