Screw Jacks selection

Screw jacks transform a rotary movement into a linear motion. Due to the screw-nut efficiency, there is a loss of energy depending on the screw and nut type. The energy loss is higher with 1-start acme screw and nut when compared with 2- or more starts acme screw and nut or ball screw and ball nut.

Therefore to select the correct screw jack for an application, it is necessary to consider the duty cycle required by the application and to compare this to the duty cycle that the screw jack can perform.

The **application duty cycle (Fu, %)**: the working time under load, required by the application, during a reference time period

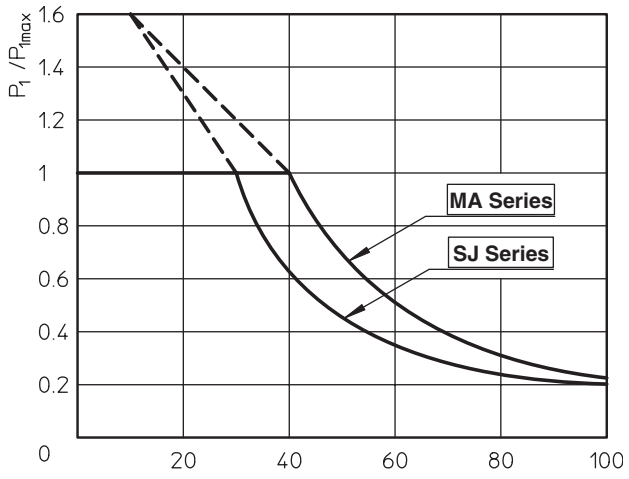
$$\textbf{Fu [\%]} = \frac{\text{Working time during reference time period } \textbf{T ref} \text{ [min]}}{\text{Reference time period } \textbf{T ref} \text{ [min]}} \times 100$$

Usually, the reference time used is:

T ref = 10 minutes, for short, but frequent working cycles;
T ref = 1 hour (60 min), for long, but infrequent working cycles.

The **screw jack duty cycle (Fi, %)**: this is the maximum working time during the reference time period the screw jack can perform under the maximum load condition at 25°C environment temperature, according to performances stated in this catalogue, to avoid risk of internal parts overheating. Therefore, the main limit to the working time of screw jacks is due to the thermal power limits and not to the maximum permissible operating mechanical power.

The screw jack duty cycle Fi [%] is related to the maximum permissible power. If the power required by the application is lower than the maximum permissible power, than the screw jack can be used with a higher duty cycle.



Screw jack duty cycle [%] over 10 min.

P1 - Application's required power
P1max - Screw jack's max permissible power

If the environment temperature is higher than +25°C, the screw jack duty cycle Fi [%] has to be reduced, by applying a correction factor f_T.

$$\textbf{f}_T = \frac{80 - T\ [°C]}{55}$$

If the environment temperature increases, the permissible duty cycle of the screw jack has to be reduced.

In order to make a correct screw jack selection, we recommend the following selection procedure.

Step 1: Screw jack model selection
- Model A – travelling screw
- Model B – travelling nut

Step 2: Screw selection
- Acme screw
- Ball screw

Step 3: Screw jack series selection
- MA series: high-efficiency screw jack with acme or ball screw and oil lubricated gearbox
- SJ series: low maintenance screw jack with acme screw and grease lubricated gearbox

Step 4: Screw jacks size selection
- Pull or push load
- Stroke
- Linear speed
- Power required

Step 5: Input version selection
- Vers.1: single free input shaft
- Vers.2: double free input shaft
- Vers.3: motor flange input
- Vers.4: motor flange and free input shaft

Step 6: Screw jack mounting position selection
- Upward U
- Downward D
- Horizontal H
- Right – hand RH
- Left – hand LH

Step 7: Accessories selection
The screw jack selection is the last step of a more complex global lifting-system selection procedure, where the overall application requirements and safeties have to be considered as an integral part of that selection. On that section we only focus on a single screw jack selection. You will find more exhaustive comments and recommendations on the screw jacks complete lifting systems chapter.

How to select a screw jack

1. Screw jack model selection: both Servomech screw jack models are available in all sizes:
- Model A – travelling screw
- Model B – travelling nut

The choice between the two different models only depends on the configuration and mounting details of the application.

In case of Model B (rotating screw and external translating nut) selection, please pay attention to the following:
- screw and nut lubrication;
- acme or ball screw protection;
- load, applied on the translating nut, coaxial to the acme screw axis only;
- rotating screw end, in case of push load and long screw length.

If not sufficiently guided, radial loads on the nut are not permitted. They may lead to dangerous misalignments. Please contact our application engineers to find out a customized solution.

2. Screw selection:

- Acme screw and bronze nut
- Ball screw and ball nut in hardened steel

The duty cycle is the most important factor in choosing between acme – or ball screw jack. The required application duty cycle Fu [%] has to be lower than or equal to the working duty cycle rating the screw jack can perform Fi [%], inclusive of the environment temperature correction factor (f_T).

$$Fu\ [\%] \leq Fi\ [\%]$$

Please, find herewith below the max. duty cycle Fi [%] at 25°C environment temperature for the Servomech screw jacks:

Duty cycle allowed Fi [%]	Acme Screw Jacks		Ball Screw Jacks	
Fi [%] over 10 min time	MA Series: 40 %	SJ Series: 30 %	MA Series: 100 %	SJ Series: 70%
Fi [%] over 1 hour time	MA Series: 30 %	SJ Series: 20 %	MA Series: 100 %	SJ Series: 60%

Lifting systems

Usually, a screw jack lifting system is composed of several lifting points (for example see pages 38 and 39).

Screw jacks' position and number depend on application requirements as:
- dimensions and surface of the platform or plane,
- required screw,
- total lifting load (dynamic load),
- lifting system configuration, guided or not guided load.

Furthermore, specific application project requirements may also influence the selection.

A lifting system project requires the clever evaluation of many different technical and application details, in order to provide a functional, safe and competitive solution.

Here are some suggestions that can help the lifting system's designer on his project evaluations.

Static safety: Firstly, the required or desired safety level has to be considered. Unfortunately, on screw jack product, there are no regulations on the matter of safety standards and technical data declared on catalogue. Many manufactures do not use the same safety factors on their technical calculations and also the materials may be different. For that reason, screw jacks different manufacturers catalogues are not simply comparable.

We recommend a full evaluation of all screw jack components. Dimension, outer diameter and lead pitch of screw are not enough to and not just compare the screw diameter and lead pitch. Also it is important to evaluate the worm gear:
- total dimensions and weight
- axial bearings, type and size
- nut, material and dimensions

Norms and rules: In case, be sure to consider all norms and rules to which the project must comply. This can significantly affect the final solution.

Noise and vibration: For applications which require a low noise level, we recommend a solution with lower input speed for the connecting shaft.

This will reduce or eliminate vibrations or dangerous input speeds for the connecting shafts.

Example: lifting stages for theatres, lecture or concert halls
- reduce motor input speed to (300 … 400) rpm
- use bevel gears with relevant reduction ratio (recommended 1:1)
- use connecting shafts with a maximum distance of (2 ... 3) m and keep them aligned, balanced and sustained
- use Servomech screw jacks with ratio RV (high linear speed) and 2- or 3-starts acme screw

Hanging load: the appliance of auxiliary safety nuts comply norms and rules about hanged loads with presence of personnel for maintenance.

Self-locking conditions: generally, the statically self-locking condition of the lifting system can be achieved by using a 1-start acme screw jack. Sometimes to comply to some norms and rules, a certain mechanical self-locking condition can be only achieved by a 2 degrees helix angle acme screw with a lead smaller than the standard. Those special executions are available on request.

Positioning (stopping) accuracy: it can be achieved using brake-motors or frequency inverters to control speed and acceleration and deceleration ramps, especially in case of downward moving loads.

Safety devices: Different safety devices can also be considered or requested for the application:
- mechanical safety: safety nut and/or stop nut for acme or ball screw
- electric or electronic safety: wear control of the working nut to check the distance between working and safety nut; speed control of the connecting shaft; rotation detection of the worm wheel or the safety nut; control of max. power or current required for the lifting system.

Inertia: If the mass has to be rapidly accelerated or decelerated, in applications with high linear speed, we recommend to use a drive to control the acceleration and deceleration ramps (for example, frequency inverter for ac 3-phase motors).

Guidance: In case of applications with large loads and long strokes, we recommend the load is guided.

As the load is guided, a smaller screw diameter may be selected, whilst maintaining the same functionality, conditions and static load capability, but offering a more cost effective solution.

Screw jacks with reinforced screw: If the static load is more important than the dynamic load and the application requirement is for:
- long screw lengths with middle static push load
- middle screw lengths with high static push load

Servomech screw jacks with reinforced screw are available to offer a more cost effective solution.

For assistance in selecting lifting systems and linear motion devices our engineering department is available to support you free of charge.

SJ Series Screw Jacks

Performance tables

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* *T1= input torque required* *P1 = input power required*

SJ 5

LIFTING LOAD

n_1	Lifting speed mm/s				5 kN Ratios								3 kN Ratios								1 kN 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	
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	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

n_1	Lifting speed mm/s			10 kN Ratios						8 kN Ratios						6 kN Ratios						2 kN 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	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

n_1	Lifting speed mm/s			25 kN Ratios						20 kN Ratios						15 kN Ratios						5 kN 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 25ºC ambient

SJ Series Screw Jacks

SJ 50

LIFTING LOAD

n_1	Lifting speed mm/s			50 kN						35 kN						25 kN						10 kN					
				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	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	1.7	0.27
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	1.8	0.19
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	1.9	0.15
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	2.0	0.11
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	2.1	0.07
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	2.5	0.03
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	2.7	0.01

SJ 80

LIFTING LOAD

n_1	Lifting speed mm/s			80 kN						60 kN						40 kN						20 kN					
				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	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	4.07	0.64
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	4.24	0.44
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	4.43	0.35
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	4.63	0.24
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	5.58	0.18
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	5.99	0.06
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	6.37	0.03

SJ 200

LIFTING LOAD

n_1	Lifting speed mm/s		200 kN				150 kN				100 kN				50 kN			
			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

SJ Series Screw Jacks – efficiency figures

n1 [r/min]	SJ 5 Ratios				SJ 10 Ratios			SJ 25 Ratios			SJ 50 Ratios			SJ 80 Ratios			SJ 200 Ratios	
	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

MA Series Screw Jacks

Performance tables

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* *T1= input torque required* *P1 = input power required*

MA 5

LIFTING LOAD

n_1	Lifting speed mm/s			5kN Ratios						4kN Ratios						3kN Ratios						1kN 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
3000	50.0	12.5	8.3	2.0	0.63	0.7	0.20	0.5	0.15	1.6	0.50	0.5	0.16	0.4	0.12	1.2	0.38	0.4	0.12	0.3	0.09	0.4	0.13	0.1	0.04	0.1	0.03
1500	25.0	6.3	4.2	2.2	0.35	0.7	0.11	0.5	0.08	1.8	0.28	0.6	0.09	0.4	0.07	1.3	0.21	0.4	0.07	0.3	0.05	0.4	0.07	0.1	0.02	0.1	0.02
1000	16.7	4.2	2.8	2.3	0.24	0.7	0.08	0.6	0.06	1.9	0.20	0.6	0.06	0.4	0.05	1.4	0.15	0.4	0.05	0.3	0.03	0.5	0.05	0.1	0.01	0.1	0.01
750	12.5	3.1	2.1	2.4	0.19	0.7	0.05	0.6	0.05	1.9	0.15	0.6	0.05	0.5	0.04	1.4	0.11	0.4	0.04	0.3	0.03	0.5	0.04	0.1	0.01	0.1	0.01
500	8.3	2.1	1.4	2.5	0.13	0.8	0.04	0.6	0.03	2.0	0.11	0.6	0.03	0.5	0.03	1.5	0.08	0.5	0.02	0.4	0.02	0.5	0.03	0.1	0.01	0.1	0.01
300	5.0	1.3	0.8	2.6	0.08	0.8	0.03	0.7	0.02	2.1	0.07	0.7	0.02	0.5	0.02	1.6	0.05	0.5	0.02	0.4	0.01	0.5	0.02	0.2	0.01	0.1	0.01
100	1.7	0.4	0.3	2.8	0.03	0.9	0.01	0.8	0.01	2.2	0.02	0.7	0.01	0.6	0.01	1.7	0.02	0.5	0.01	0.5	0.01	0.6	0.01	0.2	0.01	0.1	0.01

MA 10

LIFTING LOAD

n_1	Lifting speed mm/s			10kN Ratios						8kN Ratios						6kN Ratios						2kN 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
3000	50.0	12.5	10.0	3.9	1.22	1.3	0.42	1.1	0.36	3.1	0.98	1.1	0.33	0.9	0.29	2.3	0.73	0.8	0.25	0.7	0.21	0.78	0.24	0.3	0.08	0.2	0.07
1500	25.0	6.3	5.0	4.4	0.68	1.4	0.23	1.2	0.19	3.5	0.55	1.1	0.18	0.9	0.15	2.6	0.41	0.9	0.13	0.7	0.11	0.9	0.14	0.3	0.04	0.2	0.04
1000	16.7	4.2	3.3	4.6	0.48	1.5	0.16	1.2	0.13	3.6	0.38	1.2	0.13	1.0	0.10	2.7	0.29	0.9	0.09	0.7	0.08	0.9	0.10	0.3	0.03	0.2	0.03
750	12.5	3.1	2.5	4.7	0.37	1.6	0.12	1.3	0.10	3.8	0.30	1.2	0.10	1.0	0.08	2.8	0.22	0.9	0.07	0.8	0.06	0.9	0.07	0.3	0.02	0.2	0.02
500	8.3	2.1	1.7	5.0	0.26	1.6	0.09	1.4	0.07	4.0	0.21	1.3	0.07	1.1	0.06	3.0	0.16	1.0	0.05	0.8	0.04	1.0	0.05	0.3	0.02	0.3	0.01
300	5.0	1.3	1.0	5.1	0.16	1.8	0.05	1.5	0.05	4.1	0.13	1.4	0.04	1.2	0.04	3.1	0.10	1.1	0.03	0.9	0.03	1.0	0.03	0.3	0.01	0.3	0.01
100	1.7	0.4	0.3	5.5	0.06	2.0	0.02	1.6	0.02	4.4	0.05	1.6	0.02	1.3	0.01	3.3	0.03	1.2	0.01	1.0	0.01	1.1	0.01	0.4	0.01	0.3	0.01

MA 25

LIFTING LOAD

n_1	Lifting speed mm/s			25kN Ratios						20kN Ratios						15kN Ratios						5kN 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
3000	50.0	16.7	12.5	10.5	3.29	4.4	1.39	3.6	1.12	8.4	2.63	3.5	1.11	2.8	0.89	6.3	1.97	2.7	0.83	2.1	0.67	2.1	0.66	0.9	0.28	0.7	0.22
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

Max duty cycle for series MA is 40% over a 10 minute period or 30% over a 1 hour period at 25ºC ambient

MA Series Screw Jacks

Performance tables

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* *T1= input torque required* *P1 = input power required*

MA 50

LIFTING LOAD

n_1	Lifting speed mm/s			50kN						35kN						25kN						10kN					
				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
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
3000	50.0	25.0	12.5	21.5	6.76	12.4	3.91	7.7	2.40	15.1	4.73	8.7	2.73	5.4	1.68	10.8	3.38	6.2	1.95	3.8	1.20	4.3	1.35	2.5	0.78	1.5	0.48
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	1.7	0.27
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	1.8	0.19
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	1.9	0.15
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	2.0	0.11
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	2.1	0.07
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	2.5	0.03

MA 80

LIFTING LOAD

n_1	Lifting speed mm/s			80kN						60kN						40kN						20kN					
				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
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
3000	64.3	32.1	16.1	42.0	13.2	24.8	7.80	15.1	4.74	31.5	9.90	18.6	5.85	11.3	3.56	21.0	6.60	12.4	3.90	7.00	2.37	10.5	3.30	6.21	1.95	3.77	1.99
1500	32.1	16.1	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	4.07	0.64
1000	21.7	10.7	5.4	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	4.24	0.44
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	4.43	0.35
500	10.7	5.4	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	4.63	0.24
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	5.58	0.18
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	5.99	0.06

MA 100

LIFTING LOAD

n_1	Linear speed mm/s			100kN						80kN						50kN						20kN					
				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
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
3000	75.0	25.0	18.8	58.2	18.3	24.9	7.81	19.9	6.25	46.6	14.6	19.9	6.25	15.9	5.00	29.1	9.15	12.4	3.91	10.0	3.12	11.6	3.66	5.0	1.56	4.0	1.25
1500	37.5	12.5	9.4	66.5	10.4	28.2	4.43	22.5	3.54	53.2	8.36	22.6	3.55	18.0	2.83	33.2	5.22	14.1	2.22	11.3	1.77	13.3	2.09	5.6	0.89	4.5	0.71
1000	25.0	8.3	6.3	70.8	7.42	30.0	3.14	24.1	2.52	56.7	5.93	24.0	2.52	19.2	2.02	35.4	3.71	15.0	1.57	12.0	1.26	14.2	1.48	6.0	0.63	4.8	0.50
750	18.8	6.3	4.7	73.5	5.77	31.3	2.46	25.3	1.99	58.8	4.61	25.1	1.97	20.2	1.59	36.7	2.88	15.7	1.23	12.6	0.99	14.7	1.15	6.3	0.49	5.0	0.40
500	12.5	4.2	3.1	77.0	4.03	32.9	1.72	26.6	1.39	61.6	3.23	26.3	1.38	21.3	1.12	38.5	2.02	16.4	0.86	13.5	0.70	15.4	0.81	6.6	0.34	5.3	0.28
300	7.5	2.5	1.9	82.3	2.59	35.2	1.11	28.7	0.90	65.9	2.07	28.2	0.88	22.9	0.72	41.2	1.29	17.6	0.55	14.3	0.45	16.5	0.52	7.0	0.22	5.7	0.18
100	2.5	0.8	0.6	89.1	0.93	40.0	0.42	33.0	0.34	71.3	0.75	32.0	0.33	26.4	0.28	44.5	0.47	20.0	0.21	16.5	0.17	17.8	0.19	8.0	0.08	6.6	0.07

Max duty cycle for series MA is 40% over a 10 minute period or 30% over a 1 hour period at 25ºC ambient

MA Series Screw Jacks

Performance tables

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* *T1= input torque required* *P1 = input power required*

MA 200

LIFTING LOAD

n_1	Lifting speed mm/s			200kN Ratios						150kN Ratios						100kN Ratios						50kN 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
3000	75.0	25.0	18.8	126	39.5	51.3	16.1	42.6	13.4	94.2	29.6	38.5	12.1	32.0	10.1	62.8	19.7	25.7	8.06	21.3	6.70	31.4	9.87	12.8	4.03	10.7	3.35
1500	37.5	12.5	9.4	144	22.6	60.5	9.51	48.9	7.68	108	16.9	45.4	7.13	36.7	5.76	72.1	11.3	30.3	4.75	24.5	3.84	36.1	5.66	15.1	2.38	12.2	1.92
1000	25.0	8.3	6.3	153	16.0	65.0	6.80	52.1	5,48	114	12.0	48.7	5.10	39.1	4.09	76.5	8.01	32.5	3.40	26.1	2.73	38.3	4.01	16.2	1.70	13.0	1.36
750	18.8	6.3	4.7	159	12.5	68.6	5.39	54.8	4.30	119	9.37	51.4	4.04	41.1	3.22	79.6	6.25	34.3	2.69	27.4	2.15	39.8	3.12	17.1	1.35	13.7	1.07
500	12.5	4.2	3.1	167	8.77	71.4	3.74	57.7	3.02	125	6.58	53.5	2.80	43.2	2.26	83.8	4.39	35.7	1.87	28.8	1.51	41.9	2.19	17.8	0.93	14.4	0.75
300	7.5	2.5	1.9	178	5.62	76.1	2.39	61.8	1.94	134	4.21	57.1	1.79	46.4	1.46	89.4	2.81	38.1	1.20	30.9	0.97	44.7	1.40	19.0	0.60	15.5	0.49
100	2.5	0.8	0.6	195	2.05	87.3	0.92	72.3	0.76	146	1.54	65.9	0.69	54.3	0.57	97.8	1.02	44.0	0.46	36.2	0.38	48.9	0.51	22.0	0.23	18.1	0.19

MA 350

LIFTING LOAD

n_1	Lifting speed mm/s			350kN Ratios						250kN Ratios						150kN Ratios						100kN 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
3000	75.0	50.0	25.0	214	67.3	164	51.5	96.0	30.2	153	48.1	117	36.8	68.6	21.6	91.8	28.8	70.2	22.1	41.2	12.9	61.2	19.2	46.8	14.7	27.5	8.62
1500	37.5	25.0	12.5	264	41.5	191	30.0	113	17.7	188	29.6	136	21.4	80.9	12.7	113	17.8	82.0	12.8	48.5	7.62	75.5	11.8	54.7	8.59	32.3	5.08
1000	25.0	16.7	8.3	281	29.4	201	21.1	120	12.6	201	21.0	144	15.1	86.1	9.02	120	12.6	86.5	9.00	51.7	5.41	80.4	8.42	57.7	6.04	34.4	3.61
750	18.8	12.5	6.3	293	23.0	210	16.5	127	9.99	209	16.4	150	11.7	90.8	7.13	125	9.87	90.1	7.07	54.5	4.28	83.8	6.58	60.1	4.72	36.3	2.85
500	12.5	8.3	4.2	308	16.1	223	11.7	134	7.04	220	11.5	159	8.37	96.1	5.03	132	6.92	95.9	5.02	57.7	3.02	88.1	4.61	63.9	3.35	38.4	2.01
300	7.5	5.0	2.5	331	10.4	242	7.61	144	4.53	236	7.44	173	5.43	103	3.24	142	4.46	103	3.26	61.8	1.94	94.7	2.98	69.2	2.17	41.2	1.29
100	2.5	1.7	0.8	369	3.87	269	2.82	166	1.75	264	2.76	192	2.01	119	1.25	158	1.66	115	1.21	71.5	0.75	105	1.11	76.9	0.80	47.6	0.50

Max duty cycle for series MA is 40% over a 10 minute period or 30% over a 1 hour period at 25ºC ambient

MA Series Screw Jacks – efficiency figures

n1 [r/min]	MA5 Ratios			MA10 Ratios			MA25 Ratios			MA50 Ratios			MA80 Ratios			MA100 Ratios			MA200 Ratios			MA350 Ratio		
	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RN	RL	RV	RN	RL
3000	0.40	0.31	0.27	0.41	0.30	0.28	0.38	0.30	0.28	0.37	0.32	0.26	0.39	0.33	0.27	0.41	0.32	0.30	0.38	0.31	0.28	0.39	0.34	0.29
1500	0.36	0.28	0.25	0.37	0.28	0.27	0.34	0.27	0.25	0.32	0.28	0.23	0.34	0.28	0.23	0.36	0.29	0.26	0.33	0.26	0.24	0.32	0.29	0.24
1000	0.34	0.27	0.24	0.35	0.26	0.25	0.32	0.26	0.24	0.30	0.26	0.22	0.31	0.26	0.21	0.34	0.26	0.25	0.31	0.24	0.23	0.29	0.27	0.23
750	0.33	0.26	0.23	0.34	0.25	0.25	0.31	0.25	0.23	0.29	0.25	0.21	0.30	0.25	0.20	0.32	0.25	0.24	0.30	0.23	0.22	0.28	0.26	0.22
500	0.31	0.25	0.21	0.32	0.24	0.23	0.29	0.24	0.22	0.28	0.24	0.20	0.27	0.23	0.19	0.31	0.24	0.22	0.28	0.22	0.21	0.27	0.25	0.21
300	0.30	0.24	0.20	0.31	0.23	0.22	0.28	0.23	0.20	0.26	0.23	0.18	0.25	0.22	0.17	0.29	0.23	0.21	0.27	0.21	0.19	0.25	0.23	0.19
100	0.28	0.22	0.17	0.29	0.20	0.19	0.26	0.20	0.18	0.24	0.21	0.16	0.24	0.20	0.15	0.27	0.20	0.18	0.24	0.18	0.16	0.22	0.21	0.17
50	0.27	0.20	0.16	0.28	0.19	0.18	0.25	0.19	0.17	0.23	0.19	0.15	0.22	0.18	0.15	0.25	0.18	0.16	0.23	0.17	0.15	0.22	0.20	0.15
Starting	0.21	0.16	0.13	0.22	0.15	0.14	0.2	0.16	0.13	0.18	0.15	0.11	0.18	0.15	0.11	0.2	0.13	0.12	0.17	0.12	0.11	0.16	0.14	0.10

Screw buckling/size selection

The primary screw jack size selection factor is the buckling resistance of the screw. Also known as Euler curves, the graphs below give operating windows for each size of screw jack.

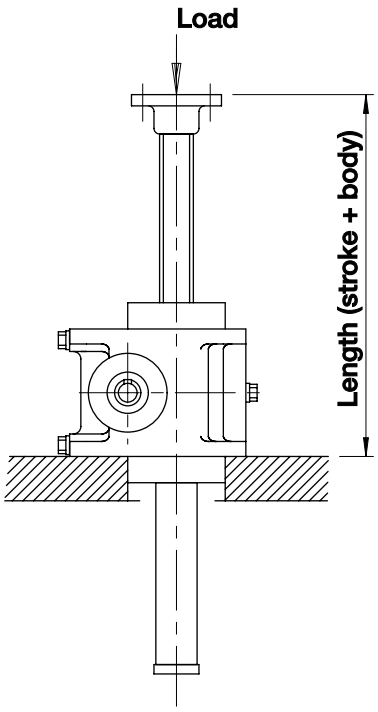
There are three mounting possibilities:

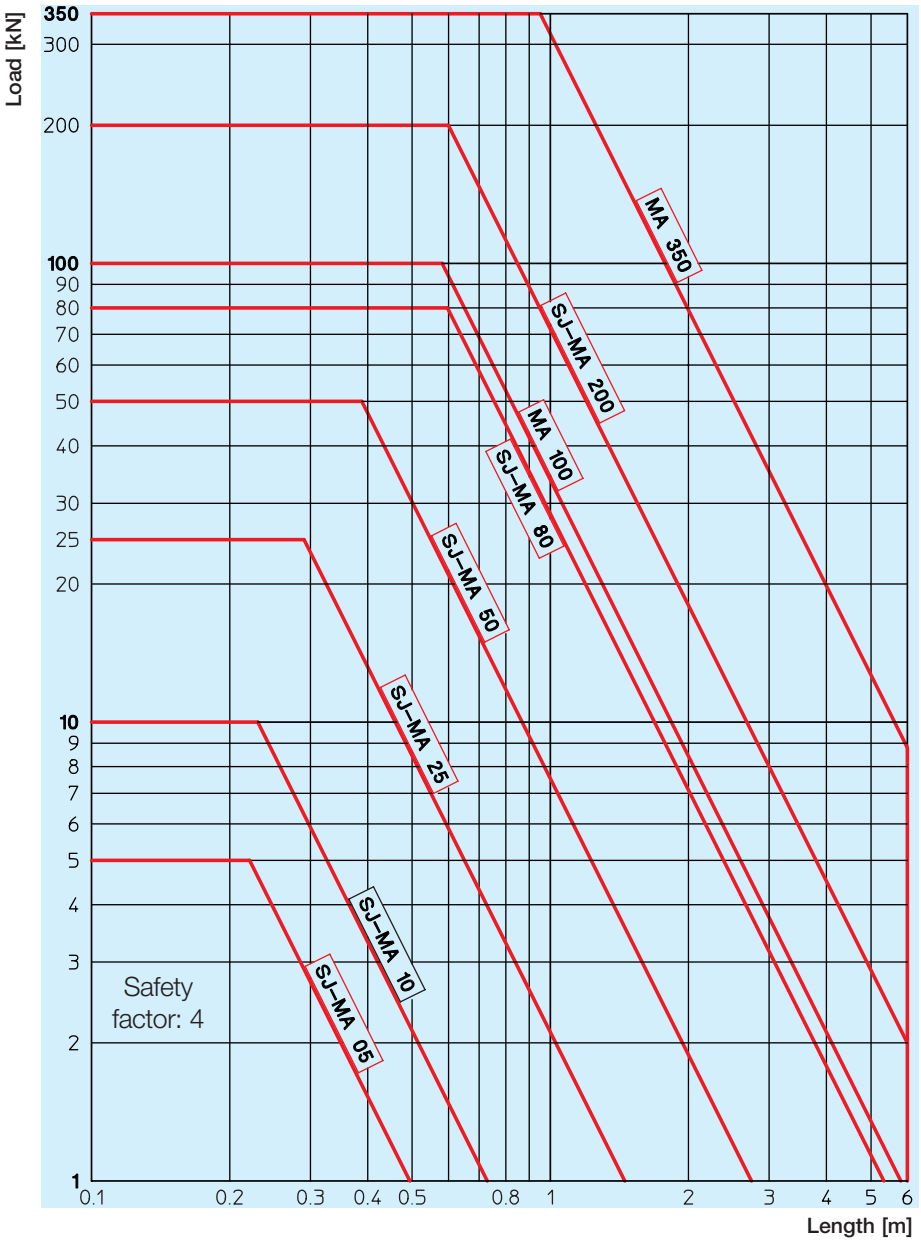
unguided	*Euler I*	*this page*
semi-guided	*Euler II*	*page 18*
fully guided	*Euler III*	*page 19*

Buckling limits are relevant for compressive loads only.

The limits shown have a built-in safety factor. For safety critical applications, eg theatre lifts, discuss your safety factor requirements with our engineers.

Example
Select a screw jack to suit a load of 60 kN and a screw length of 1000 mm, graph indicates MA 200.





Screw buckling/size selection

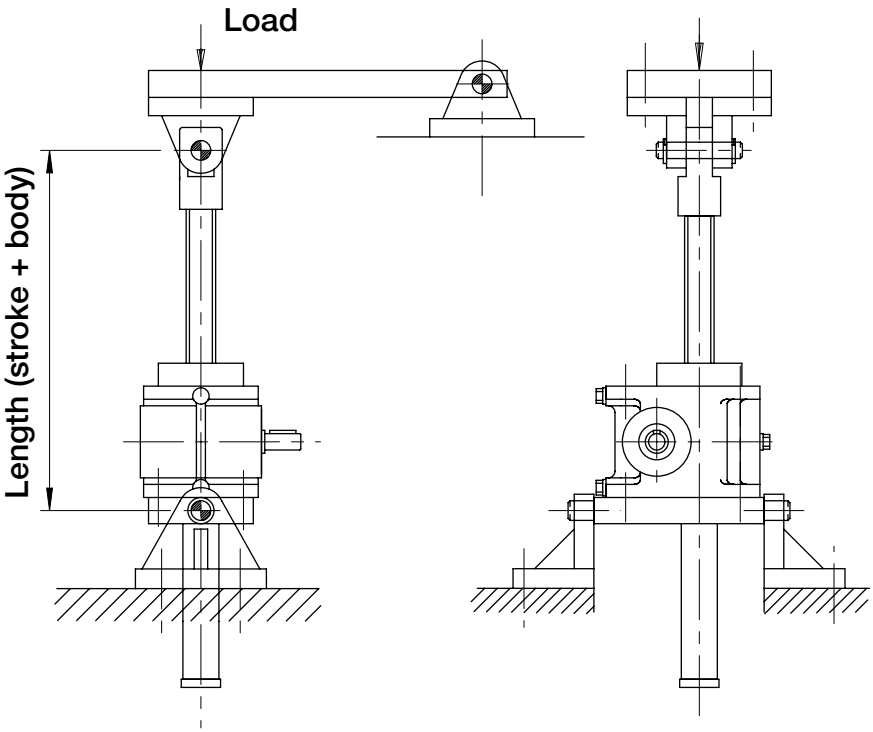
Semi-guided

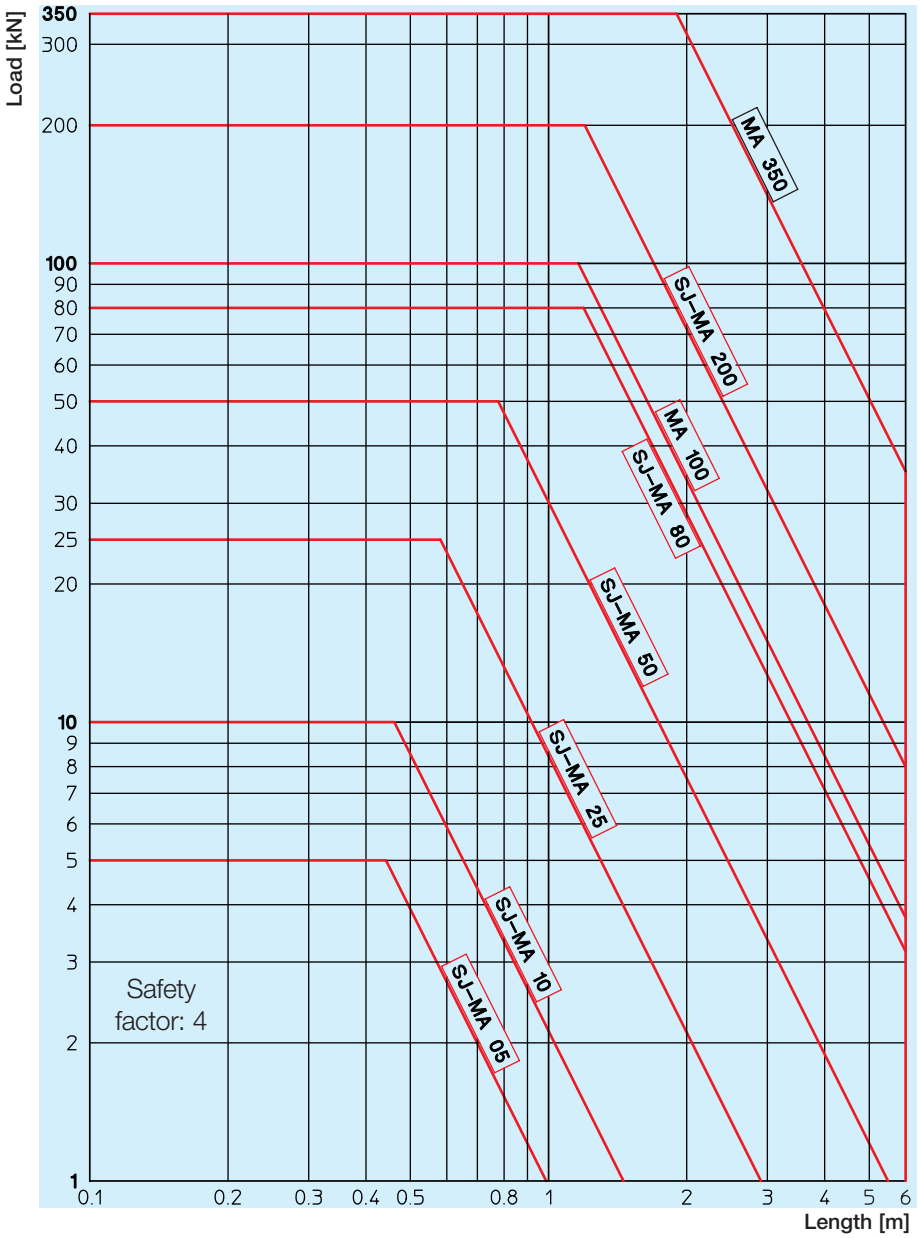
These building limits apply to screws that have partial guidance, e.g. guidance in one plane by pivoted joints.

The limits shown have a built-in safety factor. For safety critical applications, eg theatre lifts, discuss your safety factor requirements with our engineers.

Example

Select a screw jack to suit a load of 20 kN with a screw length of 1000 mm, graph indicates SJ or MA 50.



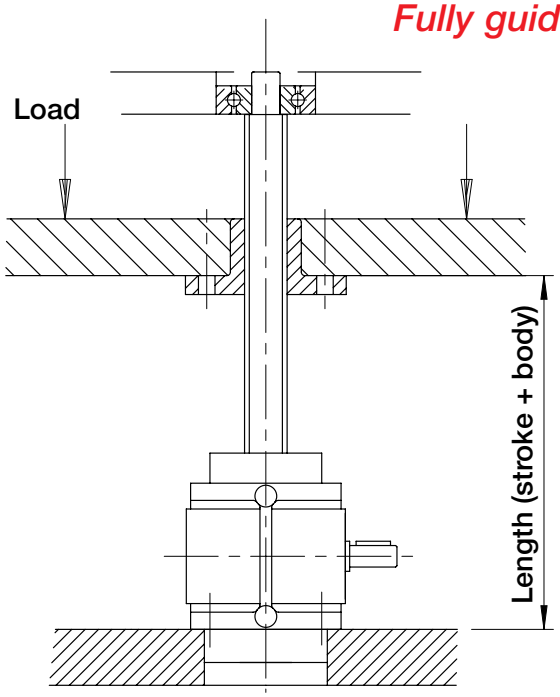


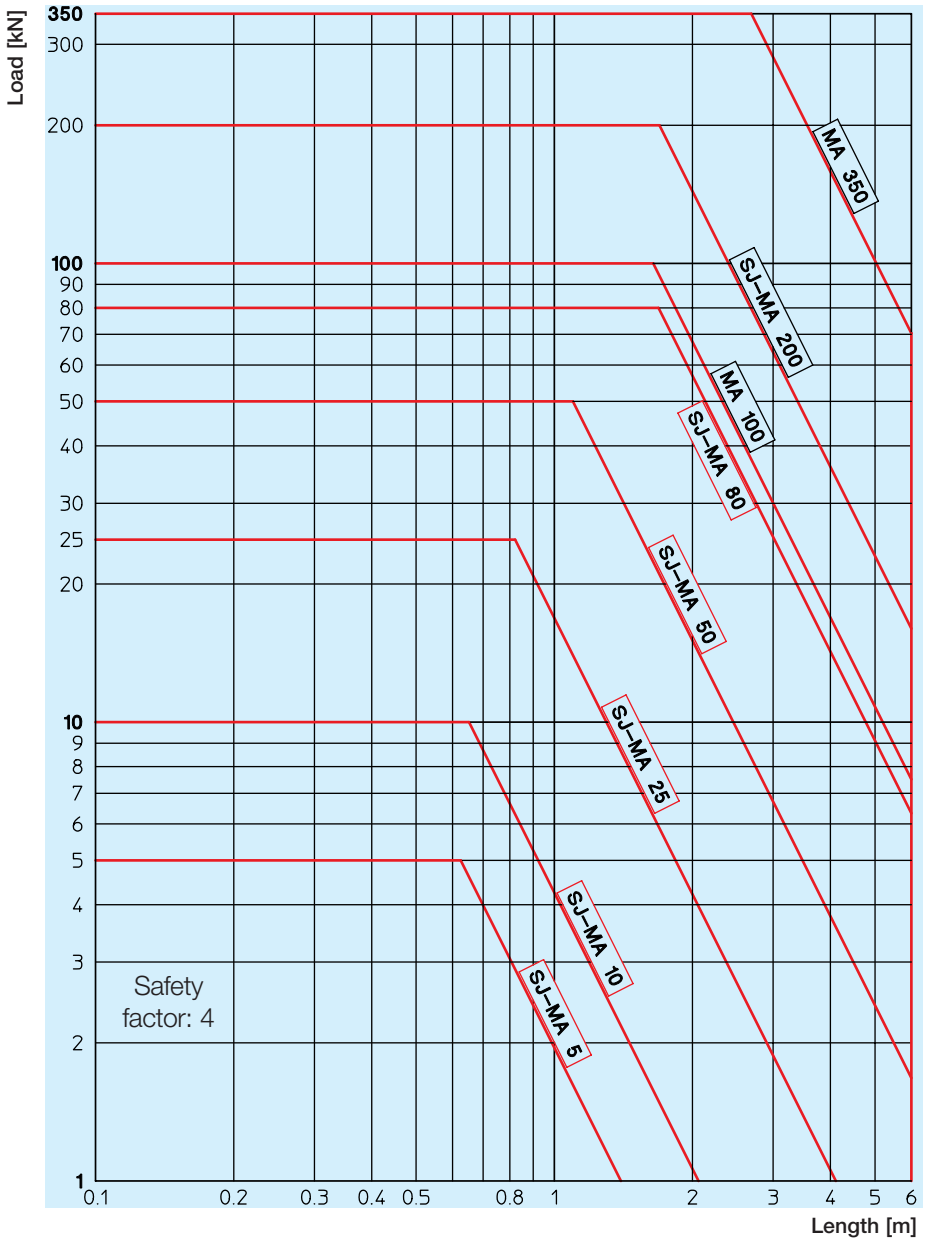
Screw buckling/size selection

These building limits apply to both travelling screw and travelling nut models that have fully supported acme screws.

The limits shown have a built-in safety factor. For safety critical applications, eg theatre lifts, discuss your safety factor requirements with our engineers.

Example
A load of 1 kN and stroke of 800 mm is within the capacity of the SJ or MA 5.



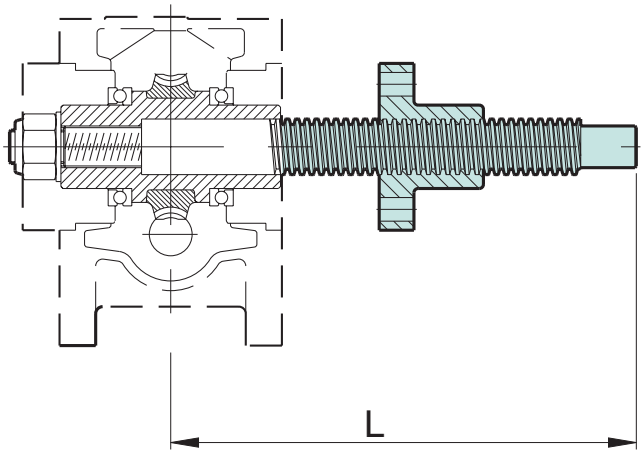


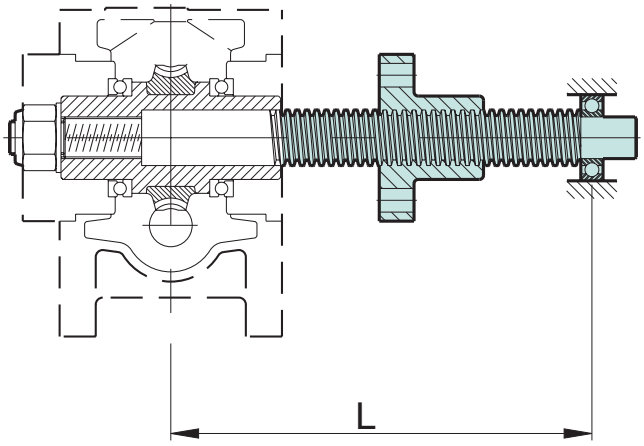
Critical speed of acme screw

Travelling nut model B screw jacks are limited to a maximum screw speed. This depends on size, length of screw and the way the screw is guided. For most applications these limits are not relevant.

Example

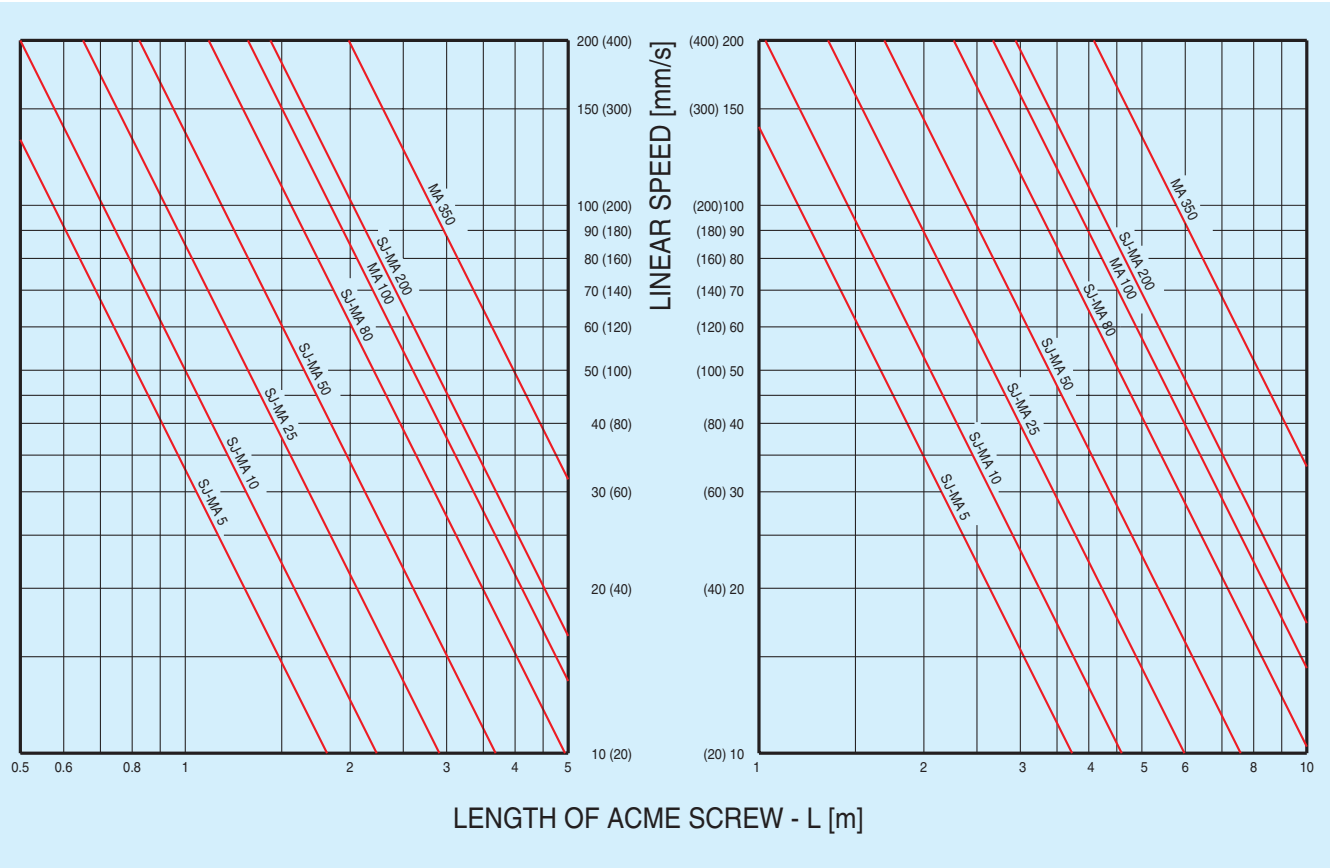
For a screwjack MA 50 with a 1-start acme screw 2 m long, the critical speed limit for an unguided screw is 34 mm/s.





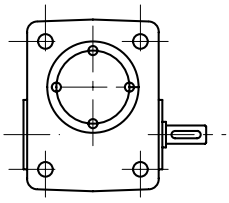
Unguided screw

Guided screw

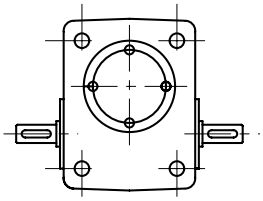


LINEAR SPEED values out of brackets: 1-start acme screw
LINEAR SPEED values under brackets: 2-start acme screw

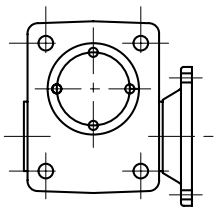
Input versions



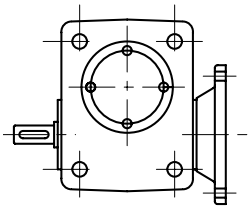
Input version 1
free shaft



Input version 2
free shaft + 2nd shaft

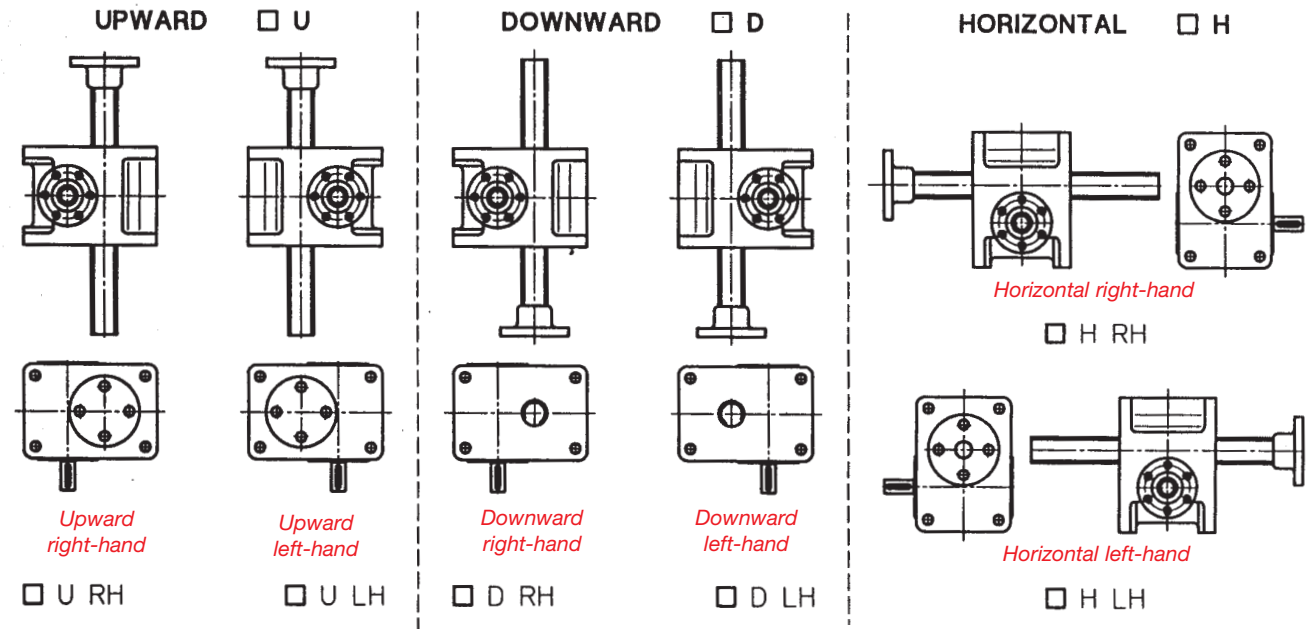


Input version 3
motor flange



Input version 4
motor flange + 2nd shaft

Mounting positions



Note: Above views are in first angle (Continental) projection.

INPUT SHAFT ROTATION – SCREW OR NUT LIFTING DIRECTION