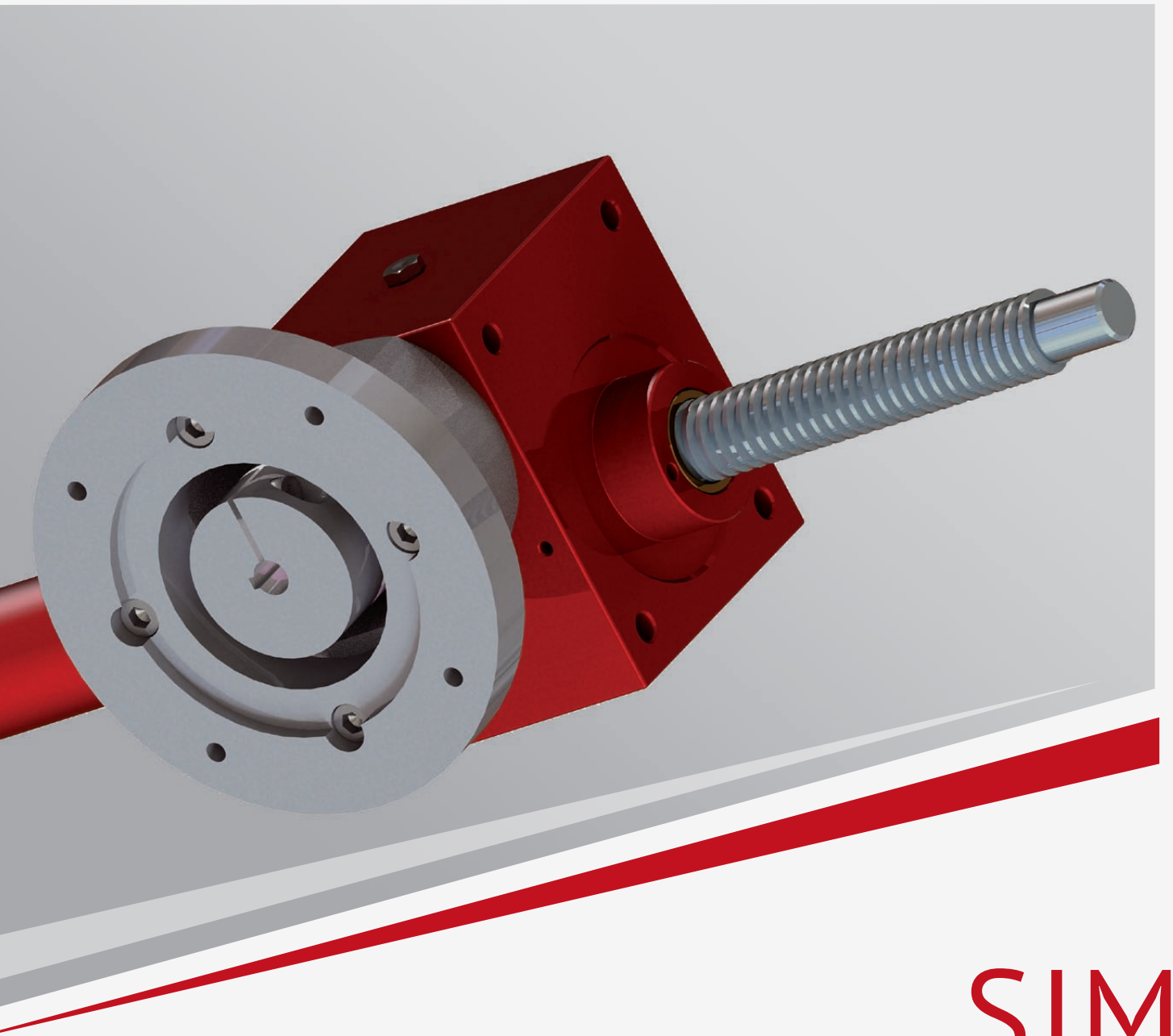
Marzorati
Sistemi di Trasmissione

drive your motion



SJM

SJM MECHANICAL SCREW JACKS

GENERAL CATALOGUE

www.marzorati.it

EN

Our Values

DRIVE YOUR MOTION, EVERYWHERE

Responsibility

We recognise responsibility towards our future and society.

We develop, manufacture and market products and solutions with high added value that adapt to the needs of our customers, within a constantly changing market. We encourage individual responsibility and team spirit. We strive to achieve outstanding performance, cooperation, and working in line with precise rules, efficiency and affordability.

Loyalty

We generate loyalty through human relationships based on mutual respect: we aim to forge relationships with our Customers, Partners and Associates that promote inventiveness and creativity so as to achieve successful partnerships.

We are proud of the dynamic approach we have instilled in our corporate culture.

For us, managing the company means leading by example, establishing the conditions and providing the opportunity for everyone to express their abilities to the fullest and to play their part in developing the company.

Innovation

Every day, we draw inspiration from our creativity and we pursue an ongoing quest for innovation:

We come up with brand new solutions and we create paths, so that today's vision becomes tomorrow's reality.

Through our knowledge, research and constant training we shape a philosophy that allows us and our partners to open up to new horizons.

The sharing of creative inputs gives rise to a future-oriented dynamic, geared to success.

Music is the hidden arithmetical exercise of a mind unconscious that it is calculating.

G. W. Leibniz

It is here that the efforts of the technical and production teams come together in a symphony of thoughts and actions.

Order, determination and in-depth study transfer prospects into reality, while passion and inspiration render them unique and successful.

Marzorati - Mechanical Music

Marzorati In The World

DRIVE YOUR MOTION, EVERYWHERE

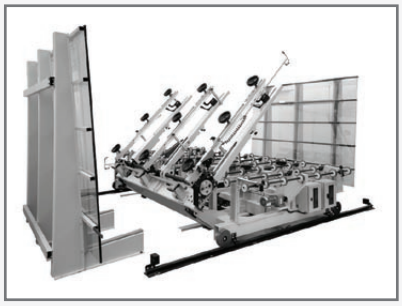
Marzorati → ANALYSIS → OPTIMISATION → IMPLEMENTATION

QUALITY IN OVER 80 COUNTRIES AND 5 CONTINENTS

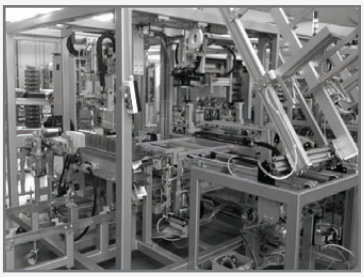
Marzorati A Commercial Partner For Every Business

DRIVE YOUR MOTION, EVERYWHERE

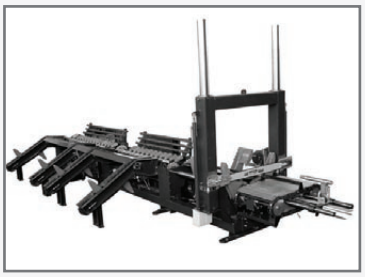
GLASS



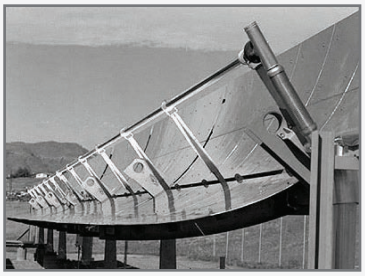
PAPER



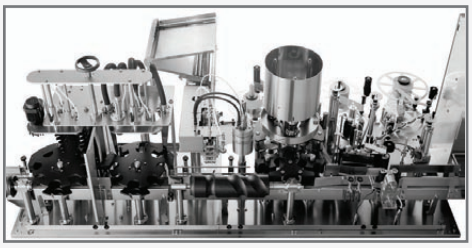
WOOD



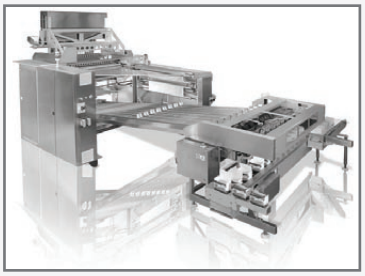
SOLAR ENERGY



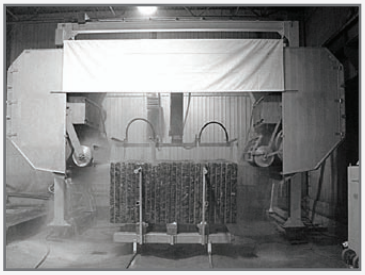
PACKAGING



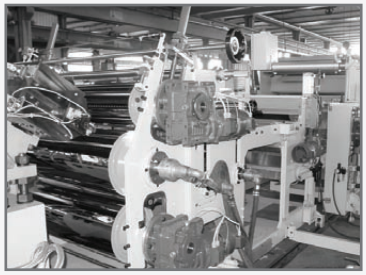
PHARMACEUTICAL



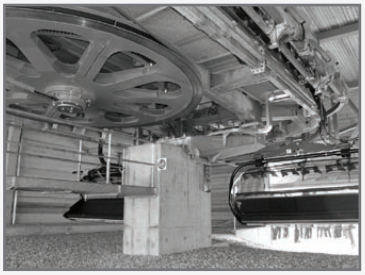
MARBLE



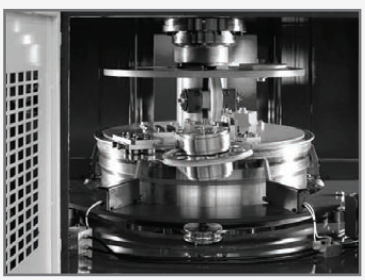
PLASTIC-RUBBER



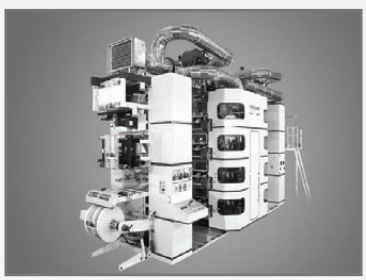
CABLE TRANSPORT



METALLURGY



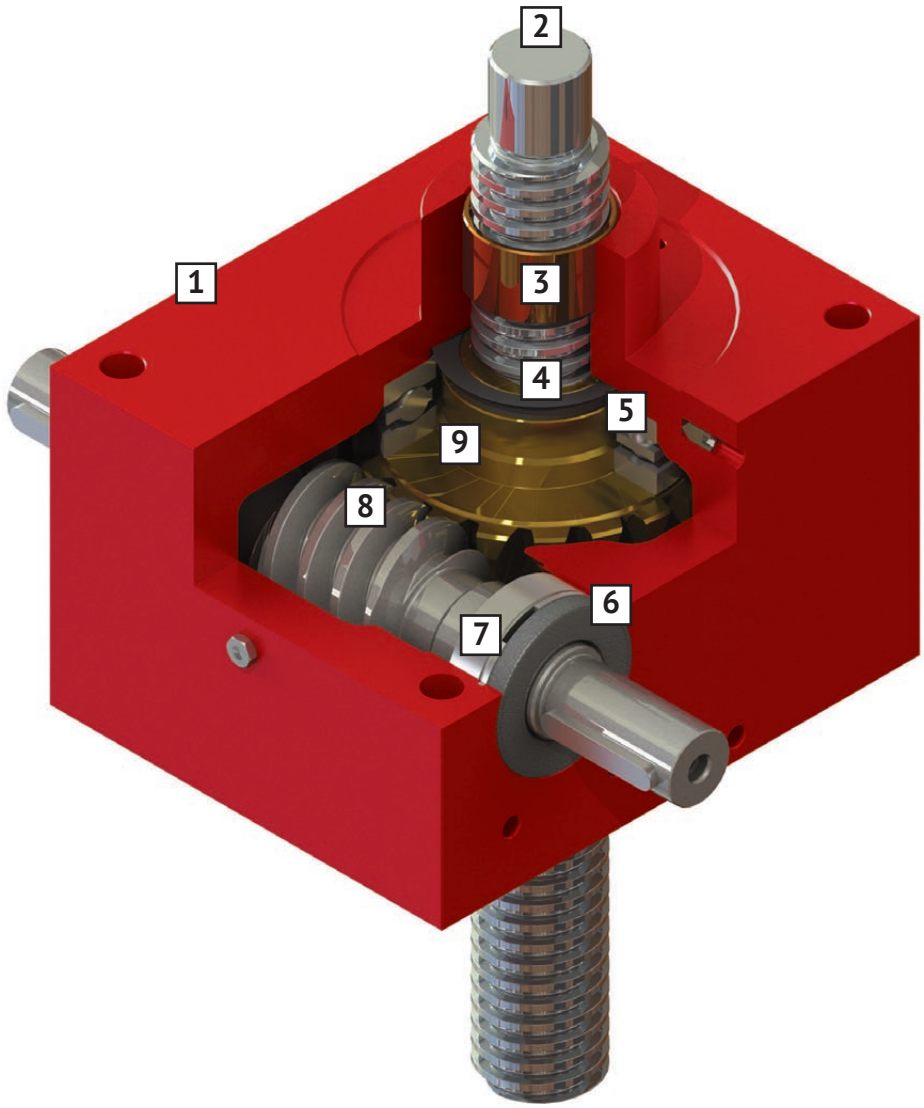
PRINT



WIND ENERGY

SUMMARY

CROSS SECTION VIEW



1 - HOUSING:
in ENAC-AlSi10Mg aluminium alloy up to size MAR407;
in EN-GJS-500-EN1563 ductile iron for sizes MAR559, MAR7010, MAR8010 and MAR9010;
in S355JR EN-10025-2 electro-welded steel for the extra-heavy sizes MAR10012 and MAR12014

2 - TRAPEZOIDAL SCREW: in C45E EN10083

3 - ANTI-FRICTION BUSHING: in bronze to facilitate sliding or rotation of the screw

4 - FRONT SEAL RING: in nitrile rubber. Also available in Viton for high-temperature applications

5 - BEARING FOR TRAPEZOIDAL SCREW: to withstand the loads applied to the jack

6 - SEAL RING: in nitrile rubber. Also available in Viton for high-temperature applications

7 - INPUT SHAFT BEARINGS: to ensure precise rotation at high speeds

8 - WORM SCREW: in 17NiCrMo6-4 EN10084: 2008 case-hardened steel

9 - WORM WHEEL AND NUT SCREW: in CuSn12Ni2-C bronze alloy

ORDER CODING identify the jack selected by referring to the diagram below

Coding Example	SJM306	T	V	2	1100	TP	M63B5	PR	PE	GT	FI12

SIZES
184 - 204 - 306 - 407 - 559

EXECUTION
Translating/Rotating

RATIOS
V-L

LAYOUT
1-2-3-4-5-6-7

STROKE (mm)

SPINDLE END
TP - TM - ST -TL -TO - TR - TF - TS

MOTOR

RIGID PROTECTION

ELASTIC PROTECTION

ANTI-ROTATION

LIMIT SWITCH

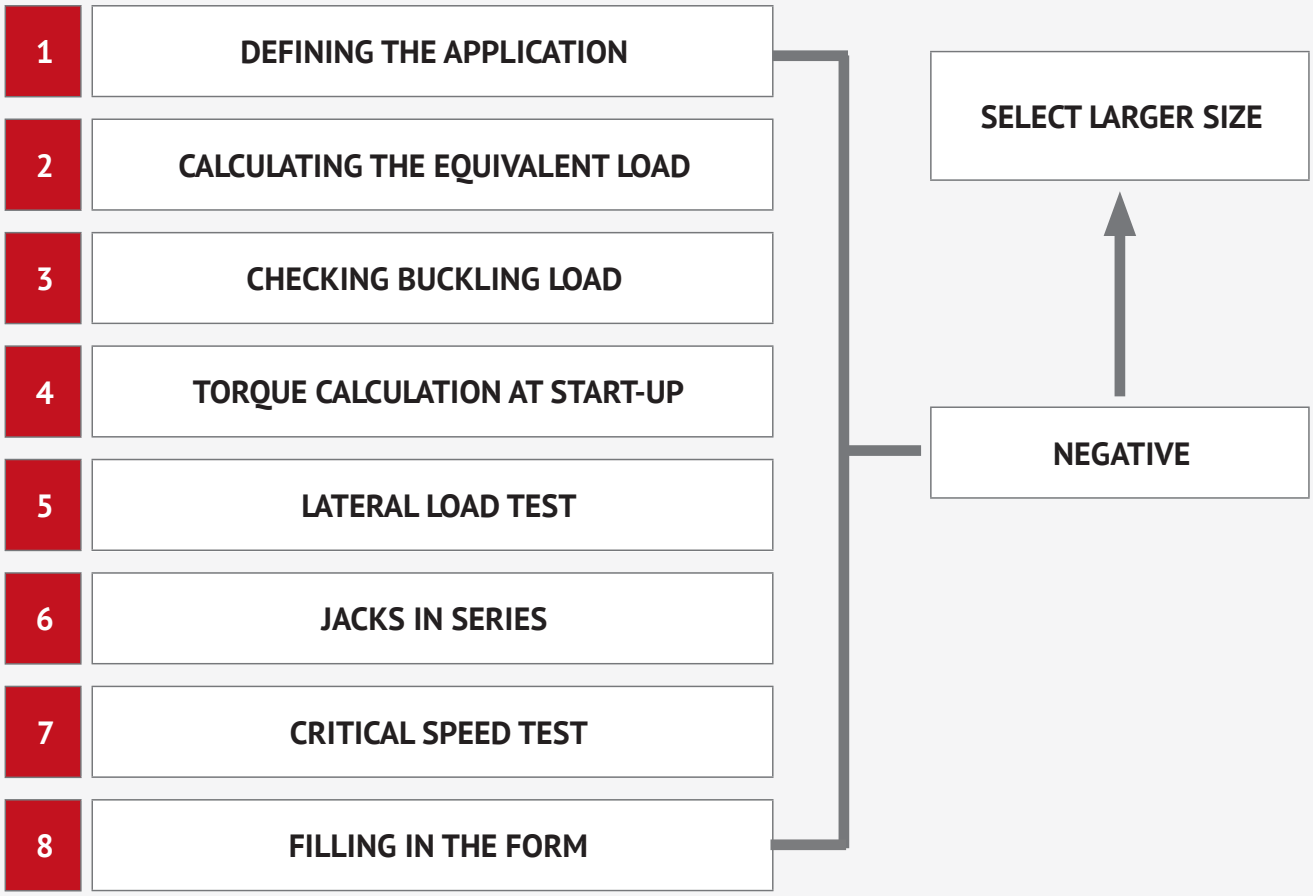
SUMMARY TABLE

Careful transmission selection is a crucial step when designing a machine. For this reason, Marzorati jacks are available in ten different sizes, **each of which is fully customisable**.

The table below shows the general specifications in terms of maximum sustainable loads, transmission ratios, efficiencies, construction characteristics and available models so you can make a pre-selection of the jack required.

SIZE		SJM184	SJM204	SJM306	SJM407	SJM559
Maximum allowable load	[daN]	500	1000	2500	5000	10000
Version available		R - T	R - T	R - T	R - T	R - T
Reduction ratio	Fast	1/4	1/4	1/6	1/7	1/9
	Slow	1/16	1/16	1/24	1/28	1/36
Trapezoidal screw - right pitch		18x4	20x4	30x6	40x7	55x9
Theoretical efficiency	Fast	0,338	0,311	0,315	0,282	0,251
	Slow	0,263	0,283	0,24	0,217	0,199
Start-up efficiency ηas	Fast	0,18	0,23	0,20	0,18	0,17
	Slow	-	0,16	0,15	0,13	0,13
Spindle weight per 100mm	[kg]	0,16	0,22	0,5	0,9	1,8
Jack weight (without spindle)	[kg]	1,1	2,5	4,2	10,5	33
Operating temperature	[°C]	-10/80	-10/80	-10/80	-10/80	-10/80

SELECTING THE JACK



SELECTING THE JACK

1 - DEFINING THE APPLICATION

In order to select the most suitable jack you need to identify the data for the required application.

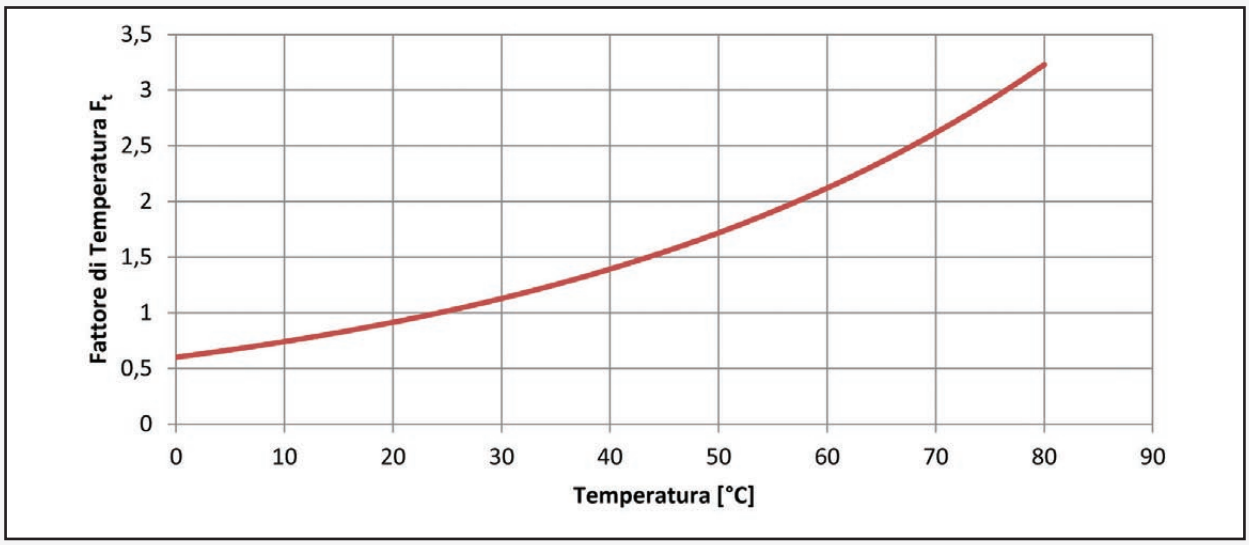
• RATED LOAD [daN]
The first parameter to be taken into consideration when working out the jack size required is rated load, i.e. the maximum force applied to the jack.

• STROKE [mm]
Identifies how much the load must be moved. It can depend on the type of application, jack and the presence of certain accessories, and may not coincide with the total length of the spindle.

• TRAVEL SPEED [mm/s]
The speed at which the load is moved is essential in choosing the right jack, because it can determine the rotational speed of the gear and the power required for motion. In addition, the life-span of a jack depends greatly on the travel speed, the max. limit being 35mm/s .

• SYSTEM LAYOUT
Jacks can be used in a wide range of situations. This means there are various simple and more complex configurations and installations possible. The choice of system layout will affect performance and, therefore, the size of jack needed.

• ENVIRONMENTAL FACTORS
The performance of the jack will depend on the conditions in which it operates. The most important environmental parameters are temperature, vibrations, cleanliness, high humidity and lubrication. The values can be identified by referring to the following charts and tables:



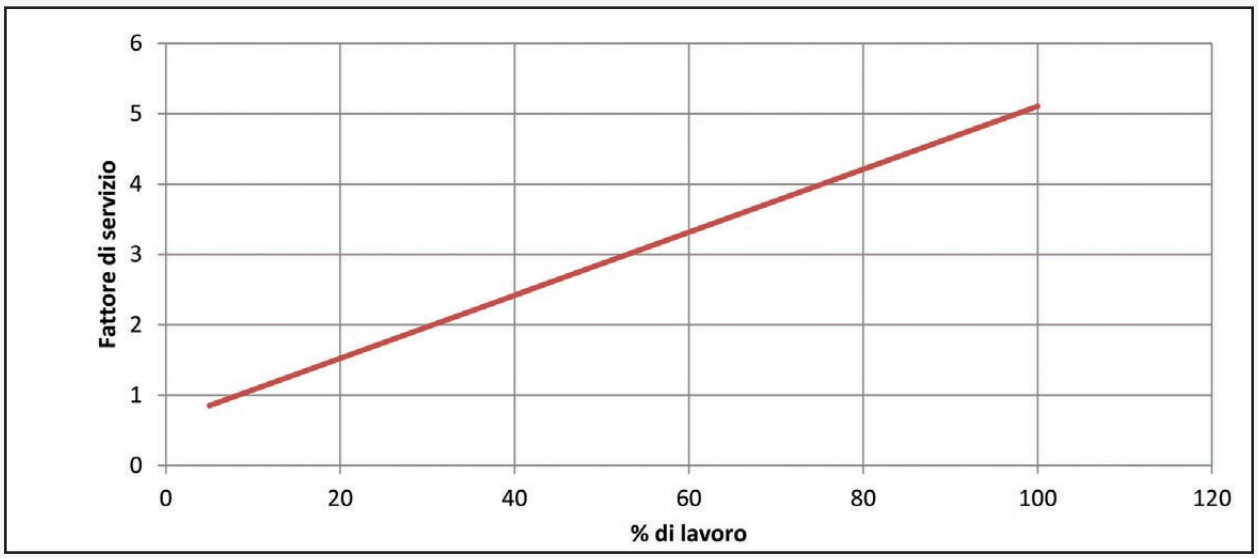
TYPE OF LOAD	fa FACTOR
Irregular movements, high vibrations and severe shocks	1,8
Regular movements, medium shocks and vibrations	1,3
Regular movements, light shocks and low vibrations	1

2 - CALCULATING THE EQUIVALENT LOAD

When choosing a jack, the designer must be able to refer to the values in the catalogue established under standard conditions, i.e. at a temperature of 20°C and percentage of operation of 10%. Since it is possible to use jacks in a variety of operating conditions and for non-standard applications, it is useful to calculate the **equivalent unit load**. This is the load to be applied under standard conditions in order to obtain the same environmental and wear effects that would occur under actual conditions of use.

The equivalent load is worked out as follows: $C_{eq} = C \cdot f_t \cdot f_a \cdot f_s$

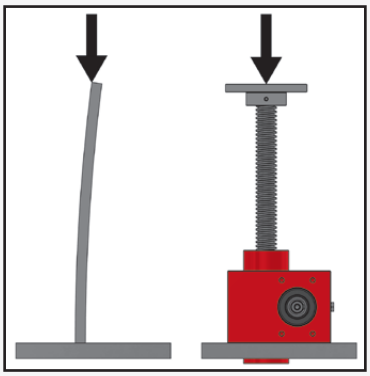
Where C is the rated load of an individual jack and fs is the service factor, in line with the percentage of operation over the work cycle.
The value of the equivalent load lets you make an initial jack selection as it can be used to check whether the size in question is able to withstand an equivalent dynamic load. If the check proves negative, select a larger size.



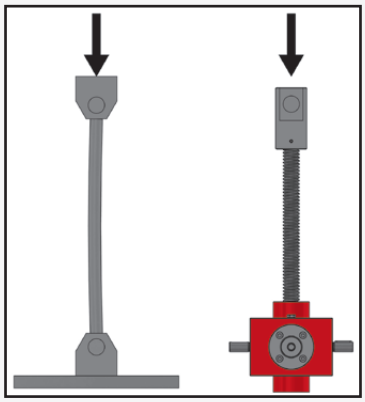
3 - CHECKING BUCKLING LOAD

The jack is generally subject to an axial load on the trapezoidal screw. In case of compressive load, adequate support is required to ensure correct jack operation. The way it is secured will, however, considerably affect the performance of the transmission at buckling load.
If one treats the trapezoidal screw as a beam, three support configurations of the jack are identified:

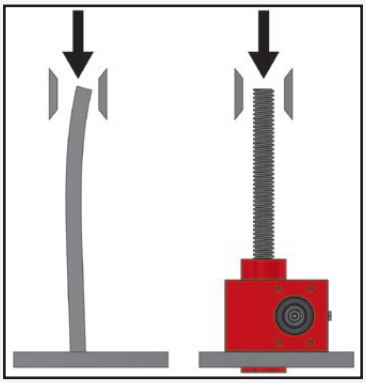
- **FIXED AND FREE END: Euler condition 1;**



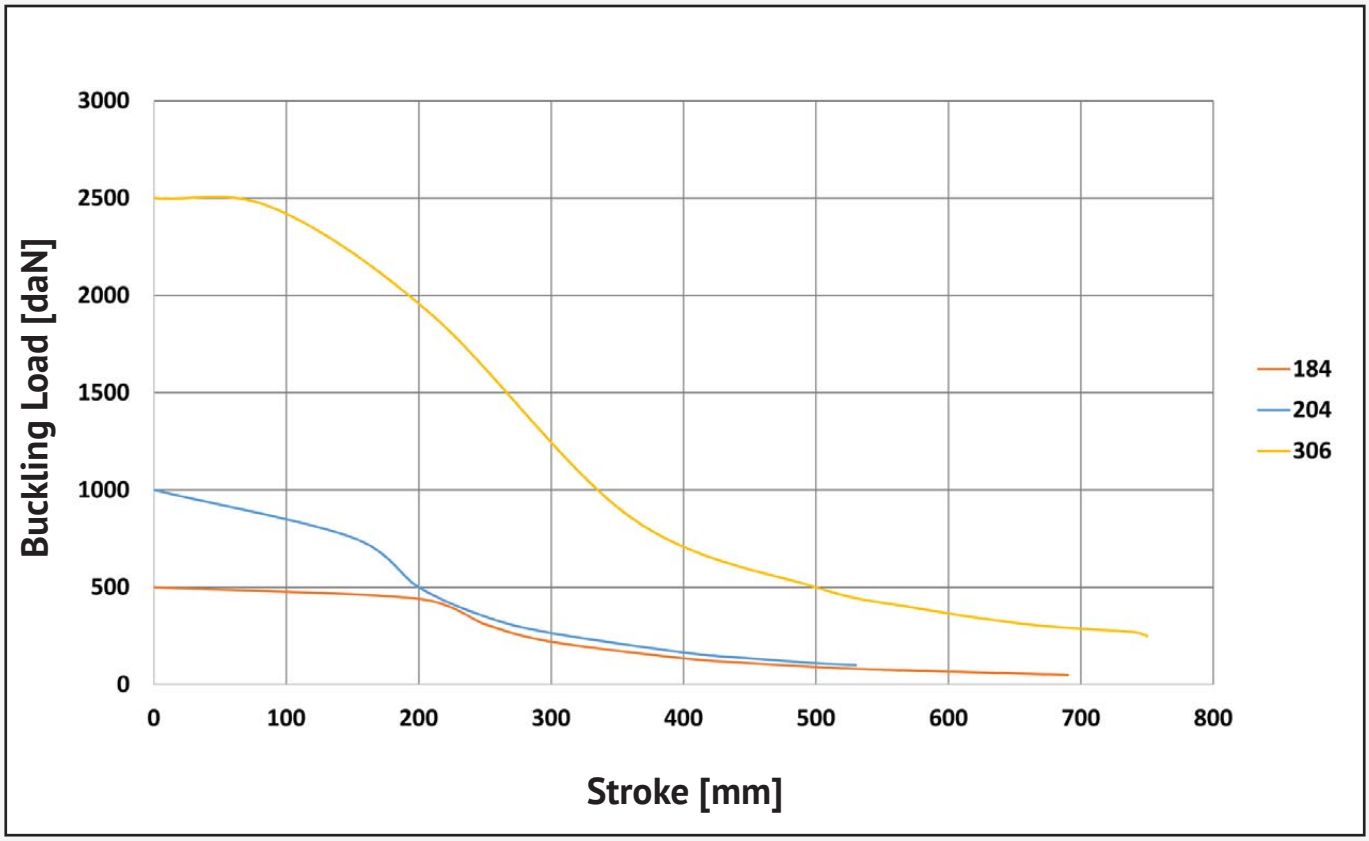
- **HINGED AND HINGED: Euler condition 2;**

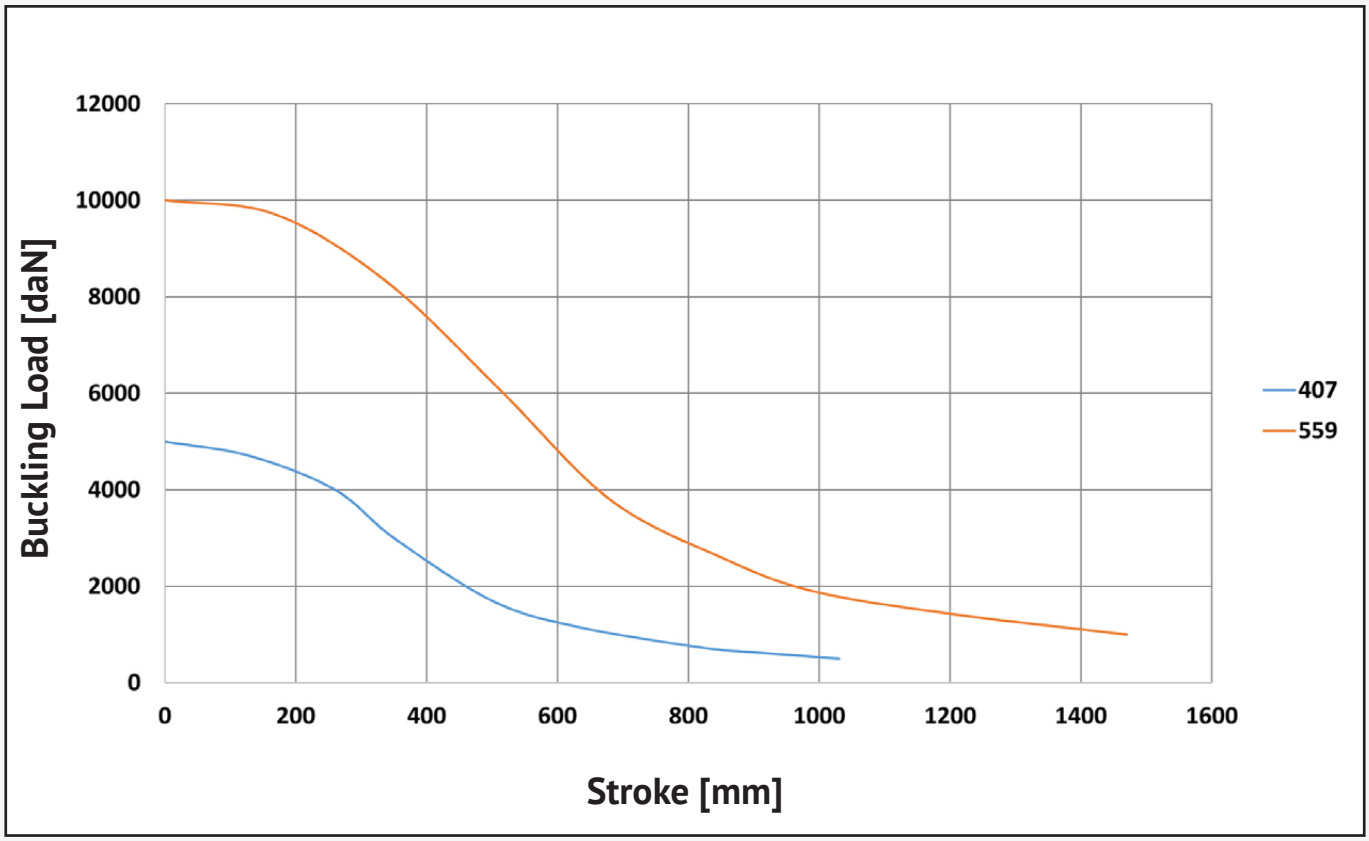


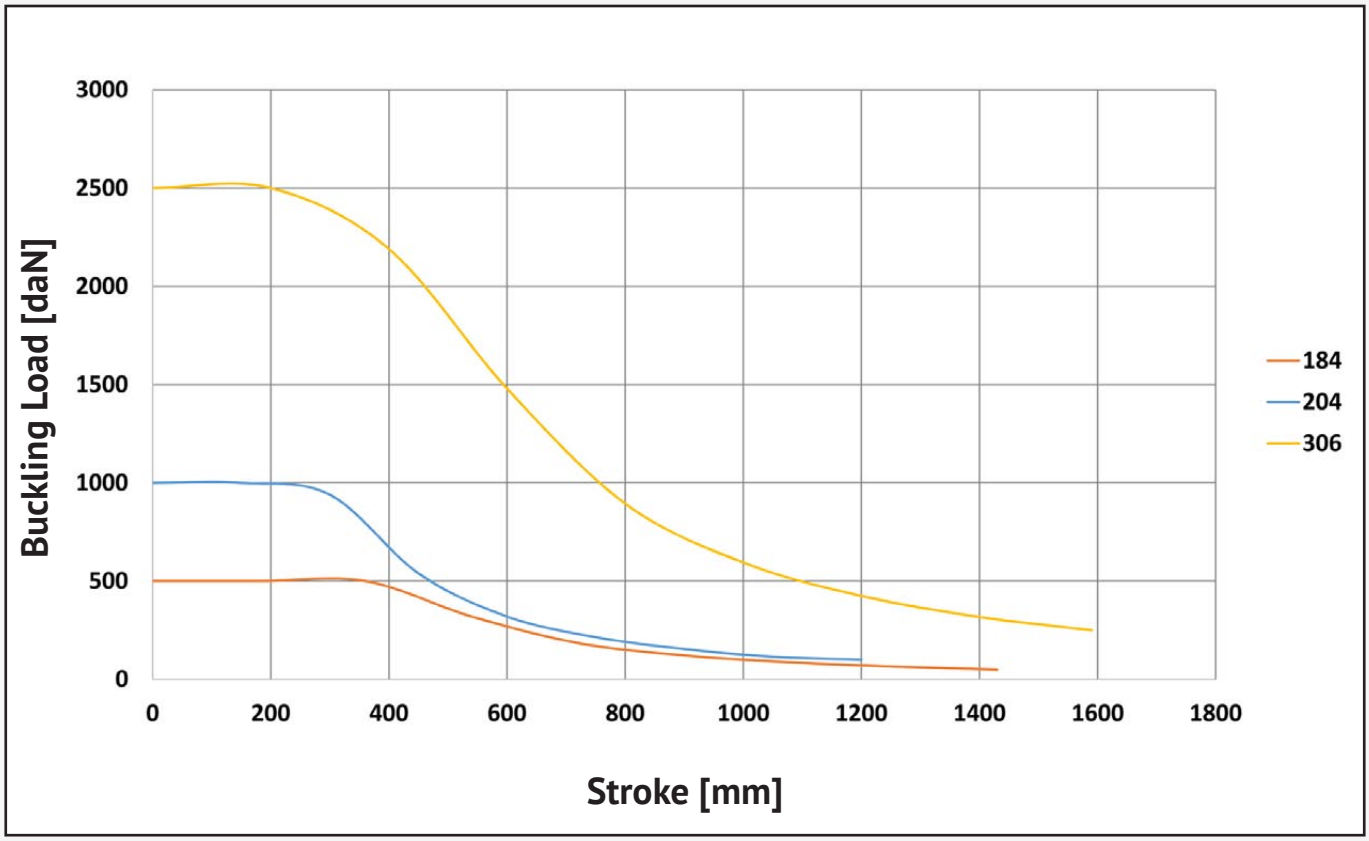
- **FIXED AND SUPPORTED: Euler condition 3;**

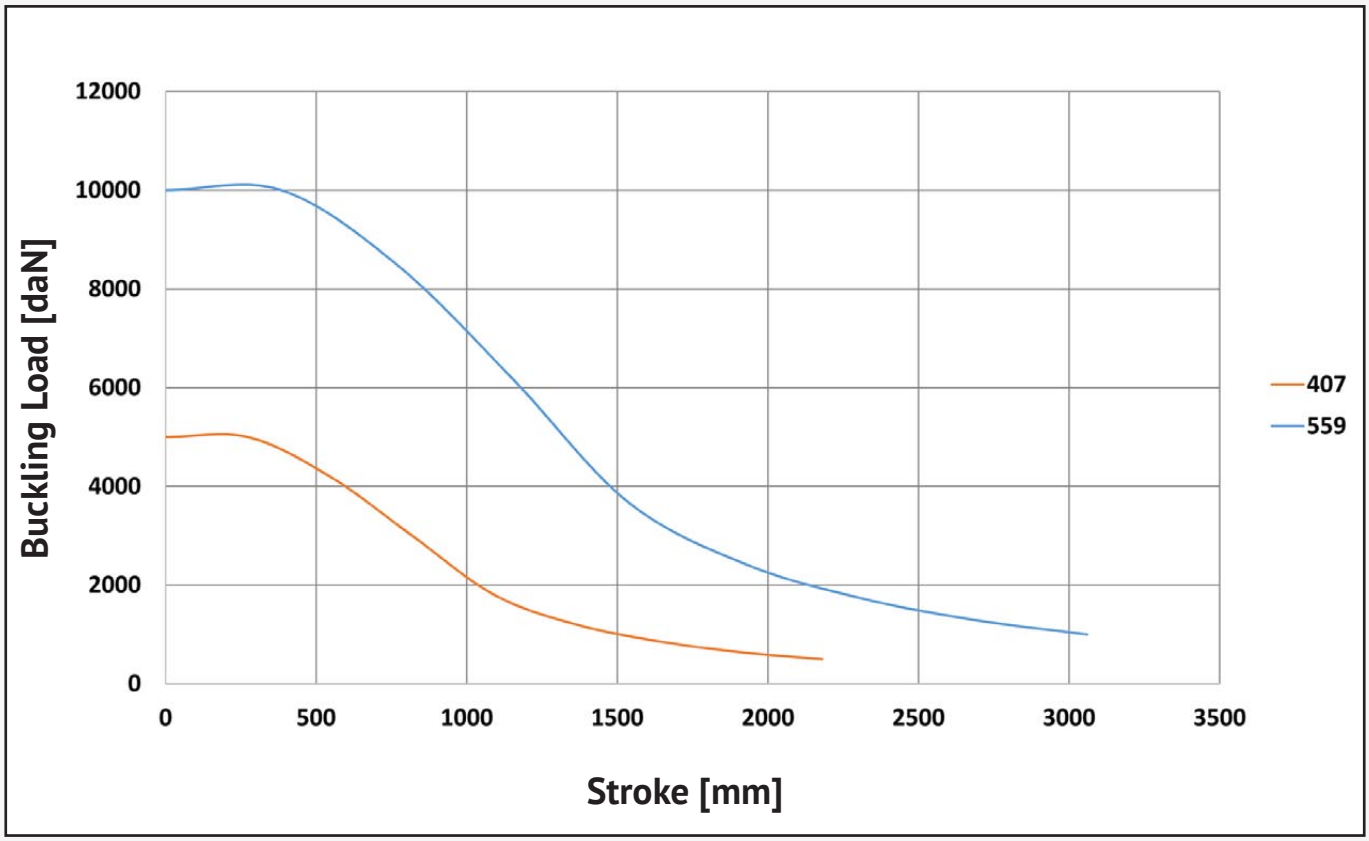


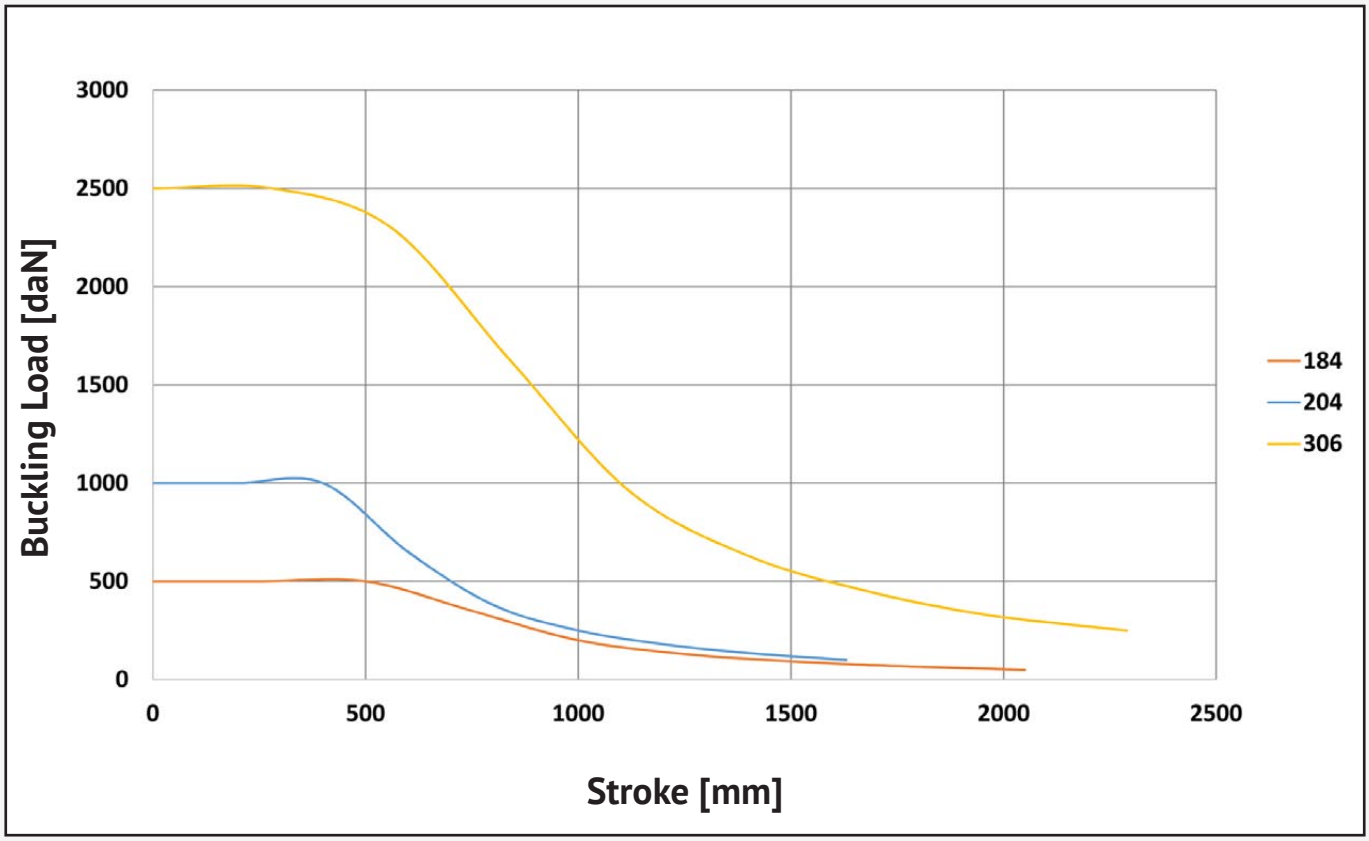
The buckling load depends mainly on the length of the spindle, because deflection increases in relation to the latter. Looking at the curves described in the following figures, you can see if the selected jack is suitable for the applied load and the required spindle length. In particular, underneath these curves, calculated with a safety factor of 4, the jack is checked as it is subjected to a load lower than the maximum admissible compressive load.

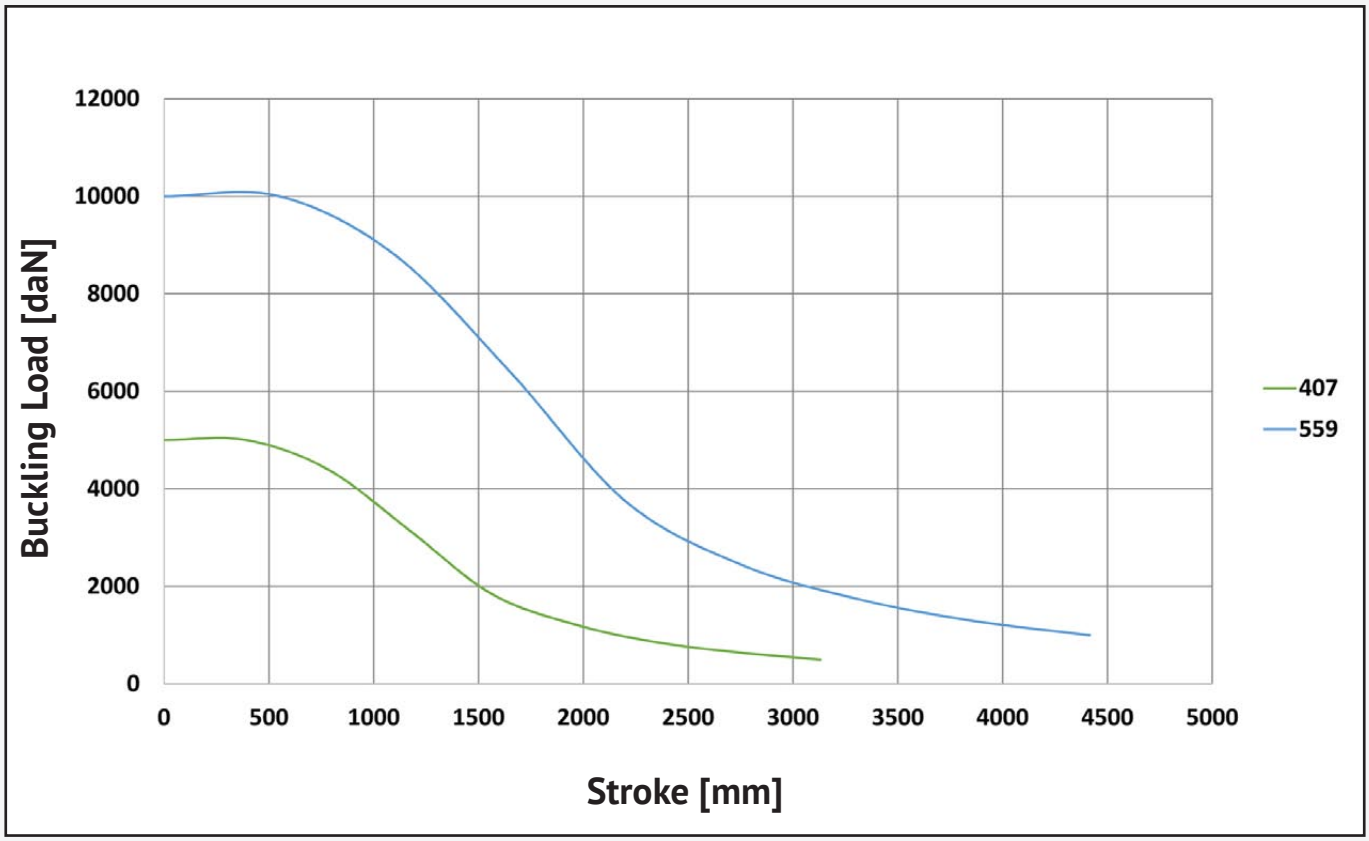

Buckling Load [daN]
3000
2500
2000
1500
1000
500
0
0
100
200
300
400
500
600
700
800
Stroke [mm]
184
204
306


Buckling Load [daN]
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1000
1200
1400
1600
Stroke [mm]
407
559


Buckling Load [daN]
3000
2500
2000
1500
1000
500
0
0
200
400
600
800
1000
1200
1400
1600
1800
Stroke [mm]
184
204
306


Buckling Load [daN]
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000
3500
Stroke [mm]
407
559


Buckling Load [daN]
3000
2500
2000
1500
1000
500
0
0
500
1000
1500
2000
2500
Stroke [mm]
184
204
306


Buckling Load [daN]
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Stroke [mm]
407
559

4 - TORQUE CALCULATION AT START-UP

The torques considered so far allow transmission sizing under dynamic conditions. However, when the jack is started, the load to be considered is different from the rated one. The **static load** is therefore defined as the maximum force applied to the jack in stationary conditions. This force is useful for calculating the **starting torque of the motor.**

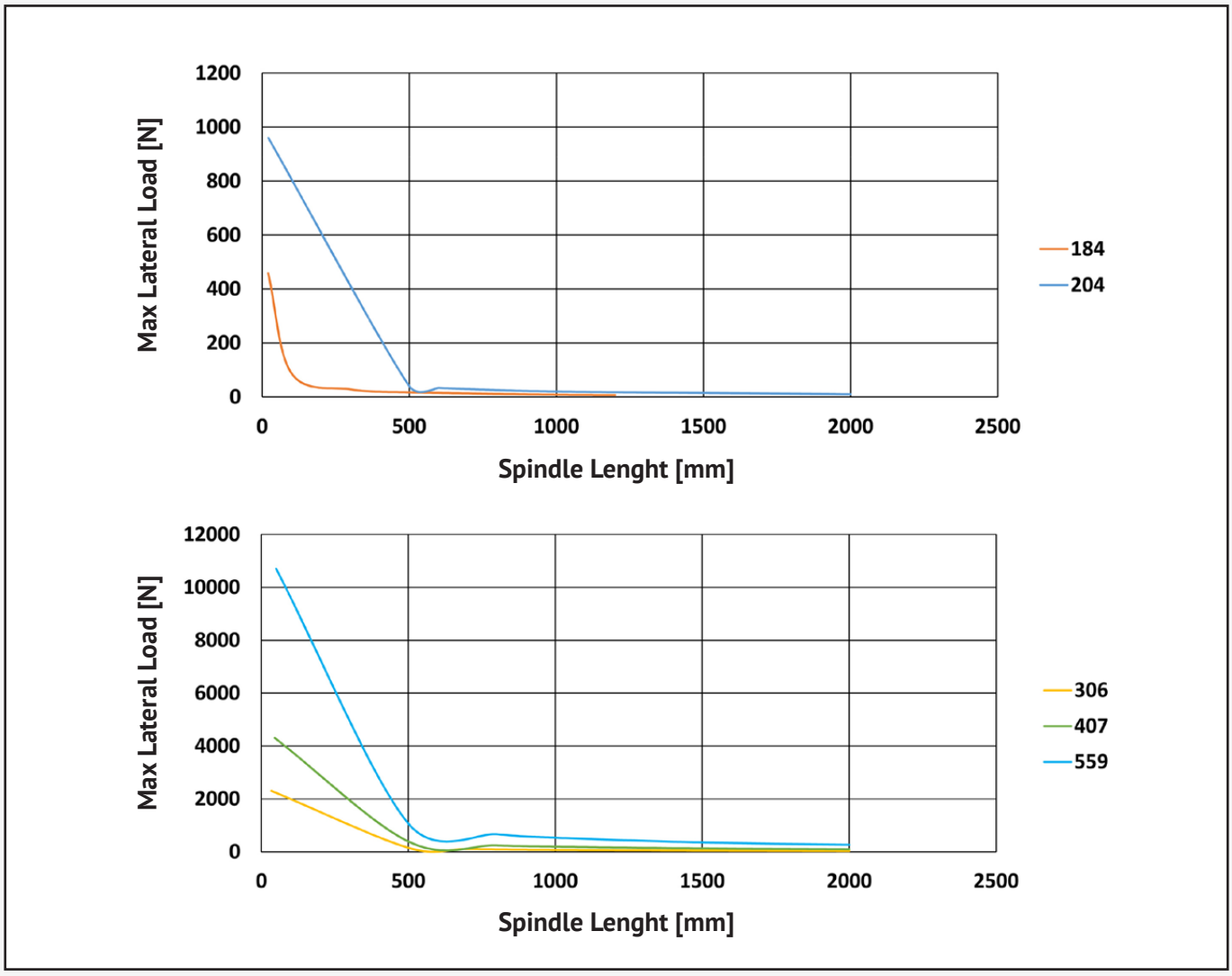
$$T_{sp} = \frac{C_s \cdot p}{2 \cdot \pi \cdot \eta_{as} \cdot i}$$

Where C_s the static load [kN], *p* indicates the pitch [mm] of the trapezoidal screw, η_{as} is the starting efficiency (the values are given in the summary table) and *i* the reduction ratio.

5 - LATERAL LOAD TEST

Lateral load testing plays a central role in selecting the screw jack. Depending on the type of application or in the case of incorrect assembly, these types of loads can lead to excessive wear of the screw and nut screw assembly and jack malfunction.

For example, if the jack is arranged horizontally, then the weight of the spindle will lead to deflection and, therefore, a lateral load. The allowable lateral load limit is influenced by the size and length of the trapezoidal screw and it is possible to verify the chosen jack by using the charts below.



6 - JACKS IN SERIES

It is necessary to verify the mechanical jack limits according to the system layout when they are connected in series. In this particular case, the worm screw shaft must be able to withstand the combined stress generated by the applied torque.
The first parameter to consider is the power required by the system [kW], which is worked out with this formula:

$$P_{impianto} = \frac{N \cdot v \cdot C}{6000 \cdot \eta_s \cdot \eta} \cdot \frac{1}{1000}$$

Where:

- N = number of jacks used in the system;
- v = travel speed [mm/min];
- C = rated unit load;
- η_s = efficiency of the structural components of the system: joints, gearboxes, belts, etc...
- η = efficiency of the jack, the value of which is indicated in the summary table;

It is therefore possible to work out the torque, in Nm, to be applied on the input shaft in relation to the number of revolutions n_1.

$$M_t = \frac{P_{impianto} \cdot 9549}{n_1}$$

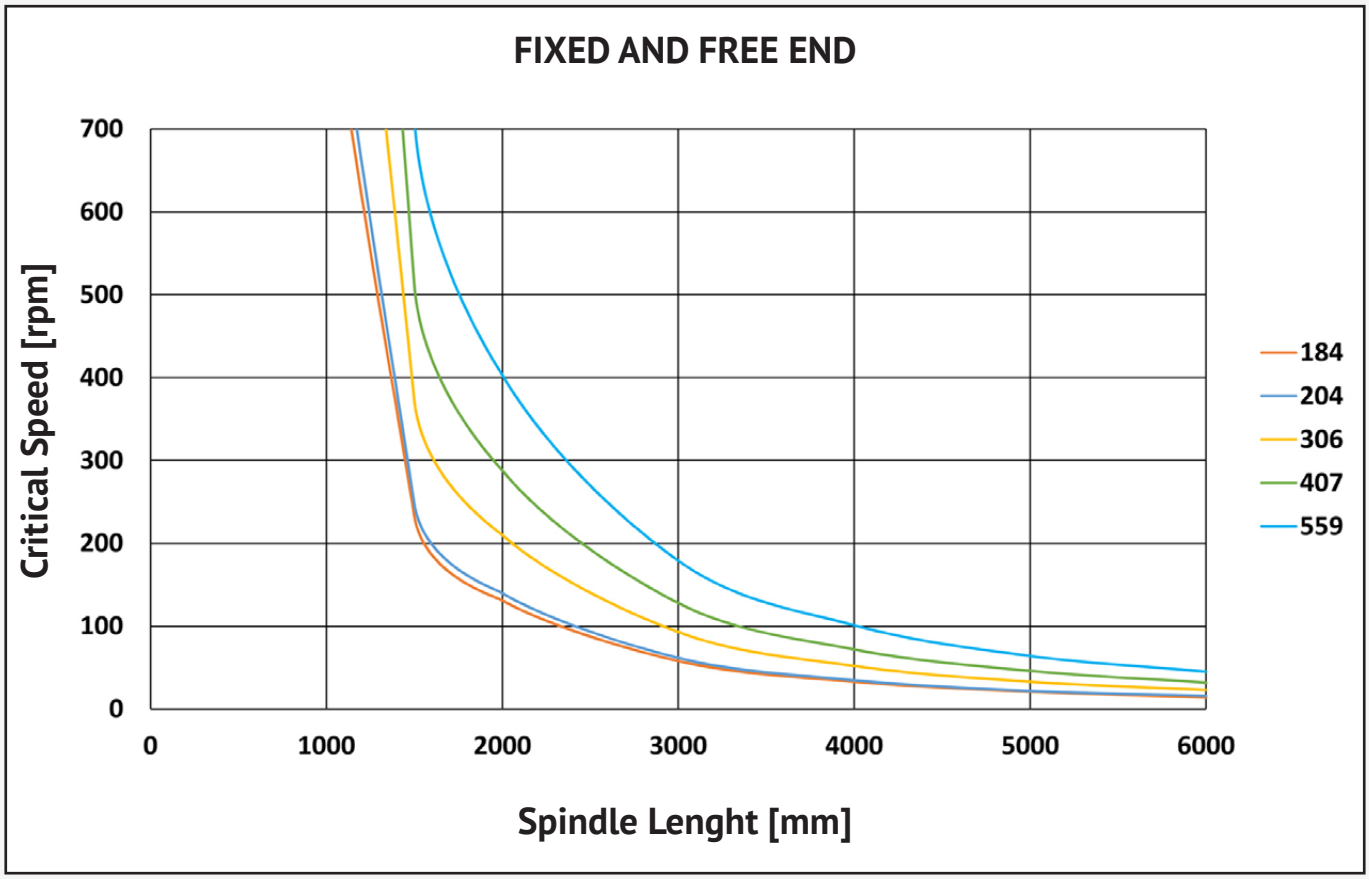
The table below shows the M_t limits for each jack size.

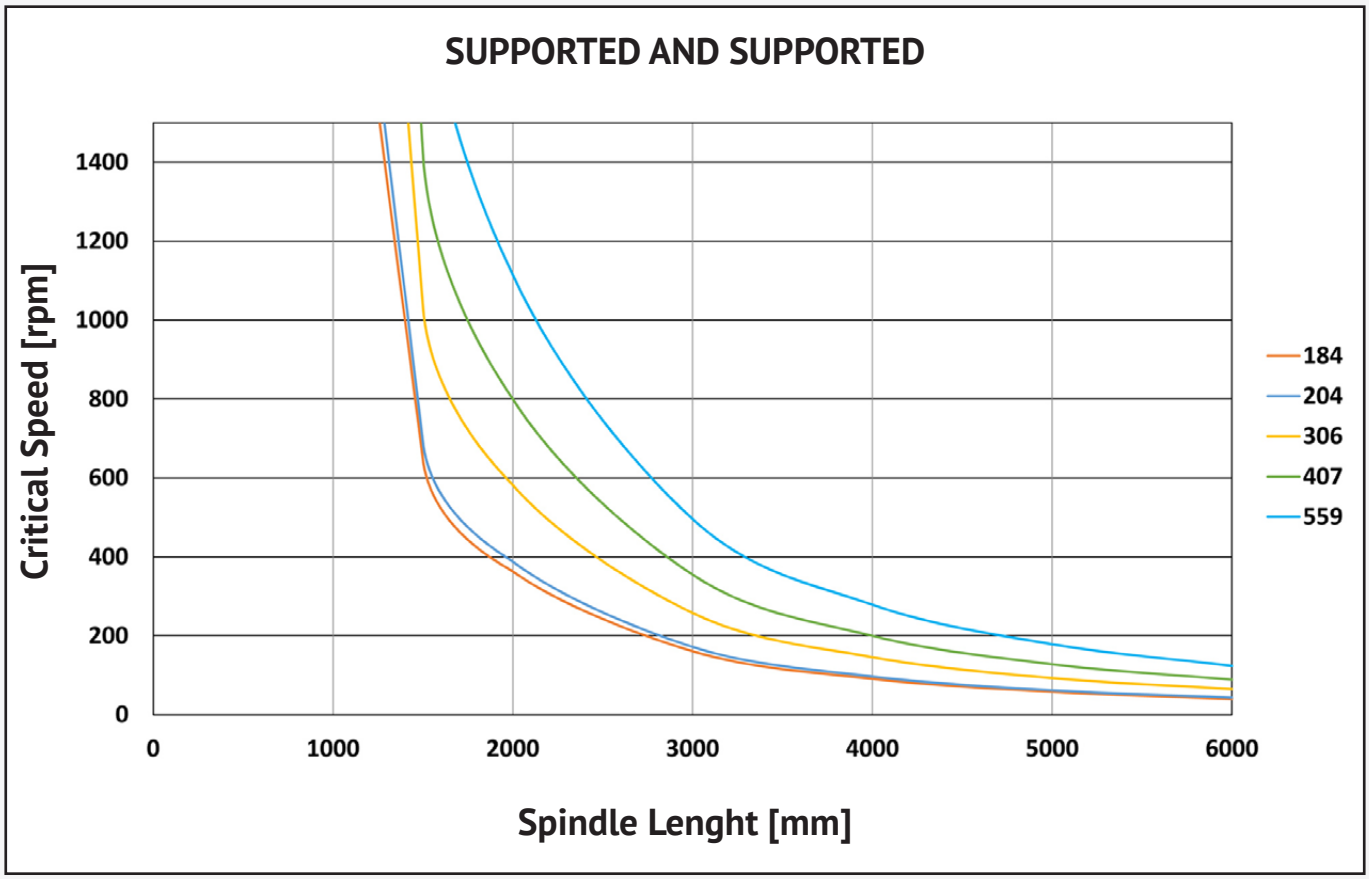
Jacks in Series				
184	**204**	**306**	**407**	**559**
Mt	Mt	Mt	Mt	Mt
[Nm]	[Nm]	[Nm]	[Nm]	[Nm]
23	51	204	370	360

N.B. : In order to avoid any excessive differences in the starting times of the jacks connected in series, it is essential that the designer evaluates the torsional stiffness of the couplings or extensions used.

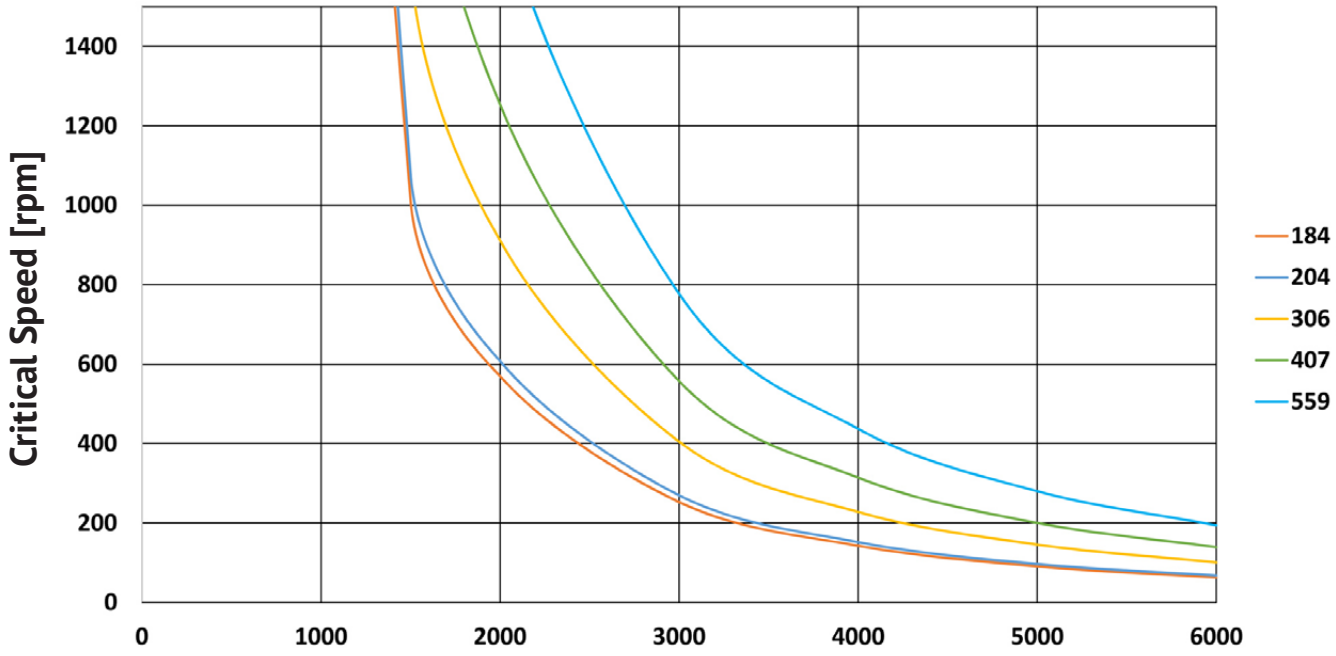
7 - CRITICAL SPEED TEST

The critical speed is the number of revolutions at when the trapezoidal screw experiences strong vibrations. These speed values must never be reached, as they would result in irregular operation. This type of check must be carried out when choosing a rotating jack, since the trapezoidal screw rotates. The factors that influence the critical number of revolutions are the size of the screw (diameter, length and pitch of the thread) and the type of supports on the jack. The graphs in the figure show the curves, relating to each size, below which the jacks are checked.

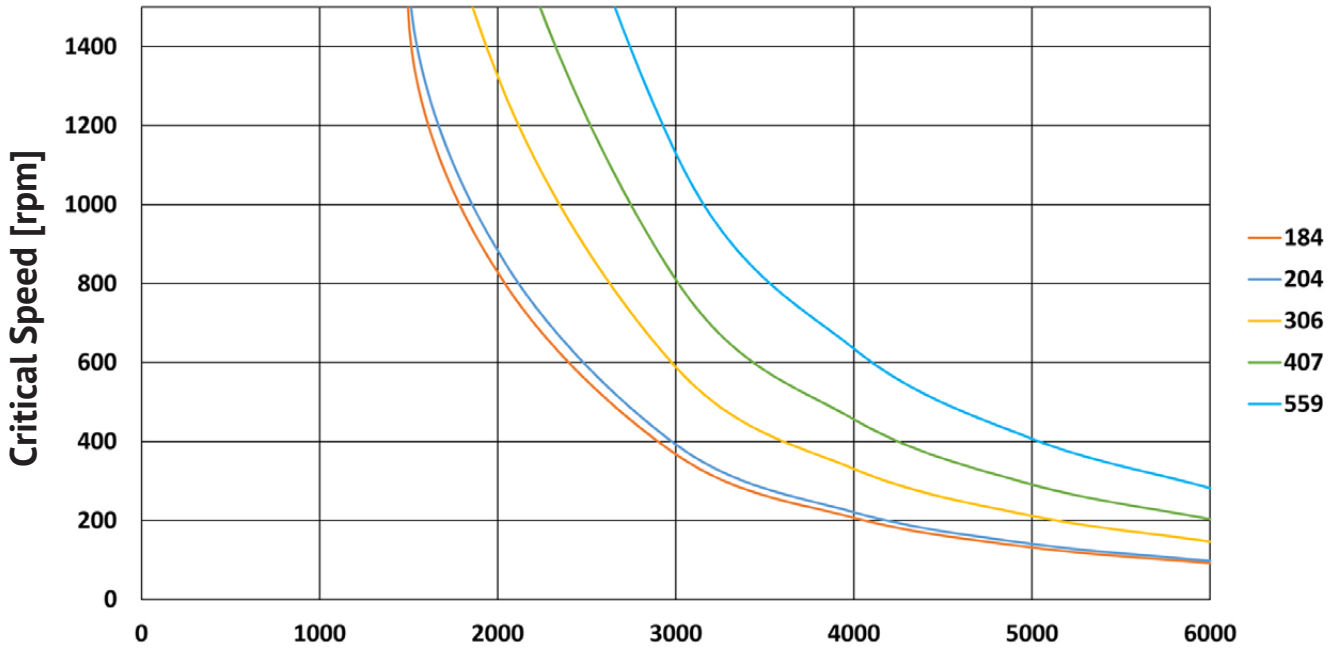

FIXED AND FREE END
Critical Speed [rpm]
700
600
500
400
300
200
100
0
0
1000
2000
3000
4000
5000
6000
Spindle Lenght [mm]
184
204
306
407
559


SUPPORTED AND SUPPORTED
Critical Speed [rpm]
1400
1200
1000
800
600
400
200
0
0
1000
2000
3000
4000
5000
6000
Spindle Lenght [mm]
184
204
306
407
559

FIXED AND SUPPORTED



FIXED AND FIXED



LUBRICATION

Just like any mechanical transmission, jacks require proper lubrication to ensure correct operation. There are two different types of lubrication: one relating to the trapezoidal screw and the other to the internal components. For the latter, FUCHS RENOLIT LX EP2 grease is used, formulated with selected mineral bases and lithium complex soaps; this type of lubrication lasts for the entire life of the transmission and a cap is provided on all sizes if topping up is needed. Synthetic oils can also be used for particular operating conditions.
For food sector applications, class H1 approved greases and oils are required.

The user is responsible for lubricating the spindle and must use a lubricant with additive for extreme pressures and with high adhesive properties. You should lubricate the spindle at regular intervals; in the case of very short strokes, it is advisable to use a longer spindle to ensure correct lubrication.

It is also possible to request semi-automatic lubrication of the nut screw in the rotating model.

POWER TABLES

The following pages show the power values of each jack calculated under standard conditions. The designer must refer to them in order to determine the equivalent load. It is important to note that the values in the coloured sections indicate that the operating conditions could cause serious malfunctions of the transmission such as critical overheating or excessive wear. Our technical department is on hand to meet your application needs.

POWER TABLES - SJM 184

RATIO 1/4													
LOAD [daN]		50		100		200		300		400		500	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,83	0,002	0,29	0,003	0,53	0,005	1,01	0,008	1,50	0,010	1,99	0,013	2,47
100	1,67	0,003	0,30	0,006	0,53	0,011	1,02	0,016	1,51	0,021	2,00	0,026	2,48
300	5,00	0,010	0,32	0,017	0,55	0,032	1,03	0,048	1,52	0,063	2,01	0,078	2,49
500	8,33	0,017	0,33	0,030	0,56	0,055	1,04	0,080	1,52	0,105	2,01	0,130	2,49
750	12,50	0,027	0,34	0,045	0,57	0,082	1,05	0,120	1,53	0,158	2,02	0,196	2,49
1000	16,67	0,036	0,35	0,060	0,58	0,110	1,05	0,160	1,53	0,211	2,02	0,261	2,49
1500	25,00	0,056	0,35	0,091	0,58	0,166	1,06	0,241	1,53	0,317	2,02	0,392	2,50

RATIO 1/16													
LOAD [daN]		50		100		200		300		400		500	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,21	0,001	0,12	0,0010	0,20	0,0019	0,36	0,0028	0,53	0,0037	0,70	0,0046	0,89
100	0,42	0,001	0,12	0,0021	0,20	0,0038	0,37	0,0056	0,53	0,0073	0,70	0,0093	0,89
300	1,25	0,004	0,13	0,0066	0,21	0,0117	0,37	0,0169	0,54	0,0222	0,71	0,0280	0,89
500	2,08	0,007	0,14	0,0113	0,22	0,0197	0,38	0,0284	0,54	0,0371	0,71	0,0468	0,89
750	3,13	0,011	0,14	0,0172	0,22	0,0298	0,38	0,0428	0,54	0,0557	0,71	0,0702	0,89
1000	4,17	0,015	0,15	0,0232	0,22	0,0398	0,38	0,0571	0,55	0,0744	0,71	0,0937	0,90
1500	6,25	0,024	0,15	0,0351	0,22	0,0601	0,38	0,0859	0,55	0,1117	0,71	0,1407	0,90

POWER TABLES - SJM 204

RATIO 1/4															
LOAD [daN]		100		200		300		400		600		800		1000	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,83	0,003	0,60	0,006	1,13	0,009	1,66	0,011	2,19	0,017	3,27	0,023	4,35	0,028	5,44
100	1,67	0,007	0,62	0,012	1,14	0,018	1,67	0,023	2,20	0,034	3,28	0,046	4,36	0,057	5,45
300	5,00	0,021	0,66	0,037	1,18	0,054	1,70	0,070	2,23	0,104	3,31	0,138	4,38	0,172	5,46
500	8,33	0,036	0,68	0,063	1,20	0,090	1,72	0,118	2,25	0,174	3,32	0,230	4,39	0,286	5,47
750	12,50	0,055	0,70	0,095	1,21	0,136	1,73	0,177	2,26	0,261	3,32	0,345	4,39	0,430	5,47
1000	16,67	0,074	0,71	0,128	1,22	0,182	1,74	0,237	2,26	0,348	3,33	0,460	4,40	0,573	5,47
1500	25,00	0,113	0,72	0,193	1,23	0,274	1,75	0,356	2,27	0,523	3,33	0,691	4,40	0,860	5,47

RATIO 1/16															
LOAD [daN]		100		200		300		400		600		800		1000	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,21	0,001	0,20	0,002	0,37	0,003	0,59	0,004	0,69	0,005	1,02	0,007	1,36	0,009	1,72
100	0,42	0,002	0,21	0,004	0,37	0,006	0,59	0,007	0,70	0,011	1,03	0,014	1,36	0,018	1,72
300	1,25	0,007	0,23	0,012	0,39	0,019	0,61	0,022	0,71	0,033	1,04	0,043	1,37	0,054	1,73
500	2,08	0,013	0,24	0,021	0,40	0,032	0,62	0,038	0,72	0,055	1,04	0,072	1,38	0,090	1,73
750	3,13	0,020	0,25	0,032	0,41	0,049	0,62	0,057	0,72	0,082	1,05	0,109	1,38	0,136	1,73
1000	4,17	0,027	0,25	0,043	0,41	0,066	0,63	0,076	0,73	0,110	1,05	0,145	1,38	0,181	1,73
1500	6,25	0,041	0,26	0,066	0,42	0,099	0,63	0,115	0,73	0,165	1,05	0,217	1,38	0,272	1,73

POWER TABLES - SJM 306

RATIO 1/6															
LOAD [daN]		250		500		750		1000		1500		2000		2500	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,83	0,007	1,405	0,014	2,735	0,021	4,078	0,028	5,441	0,043	8,152	0,057	10,930	0,071	13,626
100	1,67	0,015	1,446	0,029	2,772	0,043	4,110	0,057	5,469	0,086	8,184	0,115	10,946	0,143	13,639
300	5,00	0,048	1,531	0,089	2,843	0,131	4,169	0,173	5,519	0,258	8,213	0,345	10,969	0,429	13,658
500	8,33	0,082	1,572	0,151	2,875	0,220	4,196	0,308	5,881	0,431	8,224	0,575	10,978	0,716	13,665
750	12,50	0,126	1,600	0,228	2,897	0,331	4,211	0,436	5,553	0,647	8,231	0,862	10,981	1,074	13,668
1000	16,67	0,169	1,615	0,304	2,906	0,442	4,219	0,582	5,558	0,862	8,234	1,150	10,983	1,431	13,668
1500	25,00	0,255	1,626	0,458	2,917	0,663	4,223	0,874	5,561	1,294	8,235	1,725	10,984	2,147	13,668

RATIO 1/24															
LOAD [daN]		250		500		750		1000		1500		2000		2500	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,21	0,003	0,532	0,005	1,015	0,008	1,521	0,011	2,026	0,016	3,067	0,022	4,131	0,027	5,194
100	0,42	0,006	0,549	0,011	1,030	0,016	1,534	0,021	2,037	0,032	3,076	0,043	4,138	0,054	5,199
300	1,25	0,019	0,596	0,034	1,067	0,049	1,563	0,065	2,059	0,097	3,089	0,130	4,147	0,164	5,205
500	2,08	0,032	0,619	0,057	1,085	0,083	1,577	0,108	2,070	0,162	3,095	0,217	4,151	0,273	5,208
750	3,13	0,050	0,634	0,086	1,093	0,125	1,586	0,163	2,077	0,243	3,099	0,326	4,153	0,409	5,209
1000	4,17	0,067	0,642	0,115	1,103	0,167	1,590	0,218	2,080	0,325	3,100	0,435	4,153	0,546	5,210
1500	6,25	0,102	0,648	0,174	1,107	0,250	1,592	0,327	2,082	0,487	3,101	0,652	4,154	0,818	5,210

Wear due to the combined action of load and travel speed

POWER TABLES - SJM 407

RATIO 1/7															
LOAD [daN]		500		1000		1500		2000		3000		4000		5000	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,83	0,02	3,13	0,03	6,09	0,05	9,13	0,06	12,20	0,10	18,35	0,13	24,56	0,16	30,43
100	1,67	0,03	3,21	0,06	6,16	0,10	9,19	0,13	12,24	0,19	18,39	0,26	24,59	0,32	30,45
300	5,00	0,11	3,36	0,20	6,28	0,29	9,30	0,39	12,34	0,58	18,45	0,77	24,64	0,96	30,48
500	8,33	0,18	3,43	0,33	6,33	0,49	9,34	0,65	12,37	0,97	18,47	1,29	24,65	1,60	30,49
750	12,50	0,27	3,46	0,50	6,36	0,73	9,36	0,97	12,39	1,45	18,47	1,94	24,66	2,40	30,49
1000	16,67	0,36	3,48	0,67	6,37	0,98	9,36	1,30	12,39	1,94	18,48	2,58	24,65	3,19	30,49
1500	25,00	0,55	3,48	1,00	6,37	1,47	9,36	1,95	12,39	2,90	18,47	3,87	24,65	4,79	30,49

RATIO 1/28															
LOAD [daN]		500		1000		1500		2000		3000		4000		5000	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,21	0,006	1,178	0,012	2,279	0,018	3,410	0,024	4,554	0,036	6,915	0,049	9,333	0,062	11,757
100	0,42	0,006	1,214	0,012	2,310	0,018	3,437	0,024	4,577	0,036	6,931	0,049	9,345	0,062	11,766
300	1,25	0,007	1,296	0,012	2,371	0,018	3,482	0,024	4,613	0,036	6,956	0,049	9,362	0,062	11,778
500	2,08	0,007	1,333	0,013	2,400	0,018	3,505	0,024	4,627	0,036	6,964	0,049	9,368	0,062	11,781
750	3,13	0,007	1,355	0,013	2,417	0,018	3,517	0,024	4,636	0,036	6,968	0,049	9,370	0,062	11,783
1000	4,17	0,007	1,363	0,013	2,421	0,018	3,521	0,024	4,639	0,036	6,969	0,049	9,371	0,062	11,783
1500	6,25	0,007	1,367	0,013	2,422	0,018	3,519	0,024	4,638	0,036	6,968	0,049	9,370	0,062	11,783

POWER TABLES - SJM 559

RATIO 1/9															
LOAD [daN]		1000		2000		3000		4000		5000		7500		10000	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,83	0,037	7,00	0,072	13,77	0,109	20,78	0,145	27,78	0,182	34,85	0,276	52,71	0,370	70,68
100	1,67	0,074	7,11	0,145	13,85	0,218	20,83	0,291	27,81	0,365	34,87	0,560	53,45	0,740	70,68
300	5,00	0,229	7,29	0,439	13,97	0,657	20,91	0,875	27,86	1,096	34,90	1,656	52,73	2,221	70,68
500	8,33	0,386	7,37	0,734	14,02	1,096	20,94	1,460	27,88	1,828	34,91	2,761	52,73	3,701	70,69
750	12,50	0,581	7,40	1,103	14,04	1,646	20,95	2,191	27,89	2,743	34,92	4,142	52,73	5,554	70,71
1000	16,67	0,776	7,41	1,471	14,05	2,194	20,95	2,921	27,89	3,656	34,91	5,528	52,78	7,408	70,74
1500	25,00	1,163	7,41	2,205	14,04	3,290	20,95	4,379	27,88	5,498	35,00	8,290	52,77	11,116	70,76

RATIO 1/36															
LOAD [daN]		1000		2000		3000		4000		5000		7500		10000	
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]	Power IN [kW]	Torque IN [Nm]
50	0,21	0,014	2,61	0,027	5,11	0,040	7,72	0,054	10,31	0,069	13,12	0,105	20,11	0,143	27,31
100	0,42	0,028	2,65	0,054	5,15	0,081	7,75	0,108	10,33	0,138	13,13	0,211	20,12	0,286	27,31
300	1,25	0,086	2,74	0,164	5,21	0,245	7,79	0,325	10,35	0,413	13,15	0,632	20,13	0,858	27,31
500	2,08	0,145	2,78	0,274	5,23	0,405	7,74	0,543	10,36	0,689	13,16	1,054	20,13	1,430	27,32
750	3,13	0,220	2,80	0,411	5,24	0,613	7,81	0,814	10,37	1,034	13,16	1,581	20,13	2,146	27,33
1000	4,17	0,294	2,80	0,549	5,24	0,818	7,81	1,086	10,37	1,378	13,16	2,110	20,15	2,861	27,32
1500	6,25	0,440	2,80	0,822	5,23	1,226	7,80	1,628	10,37	2,067	13,16	3,167	20,16	4,291	27,32

Wear due to the action of travel speed

Wear due to the combined action of load and travel speed

EFFICIENCY TABLES

As with any other transmission component, it is useful on a practical level to take into consideration the actual efficiency of the jack. The values in the table do not refer only to the power transmission of the gearbox, but also the "screw-nut screw" efficiency between the trapezoidal screw and wheel (translating jack) or between spindle and nut (rotating jack) are considered.

EFFICIENCY TABLES - SJM 184

RATIO 1/4							
	LOAD [daN]	50	100	200	300	400	500
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η
50	0,83	0,27	0,30	0,31	0,31	0,31	0,32
100	1,67	0,26	0,29	0,31	0,31	0,31	0,32
300	5	0,24	0,28	0,30	0,31	0,31	0,31
500	8,33	0,24	0,28	0,30	0,31	0,31	0,31
750	12,5	0,23	0,27	0,30	0,31	0,31	0,31
1000	16,67	0,23	0,27	0,30	0,31	0,31	0,31
1500	25	0,22	0,27	0,30	0,31	0,31	0,31

RATIO 1/16							
	LOAD [daN]	50	100	200	300	400	500
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η
50	0,21	0,16	0,20	0,22	0,22	0,22	0,22
100	0,42	0,16	0,19	0,21	0,22	0,22	0,22
300	1,25	0,15	0,19	0,21	0,22	0,22	0,22
500	2,08	0,14	0,18	0,21	0,22	0,22	0,22
750	3,13	0,14	0,18	0,21	0,22	0,22	0,22
1000	4,17	0,13	0,18	0,21	0,21	0,22	0,22
1500	6,25	0,13	0,17	0,20	0,21	0,22	0,22

EFFICIENCY TABLES - SJM 204

RATIO 1/4								
	LOAD [daN]	100	200	300	400	600	800	1000
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,83	0,26	0,28	0,28	0,29	0,29	0,29	0,29
100	1,67	0,25	0,27	0,28	0,28	0,29	0,29	0,29
300	5	0,24	0,26	0,27	0,28	0,28	0,29	0,29
500	8,33	0,23	0,26	0,27	0,28	0,28	0,28	0,29
750	12,5	0,22	0,26	0,27	0,28	0,28	0,28	0,29
1000	16,67	0,22	0,26	0,27	0,28	0,28	0,28	0,29
1500	25	0,22	0,25	0,27	0,28	0,28	0,28	0,29

RATIO 1/16								
	LOAD [daN]	100	200	300	400	600	800	1000
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,21	0,20	0,11	0,07	0,06	0,04	0,03	0,02
100	0,42	0,19	0,10	0,07	0,06	0,04	0,03	0,02
300	1,25	0,17	0,10	0,06	0,05	0,04	0,03	0,02
500	2,08	0,16	0,10	0,06	0,05	0,04	0,03	0,02
750	3,13	0,16	0,10	0,06	0,05	0,04	0,03	0,02
1000	4,17	0,15	0,09	0,06	0,05	0,04	0,03	0,02
1500	6,25	0,15	0,09	0,06	0,05	0,04	0,03	0,02

EFFICIENCY TABLES - SJM 306

RATIO 1/6								
	LOAD [daN]	250	500	750	1000	1500	2000	2500
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,83	0,28	0,29	0,29	0,29	0,29	0,29	0,29
100	1,67	0,27	0,28	0,28	0,29	0,29	0,29	0,29
300	5	0,25	0,27	0,28	0,28	0,29	0,28	0,29
500	8,33	0,25	0,27	0,28	0,27	0,28	0,28	0,29
750	12,5	0,24	0,27	0,28	0,28	0,28	0,28	0,29
1000	16,67	0,24	0,27	0,28	0,28	0,28	0,28	0,29
1500	25	0,24	0,27	0,28	0,28	0,28	0,28	0,29

RATIO 1/24								
	LOAD [daN]	250	500	750	1000	1500	2000	2500
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,21	0,18	0,19	0,19	0,19	0,19	0,19	0,19
100	0,42	0,18	0,19	0,19	0,19	0,19	0,19	0,19
300	1,25	0,16	0,18	0,19	0,19	0,19	0,19	0,19
500	2,08	0,16	0,18	0,19	0,19	0,19	0,19	0,19
750	3,13	0,15	0,18	0,18	0,19	0,19	0,19	0,19
1000	4,17	0,15	0,18	0,18	0,19	0,19	0,19	0,19
1500	6,25	0,15	0,18	0,18	0,19	0,19	0,19	0,19

EFFICIENCY TABLES - SJM 407

RATIO 1/7								
	LOAD [daN]	500	1000	1500	2000	3000	4000	5000
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,83	0,25	0,26	0,26	0,26	0,26	0,25	0,26
100	1,67	0,24	0,25	0,25	0,26	0,25	0,25	0,26
300	5	0,23	0,25	0,25	0,25	0,25	0,25	0,26
500	8,33	0,23	0,25	0,25	0,25	0,25	0,25	0,26
750	12,5	0,23	0,25	0,25	0,25	0,25	0,25	0,26
1000	16,67	0,22	0,25	0,25	0,25	0,25	0,25	0,26
1500	25	0,22	0,25	0,25	0,25	0,25	0,25	0,26

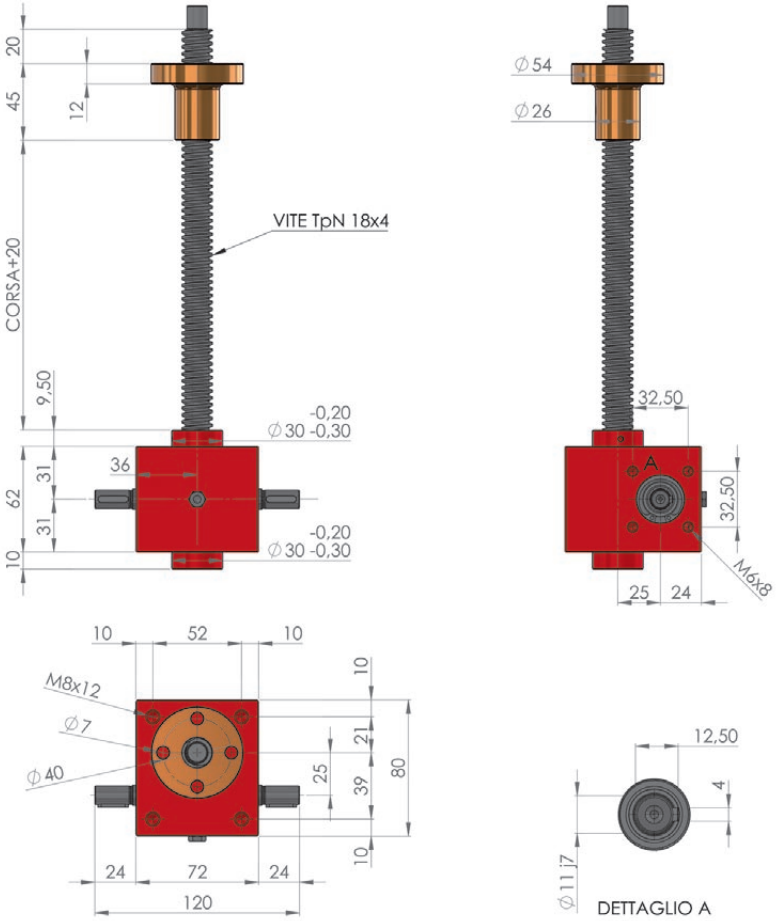
RATIO 1/28								
	LOAD [daN]	500	1000	1500	2000	3000	4000	5000
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,21	0,17	0,17	0,17	0,17	0,17	0,17	0,17
100	0,42	0,16	0,17	0,17	0,17	0,17	0,17	0,17
300	1,25	0,15	0,16	0,17	0,17	0,17	0,17	0,17
500	2,08	0,15	0,16	0,17	0,17	0,17	0,17	0,17
750	3,13	0,14	0,16	0,17	0,17	0,17	0,17	0,17
1000	4,17	0,14	0,16	0,17	0,17	0,17	0,17	0,17
1500	6,25	0,14	0,16	0,17	0,17	0,17	0,17	0,17

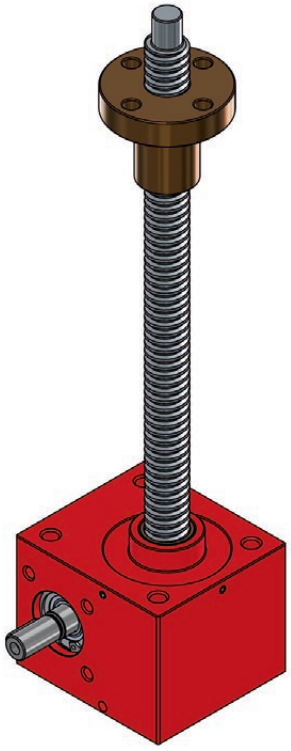
EFFICIENCY TABLES - SJM 559

RATIO 1/9								
	LOAD [daN]	1000	2000	3000	4000	5000	7500	10000
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,83	0,22	0,23	0,23	0,22	0,22	0,22	0,22
100	1,67	0,22	0,23	0,22	0,22	0,22	0,22	0,22
300	5	0,21	0,22	0,22	0,22	0,22	0,22	0,22
500	8,33	0,21	0,22	0,22	0,22	0,22	0,22	0,22
750	12,5	0,21	0,22	0,22	0,22	0,22	0,22	0,22
1000	16,67	0,21	0,22	0,22	0,22	0,22	0,22	0,22
1500	25	0,21	0,22	0,22	0,22	0,22	0,22	0,22

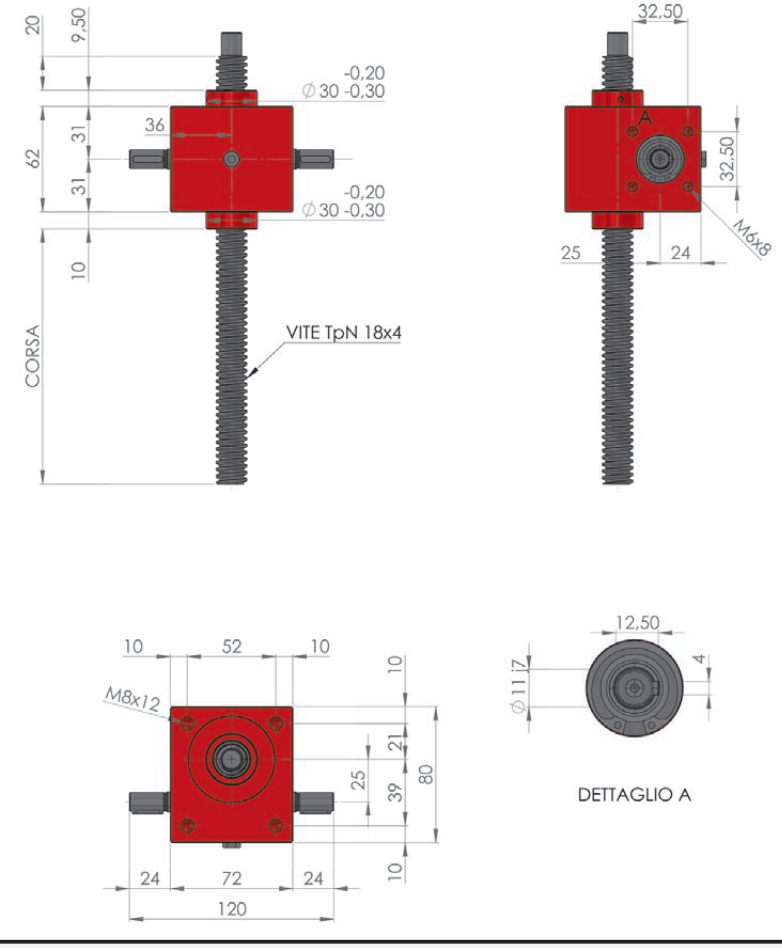
RATIO 1/36								
	LOAD [daN]	1000	2000	3000	4000	5000	7500	10000
Number of rev. IN [rpm]	Screw trav. speed [mm/s]	η	η	η	η	η	η	η
50	0,21	0,15	0,15	0,15	0,15	0,15	0,15	0,14
100	0,42	0,15	0,15	0,15	0,15	0,15	0,15	0,14
300	1,25	0,14	0,15	0,15	0,15	0,15	0,15	0,14
500	2,08	0,14	0,15	0,15	0,15	0,15	0,15	0,14
750	3,13	0,14	0,15	0,15	0,15	0,15	0,15	0,14
1000	4,17	0,14	0,15	0,15	0,15	0,15	0,15	0,14
1500	6,25	0,14	0,15	0,15	0,15	0,15	0,15	0,14

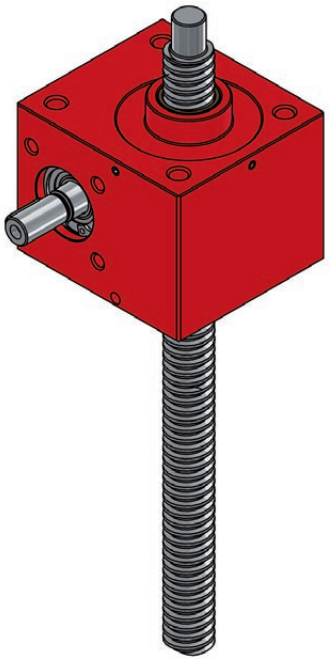
DIMENSION TABLE
SJM 184
ROTATING VERSION



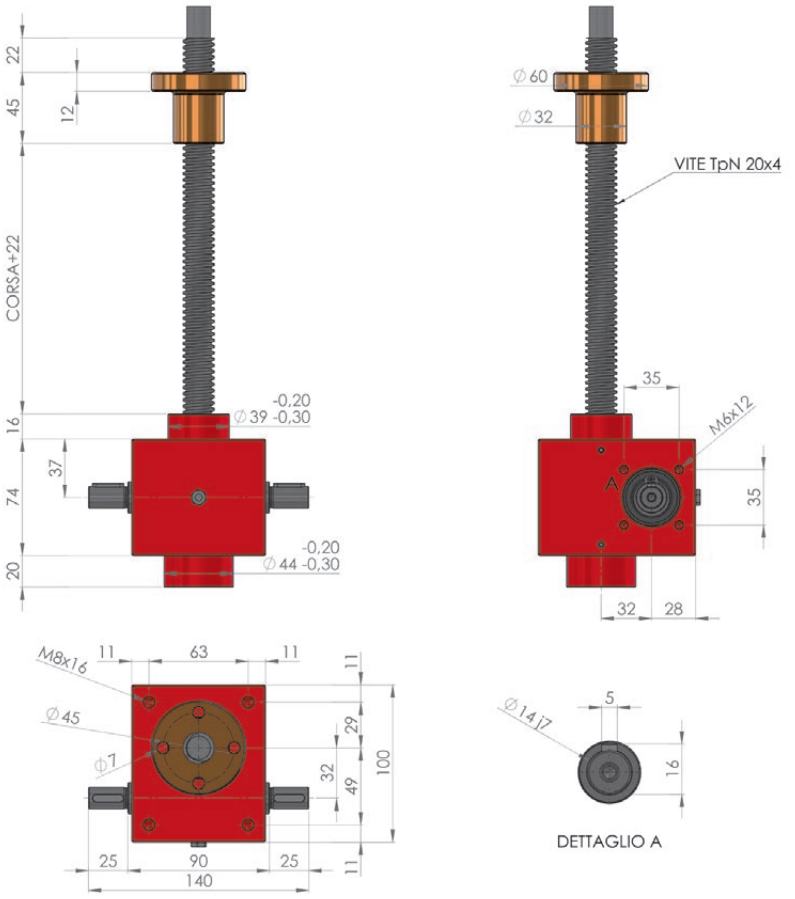


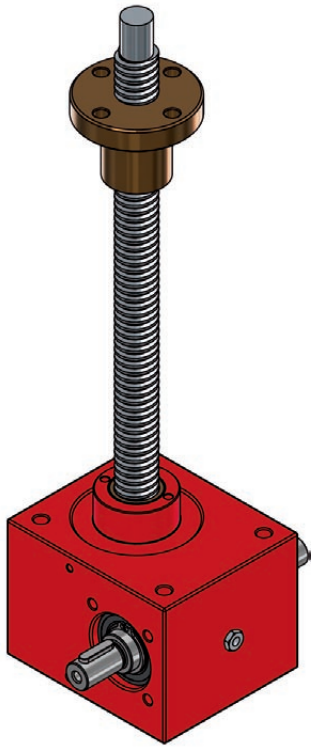
DIMENSION TABLE
SJM 184
TRANSLATING VERSION



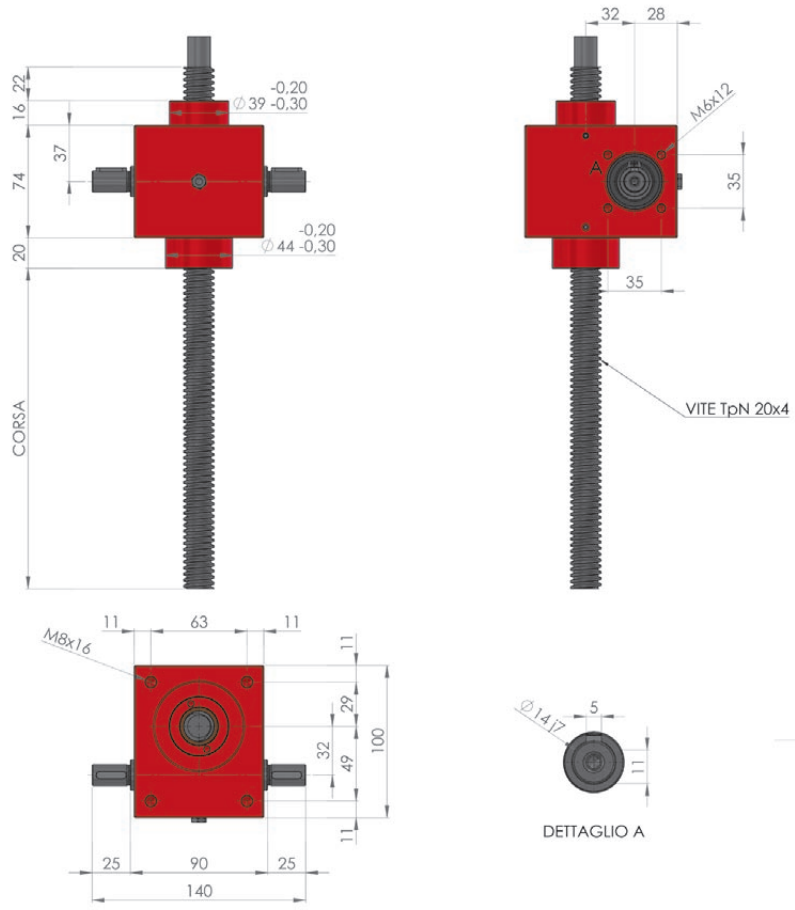


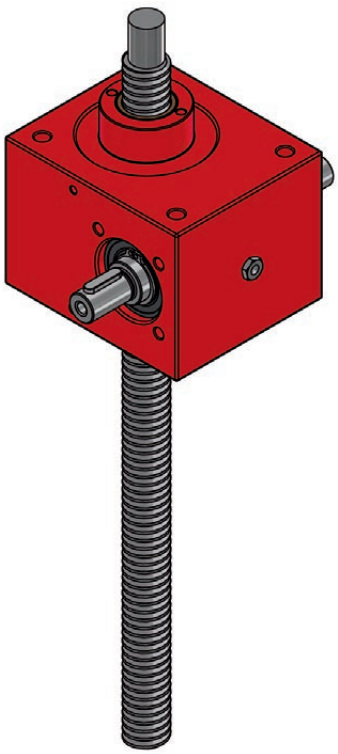
DIMENSION TABLE
SJM 204
ROTATING VERSION



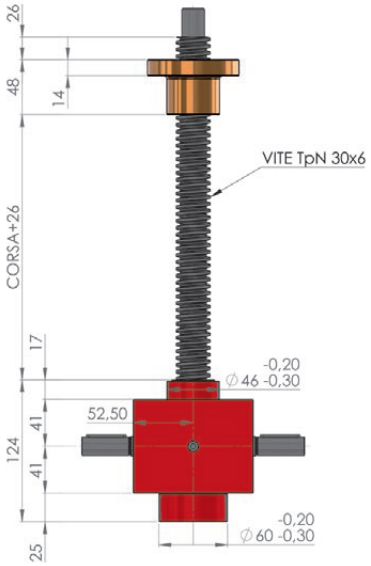


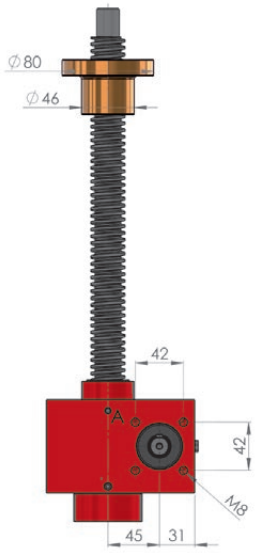
DIMENSION TABLE
SJM 204
TRANSLATING VERSION

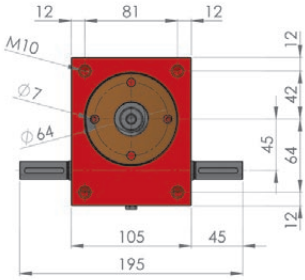


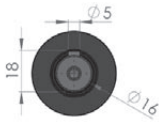


DIMENSION TABLE
SJM 306
ROTATING VERSION

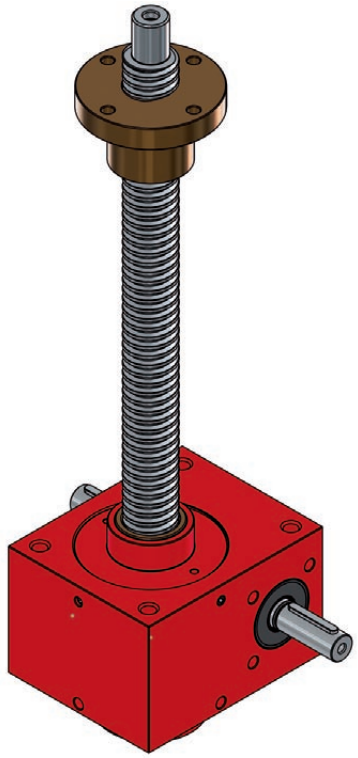




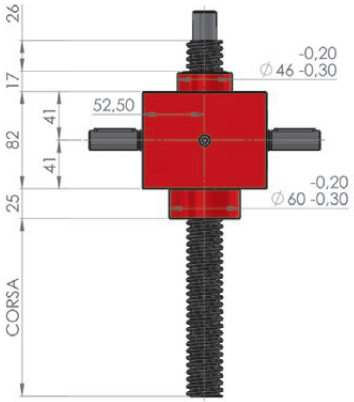


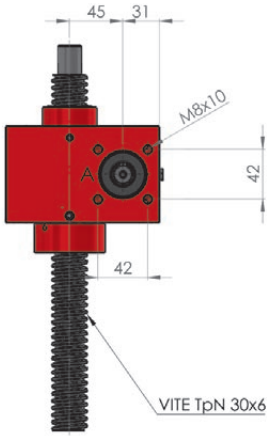


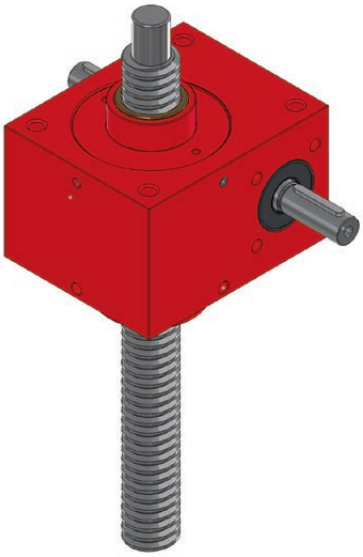
DETTAGLIO A
SCALA 1 : 1

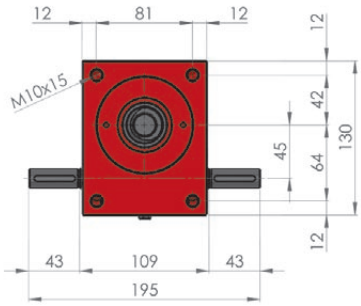


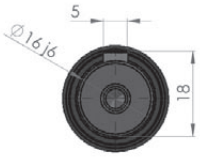
DIMENSION TABLE
SJM 306
TRANSLATING VERSION





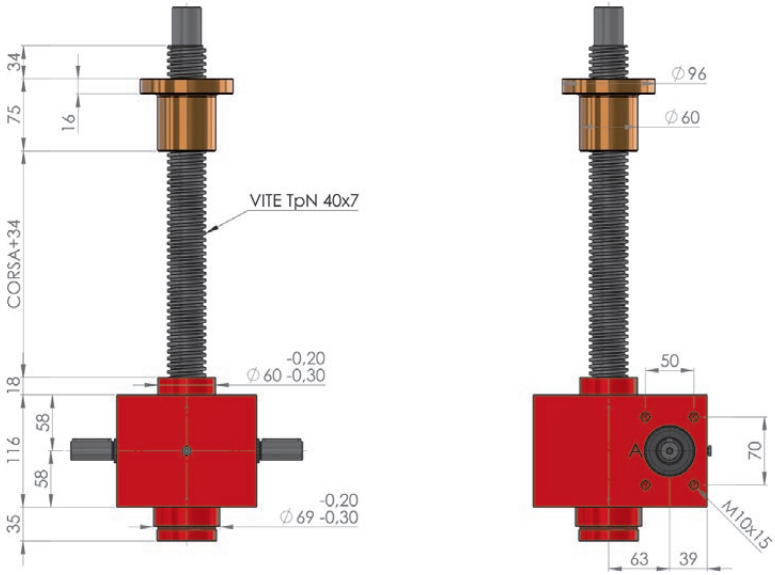


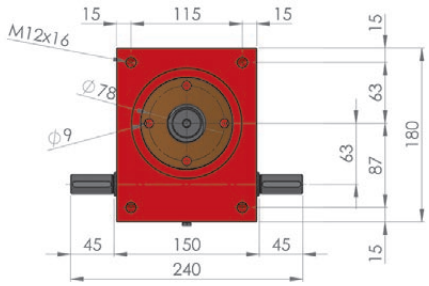


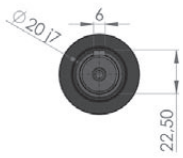


DETTAGLIO A

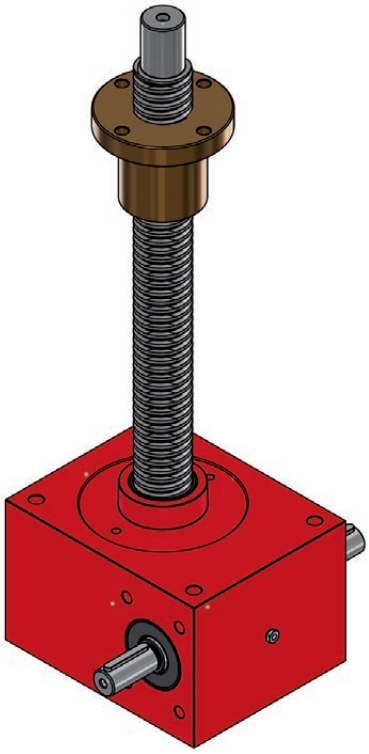
DIMENSION TABLE
SJM 407
ROTATING VERSION



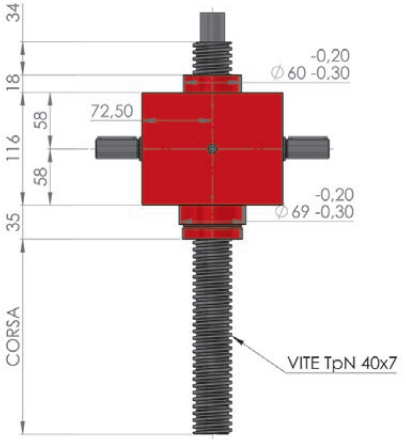


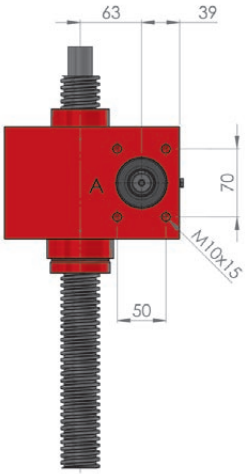


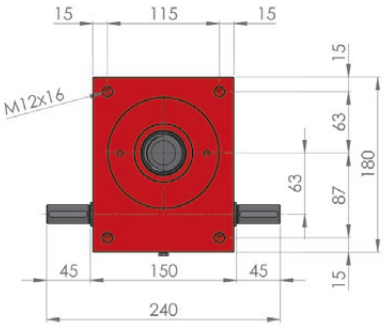
DETTAGLIO A



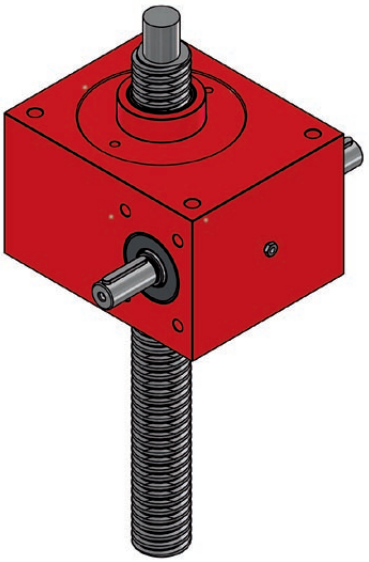
DIMENSION TABLE
SJM 407
TRANSLATING VERSION



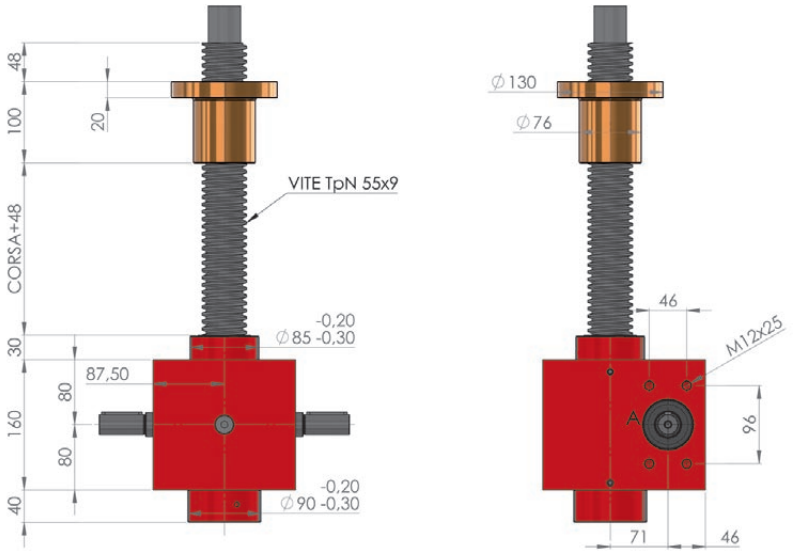


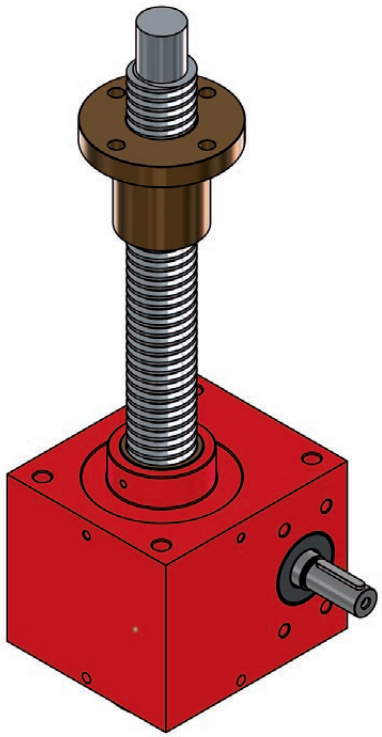


DETTAGLIO A

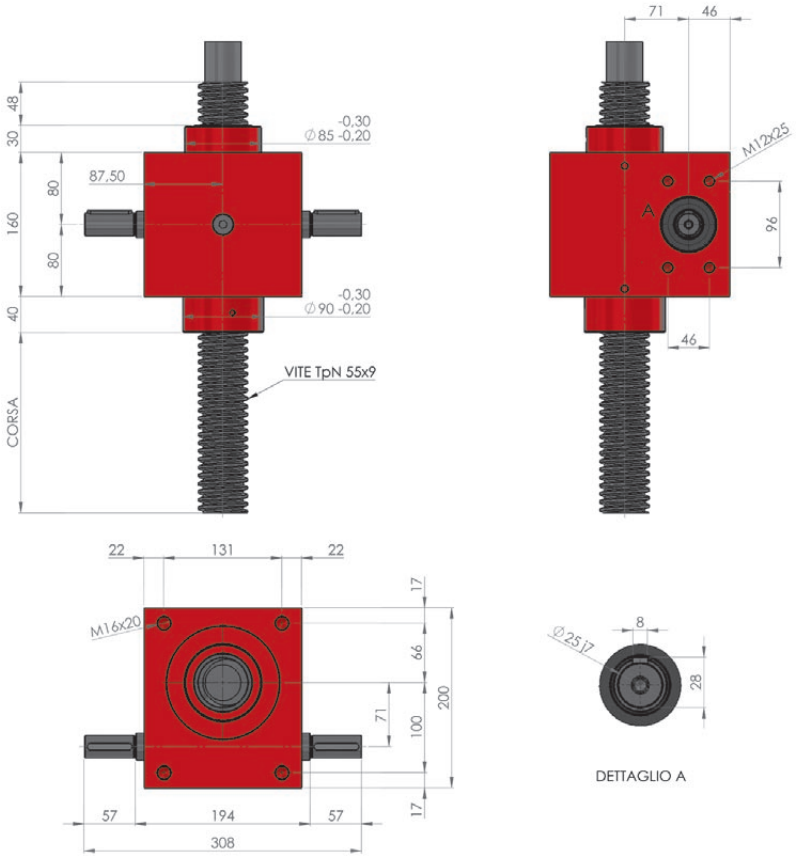


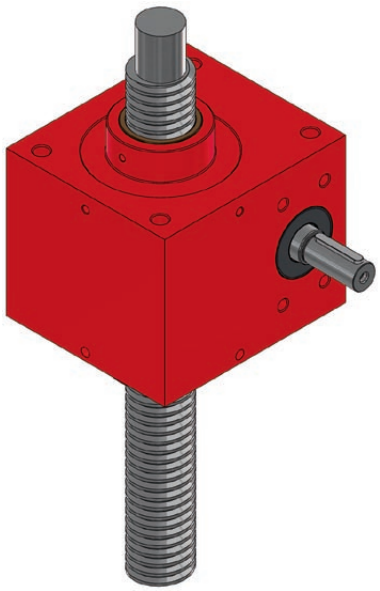
DIMENSION TABLE
SJM 559
ROTATING VERSION





DIMENSION TABLE
SJM 559
TRANSLATING VERSION





ACCESSORIES FOR JACKS

Jacks need specific adjustments for functionality and safety reasons as well as to create particular movement systems. This is why Marzorati offers a wide range of accessories that provide the user with a product suitable for their needs.

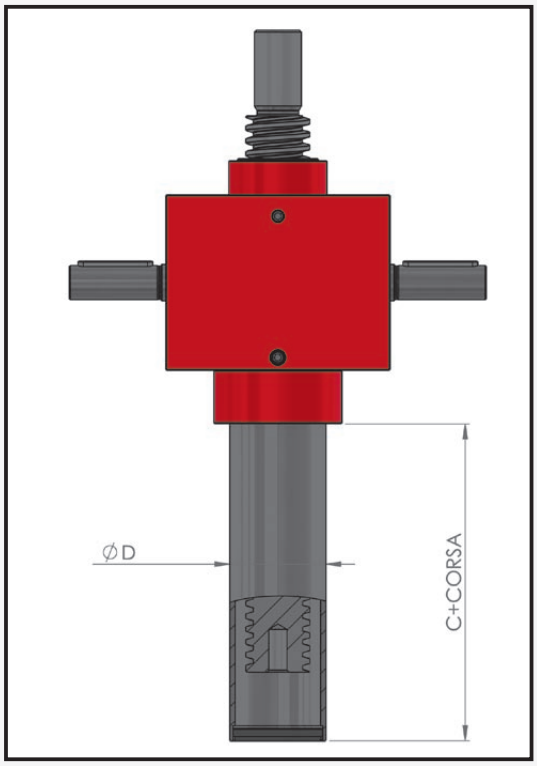
The accessories and jack sizes on which they can be mounted are described below. You can indicate the optional extras needed in the Jack Selection Form at the end of the catalogue. If you have any specific requests (materials other than the standard, made-to-measure accessories, etc.), you should contact our technical department.

ACCESSORIES FOR JACKS - PR RIGID PROTECTION

The rigid protection is the best solution to protect the trapezoidal screw from the impurities of the environment in which the jack operates. It is applicable only to the translating versions.

It is possible for the same sizes to request the rigid protection in an oil bath (to allow semi-automatic lubrication of the screw).

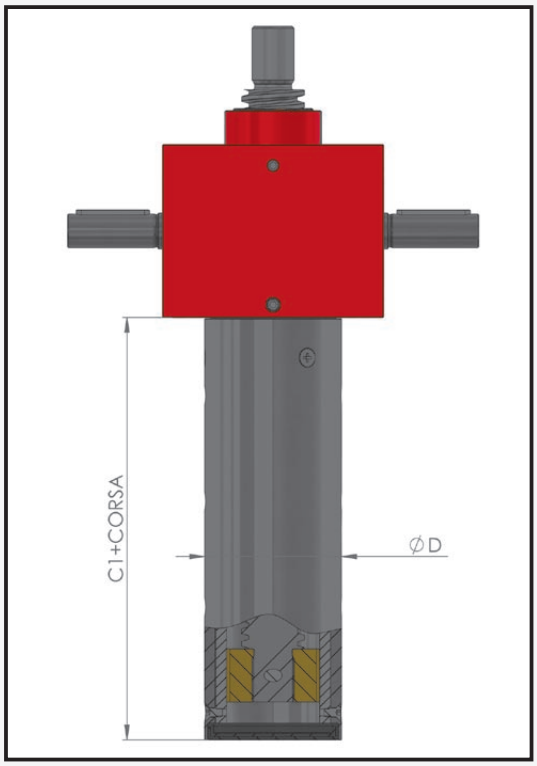
SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
C	21	21	27	35	35
D	32	33.7	45	65	82.5



ACCESSORIES FOR JACKS - GT RIGID ANTI-ROTATION PROTECTION

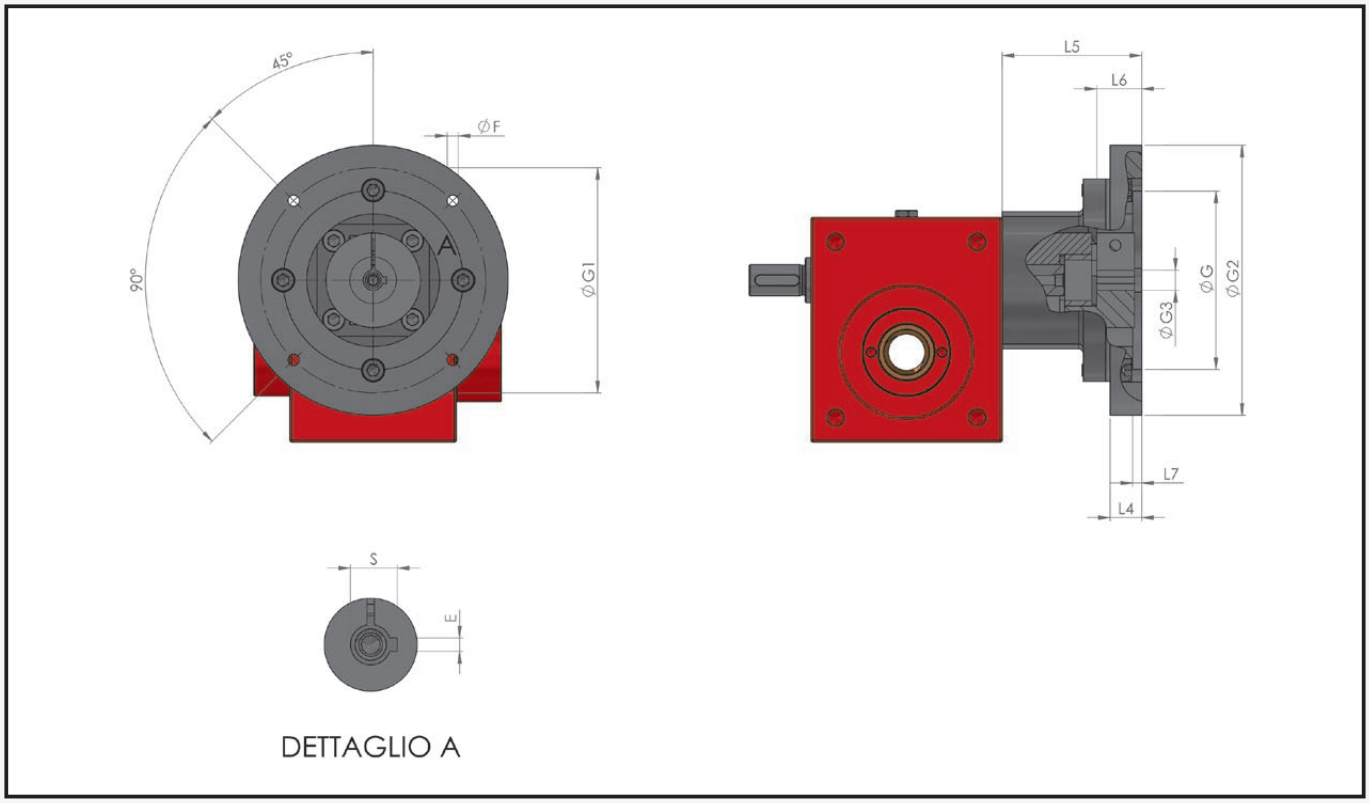
It is possible to mount a bronze bushing inside the rigid protection that allows the translating jack to counteract the rotation of the spindle. The anti-rotation system consists of a bushing joined with the spindle that slides along two guides inside the protective tube. The outer diameter of the tube is greater than that for the RP for some sizes so as to accommodate such parts.

SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
C1	65	80	99,5	120	115
D	32	48,3	65	70	95



ACCESSORIES FOR JACKS - PAM MOTOR CONNECTION FLANGE

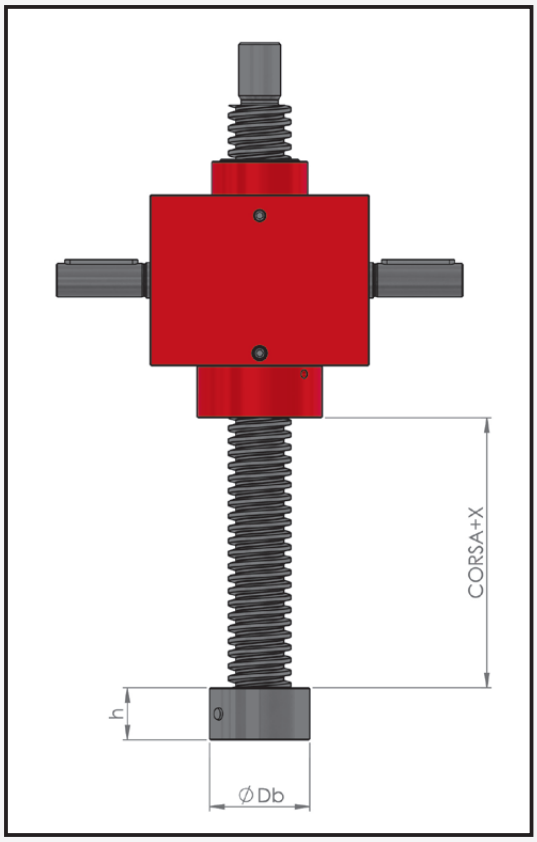
The jack is generally moved through the use of electric motors, gearboxes or handwheels. The table below shows the dimensions of the standard flanges for connection to electric motors.



SIZE	FLANGE	G	G1	G2	G3	E	F	L4	L5	L6	L7	S	α	β
SJM184	56B5	80	100	120	9	3	M6	14	54	20	4	10,4	45°	90°
	63B5	95	115	140	11	4	M8	14	54	23	4	12,8	45°	90°
	63B14	60	75	90	11	4	6	19	54	23	4	12,8	45°	90°
	71B5	110	130	160	14	5	M8	21	61	30	4	16,3	45°	90°
	71B14	70	85	105	14	5	7	14	54	30	4	16,3	45°	90°
SJM204	56B5	80	100	120	9	3	M6	14	62	20	4	10,4	45°	90°
	63B5	95	115	140	11	4	M8	14	62	23	4	12,8	45°	90°
	63B14	60	75	90	11	4	6	26	62	23	4	12,8	45°	90°
	71B5	110	130	160	14	5	M8	21	69	30	4	16,3	45°	90°
	71B14	70	85	105	14	5	7	14	69	30	4	16,3	45°	90°
SJM306	63B5	95	115	140	11	4	M8	28	85	23	4	12,8	45°	90°
	71B5	110	130	160	14	5	M8	18	90	30	4	16,3	45°	90°
	80B5	130	165	200	19	6	M10	17,5	91,5	40	4	21,8	45°	90°
	80B14	80	100	120	19	6	7	26	83	40	4	21,8	45°	90°
	90B5	130	165	200	24	8	M10	17,5	91,5	50	4	27,3	45°	90°
	90B14	95	115	140	24	8	9	21	93	50	4	27,3	45°	90°
	100-112B14	110	130	160	28	8	9	21	93	60	5	31,3	45°	90°
SJM407	71B5	110	130	160	14	5	M8	16	117	30	5	16,3	45°	90°
	80B5	130	165	200	19	6	M10	17,5	118,5	40	5	21,8	45°	90°
	90B5	130	165	200	24	8	M10	20	118,5	50	5	27,3	45°	90°
	100-112B5	180	215	250	28	8	M12	27,5	128,5	60	5	31,3	45°	90°
	100-112B14	110	130	160	28	8	9	29,5	128,5	60	5	31,3	45°	90°
SJM559	71B5	110	130	160	14	5	M8	18	120,5	30	5	16,3	45°	90°
	80B5	130	165	200	19	6	M10	23	125,5	40	5	21,8	45°	90°
	90B5	130	165	200	24	8	M10	17	125,5	50	5	27,3	45°	90°
	100-112B5	180	215	250	28	8	M12	33	135,5	60	5	31,3	45°	90°

ACCESSORIES FOR JACKS - RS ANTI-SLIP OUT SAFETY BUSH

In order to prevent the trapezoidal screw from slipping out of the jack due to incorrect manoeuvres, it is advisable to mount the RS steel bushing on the end of the spindle. It is important to take into consideration that even a single collision of the anti-slip safety bush against the jack housing may be enough to damage the transmission.



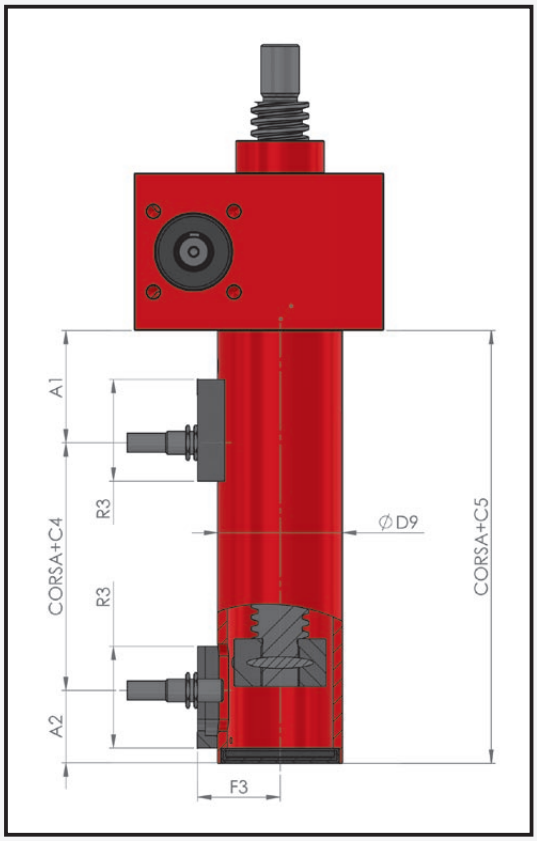
SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
h	18	25	25	25	25
Db	23	36	48	54	76
X	15	15	20	25	25

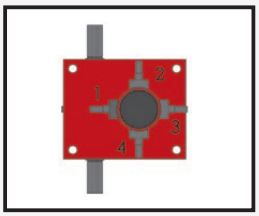
ACCESSORIES FOR JACKS - FI INDUCTIVE LIMIT SWITCHES

To electronically control the stroke it is possible to use inductive limit switches that are mounted using special supports on the rigid protection. The RS bush is coupled to the trapezoidal screw in order to detect the position. If the anti-rotation guide function is also required, the jack will be supplied with the GT nut.

Note: The standard mounting position of the limit switches is 1. However, it is possible to mount them in positions 2, 3 or 4 on request; in this case indicate the configuration in the Jack Selection Form section.

Unless indicated otherwise, the jack will be supplied with the limit switches oriented in position 1.





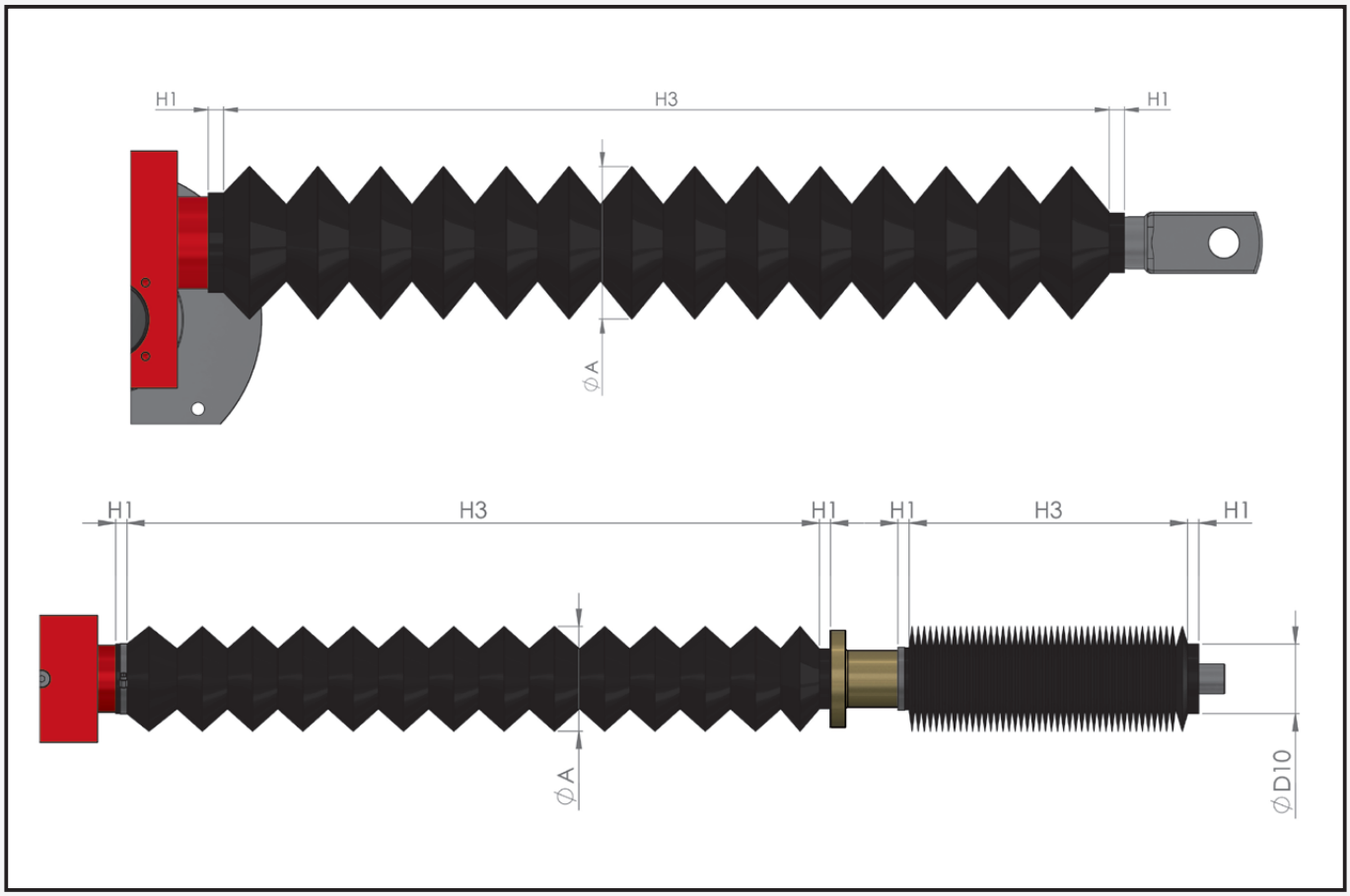
SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
D9	32	48,3	65	70	95
R3	25	45	53	53	53
A1	30	46	50	64	69
A2	27	27	32	35	35
F3	29	36,5	45	47	59,5
C4	22	29	29	32	29
C5	79	102	111	131	133

ACCESSORIES FOR JACKS - PE ELASTIC PROTECTION

Elastic protection is another option for the trapezoidal screw and is suitable for environments with impurities. Unlike rigid protection, it consists of a PHV or PVC bellows that follows the movement of the spindle. It is compatible with both T and R versions. Elastic protections with flanged ends or custom designed are available upon request.

In addition to the materials above, it is possible to supply bellows for particularly harsh environments in aluminised Kevlar for greater mechanical resistance; in silica with aluminium for protecting the spindle from accidental contact with molten metal; or glass fibre for temperatures up to 250°C.

For a horizontal mounting of the jack, it is necessary to apply support rings to prevent the bellows from resting on the spindle.

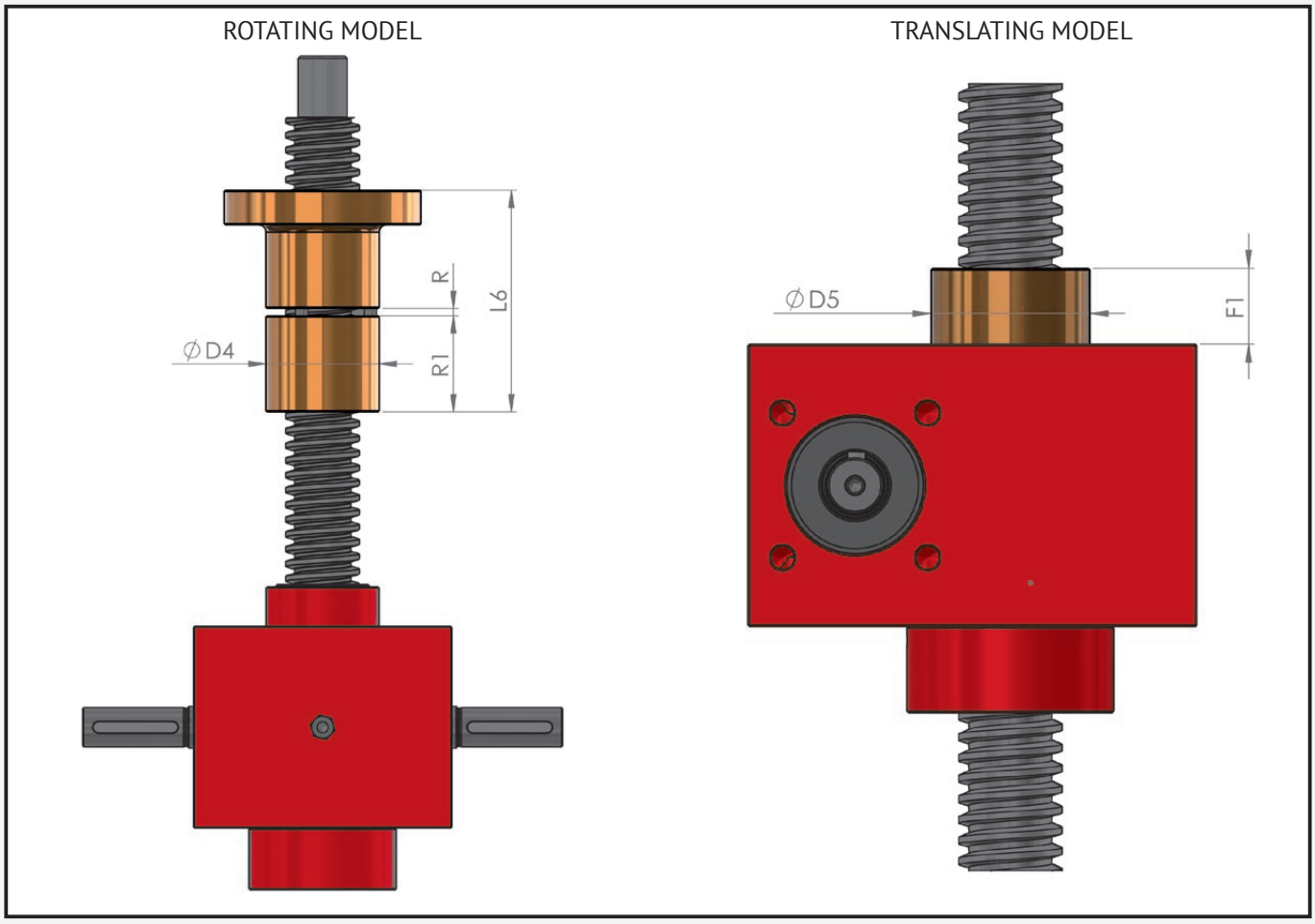


SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
H1	5	10	10	10	15
H3 max	stroke + H3 min	stroke + H3 min	stroke + H3 min	stroke + H3 min	stroke + H3 min
H3 min	1/4 - 1/5 of the stroke	1/4 - 1/5 of the stroke	1/4 - 1/5 of the stroke	1/4 - 1/5 of the stroke	1/4 - 1/5 of the stroke
A	56	63	100	89	130
D10	30	44	60	69	90

ACCESSORIES FOR JACKS - CS WEAR CONTROL AND SAFETY NUT SCREW

This safety device allows the jack to withstand the applied load even with nut screw wear (worm wheel for T model, nut for R model). The CS is made integral with it and when the level of wear jeopardises jack operations, it approaches the nut screw up to the limit value (indicated with X). When this value is reached, it is necessary to replace both the nut screw and the CS. Position R indicates the displacement of the safety nut and should be measured regularly to avoid excessive wear. It is extremely important to indicate the direction of the load (traction or compression) so that the CS works correctly. It is also possible to have a version of the safety nut with automatic control that detects the R position by using a proximity switch; this version is named CSU.

PLEASE NOTE: the use of the CS or CSU is not compatible with the RG.



R VERSION

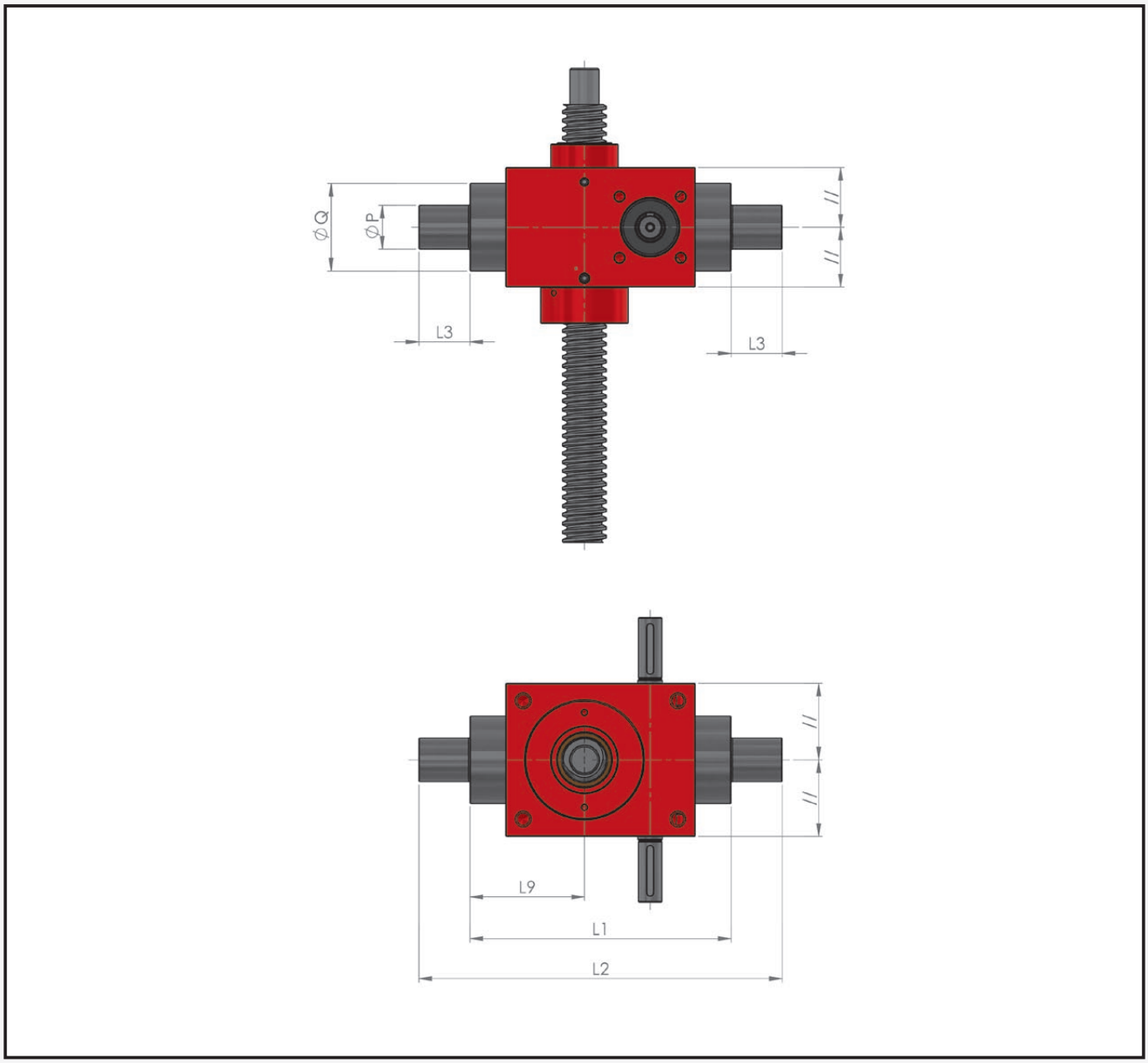
SIZE	SJM204	SJM306	SJM407	SJM559
L6	67	86	142,5	193,5
R	2	3	3,5	4,5
R1	20	39	64	89
D4	32	46	60	80
X	1	1,5	1,75	2,25

T VERSION

SIZE	SJM204	SJM306	SJM407	SJM559
D5	32	46	58	80
F1	9	22	34	54,5
X	1	1,5	1,75	2,25

ACCESSORIES FOR JACKS - PL OSCILLATING SIDE PIVOTS

The jack needs to be able to oscillate in certain applications in order to act as hinge in the system. Side pivots need be mounted on the jack housing to achieve this. With a compressive load, the buckling-load test will be performed in the Euler 2 condition.

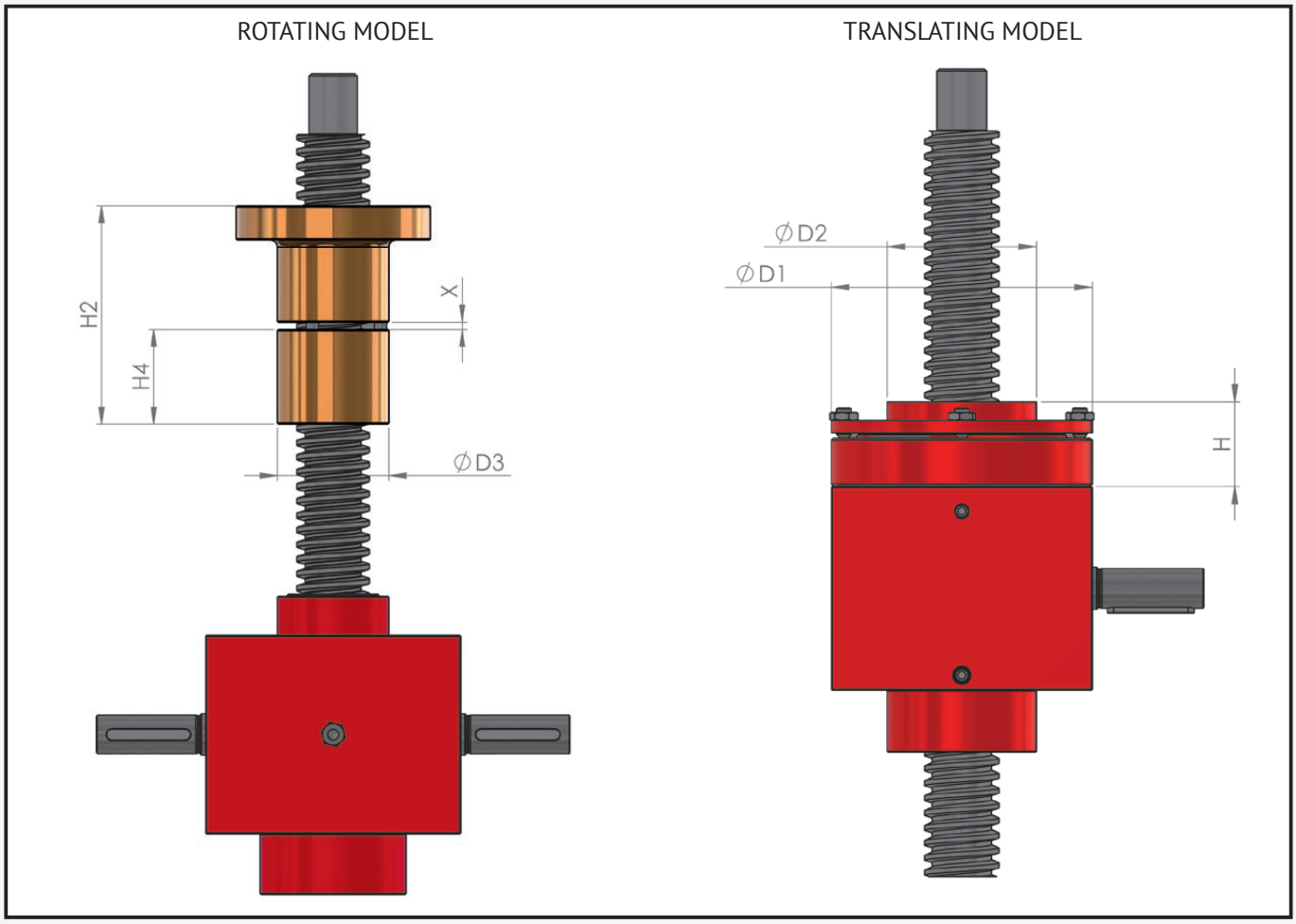


SIZE	SJM204	SJM306	SJM407	SJM559
Q	55	60	90	80
P	25	30	40	50
L1	125	180	225	261
L2	185	250	315	371
L3	30	35	45	55
L9	52,5	79	100,5	113,5

ACCESSORIES FOR JACKS - RG AXIAL CLEARANCE RECOVERY

The axial clearance between screw and nut is given by the tolerance of the coupling. When the load alternates between compression and traction, it is possible to reduce the axial clearance by means of the clearance recovery bush. The RG is connected to the nut screw by means of dowels in the R model or thanks to the action of the cover in the T models. To reduce the axial clearance, just tighten the cover or tighten the dowels, paying attention to avoid an excessive reduction which would result in an extreme loss of efficiency and excessive wear of the nut screw.

PLEASE NOTE: The use of the RG is not compatible with CS or CSU.



R MODEL

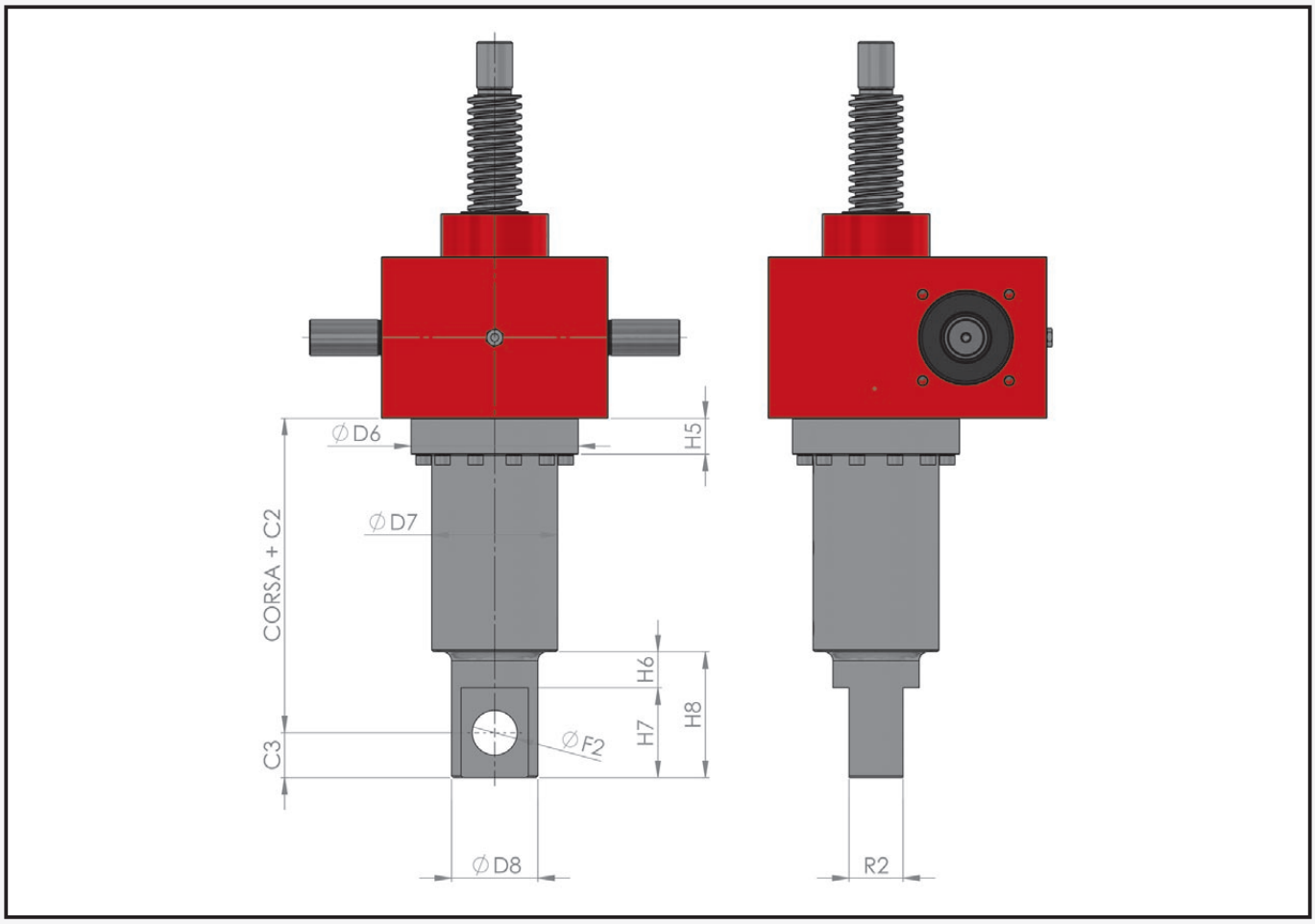
SIZE	SJM204	SJM306	SJM407	SJM559
D3	32	46	60	76
H2	82	89	142,5	193,5
H4	35	38	84	89
X	2	3	3,5	4,5

T MODEL

SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
D1	55	60	105	145	150
D2	-	38	60	69	90
H	30	35	34	40	42

ACCESSORIES FOR JACKS - PP OSCILLATING RIGID PROTECTION

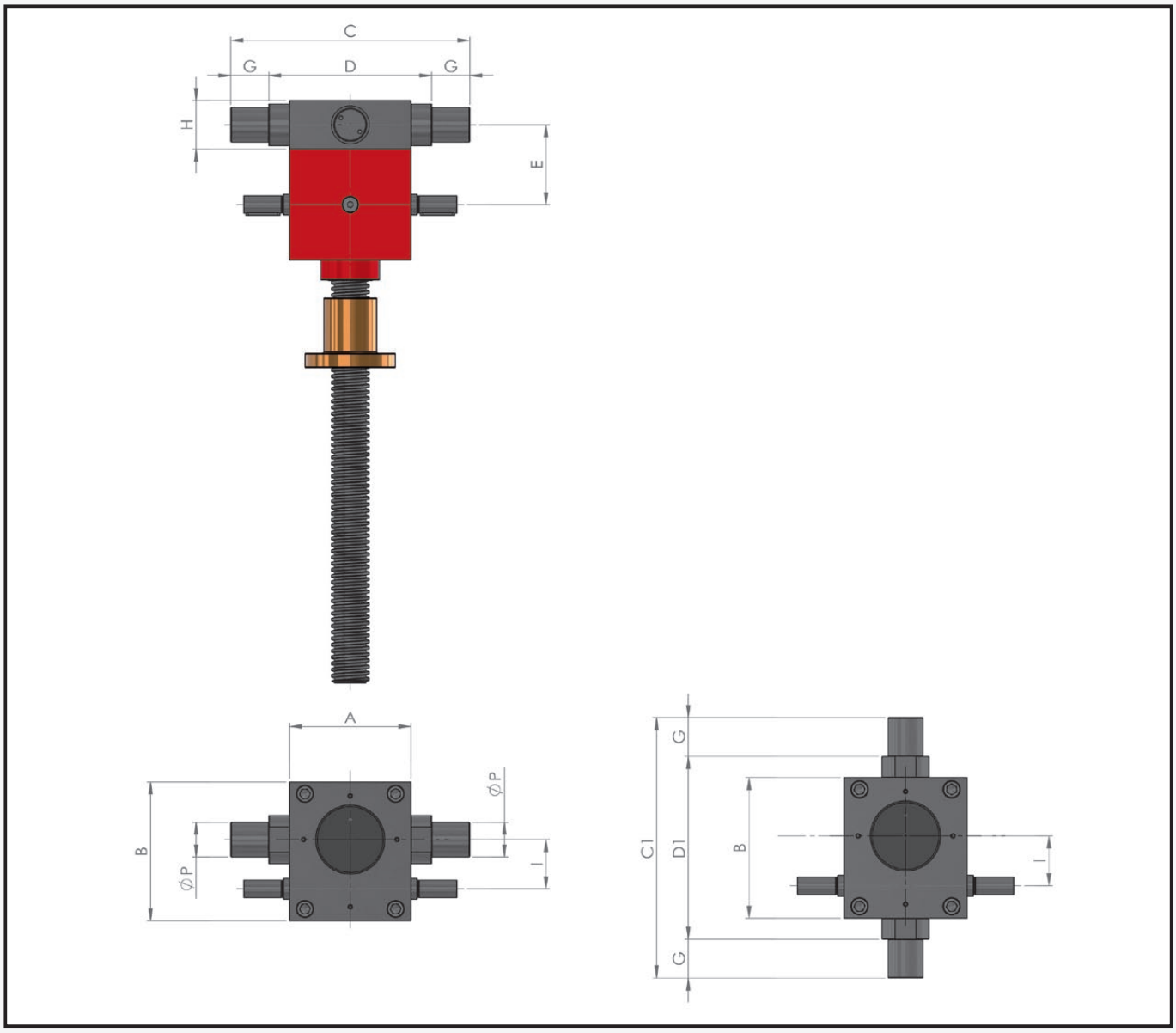
Like the side pivots, this accessory allows an oscillating assembly of the jack and also acts as rigid protection. However, it should be noted that in many cases it supports the load and, therefore, is not suitable for long strokes which would cause excessive deflection of the PP. As for the side pivots, buckling testing is carried out in the Euler 2 condition.



SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
D8	25	38	48	68	88
D7	40	45	70	95	105
D6	60	80	100	140	150
F2	12	20	20	40	40
C2	82	94	98	137	157
H8	50	55	70	95	140
H6	20	15	20	25	40
H7	30	40	50	70	100
C3	15	20	25	35	50
H5	10	15	20	20	20
R2	20	30	30	50	50

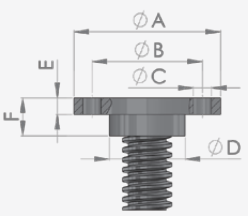
ACCESSORIES FOR JACKS - PO OSCILLATING PLATE

For some applications it is required the jack to have an oscillating mounting, in order to assume the hinge status in the system. To achieve this goal it is necessary to mount side pins. With compression load, peak load verification will be performed in Euler 2 condition.



SIZE	SJM184	SJM204	SJM306	SJM407	SJM559
A	72	85	105	145	175
B	80	100	130	180	200
C	162	195	225	295	345
D	112	135	155	205	235
E	46	52	61	83	115
G	25	30	35	45	55
H	30	30	40	50	70
P	20	25	30	40	50
I	25	32	45	63	71
C1	170	210	250	330	370
D1	120	150	180	240	260

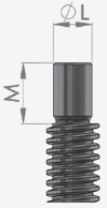
SPINDLE ENDS



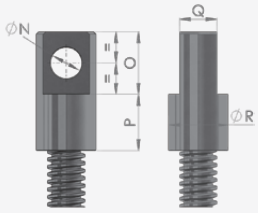
TP

TM

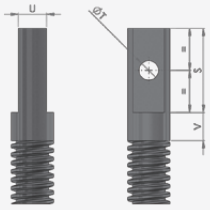
ST



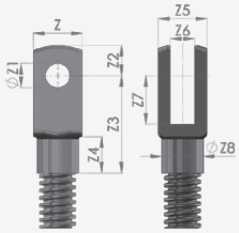
TL



TO



TR



TF

TS

SIZE	A	B	C	CH	D	E	F	G	H	I	L	M	N
SJM184	54	40	n°4x7	-	26	8	14	12x1	20	18x4	12	14	-
SJM204	79	60	n°4x11	19	39	8	21	14x2	20	20x4	15	20	20
SJM306	89	67	n°4x12	30	46	10	23	20x2,5	30	30x6	20	25	25
SJM407	109	85	n°4x13	41	60	15	30	30x3,5	30	40x7	25	30	35
SJM559	149	117	n°4x17	50	85	20	50	36x4	48	55x9	40	45	50

SIZE	O	P	Q	R	S	T	U	V	Z	Z1	Z2	Z3	Z4
SJM184	-	-	-	-	-	-	-	-	-	-	-	-	-
SJM204	40	35	25	38	50	10	14	20	24	12	14	48	18
SJM306	50	45	30	48	60	14	20	20	40	20	25	80	30
SJM407	70	55	40	68	80	22	30	20	55	30	38	110	38
SJM559	100	80	60	88	80	30	42	20	70	35	44	144	40

SIZE	Z5	Z6	Z7	Z8	Y	Y1	Y2	W	W1	W2	W3	W4	W5
SJM184	-	-	-	-	-	-	-	-	-	-	-	-	-
SJM204	24	12	24	20	22	12	16	32	12	17	16	50	6,5
SJM306	40	20	40	34	34	18	25	50	20	27	25	77	10
SJM407	55	30	54	48	50	25	37	70	30	36	35	110	15
SJM559	70	35	75	60	58	28	43	80	35	41	40	125	17

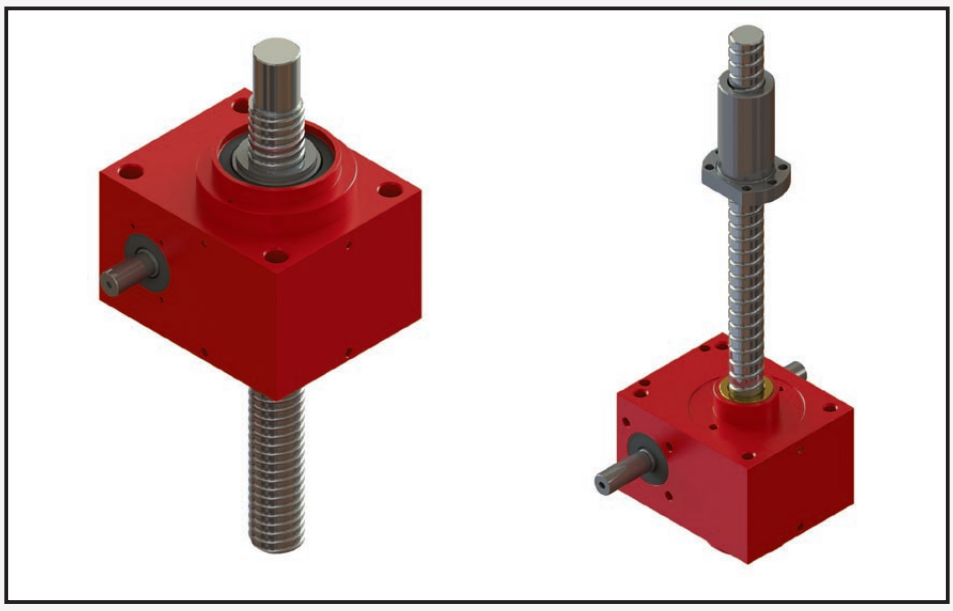
JACKS WITH RECIRCULATING BALL SCREW

The same sizes of Marzorati jacks are available with recirculating ball screws to ensure good and long-lasting efficiency, full customisation and a product suitable for high-performance applications. This particular type of transmission offers many advantages due to the construction differences with trapezoidal screws. The possible stroke speed is significantly higher (thanks in part to the longer worm pitches), in addition to better positioning accuracy, acceleration and overall dynamic stiffness. The efficiency of the transmission is also much higher, allowing for lower energy consumption and reduced heat development. The lifespan of a ball screw jack is approximately four times longer than a respective trapezoidal screw but deteriorates much faster under very high loads.

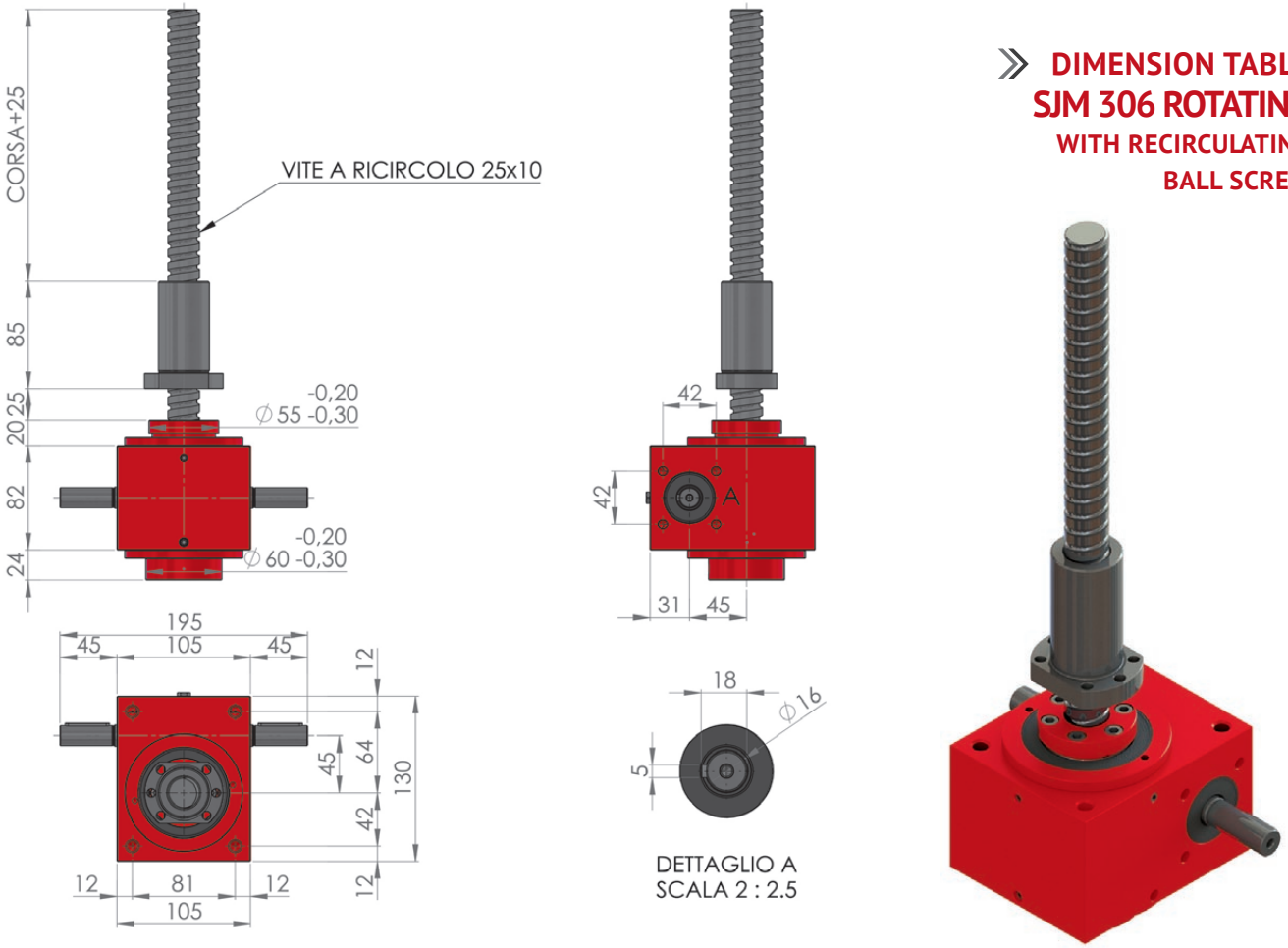
Another key aspect is the **reversibility** of the transmission, which therefore requires the presence of locking systems, such as brakes or contrast torques on the worm screw or in the structure to avoid motion reversal.

The tables below indicate the sizes of the ball screws that can be mounted on the jacks.

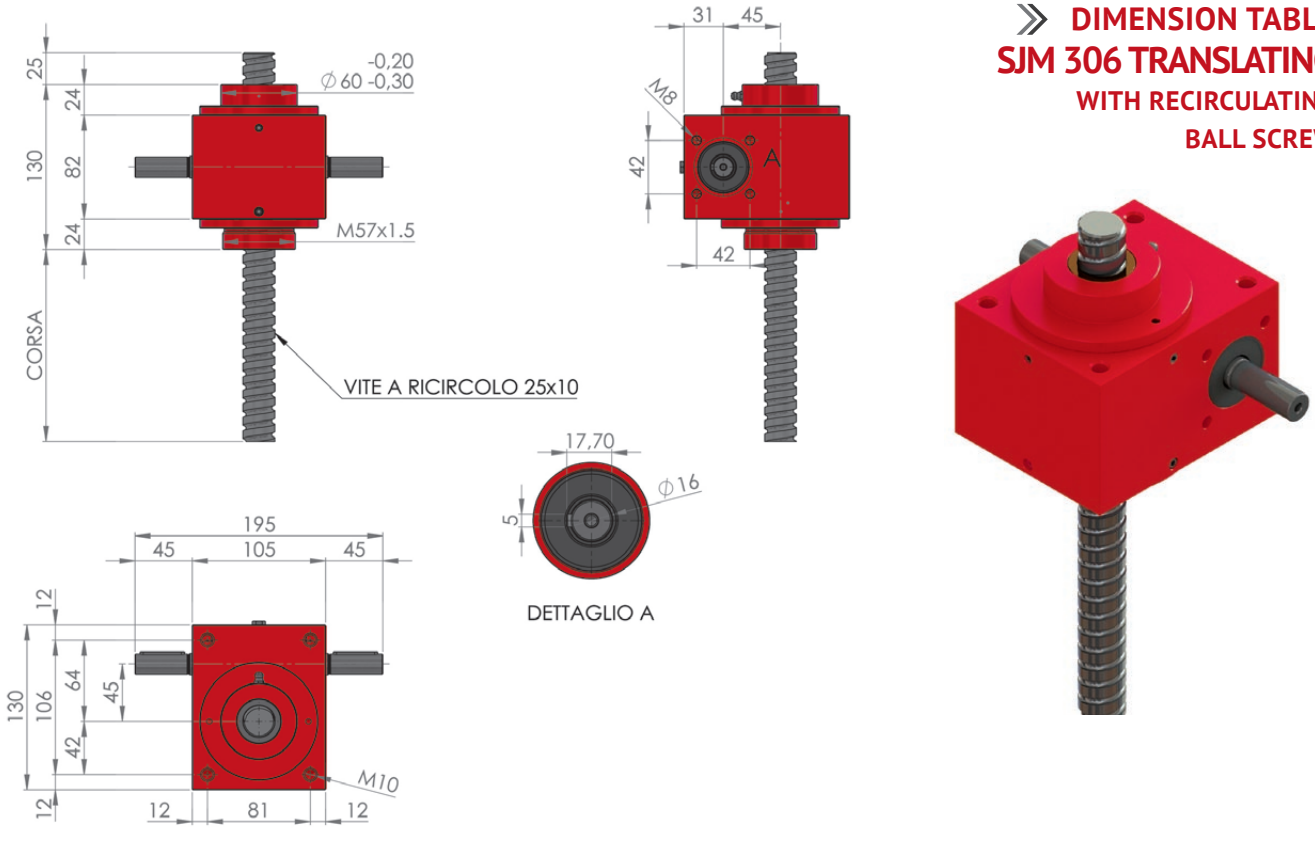
RECIRCULATING BALL SCREW dxp	TRANSLATING	ROTATING
20x5	SJM306	SJM306
20x10	SJM306	SJM306
20x20	SJM306	SJM306
25x5	SJM306-SJM407	SJM306-SJM407
25x10	SJM306-SJM407	SJM306-SJM407
25x25	SJM306-SJM407	SJM306-SJM407
32x5	SJM407-SJM559	SJM306-SJM407-SJM559
32x10	SJM407-SJM559	SJM306-SJM407-SJM559
32x20	SJM407-SJM559	SJM306-SJM407-SJM559
32x32	SJM407-SJM559	SJM306-SJM407-SJM559
40x5	SJM407	SJM407-SJM559
40x10	SJM407-SJM559	SJM407-SJM559
40x20	SJM407-SJM559	SJM407-SJM559
50x5		SJM559
50x10	SJM559	SJM559
50x20	SJM559	SJM559
50x40		SJM559
50x50		SJM559



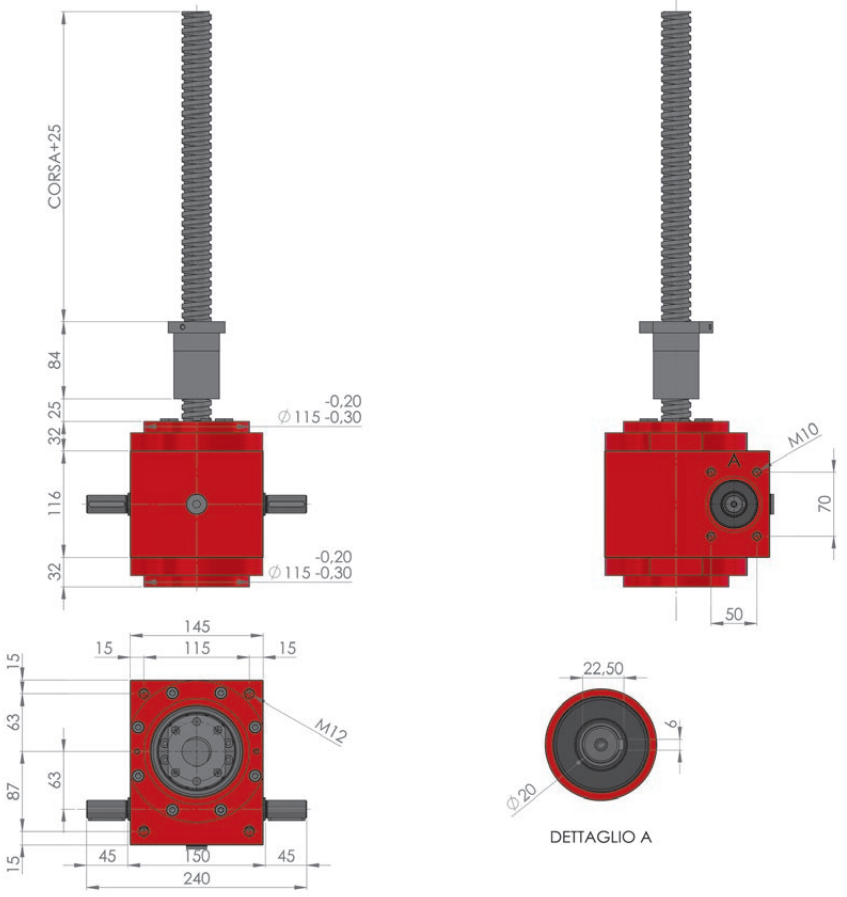
DIMENSION TABLE
SJM 306 ROTATING
WITH RECIRCULATING BALL SCREW

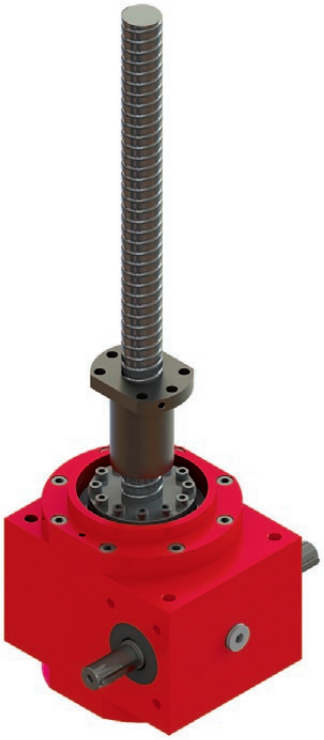


DIMENSION TABLE
SJM 306 TRANSLATING
WITH RECIRCULATING BALL SCREW

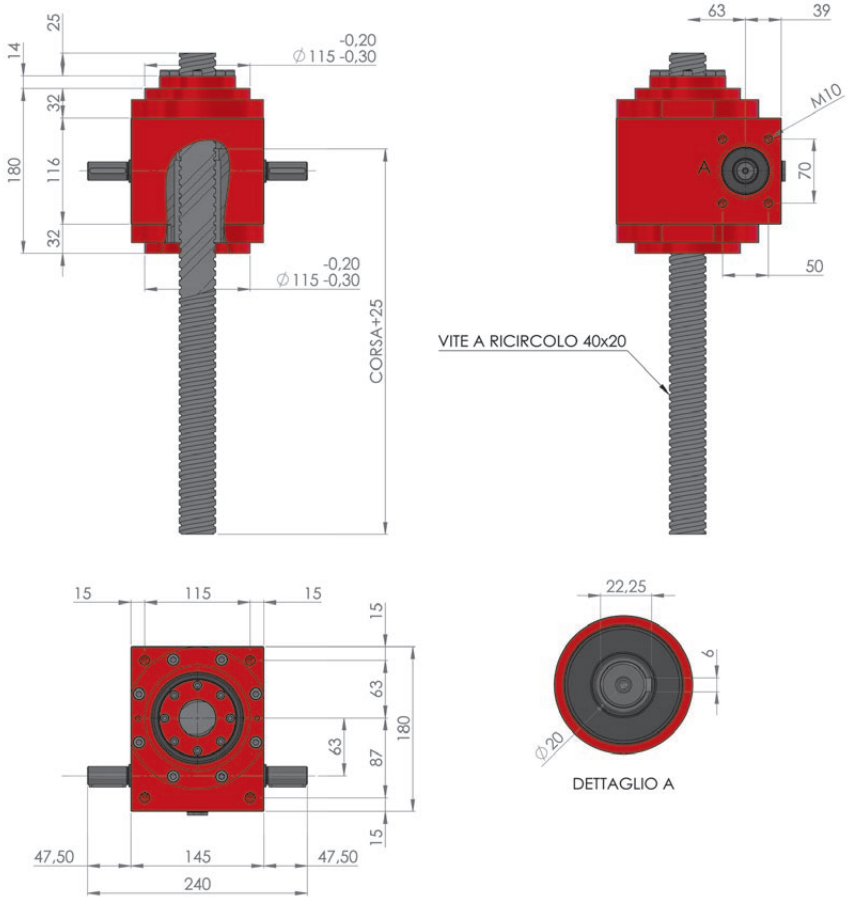


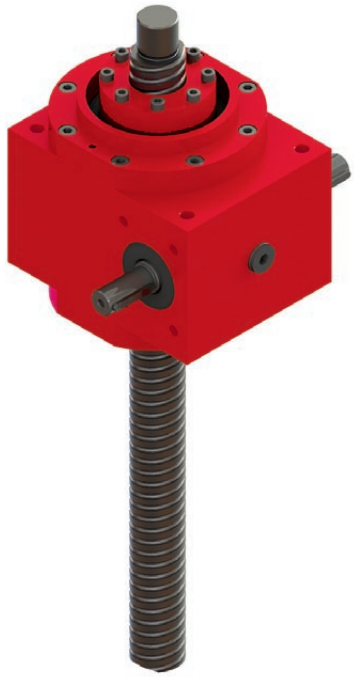
DIMENSION TABLE
SJM 407 ROTATING
WITH RECIRCULATING BALL SCREW



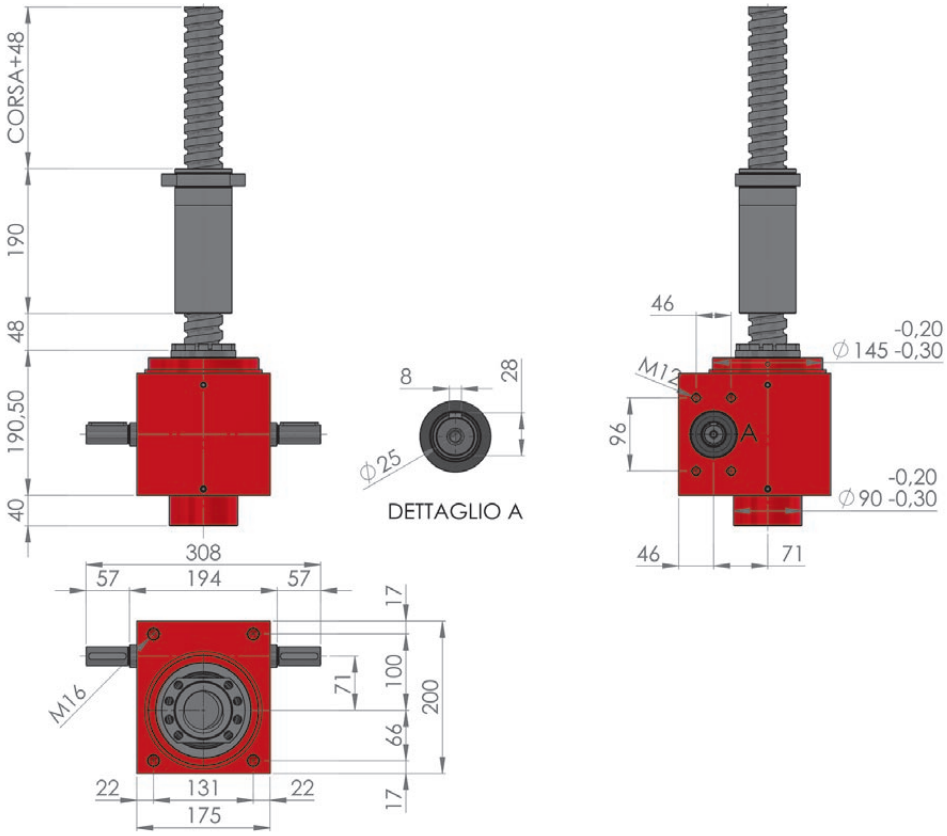


DIMENSION TABLE
SJM 407 TRANSLATING
WITH RECIRCULATING BALL SCREW

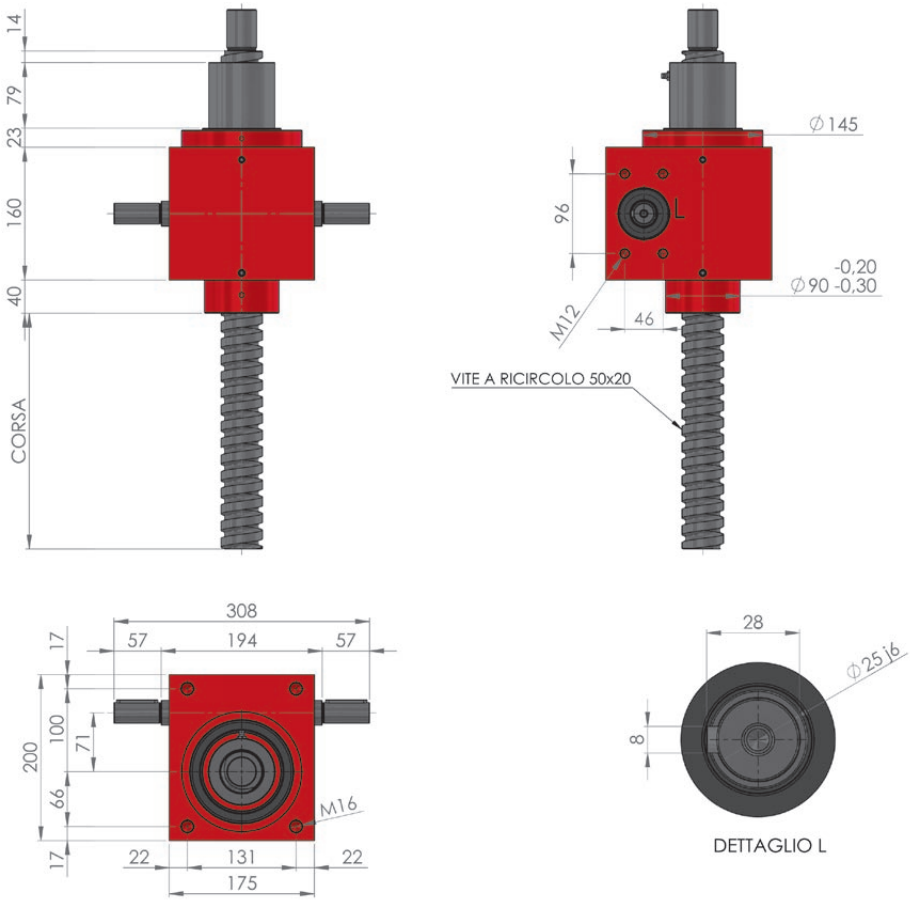




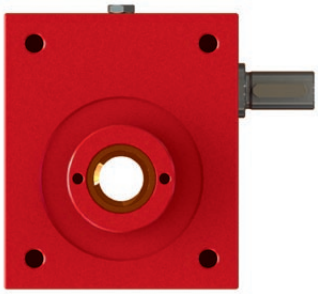
DIMENSION TABLE
SJM 559 ROTATING
WITH RECIRCULATING BALL SCREW



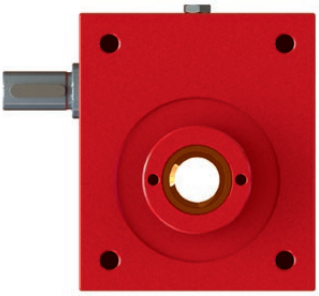
DIMENSION TABLE
SJM 559 TRANSLATING
WITH RECIRCULATING BALL SCREW



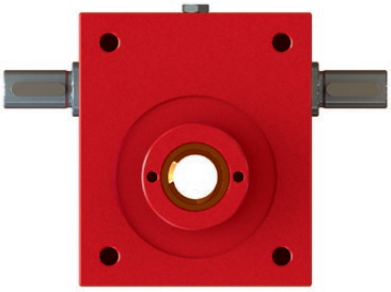
LAYOUTS



1



2



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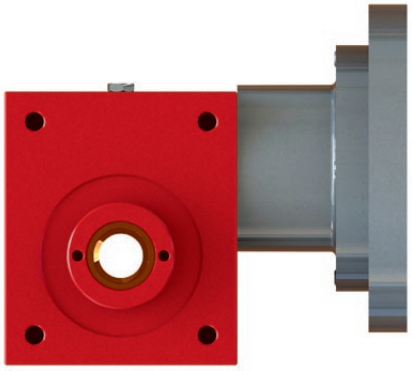

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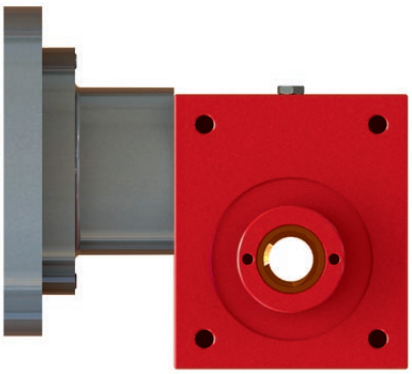

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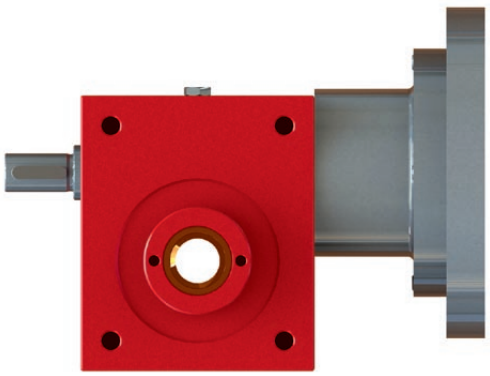

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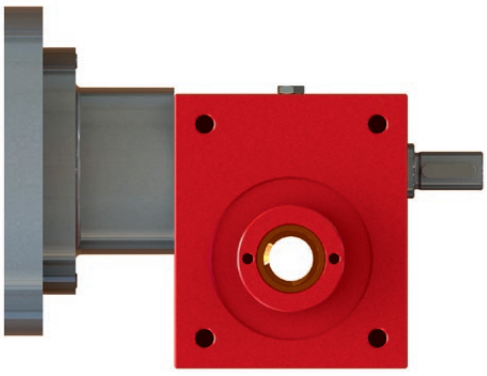
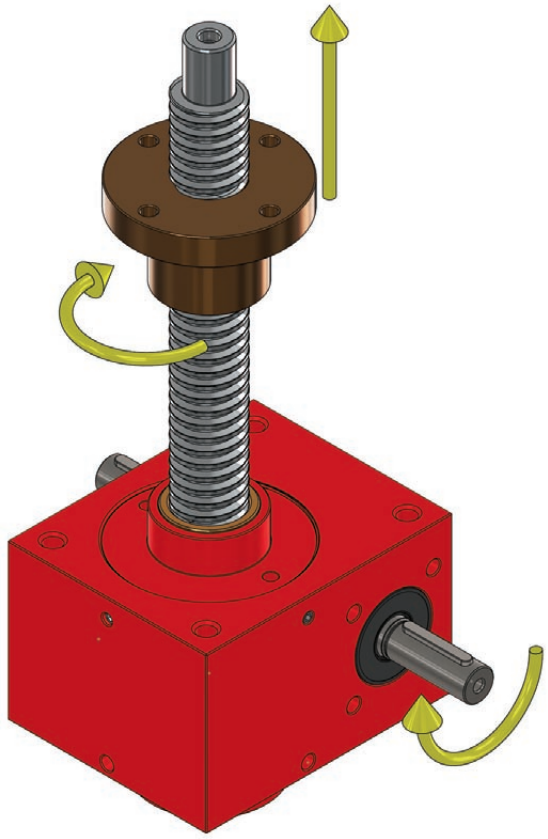


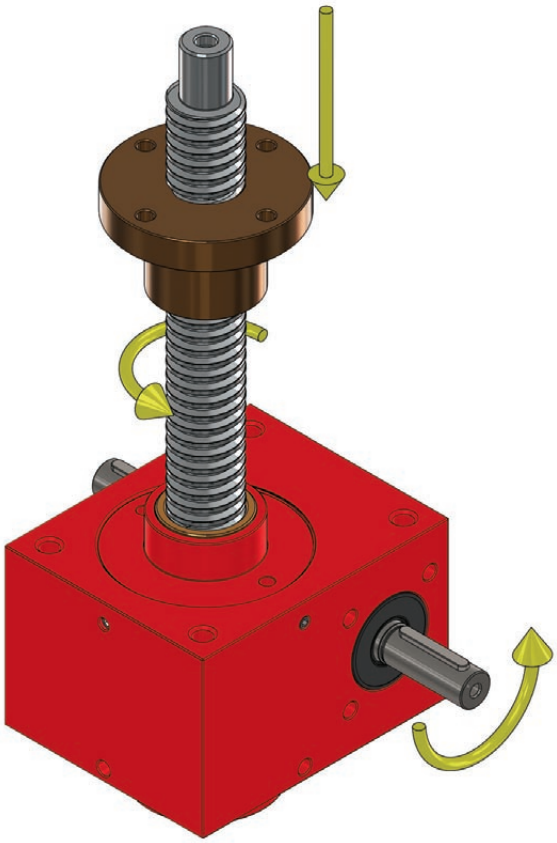
7

DIRECTIONS OF ROTATION

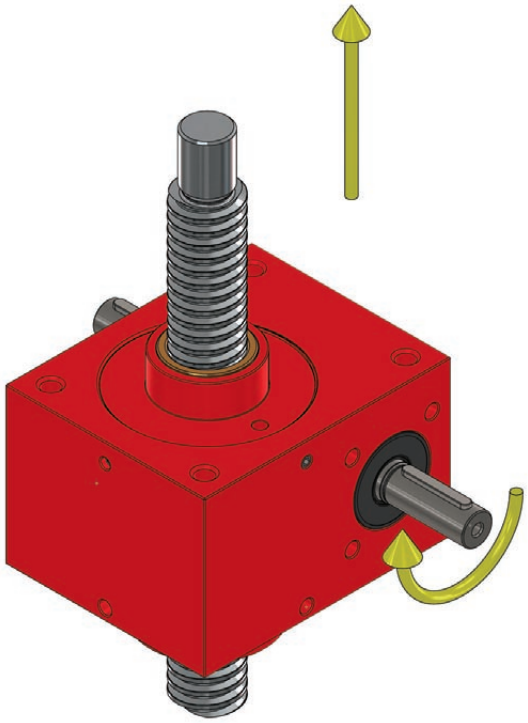
ROTATING JACK - ROTATION 1



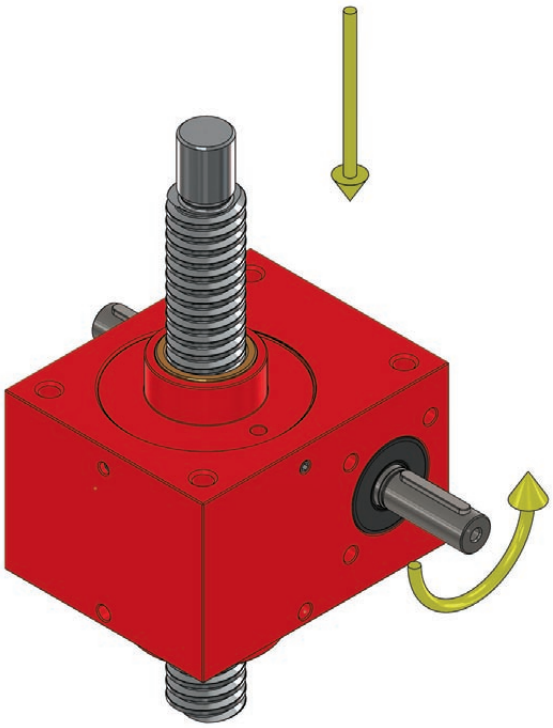
ROTATING JACK - ROTATION 2



TRANSLATING JACK - ROTATION 1



TRANSLATING JACK - ROTATION 2



JACK SELECTION FORM

COMPANY: _____ DATE: _____

ADDRESS: _____ PHONE: _____

E-MAIL: _____ FAX: _____

1. DESCRIPTION OF THE MACHINE AND THE SYSTEM

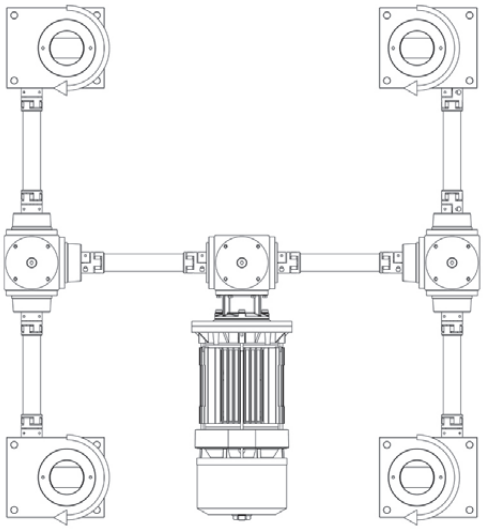
_____

_____

_____

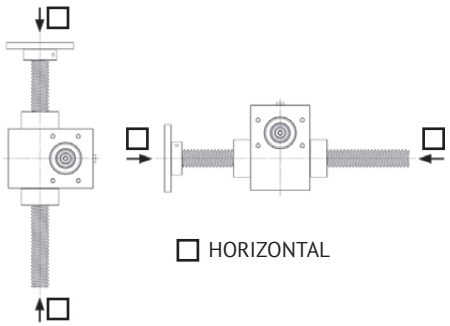
2. SYSTEM LAYOUT

EXAMPLE



(indicate the directions of rotation)

3. JACK LAYOUT AND DIRECTION OF APPLIED FORCE



☐ VERTICAL ☐ HORIZONTAL

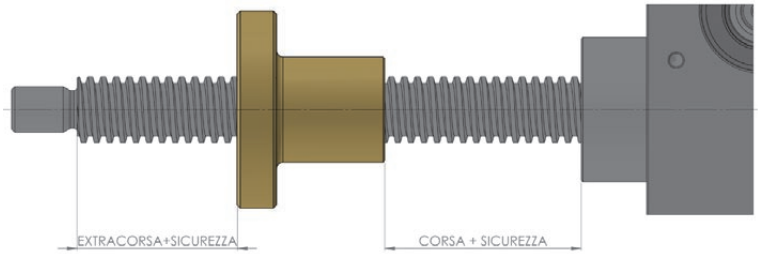
4. VERSION

☐ TRANSLATING ☐ ROTATING

5. SYSTEM DATA

NO. OF SYSTEMS: _____ **NO. OF JACKS PER SYSTEM: _____**

STROKE: _____ mm **ANY OVERTRAVEL: _____ mm**



OVERALL FORCE (APPLICATION): _____daN

SINGLE JACK FORCE: **STATIC LOAD: _____daN**

DYNAMIC LOAD: _____daN

TRAVEL SPEED: _____mm/s _____mm/min _____m/min

TIME REQUIRED FOR TRAVEL: _____s

MINIMUM SAFETY FACTOR: _____

6. EULER CONDITIONS

FIXED AND FREE END: Euler condition 1

HINGED AND HINGED: Euler condition 2

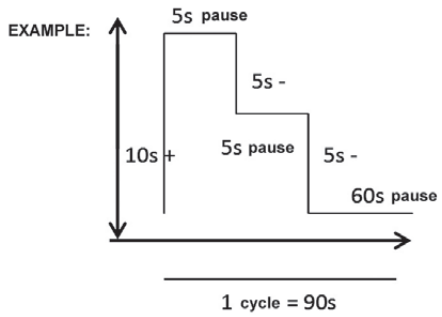
FIXED AND SUPPORTED: Euler condition 3

7. ENVIRONMENTAL CONDITIONS

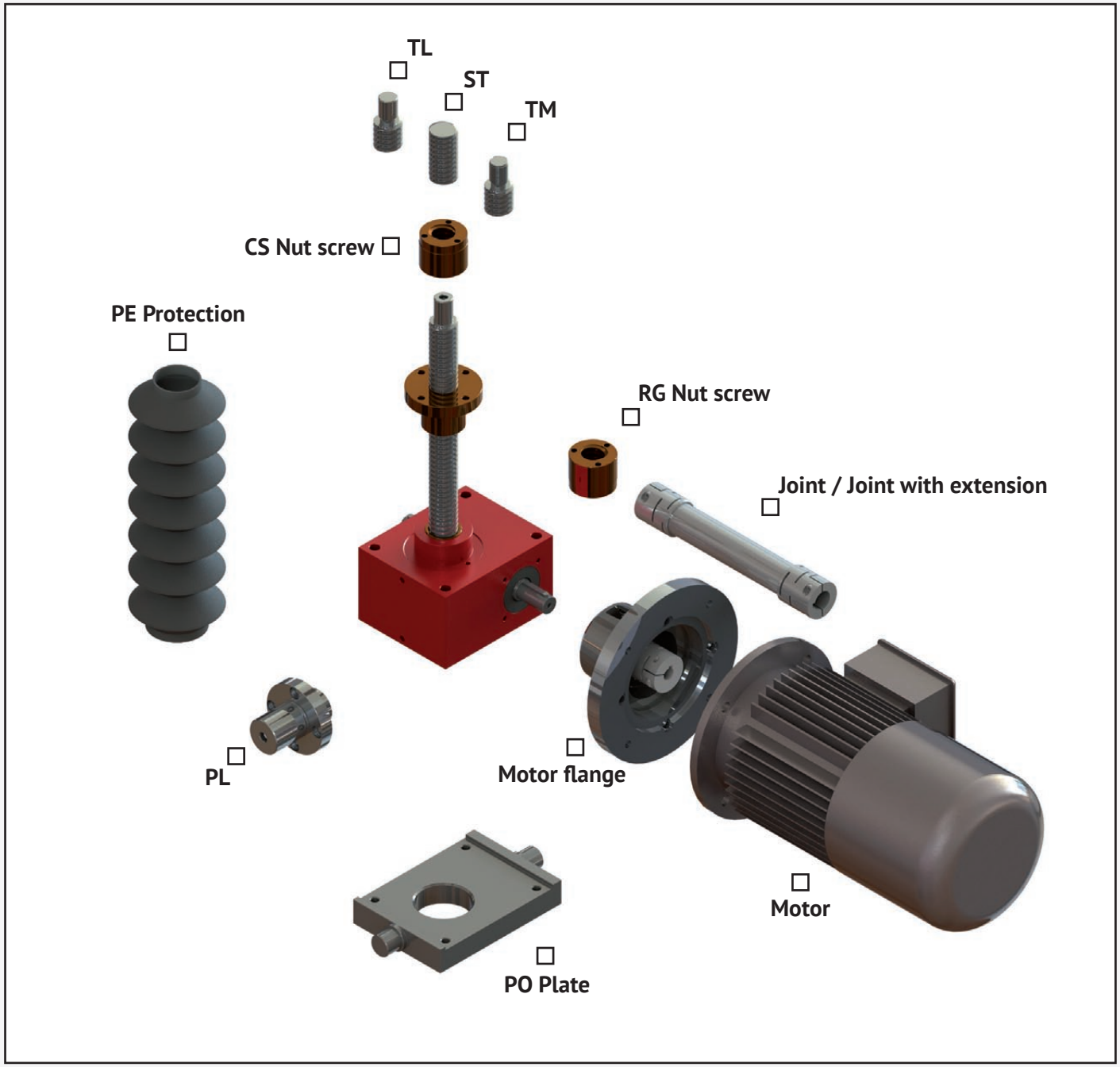
TEMPERATURE: _____°C

HUMIDITY: _____ %

8. WORK CYCLE

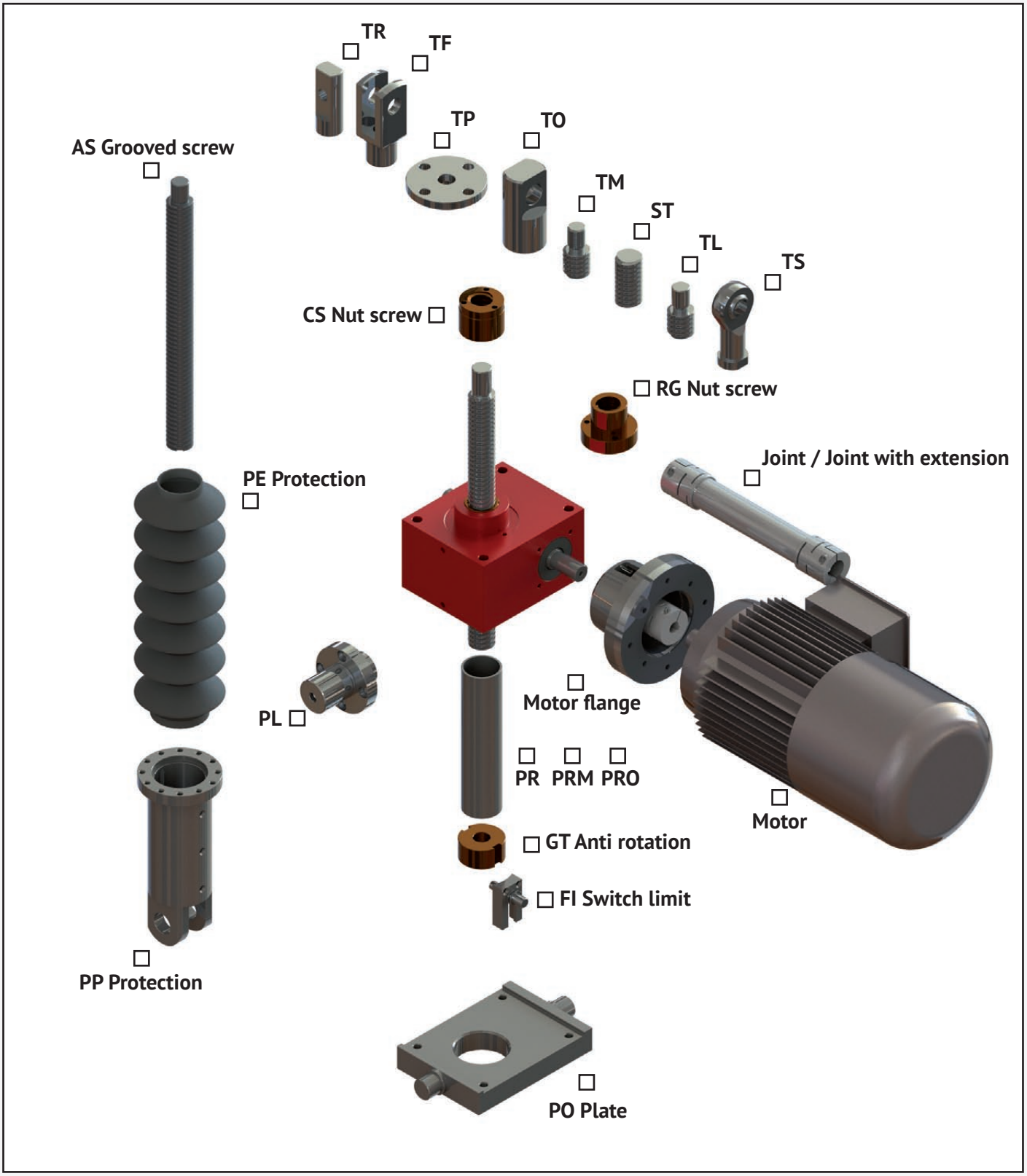


ROTATING VERSION ACCESSORIES



ACCESSORIES OR MEASURES NOT INDICATED

TRANSLATING VERSION ACCESSORIES



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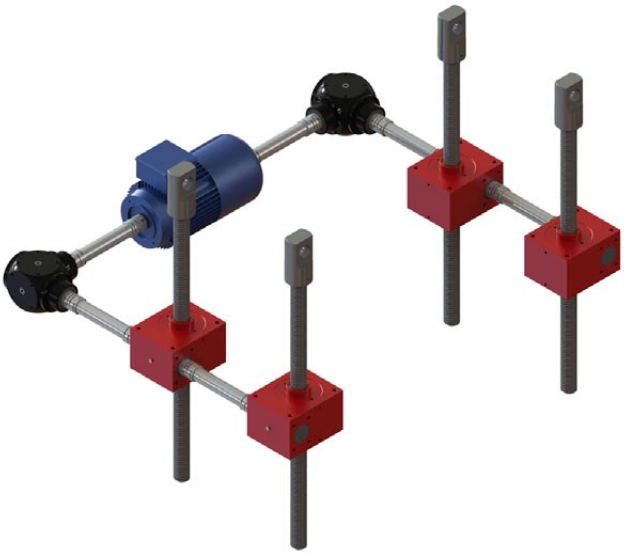


Lifting system

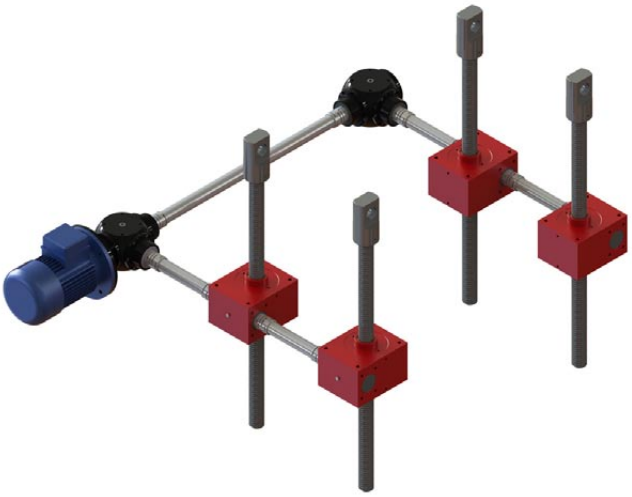
MARZORATI products used:

- Three-phase Asynchronous Motor MEC90B14
- Angular transmission 2x RA2010-D-1-XW-01
- Translating jack 2x SJM407-T-V-3-400-TO
- Translating jack SJM407-T-V-1-400-TO
- Translating jack SJM407-T-V-2-400-TO
- Extension 6x ZE2-20-A lenght 250mm

Lifting system

MARZORATI products used:

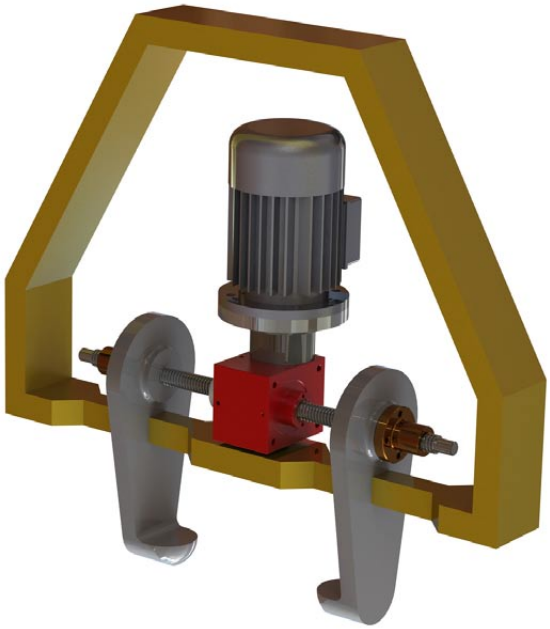
- Three-phase Asynchronous Motor MEC90B5
- Angular transmission RA2010-D-1-XW-01
- Angular transmission RA2010-D-1-AWZ-04-PAM90B
- Translating jack 2x SJM407-T-V-3-400-TO
- Translating jack SJM407-T-V-1-400-TO
- Translating jack SJM407-T-V-2-400-TO
- Extension 4x ZE2-20-A lenght 250mm
- Extension ZE2-20-A lenght 500mm



Satellite dish adjustment or solar tracking systems

MARZORATI products used:

- Three-phase Asynchronous Motor MEC90B5
- Translating jack SJM407-T-L-4-500-TO-PAM90B5-PR-PL



Motorised slab tongs

MARZORATI products used:

- Three-phase Asynchronous Motor MEC80B5
- Rotating jack
  SJM306-R-L-5-200-TL-PAM80B5-SPECIALE

Single Column lift

MARZORATI products used:

- Three-phase Asynchronous Motor MEC71B14
- Rotating jack
  SJM306-R-V-7-400-ST-PAM71B14

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