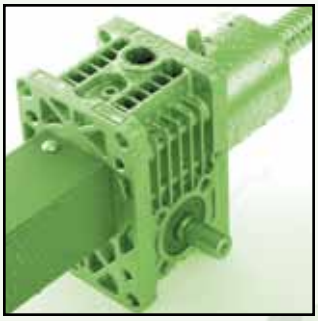


ZIMM® Austria
Screw Jack Systems

DIEQUA Corporation

Screw Jack Lifting and Positioning Systems

Overview and Application Guide

www.diequa.com
630-980-1133

ZIMM®
Screw Jack Systems

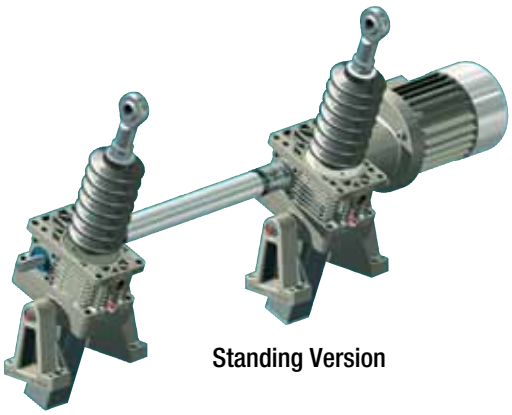
Screw Jack Lifting and Positioning Systems

DieQua Corporation is a manufacturer and supplier of premium quality power transmission and motion control components, satisfying demanding requirements for over 30 years. Along with our manufacturing partner, Zimm Maschinenelemente GmbH, we offer one of the most extensive ranges of screw jack systems available. With Zimm's building block concept, featuring a wide variety of sizes, configurations, connection, safety, and motion control options, we have the solution to meet your unique lifting and positioning needs.

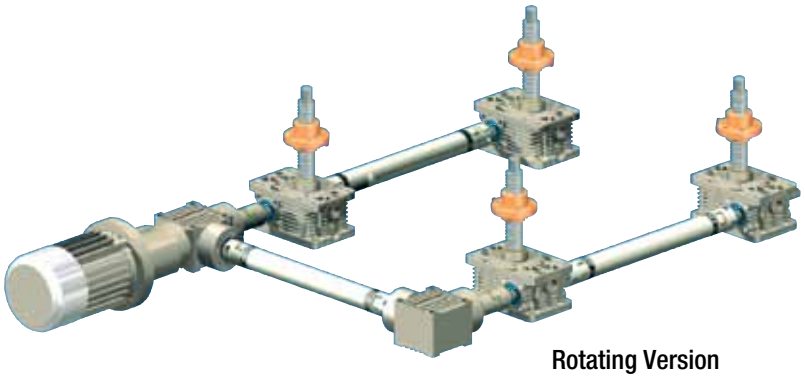
Program Benefits

- Precision Machine and Ball Screws
- Standing and Rotating Versions
- Multiple Spindle End Connections
- Multiple Driving Nut Designs
- Modular Housing for Mounting Versatility
- Multiple Safety and Protection Options
- Motion Control Options
- Complete System Designs

Designs - Standing & Rotating



Standing Version



Rotating Version

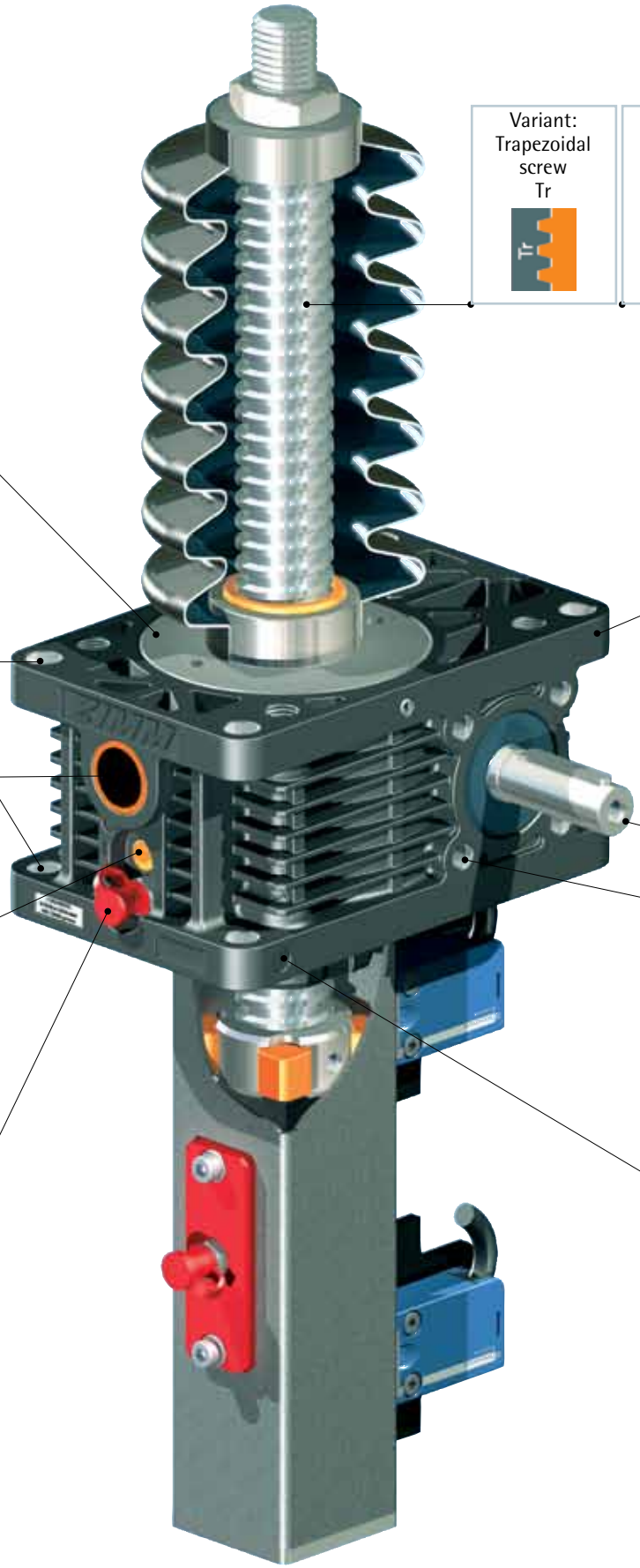
Sizes & Capacities

Size	5	10	25	35	50	100	150	250	350	500	750	1000
Capacity in tons	0.5	1	2.5	3.5	5	10	15	25	35	50	75	100
Fast Ratio	4:1	4:1	6:1	7:1	7:1	9:1	9:1	10.66:1	10.66:1	10.66:1	13.33:1	13.33:1
Lift/Rev	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm	1.5 mm	1.5 mm	1.5 mm	1.5 mm	1.5 mm
Slow Ratio	16:1	16:1	24:1	28:1	28:1	36:1	36:1	32:1	32:1	32:1	40:1	40:1
Lift/Rev	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm	0.5 mm

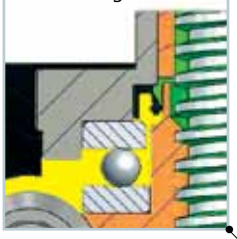
Lift rates are for machine screws. Please call for ball screw lift rates.

Higher

- Performance
- Service life
- Duty cycle
- Load

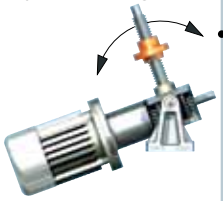


Sealed gearbox

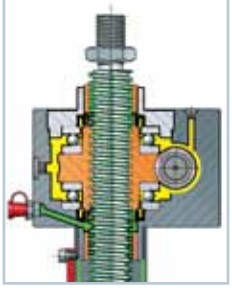


Four mounting options

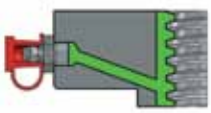
Integrated pivot bearing



Separate gearbox grease reservoir permits high performance



Direct screw lubrication port



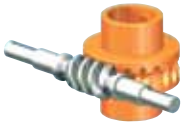
Variant: Trapezoidal screw Tr

Variant: Safety nut SIFA

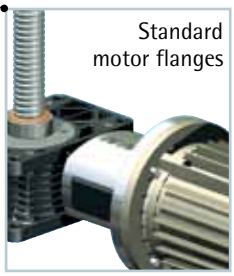
Variant: Ball screw KGT

Corrosion resistant

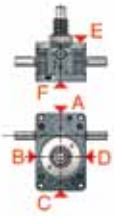
High-performance hardened and ground gears



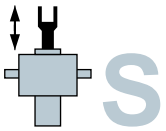
Standard motor flanges



Side identification



S version
(Standing spindle)



The Z Series

Screw jack versions

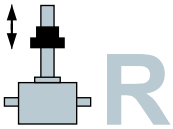
Trapezoidal screw Tr

Ball screw KGT

Safety nut
SIFA

DIEQUA Corporation

R version
(Rotating spindle)



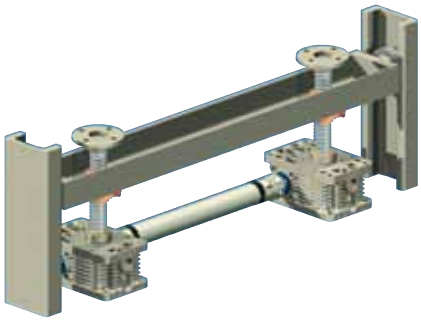
The GSZ Series

System Design Advice

Design and Specifications
Zimm screw jacks operate as individual lifting devices or as part of a complete positioning system consisting of 2 or more jacks driven simultaneously and including all drive components.

Although the customer is responsible for the application characteristics as well as final dimensioning, DieQua offers technical support, selection recommendations and complete system drawings and documentation to streamline system integration.

Operating Period
Screw jacks are not typically designed for continuous operation. The basic published ratings identify their static capacity. Lift speed, cycle time and operating duration all affect the acceptable dynamic capacity.



Lift Speeds
Lift speed refers to lift distance over a period of time, such as inches per minute. There are several options available to influence this lift rate. The combination of input speed, gearbox ratio and screw thread pitch determines how fast the load can be moved.

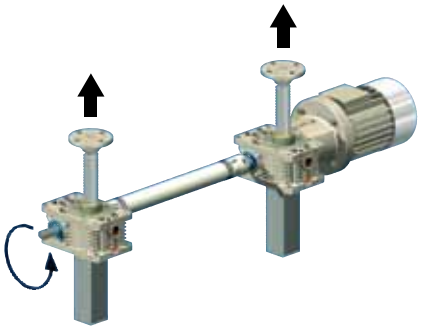
Parallelism and Angularity
Most systems should have the load guided to avoid excessive side forces. Pay close attention to the parallelism and angularity of mounting surfaces and guides. Misalignment can cause rapid wear. This also applies to motor and gearbox connections, bearings, couplings and lineshafts.

Buckling Forces
Long spindle lengths with loads in compression are subject to buckling forces which may limit screw capacity. Placing loads in tension can increase dynamic capabilities.

Rotation Protection
When using the Series S standing version the load should be guided to avoid free rotation. If this is not possible the anti rotation option should be specified.

Lift Distance and Escape Protection
Remember to maintain safe distances between moving and stationary components to avoid the risk of blocking the screw. Contrary, when using the standing version S, limit the lift so the spindle can't be screwed all the way out of the box. Limit switches and an escape protection option aid in avoiding these situations.

Accuracy, Self-Locking and Overrun
The repeat accuracy of the machine screw is approximately 0.05 mm under load. Pitch accuracy is 0.2 mm per 300 mm of travel. The ball screw version has higher accuracy.

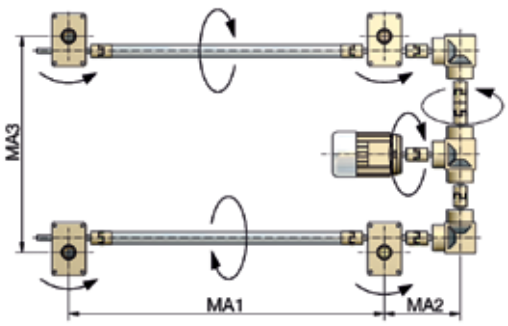


Screw jacks with single pitch trapezoid threads have a limited self locking feature. A brake may be necessary to avoid overrun in applications where holding or stopping at an exact position is required.

Drive Systems
An inverter or soft start is suggested to reduce starting shock load and reduce current draw. Servo motors can also be used for faster and more accurate positioning. Adding gearboxes to increase mechanical advantage can help in reducing motor size.

System Testing
It is highly recommended that the system be tested without load to identify any areas of potential misalignment. When under load, a trial test run at slow speed is also suggested.

Application Data Checklist



Copy this handy checklist to identify and organize your application parameters.

Company: _____	Date: _____
Address: _____	Phone: _____
Contact: _____	Fax: _____
Dept.: _____	Email: _____

1. **Max. lifting force:** in kN (lbs) (specify unit)
   - Per gearbox ⌊_____⌋ kN (lbs); for the entire system ⌊_____⌋ kN (lbs)
   - In tension ⌊_____⌋ kN (lbs); in compression ⌊_____⌋ kN (lbs)
   - Load: static ⌊_____⌋ kN (lbs); dynamic ⌊_____⌋ kN (lbs)

   Installation orientation:
   ☐ vertical ☐ horizontal ☐ pivoting

   Type of load:
   ☐ smooth ☐ shock ☐ vibration

2. **Max. lift/travel:** (specify unit) ⌊_____⌋ mm (in)

3. **Lifting speed:** ⌊_____⌋ mm/s (in/s)
   ☐ type N = approx. 25 mm/s (1 in/s) ☐ type L = approx. 6.25 mm/s (0.25 in/s) based on 1750 RPM motor speed

4. **Duty cycle, operating description:**
   ⌊_____⌋ strokes per hour, ⌊_____⌋ strokes per day. Hours per day: ☐ 8 ☐ 16 ☐ 24
   ⌊_____⌋ % duty cycle relative to 10 min. ☐ specify cycle _____
   For duty cycle > 10% per 10 min, please specify cycle (e.g.: 5s up, 5s pause, 5s down, 30s pause)

5. **Type:** ☐ S "Standing leadscrew" ☐ R "Rotating leadscrew" ☐ Z screw jack ☐ GSZ screw jack

6. **Motor:** ☐ Three-phase AC motor ☐ with brake ☐ Manual operation ☐ _____

7. **Operating conditions:** ☐ Guided system ☐ Unguided system (protect from side forces)
   ☐ Dry ☐ Humid ☐ Dust ☐ Chips ☐ Other _____
   Ambient temperature: min. ⌊_____⌋ °F max. ⌊_____⌋ °F

8. **Layout:** reference engineering catalog for arrangement examples

9. **Application description:**

10. **Quantity required:**
    ⌊_____⌋ pcs. (systems)

11. **Schedule:**
    Quotation: ⌊_____⌋ Delivery: ⌊_____⌋ weeks

(1 kN = 224.8 lbs)

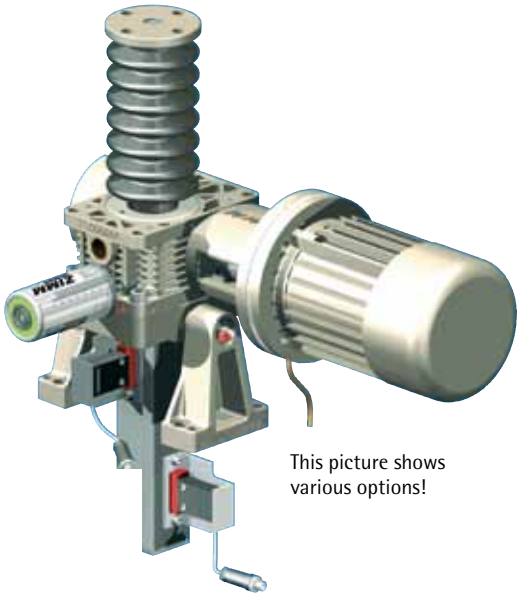
S Version - Component Option Checklist

Type:

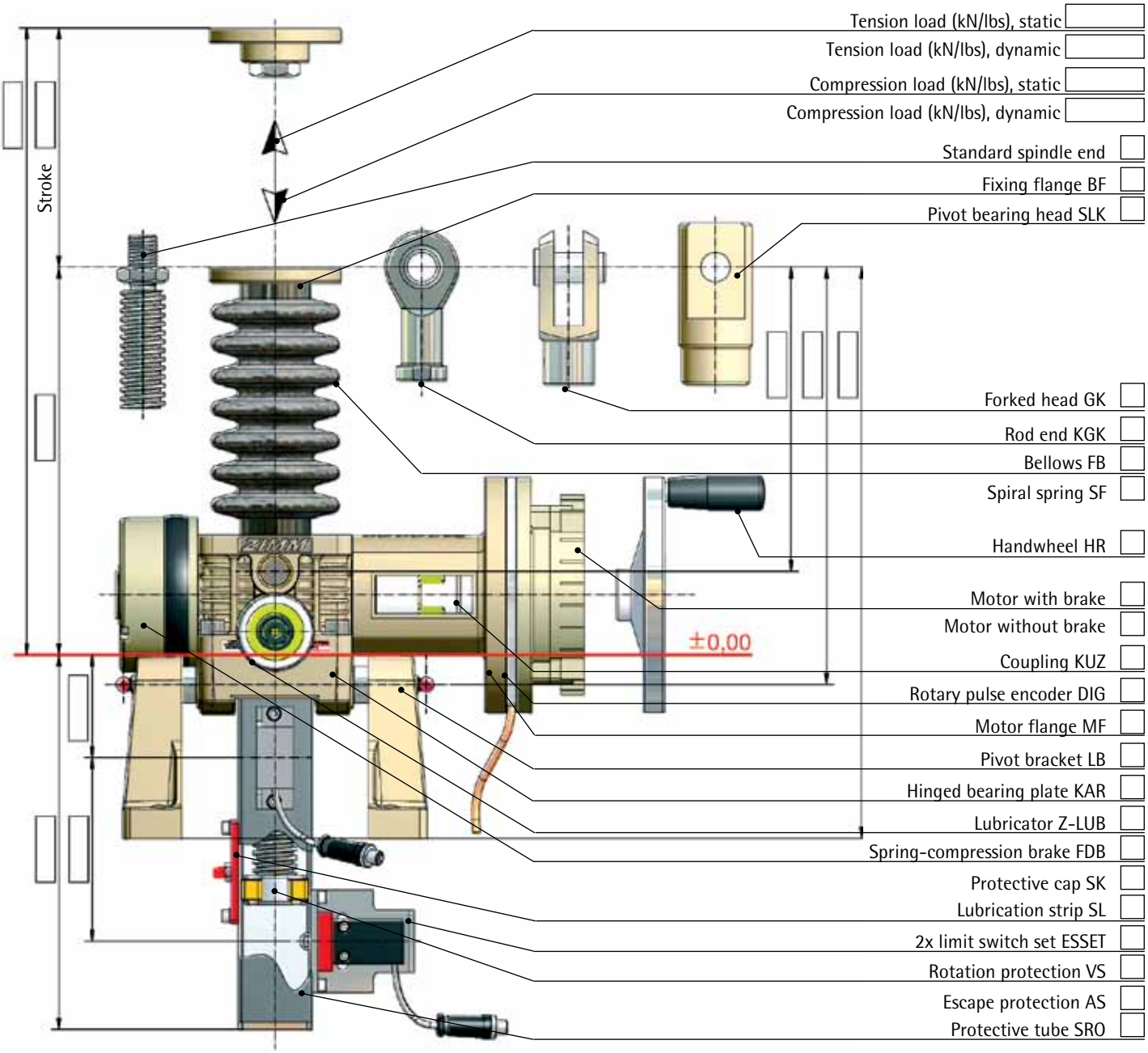
- ☐ SN (standing spindle, normal speed)
- ☐ SL (standing spindle, slow speed)

Variants:

- ☐ Tr trapezoidal screw
- ☐ KGT ball screw



This picture shows various options!



- Tension load (kN/lbs), static ☐
- Tension load (kN/lbs), dynamic ☐
- Compression load (kN/lbs), static ☐
- Compression load (kN/lbs), dynamic ☐
- Standard spindle end ☐
- Fixing flange BF ☐
- Pivot bearing head SLK ☐
- Forked head GK ☐
- Rod end KGK ☐
- Bellows FB ☐
- Spiral spring SF ☐
- Handwheel HR ☐
- Motor with brake ☐
- Motor without brake ☐
- Coupling KUZ ☐
- Rotary pulse encoder DIG ☐
- Motor flange MF ☐
- Pivot bracket LB ☐
- Hinged bearing plate KAR ☐
- Lubricator Z-LUB ☐
- Spring-compression brake FDB ☐
- Protective cap SK ☐
- Lubrication strip SL ☐
- 2x limit switch set ESSET ☐
- Rotation protection VS ☐
- Escape protection AS ☐
- Protective tube SRO ☐

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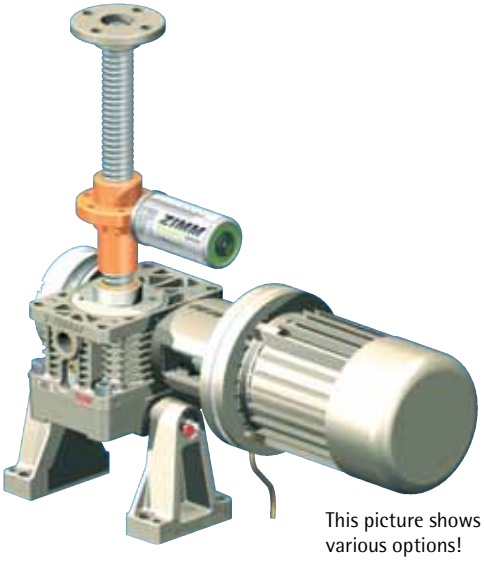
R Version - Component Option Checklist



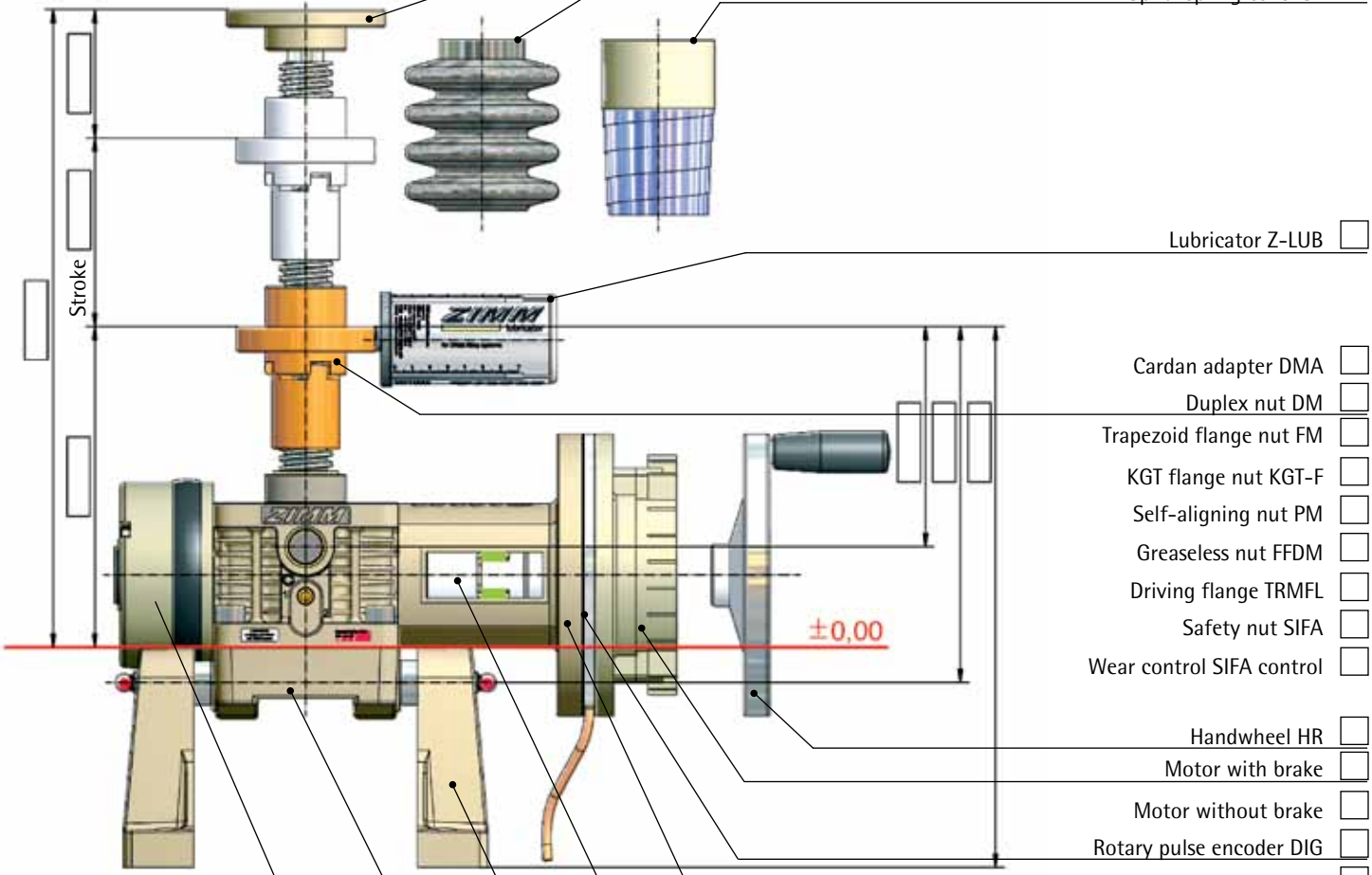
This picture shows various options!

Type:

- ☐ RN (rotating spindle, normal speed)
- ☐ RL (rotating spindle, slow speed)

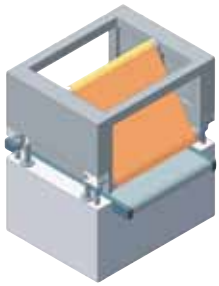
Variants:

- ☐ Tr trapezoidal screw
- ☐ SIFA safety nut
  - ☐ with SIFA control
- ☐ KGT ball screw



Screw Jack Application Examples

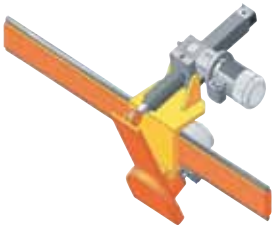
Screw jacks and screw jack systems are incorporated into more applications and industries than perhaps any other gear drive device. Wherever lifting or positioning is necessary, Zimm has a screw jack to meet the needs of your unique design requirements.



Grinder Belt Adjustment

Tank Lid Adjustment

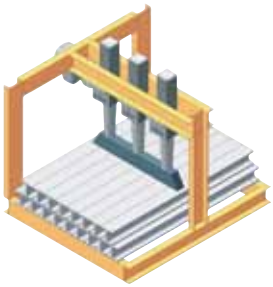
Feeder Cart Adjustment



Saw Blade Adjustment

Stage Adjustment

Centering Mechanism



Product Alignment System

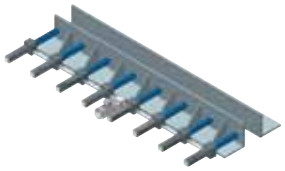
Product Gripper Mechanism

Roller Gap Adjustment

Pallet Transfer Table

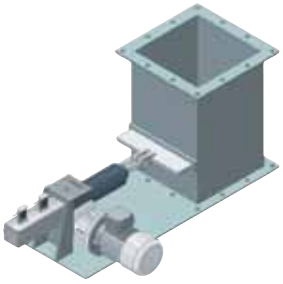
Ring Height Adjustment

Antenna Positioning



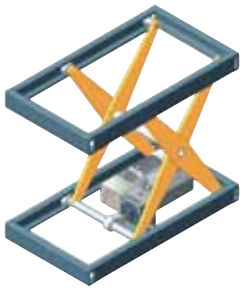
Concrete Beam Production

Compact Press



Feed Slide Positioning

Bottling Systems

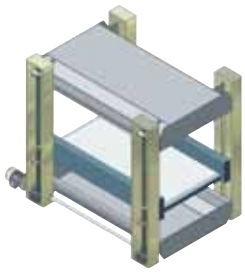


Scissor Table

Mobile Lifting Platform

Conveyor Adjustment

Destacking Unit



Oven Hood Adjustment

Design Assistance

DieQua offers complete system design assistance, taking the guess work out of product selection. Our years of application experience assures that all elements of the design process are considered. We also offer full assembly drawings, which provides time-saving value and guarantees that the correct system components are integrated. Contact DieQua with your next screw jack challenge!

Other Products & Services

Helical Gearmotors and Speed Reducers

Worm Speed Reducers

Spiral Bevel Gearboxes

Servo Gearheads

Variable Speed Drives

Speed Correction Drives

Zero Backlash Couplings

Engineering Support

DieQua Corporation has several decades of combined experience specifying motion control components. This assures the proper selection for your unique requirements.

Manufacturing

DieQua Corporation's manufacturing capabilities allow production of many of our drive components, options, and dimension modifications. Complete specials are also available.

Assembly

DieQua Corporation has a team of factory trained technicians that assemble the majority of the drives we provide. This allows prompt delivery of your production or service requirements.

Warehousing

DieQua maintains a large inventory of the most common and popular drive components for quick delivery of small orders, prototypes, and spare parts.

Manufacturing Partners

TANDLER · watt drive the system drive. · GIRARD TRANSMISSIONS · planetroll · R+W COUPLING TECHNOLOGY · ZIMM Screw Jack Systems · VARVEL

DIEQUA Corporation
Motion Components and Engineering Services

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