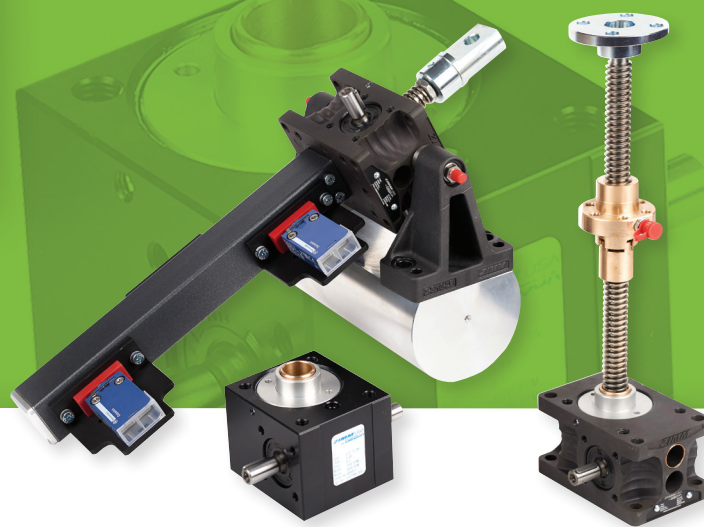


ZIMM USA
by **DIEQUA**



ZE Series

Z Series

GSZ Series

Trapezoidal spindle

Ball screw spindle

Translating version

Rotating version

SCREW JACK SYSTEMS

OVERVIEW / APPLICATION GUIDE

ZIMM USA

by **DIEQUA**



ZIMM USA
Bloomindale, Illinois



ZIMM GmbH
Austria

The Zimm USA Partnership

DieQua Corporation, established in 1980, is a trusted manufacturer and supplier of premium-quality power transmission and motion control components, providing engineered solutions for applications having demanding requirements and designs.

Zimm Screw Jack Systems, established in 1977, is a world renowned manufacturer and supplier of highly engineered, quality screw jacks. DieQua and Zimm's partnership goes back to 1998. Some 20 years later it was decided to give it the name of Zimm USA by DieQua, wherein DieQua provides all the support for North America.

Through the years, Zimm has completely revolutionized the common screw jack, creating a state-of-the-art design with a building-block concept, featuring a wide selection of sizes, configurations, safety, and motion control options. Whether it's for lifting, holding, pushing, pulling or positioning, DieQua has a Zimm screw jack solution for the application.

IN THIS GUIDE:

Screw Jack Series / Sizes	3
Product Features	4
Lubrication Advantage	5
Safety Options / Pivot Mounts	6
System Design Advice	7
Exploded Views	8
Application Checklists	10
Application Examples	14

PROVIDED BY ZIMM USA

- Engineering assistance
- Customer service
- Technical support
- Design team experience
- Inside and outside sales support
- Manufacturing & Assembly

PRODUCT OVERVIEW

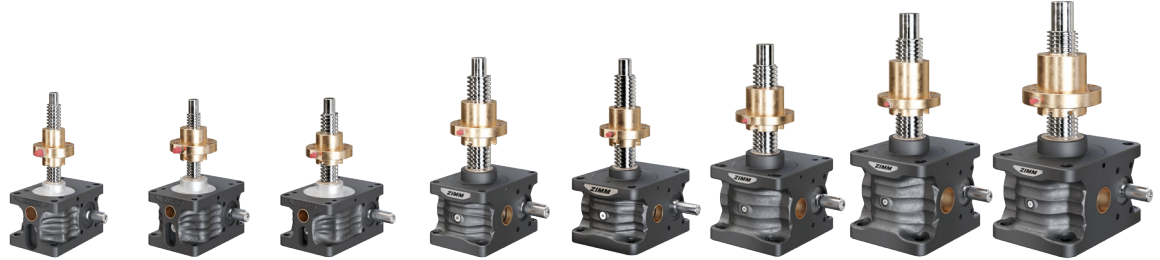
- Precision machine and ball screw spindles
- Standing and Rotating versions
- Multiple spindle end connections
- Multiple driving nut designs
- Modular housing design for mounting flexibility
- Separated gearbox and spindle lubrication systems
- Multiple safety and protection options
- Motion control options
- Full range of accessories for configuration flexibility

Screw Jack Series / Sizes

ZIMM USA
by **DIEQUA**

ZE-Series

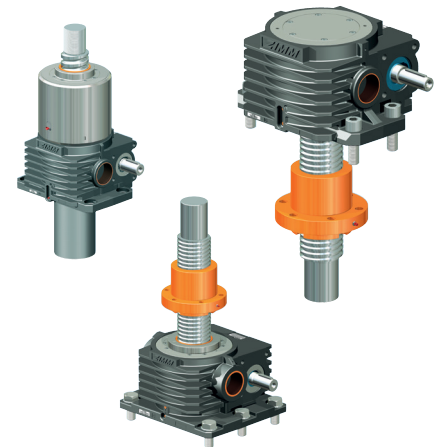
Sizes 5 to 200 kN



	5 kN		10 kN		25 kN		35 kN		50 kN		100 kN		150 kN		200 kN	
S-translating screw R-rotating screw	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R
Ratios	4:1 16:1				6:1 24:1		7:1 28:1		7:1 28:1		9:1 36:1				8:1 24:1	
Housing material	Aluminum						Cast Iron						GGG			
ZE-Tr trapezoidal screw	18x4		20x4		30x6		40x7		40x7		55x9		60x9		70x12	
ZE-SIFA Tr safety nut	–	18x4	20x4		30x6		40x7		40x7		55x9		60x9		–	70x12
ZE-KGT ball screw	16x5 16x10		25x5 25x10 25x25 25x50		32x5 32x10 32x20 32x40		–	40x5 40x10 40x20 40x40	40x5 40x10 40x20 40x40		50x10 50x20 50x40 50x50		63x10 63x20 63x40 63x60		80x10 80x20 80x40 80x60	

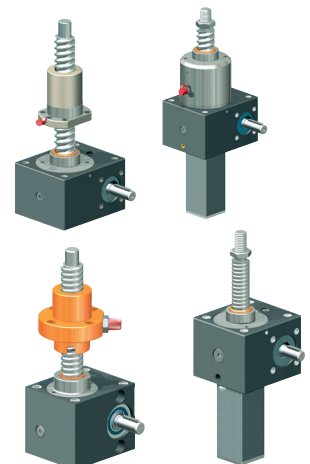
Z-Series Sizes 250 to 1000 kN

	250 kN		350 kN		500 kN		750 kN		1000 kN	
S-translating screw R-rotating screw	S	R	S	R	S	R	S	R	S	R
Ratios	10.66:1						13.33:1			
Housing material	Cast Iron									
Z-Tr trapezoidal screw	80x16		100x16		120x16		140x20		160x20	
Z-SIFA Tr safety nut	80x16		100x16		120x16		140x20		160x20	
Z-KGT ball screw	80x10		100x20		125x25		140x25		160x25	
	80x20		100x40		125x40		140x40		160x40	
	80x40		100x60		125x60		140x60		160x60	
	80x60		100x80		125x80		140x80		160x80	

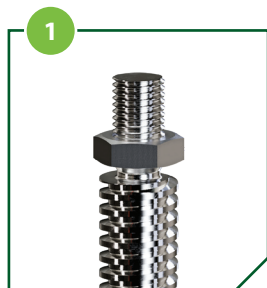


GSZ-Series Sizes 2.5 to 150 kN

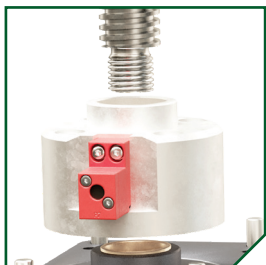
	2.5 kN		5 kN		10 kN		25 kN		50 kN		100 kN		150 kN	
S-translating screw R-rotating screw	S	R	S	R	S	R	S	R	S	R	S	R	S	R
Ratios	4:1 16:1				6:1 24:1				7:1 28:1		9:1 36:1		9:1 36:1	
Housing material	Aluminum								Cast Iron					
GSZ-Tr trapezoidal screw	16x4		18x4		20x4		40x7		40x7		55x9		60x9	
GSZ-SIFA Tr safety nut	–	16x4	–	18x4	20x4		40x7		40x7		55x9		60x9	
GSZ-KGT ball screw	–	16x5 16x10	–	16x5 16x10	25x5 25x10 25x25 25x50	–	40x5 40x10 40x20 40x40	40x5 40x10 40x20 40x40	50x10 50x20 50x40 50x50		63x10 63x20 63x40 63x60			



Product Features



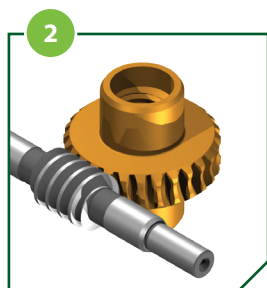
1
Trapezoidal screw
(Tr)



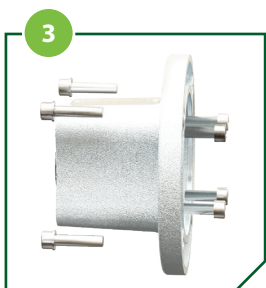
2
Safety nut
SIFA (Tr)



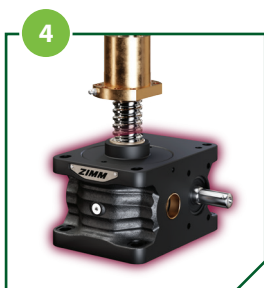
3
Ball screw
(KGT)



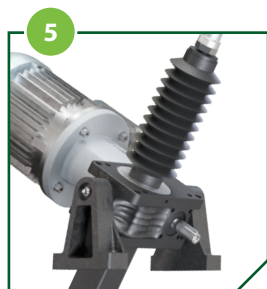
4
High-performance
hardened and ground
gears



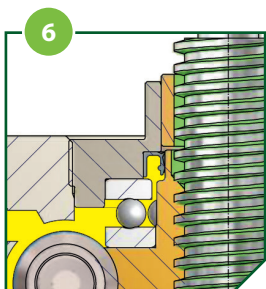
5
Standard motor flange



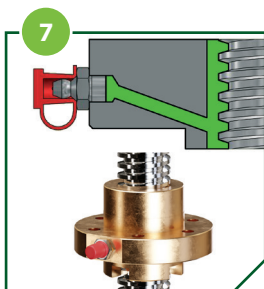
6
Corrosion resistant



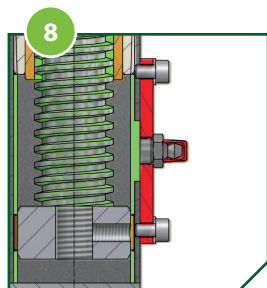
7
Integrated pivot bearing



8
Separate and sealed
gearbox lubrication



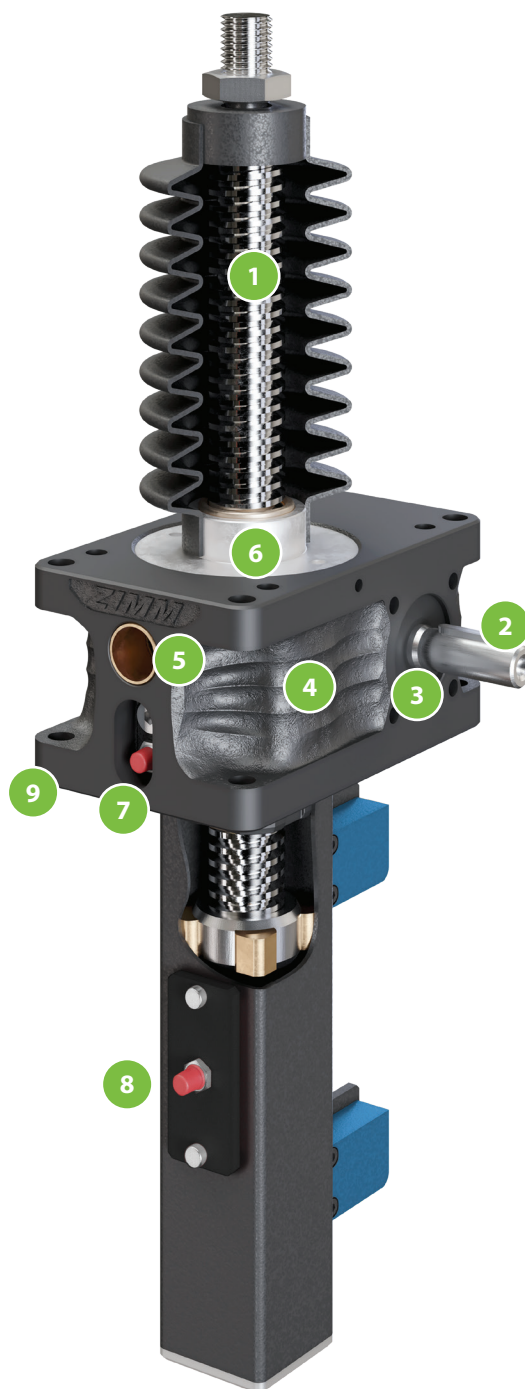
9
Separate spindle
lubrication



10
Easy spindle lubrication
access

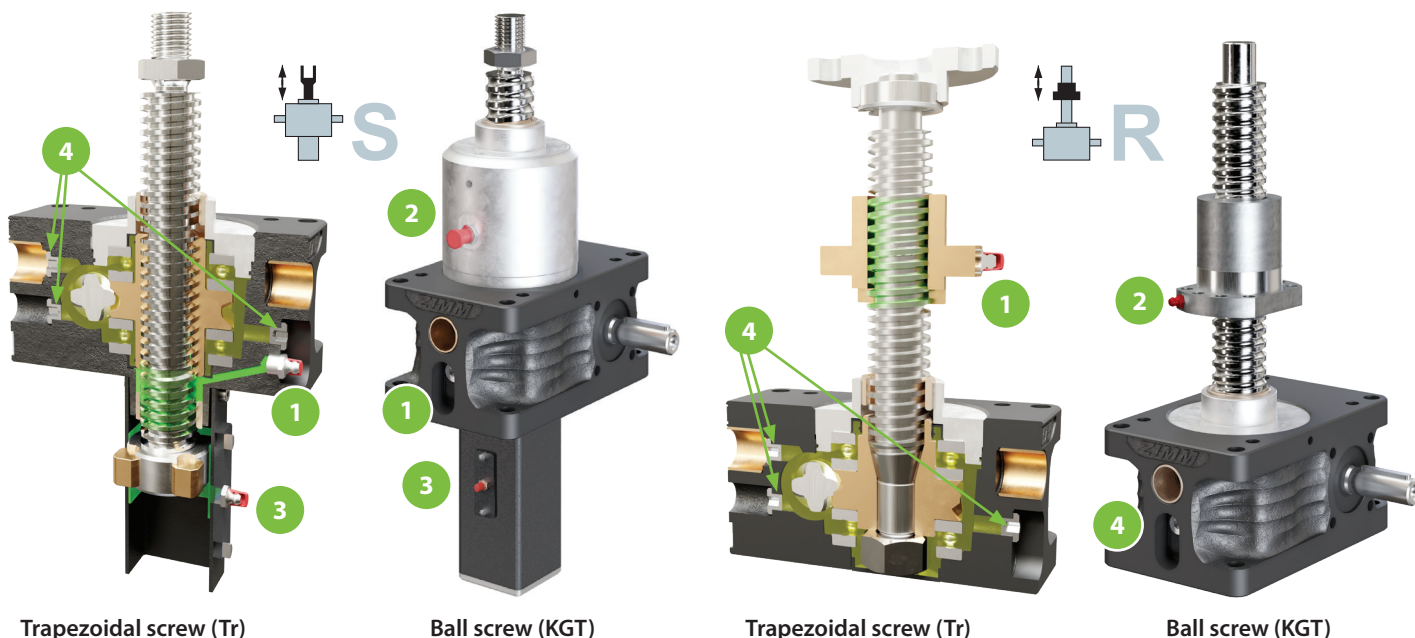


11
Multitude of installation
options



Innovative Zimm Engineering

With the main contributing factor of gearbox failure being contaminated grease, Zimm's design completely separates the gearbox and spindle lubrication systems, providing no chance of cross-contamination. Even if the spindle is protected by bellows, which can fail without notice, the benefit and protection of a separately sealed gearbox is still there, safeguarding the gear set and bearings from damaging particles circulating through them. Keeping the gearbox lubrication free of contaminants and debris is just another example of Zimm's dedication to being in the forefront with high-quality, well-engineered and designed screw jack systems.



Separate sealed gearbox and spindle lubrication system benefits:

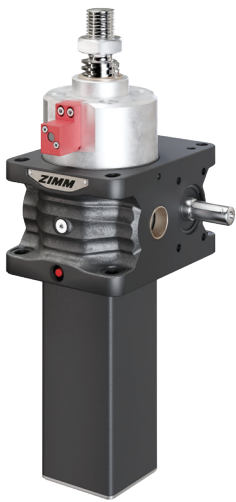
- Separate spindle cavity allows for optimal spindle grease
- Separate gearbox cavity allows for optimal gearbox grease or oil
- No cross-contamination between lubricants
- Easy to maintain with no disassembly
- Easily accessible lubrication ports

All gearboxes are supplied with food-grade grease as standard, with a -4° / 302° F (-20° / 150° C) temperature range. There are also many other greases and synthetic oils available to suit other temperature ranges and environments as needed.

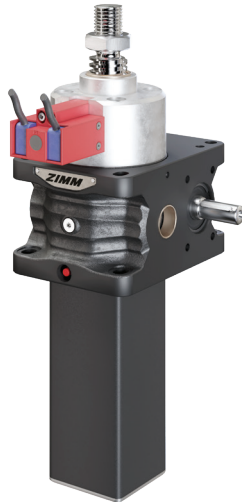
Lubrication ports:

- 1 Trapezoidal spindle grease port
- 2 Ball screw spindle grease port
- 3 Translating version anti-escape/ anti-rotation grease ports
- 4 Gearbox grease ports

Safety Options / Pivot Mounts



Tr SIFA-S visual



Tr SIFA-S electrical



Tr SIFA-R visual



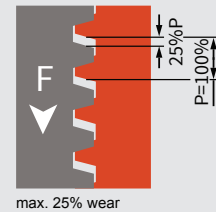
Tr SIFA-R electrical

Safety Nuts

A safety nut provides monitoring and protection for the drive nut due to normal wear or failure, resulting in a potential safety risk to personnel. A safety nut also provides protection to the equipment, reducing the effects of system failure and unexpected downtime.

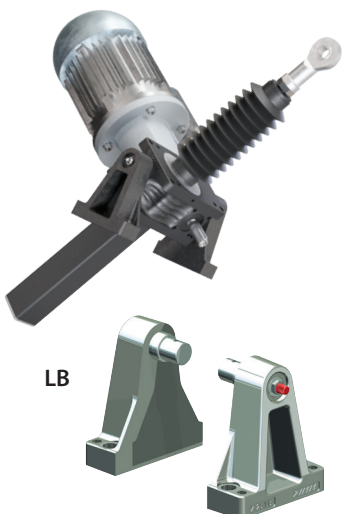
Wear Technical Data

Once the wear exceeds max. 25% of the screw pitch, the load nut (R version) or the gearbox (S version) must be replaced.

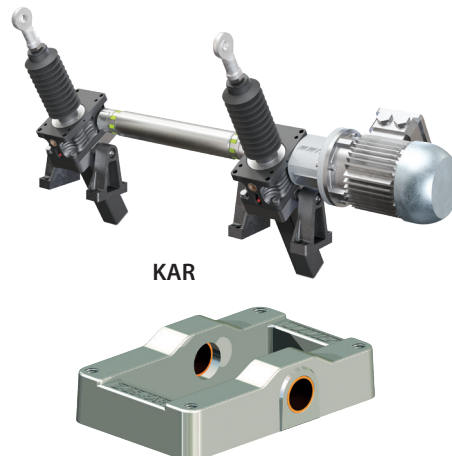


Integrated Pivot Points

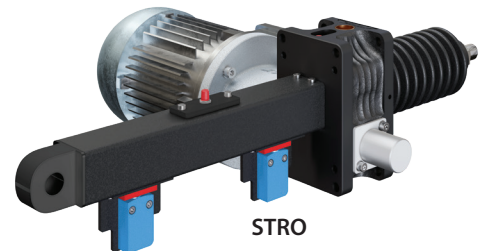
Integrated PTFE coated bronze bushings are directly designed into the gearbox, adding system flexibility by providing an easy pivot option using the LB bearing mounts. The KAR pivot bearing plate provides a pivoting parallel to the input shafts for further design flexibility and for connecting multiple pivoting screw jacks in a row. The STRO pivoting protection tube provides pivot points at both ends of a screw jack assembly.



LB



KAR



STRO

Design and Specifications

Zimm screw jacks operate as individual positioning devices, or as part of a complete system consisting of two or more screw 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.

Duty Cycle

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

Travel Speeds

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

Parallelism and Angular Misalignment

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 line shafts.

Buckling Forces

Long spindle lengths, with loads in compression, are subject to buckling forces which may require a larger spindle or larger screw jack size. Placing loads in tension can increase dynamic capacities.

Rotation Protection

When using the S-Series (standing version), the load should be guided to avoid free rotation. If this is not possible, the anti-rotation option (VS) should be specified.

Travel Distance and Escape Protection

Maintain a safe distance between moving and stationary components to avoid the risk of interfering with the screw. On the contrary, when using S-Series, limit the lift so the spindle can't be screwed all the way out of the box. Limit switches (ES), and an escape protection (AS) option, aid in avoiding these situations.

Accuracy

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.

Self-Locking and Overrun

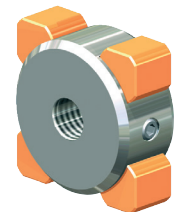
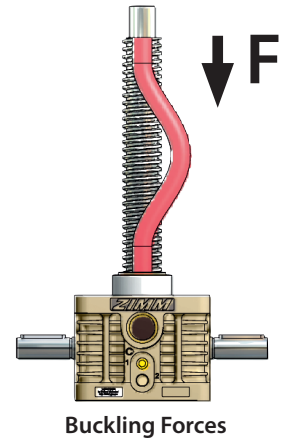
Screw jacks with single-pitch trapezoid threads have a limited self-locking feature. A brake may be necessary to avoid overrun in applications where holding or stopping at an exact position is required. A brake system is also recommended in ball screw applications.

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 increases mechanical advantage, and can also help in reducing motor size.

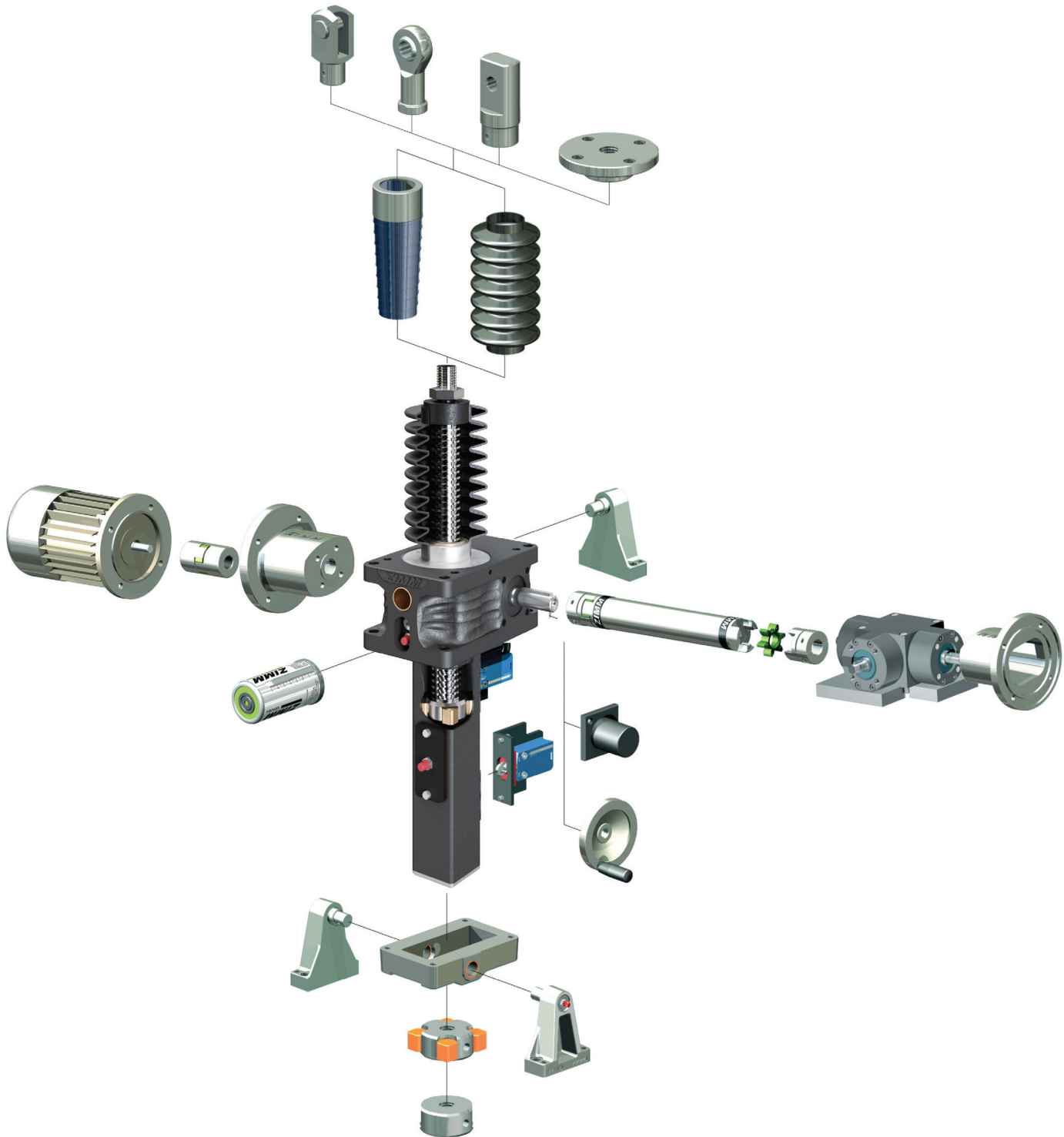
System Testing

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 recommended.



Exploded View

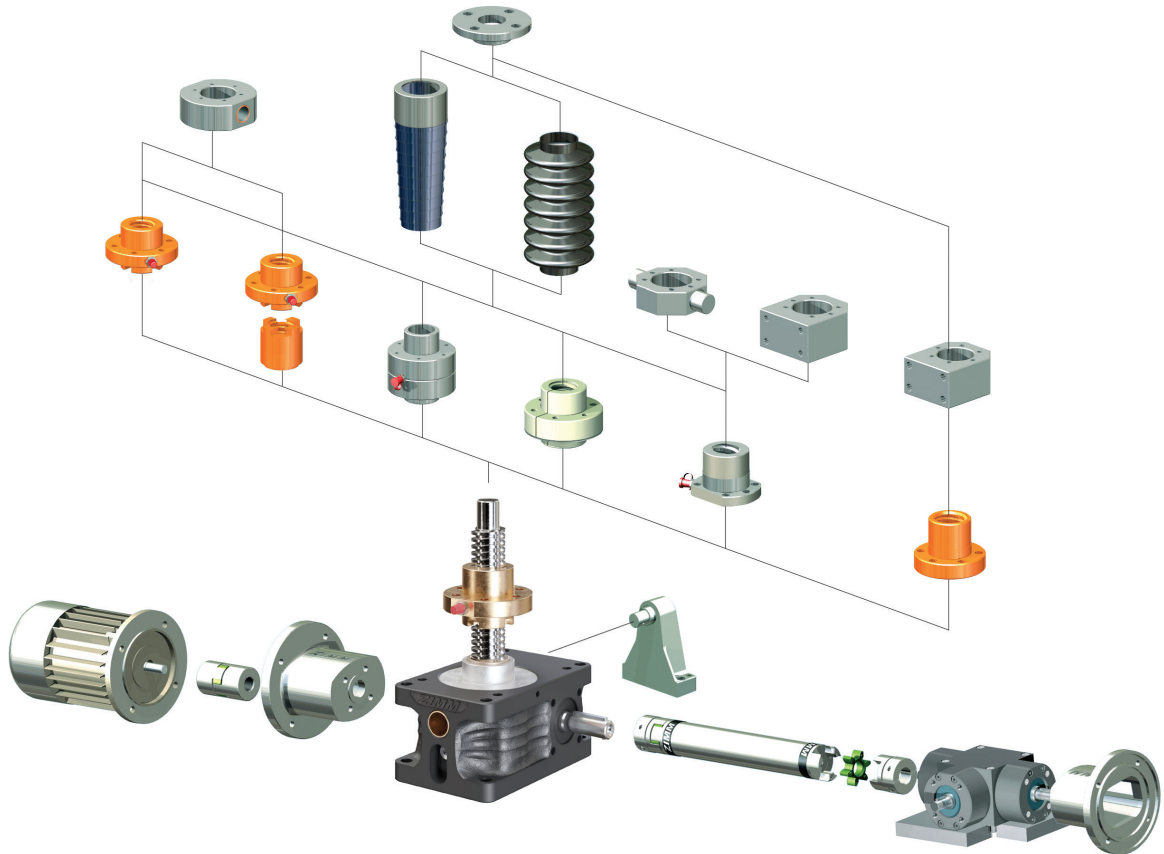
ZE / Z Translating



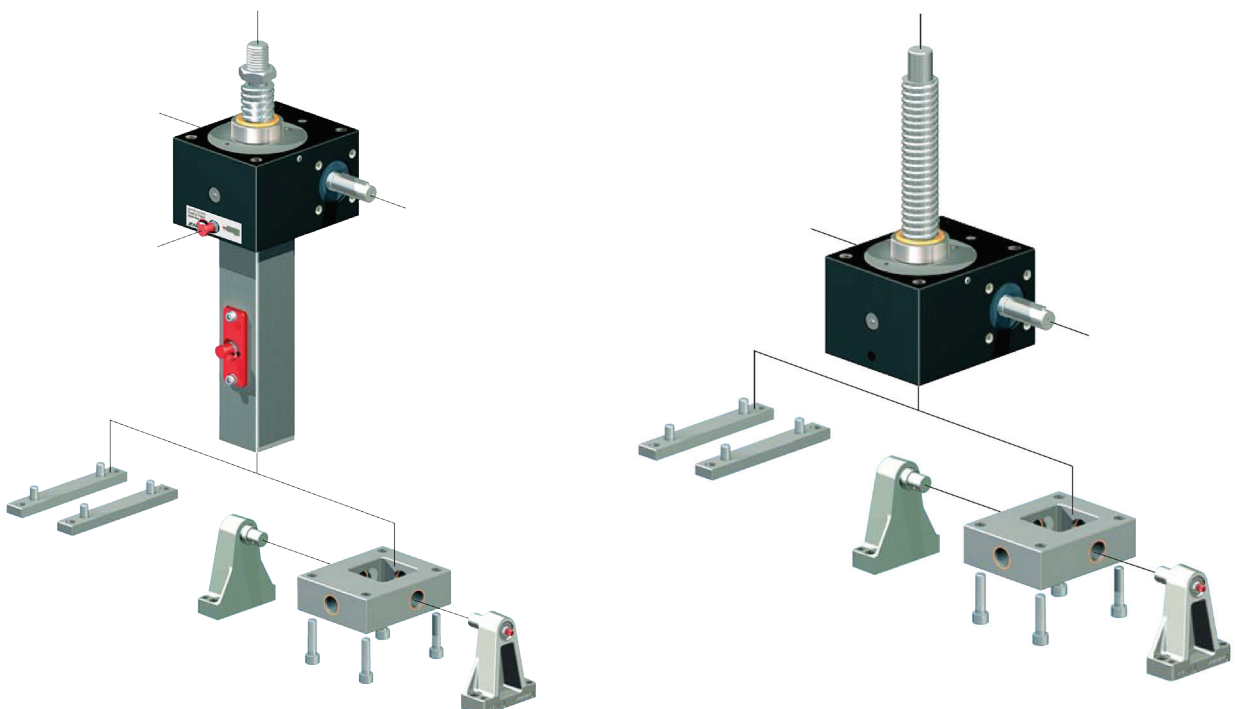
Exploded View

ZIMM USA
by DIEQUA

ZE / Z Rotating



GSZ / Translating and Rotating



Application Checklist

Sheet 1 / Parameters

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

1. Max. lifting force in kN (224.8 lbs = 1 kN)

- per gearbox _____ kN entire system _____ kN
 - in tension _____ kN in compression _____ kN
 - Load: static _____ kN dynamic _____ kN

Installation axis

☐ vertical ☐ horizontal ☐ pivoting

Type of load

☐ smooth ☐ impact loads ☐ vibration

2. Max. lift/travel _____ mm ☐ effective working stroke _____ mm

For short stroke applications : Working stroke < gearbox height: ☐ regular lubrication stroke possible ☐ not possible

3. Lifting speed

☐ type N=25 mm/s (1.5 m/min) ☐ type L=6.25 mm/s (0.375 m/min) ☐ _____ mm/s

4. Duty factor, work cycle, description of cycle

_____ strokes per hour _____ strokes per day Hours per day: ☐ 8 ☐ 16 ☐ 24

Note: For high duty factors or long strokes, please provide an exact detailed description.

5. Type ☐ S "Translating screw" ☐ R "Rotating screw"

6. Version ☐ ZE/Z-Screw jack ☐ GSZ-Screw jack

7. Motor ☐ Rotary voltage motor ☐ With brake ☐ Manual release ☐ _____

8. Operating conditions ☐ Dry ☐ Humid ☐ Dust ☐ Chipping ☐ _____

☐ Guided movement ☐ No guides (no dynamic lateral forces)

Ambient temperature min. _____ °C max. _____ °C (when <10°C and >40°C)

Note: If possible please provide an exact description or sketch.

9. Standard layouts Type: _____ Size: MA1 _____ MA2 _____ MA3 _____ MA4 _____ MA5 _____

see layouts on page 11 (for multi-jack systems)

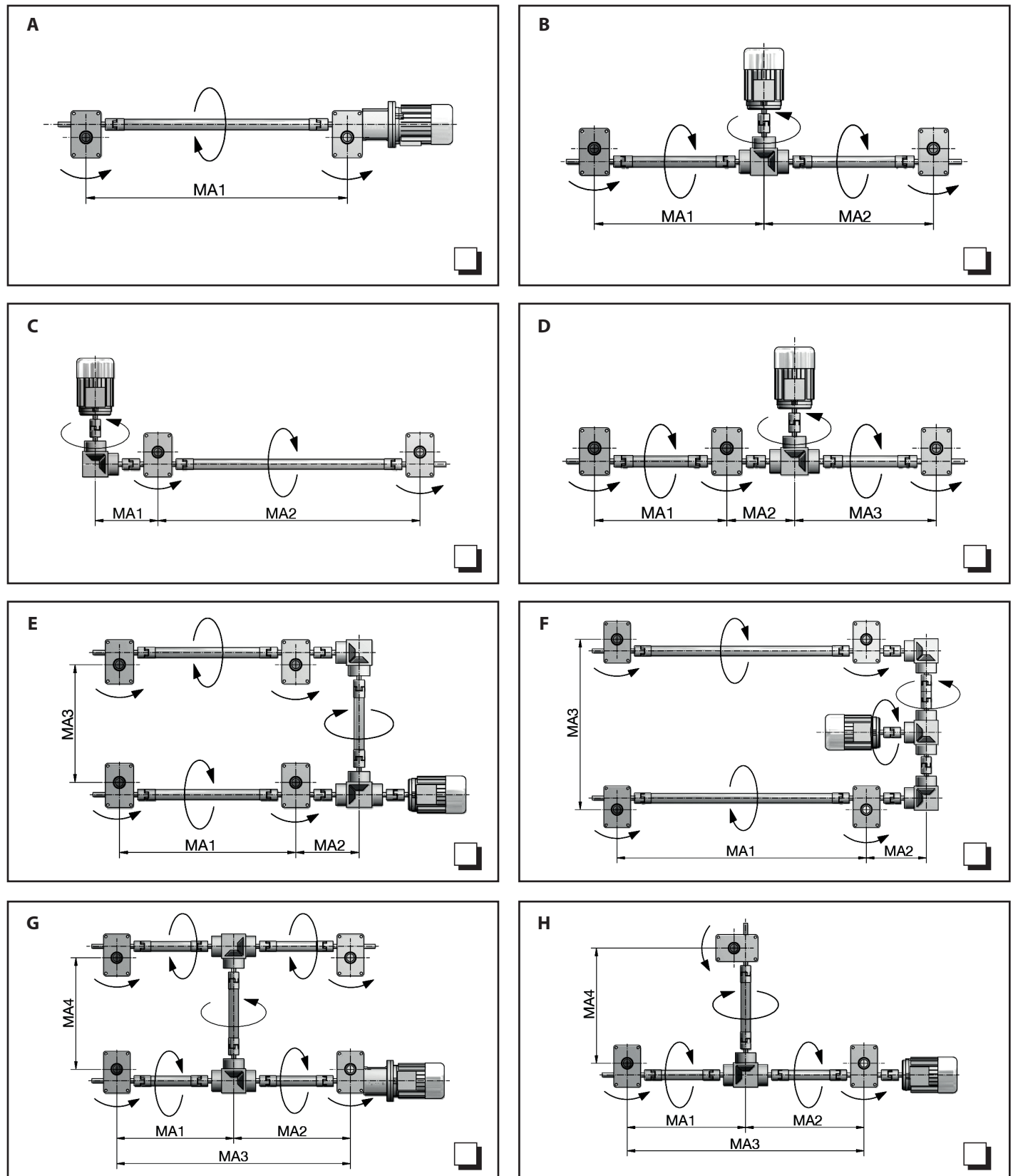
10. Quantity Required _____ Series _____

11. Schedule Quotation _____ Delivery _____

Application Checklist

ZIMM USA
by DIEQUA

Sheet 3 / System Layouts



The most common system layouts are shown, however, DieQua is available to work with whatever your system layout may be.

Application Checklist

Sheet 5 / S Version Component List

Version:

- ☐ SN (Translating screw, normal)
☐ SL (Translating screw, low speed)

Type:

- ☐ TR (Trapezoidal screw)
☐ SIFA (Safety nut) ☐ with SIFA monitoring
☐ KGT (Ball screw)

1. Tension load (kN): static
 Tension load (kN): dynamic
 2. Compression load (kN): static
 Compression load (kN): dynamic

3.	Standard screw end	<input type="checkbox"/>
4.	Bellows FB	<input type="checkbox"/>
	Spiral spring cover SF	<input type="checkbox"/>
5.	Fixing flange BF	<input type="checkbox"/>
6.	Rod end KGK	<input type="checkbox"/>
7.	Forked end GK	<input type="checkbox"/>
8.	Pivot bearing end SLK	<input type="checkbox"/>
9.	Handwheel HR	<input type="checkbox"/>
10.	Motor with brake	<input type="checkbox"/>
	Motor without brake	<input type="checkbox"/>
11.	Motor flange MF	<input type="checkbox"/>
12.	Pivot mounts LB	<input type="checkbox"/>
13.	Coupling KUZ	<input type="checkbox"/>
14.	Pivot bearing plate KAR	<input type="checkbox"/>
15.	Lubricator Z-LUB	<input type="checkbox"/>
16.	Protective cap SK	<input type="checkbox"/>
17.	Lubrication strip SL	<input type="checkbox"/>
18.	Rotation protection VS	<input type="checkbox"/>
	Escape protection AS	<input type="checkbox"/>
19.	2x limit switch ES	<input type="checkbox"/>
20.	Protective tube SRO	<input type="checkbox"/>
	Pivoting support tube STRO	<input type="checkbox"/>

Application Checklist

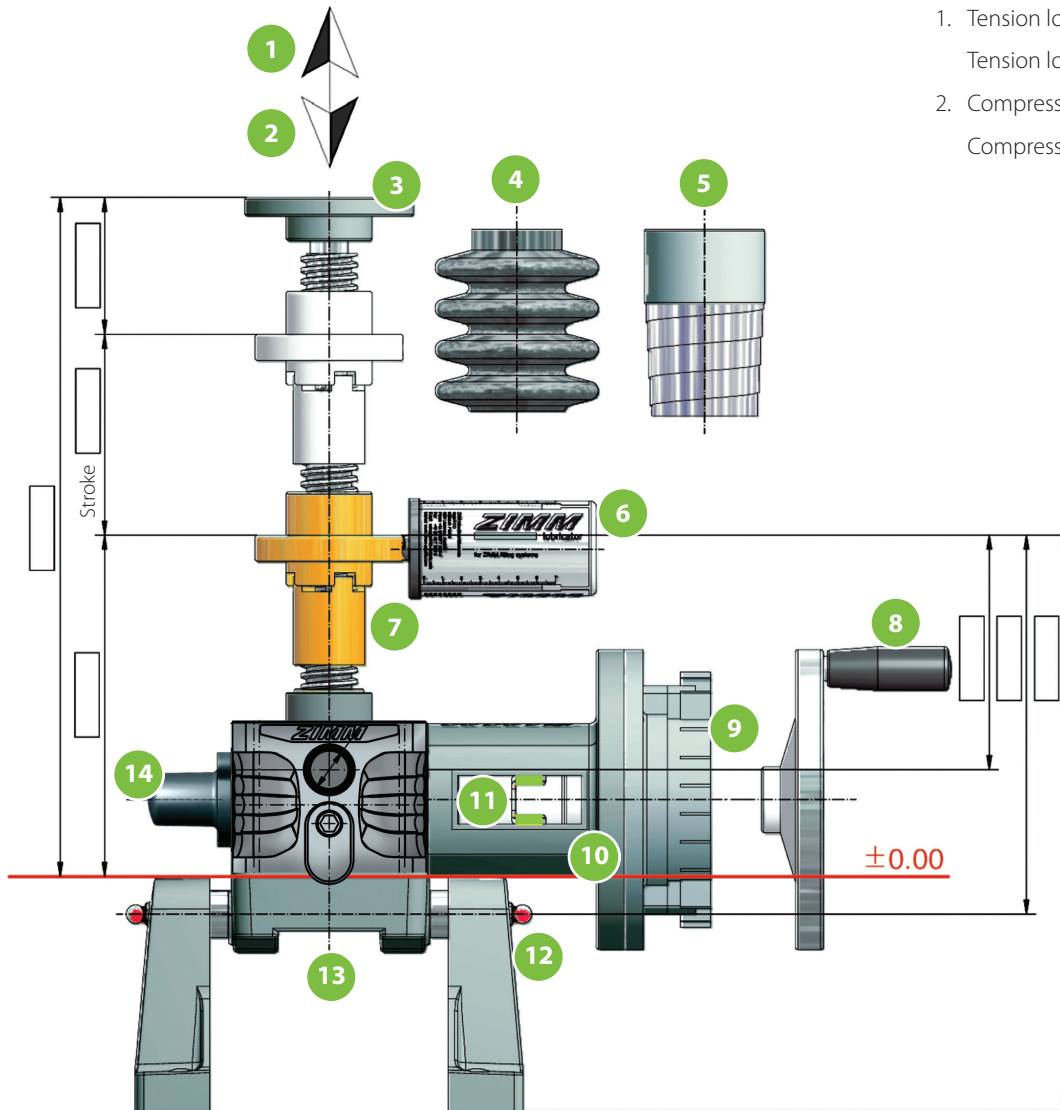
Sheet 6 / R Version Component List

Version:

- ☐ RN (Rotating screw, normal)
☐ RL (Rotating screw, low speed)

Type:

- ☐ TR (Trapezoidal screw)
☐ SIFA (Safety nut) ☐ with SIFA monitoring
☐ KGT (Ball screw)

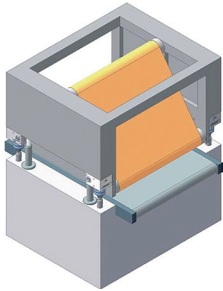


1. Tension load (kN): static
 Tension load (kN): dynamic
 2. Compression load (kN): static
 Compression load (kN): dynamic

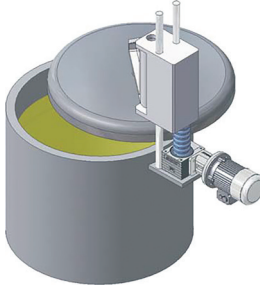
3. Opposed bearing plate GLP ☐
 4. Bellows FB ☐
 5. Spiral spring cover SF ☐
 6. Lubricator Z-LUB ☐
 7. Duplex nut DM ☐
 Tr flange nut FM ☐
 Cardan adapter DMA ☐
 KGT flange nut KGT-F ☐
 Self-aligning nut PM ☐
 Greaseless nut FFDM ☐
 Driving flange TRMFL ☐
 Safety nut SIFA ☐
 Wear monitoring ☐
 SIFA Control ☐
 8. Handwheel HR ☐
 9. Motor with brake ☐
 Motor without brake ☐
 10. Motor flange MF ☐
 11. Coupling KUZ ☐
 12. Pivot mounts LB ☐
 13. Pivot bearing plate KAR ☐
 14. Protective cap SK ☐

Application Examples

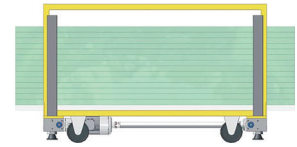
Screw jacks and screw jack systems are incorporated into more applications and industries than perhaps any other gear drive device. Wherever lifting, holding, pushing, pulling, or positioning is necessary, a Zimm screw jack can provide a clean and efficient solution.



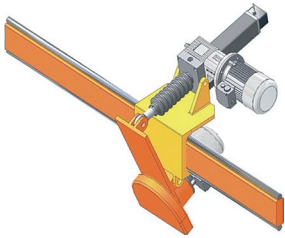
Grinder Belt Adjustment



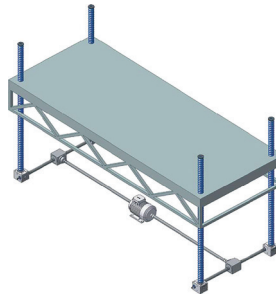
Tank Lid Adjustment



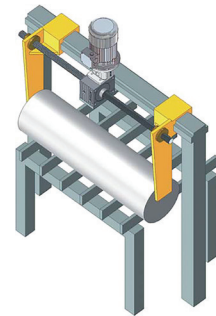
Feeder Cart Adjustment



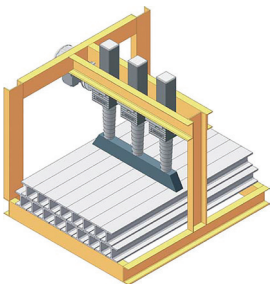
Saw Blade Adjustment



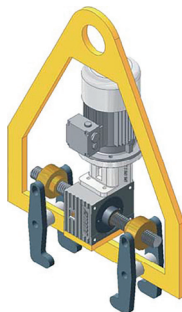
Stage Adjustment



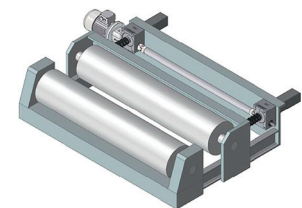
Centering Mechanism



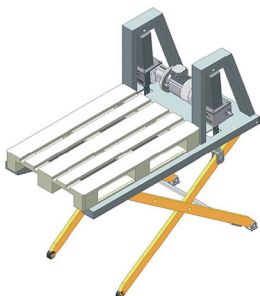
Product Alignment
System



Product Gripper
Mechanism



Roller Gap Adjustment



Pallet Transfer Table



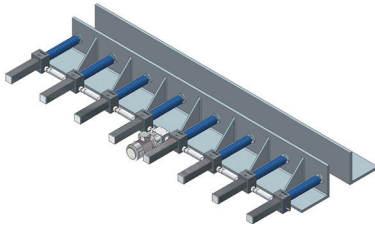
Ring Height Adjustment



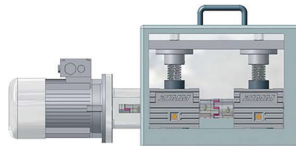
Antenna Positioning

Application Examples

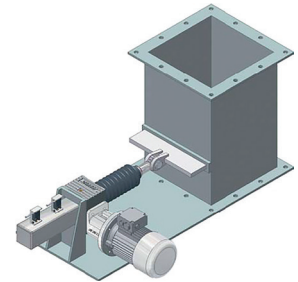
ZIMM USA
by **DIEQUA**



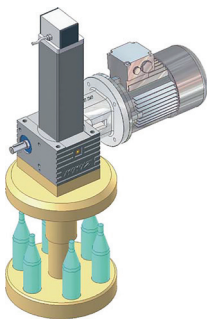
**Concrete Beam
Production**



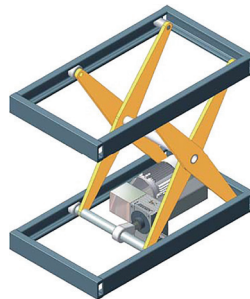
Compact Press



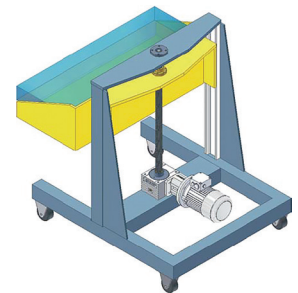
Feed Slide Positioning



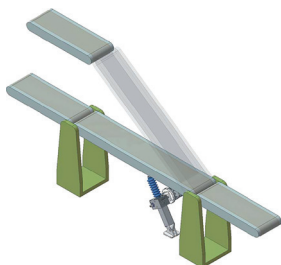
Bottling Systems



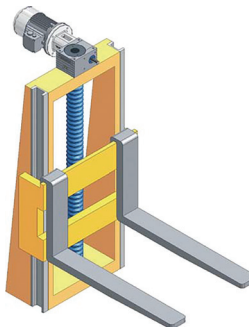
Scissor Table



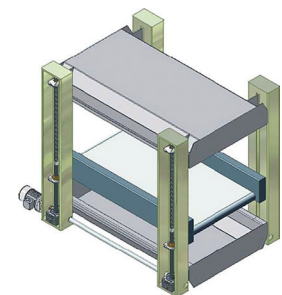
Mobile Lifting Platform



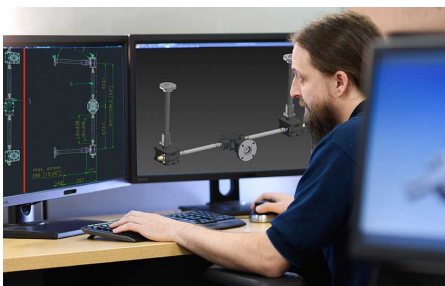
Conveyor Adjustment



Destacking Unit



Oven Hood Adjustment



Design Team Assistance

DieQua offers complete system design assistance, taking the guess work out of product selection. Our years of experience and expanded product portfolio assures that all elements of the design process are considered. As part of the design process, we provide full assembly drawings, which adds time-saving value and guarantees that the correct system components are integrated. Take advantage of our experience in providing a Zimm screw jack solution for your application.

ABOUT DIEQUA

Founded in 1980 by Dietmar Quaas, and now owned by his sons, DieQua Corporation has expanded from a single product line to become a leading manufacturer and supplier of an extensive line of high-quality power transmission and precision motion control products, including gearboxes, servo gearheads, screw jack systems, speed reducers, cycloidal reducers, and connecting components. The company also offers custom product modifications and complete design solutions for virtually any application. DieQua Corporation serves a wide range

of industries, including medical and health care, marine engineering, renewable energy, mining, transportation, steel, forestry and lumber, water and wastewater, automotive, and factory automation, to name a few.

An experienced and knowledgeable technical sales, customer service, and engineering support staff, as well as local distributors, ensure that DieQua customers in North America, Mexico and South America select the optimum components, systems, and best design solutions for their specific requirements.

The DieQua family of products



Spiral Bevel
Gearboxes



Servo
Gearheads



Cycloidal Reducers
& Positioners



Screw Jack
Systems



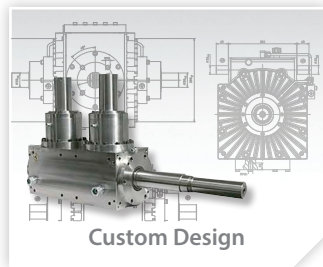
Helical
Speed Reducers



Speed Modulating
Gearboxes



Zero Backlash Couplings
and Line Shafts



Custom Design

The DieQua Advantage

Engineering Support

DieQua Corporation has several decades of combined experience specifying power transmission and motion control components. This assures proper selection of components and systems to suit your unique requirements.

Warehousing

We pride ourselves for our extensive in-stock inventory. For fast product turnaround, DieQua Corporation stocks many components of various ratios and sizes, ready to ship fast.

Manufacturing and Assembly

DieQua Corporation now manufactures or assembles most of the products, for on-time delivery of standard orders as well as prototypes. We are ISO 9001 certified and are constantly improving our quality systems to ensure our customers receive the best products.