THE WORLD IS MOVEMENT

PRECISION

RELIABILITY

ENDURANCE

COMPETITIVITY

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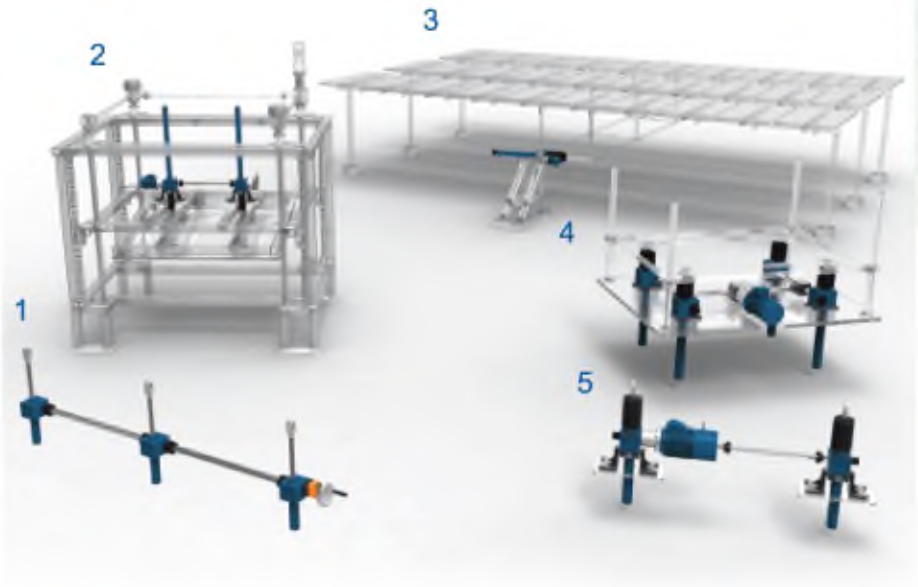
Screw Jacks

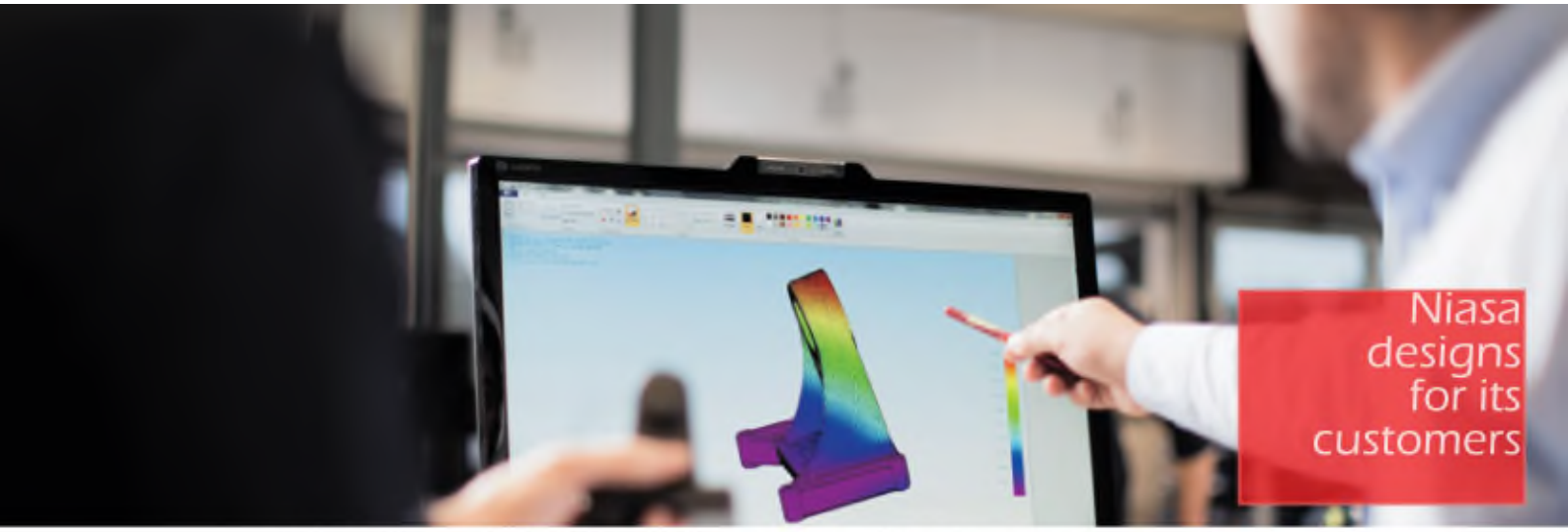
NIASA N/W/R Series Screw Jacks are a combination of a screw with a gearbox.
In applications that so require, there is a possibility to protect the screw with a bellow (available in different materials), in order to make them suitable for outdoor applications or harsn environments.

Screw jacks are often the optimal technical and economical solution for applications that require lineal, precise and safe movement for transfer and elevation, mainly for medium-heavy loads and medium-low speeds.

Their main advantages against other systems, such as pneumatic or hydraulic cylinders, are:
..... Greater movement and positioning precision.
..... Lower size for the same load capacity.
..... Greater safety, due to their irreversibility in many configurations or the incorporation of braking devices.
..... Superior energy efficiency, especially with ball screws.
..... Easier and faster assembly, since hydraulic or pneumatic groups are not required, just an electric motor on the unit itself.
..... Greater reliability and duration, and lower maintenance..
..... Modular design and the possibility of operating in multiple positions.
..... Easier to obtain synchronised movement of several screw jacks even under different loads...



1 Manual Positioning System
2 Machine Tilting System
3 Photovoltaic Installation
4 Platform Elevation System
5 Tilting Elevation System



Series F/A: Linear Actuators

NIASA F/A Series Linear Actuators are electro-mechanical cylinders in which a rod moves inside a second tube, of either steel or aluminum.
The lengthwise movement of the stem is achieved through the combination of an inner screw/nut which drags it, and an electrical motor that drives the screw/nut. The power transmission from the motor may be direct or by means of different gear solutions and toothed belts.

Against solutions with exposed screws, protecting them with an external rod means that the equipment is highly sealed and can operate in the most aggressive conditions, with the presence of dust or liquid. The rod provides an extraordinary capacity for buckle load against axial compression loads.

These types of actuators are the best solution in practically any application that requires precise and safe linear movement, whether it is for transfer or for elevation and regardless of the speed required. Their main advantages against other systems, such as pneumatic or hydraulic, are:
... Greater movement and positioning precision with a lower size.
... Superior energy effciency, as their parts offer high/very high performance, especially with the ball screws, low transmission ratios and high speeds.
... Easier and faster assembly, since hydraulic or pneumatic groups are not required, just an electric motor mounted on the unit itself.
... Greater reliability and duration...

1 Shutter System
2 Vertical Drive System
3 Antena Orientation System
4 Scissor Lift
5 Horizontal Drive System

Series FM-FHM/AM-AHM: Linear Actuators with Integrated Reduction and Cubic or Compact Gearbox

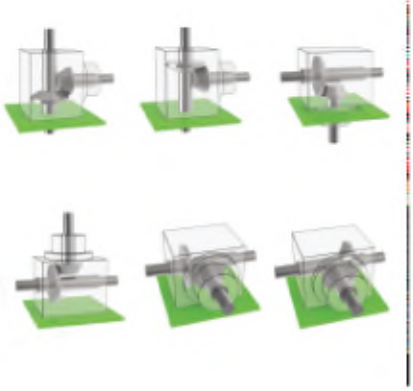
NIASA FM/AM Series Electro-mechanical Actuators combine the sleeve and stem system of the F/A Series linear actuators with the gearbox of the screw jacks, thus obtaining the most interesting features of both types of product.
This way, the FM/AM Series electro-mechanical actuators become the optimal technical solution for applications that require the movement specifications of a screw jack, with the additional advantage of being able to work under the most demanding environmental conditions.
These Actuators allow an extensive range of:
... Axial load capacities, from 5 up to 250 kN
... Travelling speeds; depending on the screw pitch and the gearbox, two possible reductions are offered from 4:1 to 40:1.
... Fastening accessories for optimal adjustment to the most varied systems.

NIASA FHM/AHM Series Actuators have evolved from the FM/AM Series, aimed at specific requirements in the solar energy generation sector (photovoltaic, thermo-solar, etc.). They can also be used in any other kind of application with demanding environmental conditions.
The gearbox is round and not cubic, and the input shaft offers the possibility to be connected directly to any type of drive. Additionally, the D variant includes a second reduction, thus avoiding the use of additional reducers in solar tracking or similar applications, where very slow speeds are required.

1 Three Shaft Screw Jack System
2 Three Shaft Actuators System
3 Solar/Heliostat Tracker 2 Shafts
4 Cylinder/Parabolic Solar Concentration

Bevel Gearboxes

NIASA bevel gearboxes transfer energy through conical gears in optimized geometry. The standard backlash is lower than 10 angular minutes, and may be less than 6 at customer's request.



The bevel gearboxes are supplied with ball bearings (standard) or conical bearings (at customer's request), sealed and lubricated,depending on the load, speed, sonority, temperature, etc.

Bevel gearboxes are lubricated with high-performance synthetic oil with the possibility for NSF-H1 approval for the food industry.

The efficiency of the bevel gearboxes, depending on the torque transferred, the lubrication and the assembly position, is usually higher than 98%.

Ventilation is necessary for working temperatures over 50°C. Optionally aeration and venting filters manufactured in plastic with integrated grease separator are mounted.

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1 Vertical Positioning System

2 4 Shafts Transmission System

Rodless Mechanical Cylinders

NIASA CMH rodless mechanical cylinders can be used in almost any type of machinery, as long as it works with linear forces or moves one or more axes in a controlled manner. They are used separately, or combined with each other, given the multiple possibilities of combination offered.

Basically, they are mechanical elements that translate rotating entry movements into linear exit movements. They are characterized because their carriage is actioned by a nut, which in turn is pushed by a turning screw.

Each carriage is fitted with either a single ballscrew nut (M), or a trapezoidal nut (TR) depending on desired speed, precision, duty cycle, etc., and are supported by bearings on their ends. The carriages are mounted on a prismatic linear guide that is fitted inside an extruded aluminum body. The set is protected from outer dust by the profile itself.

In NIASA CMK linear drives the carriage is mounted on a linear guide that is driven through a steel braided toothed belt.
This type of transmission enables linear speeds of up to 5 m/s to be reached, which is comparable to those offered by pneumatic cylinders, although with the advantage of being able to carry out an unlimited number of intermediate positions on the run, with total control of speed and positioning.

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1 Three Axis System

2 Compact Linear Unit

3 2 Arms Feeder

Screws and Nuts

Screws transform a rotation movement into a linear transfer and vice versa; the latter depends on the type of screw and its dimensions.

NIASA offers an extensive range of screws for all types of applications, within a broad range of sectors, like machine tools, aeronautics, transport and handling industry, renewable energies, etc.

NIASA quality standards guarantee the highest levels of reliability on the entire range of screws and nuts.

NIASA supplies trapezoidal as well as ball screws.

The benefits of ball screws over trapezoidal screws are the following:

..... Greater positioning precision.
..... Longer useful life.
..... Greater efficiency.
..... Possibility of working at higher speeds.
..... Lower heat generation.
..... No slipping or gripping effects.

Trapezoidal screws are usually less costly and their features suit numerous application requirements.

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1 Trapezoidal, Balls and Security Nuts
2 Trapezoidal Screw
3 Ball Screw and Nut
4 Pre-loaded Nuts

Linear Tables

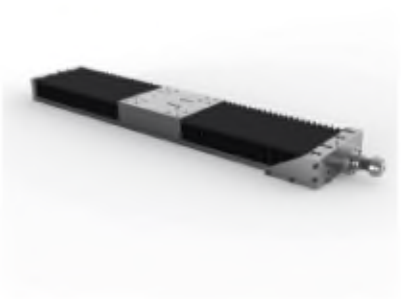
NIASA linear tables are translating units, suitable in almost any precise positioning application.

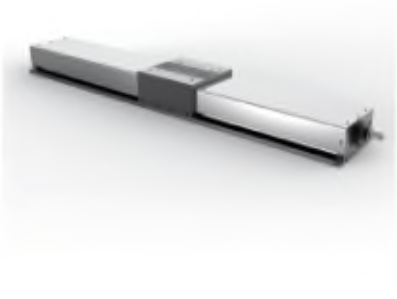
They can be combined manually in their simplest version, or by CNC, and can move small and high loads, always with low energy consumption.

The linear tables are light, modular and easy-to-assemble units, either separately or combined with each other. They can be assembled on one, two or three axis, thereby achieving the optimal solution for a great number of applications.

They are supplied with high precision linear guideways allowing smooth and low noise operation.

They also use high precision rolled or grounded ball screws depending on the positioning tolerance; and there is also the possibility of installing pre-loaded double nuts, in order to eliminate or reduce to the desired value, the backlash between the nut and screw.





1 2 Axis System
2 Standard Linear Table
3 Covered Linear Table
4 4 Axis System