

## **Tough Actuator Ideal for Use in Latest Amazone Intelligent Fertilizer Spreading System**

With its headquarters in Germany, AMAZONEN-WERKE H. DREYER (Amazone) was founded in 1883 and has built its reputation as a leading manufacturer of agricultural and ground care machinery. It remains a family run business and has offices in the UK, France, Poland, Hungary, Ukraine, Serbia, Russia and Kazakhstan with around 80% of its revenue generated from export sales to over 70 countries. Its products are known for their outstanding performance and innovative, groundbreaking designs to assist in meeting modern farming needs and challenges.

The ZA-TS is the latest, top-performing, high output spreader from Amazone. Its innovative design incorporates the latest technology to ensure farmers can realize new levels of efficiency and optimum usage of fertilizer when spreading. The environment in which this machine is designed to operate is exceptionally tough and, to ensure reliable operation, they selected the Max Jac<sup>®</sup> linear actuator which is one of the latest products from Thomson Industries, the leading manufacturer of linear motion products.

### ***A component for use in the harshest environments***

The Max Jac is an electric linear actuator, which has been specifically designed for reliable, long-life performance in the harshest of environments. It can handle the dust and dirt associated with agricultural machinery applications with an ingress protection rating of IP66. The unit has also undergone additional testing to IP69K, making it suitable for high pressure, high temperature wash down. It is a fully encapsulated, permanently lubricated unit which, compared with an equivalent hydraulic solution, significantly reduces maintenance requirements and costs as well as protecting the environment from oil leaks and spillages.

When it comes to manufacturing agricultural machinery, the access to components for servicing and the space required to accommodate them can lead to compromises in design. The Max Jac actuator has a very compact form with a short total length compared with the stroke and is ideal where space is tight. It also has built in position feedback, which is contact-free to ensure no wear or re-calibration is necessary over the lifetime of the actuator. There is no need for additional supporting systems or components as required by a hydraulic system and the unit requires virtually no

maintenance throughout its lifetime so it can be easily and optimally positioned to achieve best competitive advantage for the overall machine.

The Max Jac has a straightforward design with a minimum number of components and requires only electrical power for operation. It is tolerant of dust, dirt, mud and water as well as more aggressive substances such as fertilizers, oil and cleaning agents. Its elegant simplicity adds to its reliability and makes it ideal for the Amazone application. The environment in which the actuators operate contains dust from the fertilizer, can be very humid and has high levels of vibration. Performance and quality are key factors associated with the Amazone brand and the exceptionally tough design of the Max Jac units help assure that the operation of this intelligent spreader system is consistent and reliable over its long life.

### ***An innovative machine designed to save farmers time and cost***

The ZA-TS from Amazone offers the capability to achieve high speed spreading with maximum precision, minimizing both the time taken to cover an area and the amount of fertilizer required. Overall, the machine enables farmers to achieve more for less and provides reliable, robust performance. The Max Jac electric linear actuators are used to move the spreader shutter slides and for the rotation of the whole delivery system around the center of the spreading disks. The Max Jac meets the precision and short reaction times required by the ZA-TS to move at speed.

Though the ZA-TS is due for release to general sale in 2014, many pre-release units are currently in use by farmers in real applications and its performance has been outstanding. The machine provides a generous working width of up to 54m and high accuracy with its innovative, fast-reacting boundary spreading system. It fulfills the requirements not to spread beyond the boundary of a field without the need to reduce velocity. As the machine approaches a border the Max Jac actuator quickly slides the shutter closed, enabling the tractor to maintain speeds of up to 30 km/hr. and optimizing fertilizer use.

The ZA-TS realizes high efficiency in fertilizer spreading. The system offers a high level of automation and delivers up to 10.8 kg/s of fertilizer to a working width of up to 54 m and operating speeds of up to 30 km/h. The use of the Thomson Max Jac

electric linear actuator in this equipment is in line with the high standard of quality and reliability of the overall machine design.

### ***A reliable product, reliable service***

Arnd Kielhorn, Product Manager for Fertilizer Technology at Amazonen-Werke, commented, “Robustness and reliability are vital for this application. Amazone sources parts from many companies and we have to be sure that the work is good. We have had good responses from Thomson during the development of this new machine with very fast reaction times to both queries and requests. We have only had good experiences from working with them. Their products are innovative and the service excellent. All of these are good reasons to work with them in the future.”

Mechanical engineers serving modern agriculture continually strive for increased benefits and a competitive edge. Amazone is a leading player in Europe, particularly for fertilizer equipment, and its machinery designs incorporate the latest engineering technology and innovation. Thomson is an ideal partner with a detailed understanding of linear motion control and much experience in agricultural applications that require a combination of performance, precision and reliability.

The Max Jac linear actuator from Thomson Industries, Inc. was specifically designed to provide efficient, reliable, trouble-free operation with advanced performance in harsh, off-highway applications. It provides highly efficient, high speed linear motion and is virtually maintenance free. It has helped Amazone optimize the design of a truly innovative piece of agricultural machinery, their new ZA-TS, and to maximize the benefits to their end users.

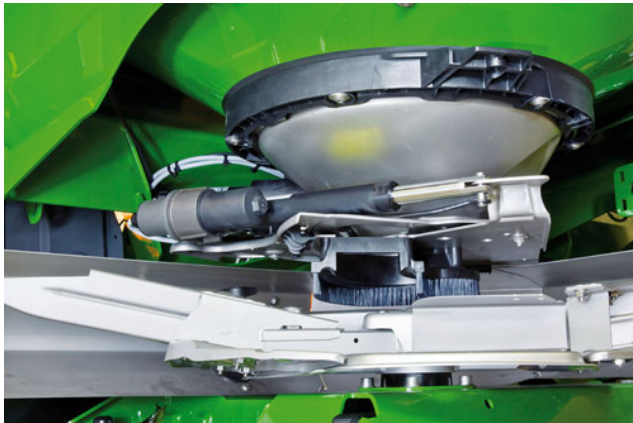
### ***Flexible product offering from Thomson***

Thomson application engineers are experts at providing mechanical motion solutions across many industries with unmatched depth in agricultural and construction vehicle applications. In addition to linear actuators, the Thomson product portfolio also includes linear bearings and guides, ball screws, lead screws and complete linear motion system along with gearheads, clutches and brakes.

# APPLICATION STORY

The Max Jac linear actuator is available with worm or ball screw technology to best suit application needs in terms of duty and load. The worm screw version is self-locking and will not back drive on power-off while the ball screw offers faster operation, will take higher loads and can operate at higher duty cycles. The product is manufactured from high quality materials with stainless steel components and a hard coat anodized aluminum cover tube, which has been designed and tested for use in corrosive environments. And, like all Thomson electric linear actuators, the Max Jac is easily customized to exactly match unique design and application requirements for off-road vehicles of all types.

## Image captions:



A fertilizer spreader application is an example of how actuators must withstand aggressive, corrosive materials.



The new Max Jac actuator from Thomson is tolerant of dust, dirt, mud and water, as well as more aggressive substances such as fertilizers, acid, oil, and cleaning agents.

# APPLICATION STORY



The compact design of the Thomson Max Jac actuator gives more freedom in design for engineers, especially in a mobile off-highway environment.