



**Brazilian Farm
Equipment
Manufacturer
Discovers
Finn-Power
Fabrication
Flexibility**



Semeato is a market-leading manufacturer of no-till agricultural machinery and replacement parts. Located in Brazil's southern state of Rio Grande do Sul, Semeato traces its roots back to the mid 1960s. Originally created to supply parts and small machinery, the company grew in the 1970s by introducing one of the first lines of agricultural implements manufactured in Brazil. Semeato soon earned the reputation as an innovator and pioneer in the industry by experimenting with the new revolutionary concept of no-till farming.

During the 1980's, Semeato focused its efforts to develop technologically advanced no-till machinery and implements which would provide farmers with increased productivity and reliability. The company played a key role in

the implementation of no-till farming in the region and in promoting the popularity of the new system that has spread to farms throughout the world.

Today, Semeato is comprised of eight separate units that function as one entity. As a vertically integrated company, Semeato has developed differentiated manufacturing and logistic processes – including raw material, foundry, plastics, etc. – that assure the high quality of its products and services. In turn, Semeato's customers demand reliability and fast service. To meet these needs, Semeato has also established a diverse inventory in order to supply original parts and accessories.

To satisfy a broad range of farming operations, Semeato has developed a distinct line of no-till planters and drills that combine accuracy and efficiency when seeding and fertilizing. These planters are ideal for such crops as corn, bean, soybean, sunflower, and cotton. In order to satisfy its

customers' special needs according to particular regions, soils, cultures, and climates, Semeato has developed a new concept in no-till seeding – the Personalized Drill. With over 500 assembly combinations, the Personalized Drill is a flexible planter/drill designed to find customized solutions to specific agricultural problems.

As a result of the multiple configurations of these customized machines, flexibility is a critical element of Semeato's manufacturing philosophy. To manufacture these products, Semeato has a wide variety of metalworking equipment, including: stamping presses, milling machines, shears, press brakes, a coil cut-to-length line, a turret punch press, and lasers.

Laser Work Center

The latest flexible sheet metal fabrication technology introduced at Semeato was a Finn-Power high-speed Laser Work Center. In September, 2003, the Finn-Power Laser Work Center with a load/unload went into production at one of the Semeato's Passo Fundo locations. According to Amilton F. R. Loss, production manager, Finn-Power's

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leading technology was the reason for choosing the Finn-Power laser over competitors' models. “We chose the Finn-Power laser for its high speed and load/unload capabilities,” explains Loss.

The Finn-Power laser is a breakthrough in sophisticated high-speed laser cutting for sheet metal fabrication, creating enhanced production with superior speed, accuracy, and part quality. The Finn-Power Laser is designed by using innovative linear drive motor technology to allow maximum speeds, even in small notches or narrow contours. Finn-Power provides a new level of high-speed performance with regard to machining dynamics, contour accuracy, and process safety.

The Finn-Power laser is a flying optics system with a working area of 3000 mm (120") X axis; 1500 mm (60") Y axis; and 100 mm (4") Z axis. Maximum positioning speed of X/Y axes simultaneously up to 300 m/minute (11,811"/min). Loss also explains that Finn-Power's unique “Ping Pong” repositioning movement allows smooth and



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efficient transitions for increased productivity. In conventional repositioning, the head moves in straight lines, taking extra time just to position the cutting head.

Semeato processes mild steel up to 1/4-inch and stainless and aluminum up to 3 mm. "On thin material, we have experienced a 70% increase in productivity over our other laser," says Loss. "On the thicker material, we still

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experience a 30% increase in productivity."

To demonstrate the speed of the Finn-Power laser, Loss presents a production time comparison on a 9 mm stainless steel seed distribution disc. "On our old laser, making 52 of these parts on a sheet 3 meters x 1-1/2 meters would take three hours," says Loss. "We do it in 20 minutes on the Finn-Power."

Semeato currently produces approximately 2,000 different parts on the Finn-Power laser. In the



past, Semeato utilized a job shop to meet its laser parts requirements. Today, Semeato does all its fabrication internally and also supplies the other divisions of the company with parts. "We are very happy with the Finn-Power laser," explains Loss. "By allowing us to fabricate all our parts internally, we not only experience lower production costs but also reduced lead times. In addition, when we need to make a design change, it is also much easier to make prototypes on the Finn-Power."

Automatic loading and unloading is accomplished with the use of load/unload gripper that is equipped with suction cups. The gripper picks up the sheet from the loading table and then places the sheet onto the Finn-Power laser's cutting table.

After the laser cutting has been completed and the laser shuttle tables have exchanged positions, the fork assembly, which is mounted on the load/unload gripper, removes the cut parts, including the skeleton, and places it on the unloading table.

Semeato operates the Finn-Power laser three shifts per day, seven days per week. In order to ensure the best performance, maintenance is something that Semeato takes very seriously. The company rigorously follows daily, weekly, and monthly maintenance procedures to keep the laser running in top condition.



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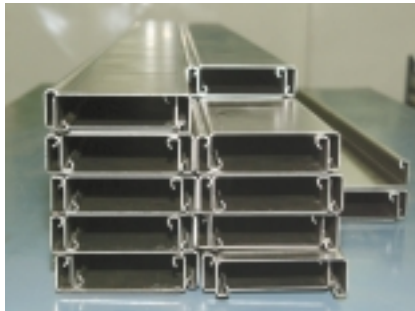
Press Brake

Recently, Semeato purchased a Finn-Power 160 ton, 4 axis hydraulic press brake. The Finn-Power hydraulic press brake is designed for high precision performance in the most demanding applications. When doing small or large batch work, the Finn-Power press brake provides cycle time enabling short strokes and quick rapid advance/return speeds to benefit production needs. The forming speed is



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programmable to avoid part whip-up and provide the operator with ease of operation.

Ram movement is extremely accurate. The piston is fastened to the top beam through spherical surfaces, which eliminates the effect of horizontal loads during the working stroke and also makes tilted settings possible. Off Center Loading is possible on the Finn-Power press brake because the measuring arrangement has been designed specifically to eliminate any effect on accuracy of the bending force used.

All axes of the press brake, including crowning, are calculated by the control and automatically positioned. The hydraulic clamping circuit for the bed, or ram, has a separate hydraulic hose for direct control.

When the operation parameters of tool pair, sheet properties and the product dimensions are specified in the

control system, it automatically calculates optimal ram movement, back gauge position and retraction, bending force, lower dead point, and automatic return stroke.

During ram movement, linear encoders constantly measure the actual ram position, which is then compared with the command values for stroke depth, speed, change point, and return limit.

Any deviation from preset values triggers a feedback signal that, in turn, activates servo valves to direct oil flow to the top, or bottom, of each piston for the correct ram movement required. Measurements are automatically calculated by program information for programmed depth to reach the desired angle.

Finn-Power's precision press brakes are accurate. Regardless of oil temperature, repeatability of lower dead point positions is +/- .01 mm (.0004") with Finn-Power's dual linear scales controlling movement throughout the work day.

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Technical School

Another unique feature of Semeato is the company's technical school, established in 1989, to ensure a qualified workforce for its factories. For example, production manager Amilton Loss is a graduate of Semeato's technical school. Students between the ages of 16 and 20 learn design, metallurgy, and operations and maintenance on all Semeato's machines. The purpose of the school is to provide knowledge and ethics to future employees, as well as build careers. The school has received several awards for educating the community and contributing to a better society.



Semeato established a technical school in 1989 to ensure a qualified workforce for its factories. Many current employees are graduates of this school, including production manager Amilton Loss.



FINN-POWER
INTERNATIONAL, INC.

710 Remington Road ■ Schaumburg, Illinois 60173 ■ USA
Phone: (847) 885-3200 ■ Fax: (847) 885-9692 ■ www.finnpower.com

asamaq

Asamaq Maquinas e Ferramentas Ltda.

Estrada Turística do Jaraguá, nº 1326.05161-000 - São Paulo - SP
Fone (0**11) 3904 6194 ■ Fax (0**11) 3904 1772 ■ asamaq@asamaq.com.br