

# ENGEMO

## STERLING

Since 1985



Dägeling / Hamburg  
Germany

Alpignano / Torino  
Italy

Atlanta  
USA

Shanghai  
China

Curitiba  
Brazil

Port Elizabeth  
South Africa  
(co-operation)



# GROUP


## STERLING

# SAT Sterling Worldwide Group

Busines Units:

 SAT Anlagetechnik GmbH - Germany  
☎ +49 (0) 4821.9000 0

 NKE Automation Srl - Italy  
☎ +39 011 9784411

 Engemo Fluid Solutions - Brazil  
☎ +55 41.3244.6838

Fluid Filling  
Greasing  
Glueing/Glazing  
VIN Marking  
Testing

# GROUP

## STERLING



German machinery manufacturer established in Dageling - Hamburg area, with business started in 1970 with main specialization in fluid filling machines for a wide range of process applications.



Italian machinery manufacturer established in Alpignano - Turim's area, with business started in 1972 with specialization in fluid filling machines, greasing, glueing, glazing, VIN Marking and other process for a wide range of applications.



Brazilian machinery manufacturer established in Curitiba - Parana's area, with business started in 1985 with specialization in tank farming, fluid filling machines, and production quality tests for a wide range of applications.

## SAT GROUP REFERENCES:



[www.sat-sterling.com](http://www.sat-sterling.com)  
[www.nke.it](http://www.nke.it)  
[www.engemo.com.br](http://www.engemo.com.br)

# KEY FACTS ENGEMO STERLING



**STABLISHED  
1985**



**LABOR TEAM  
20**



**HEAD OFFICE  
Curitiba, Brasil**



**SUPPLIED SYSTEMS  
> 350**



**CYCLED VEHICLES  
> 50mi**



**ENGEMO**

STERLING

Brasil - Paraná - Curitiba  
[www.engemo.com.br](http://www.engemo.com.br)





# Process Specialities

## Tank Farming



## Fluid Filling



## Greasing



## Glueing & Glazing



## VIN Marking



## Testing Systems



# Tank Farming

- \* Technical project with focus on consumption and logistic ranges,
- \* Accessibility for maintenance
- \* Safety for hazardous areas
- \* Environment conditions observed
- \* Measurement of consumption
- \* Level control
- \* Inertization of fluids against environment humidity
- \* Pump dimensioning for best efficiency
- \* Execution under authorities and insurance approval
- \* Regular maintenance and calibration of system
- \* Automation for PCP planning



# Fluid Filling



- \* Leak Test and Filling Machines
- \* Volumetric process for open systems
- \* Vacuum based process for Air Conditioning
- \* Vacuum + Top Off process for Brake, Coolant, PAS..
- \* Traceability feature for all results and recipes
- \* Machines designed to fulfill the customers requirements
- \* Different constructive options to minimize process area
- \* Fully automated machines with advanced process controls
- \* Possibility of diverse combinations of process in one machine
- \* Flexibility on project with hardware according to customer's preferences



Vehicular fluids, Trucks, Buses, Agriculture Machinery, Construction Vehicles, Military Vehicles and Motorcycles



- \* Mini - Concept machines
- \* Compact - Concept machines
- \* Stationary Line Side - Concept machines
- \* On-Line - Concept machines



Filling heads designed according the best ergonomy

# Greasing



- \* Different types of lubricant greases
- \* Different doser technologies
- \* Application head designed by demand
- \* Focus on ergonomics for operation
- \* Poka Yoke systems for process
- \* Fixed or proportional dosing system
- \* Pumping unit with change-over
- \* Process traceability
- \* Recipe identification with the correct doser and volume enabled
- \* Automated systems also available

## Example of applications

- \* Clutch axis lubrication
- \* Control cables lubrication
- \* Hand brake lubrication
- \* Ball Bearing lubrication
- \* Engine mounting facility
- \* Others by demand



Process Expertise



Vehicular fluids, Trucks, Buses, Agriculture Machinery, Construction Vehicles, Military Vehicles and Motorcycles





# Glueing & Glazing

- \* Automatic Glasses installation
- \* Glueing at the glass or vehicle cabin
- \* Cleaning & Priming available
- \* Mono or Bi-component glues
- \* High advanced engineering for process
- \* Safety devices dimensioned
- \* Vision systems for quality control
- \* Bead inspection and control

- \* Integrated options for different controls
- \* Automation at customer preference
- \* Expertise on gripping design
- \* Data and image traceability
- \* Totally integrated model selection
- \* Individual parameters for each model
- \* Pumping Station with Change Over option
- \* Heating Control for Glue Barrels
- \* Automated or Manually Glass Application



## Example of applications

- \* Front Windscreen
- \* Third Light
- \* Back Screen
- \* Solar roof installation
- \* Trucks cabin cap
- \* Different models of cars's glasses
- \* Different models of trucks's glasses

- \* Pumping Station designed for minimal Space required, saving production area's floor
- \* Easer maintenance of pumping set
- \* Easer operation with barrel exchanging
- \* Human protection avoiding hazard hot parts touch
- \* Maximum usage of glue volume in barrels



Process Expertise





# VIN MARKING

- \* Mechanic or Laser marking options
- \* Automatic Robot or manual process
- \* Depth marking control
- \* Image control and traceability
- \* General process traceability
- \* Safety devices dimensioned
- \* Very Robust project for the best process stability



\* Process parameters for layout and depth according to local vehicle laws



\* Maintenance accesibility



# TEST SYSTEMS

- \* Leak Testing with or without traceable gas as such helium, N2
- \* Flushing routines with heating and particles measurement
- \* Noise and vibration tests with different bands for each product
- \* Strength Test with different speeds and loads programed with simulation power and load motors with designed test ramps
- \* Test of on-board electronic modules via communication bus
- \* Oil filtration control..

- \* Inertial support designed by demand
- \* Safety devices and protections
- \* Operator safety and ergonomics care
- \* Maintenance facility with diagnoses
- \* Process full traceability
- \* Different kind of possible reports
- \* Control automation by industrial PLC



Typical Applications:

- Transmission Gear boxes
- Complex Gear Axes
- Engines
- Leak test needed products

Typical Devices Applied in to the Projects:

- Industrial Microphone
- Industrial Accelerometer
- High Speed Acquisition modules
- Particles Counting Sensors
- Encoder for Speed Control
- Load Cell for Strength measurement
- Tracing Gas Sniffer



Vehicular fluids, Trucks, Buses, Agriculture Machinery, Construction Vehicles, Military Vehicles and Motorcycles



# SOFTWARES

 **Dataview Pro**  
Process data viewer software

**ENGEMO**<sup>®</sup>



Quick application load with status of each module progress for diagnosis.

Users Access different levels of rights with easy login via finger scanner, password, contact less card..

Integrated virtual keyboard



Other available features:

- Troubleshooting screen with detailed instructions
- Preventive maintenance with real pictures and descriptions
- Config screen for devices such scanner, printer.. config.
- Process alarms screen with resume of last processes
- Equipment alarms screen with resume of every occurred alarm
- Illustrated machine diagram show of status of components
- Instruments calibration where gain and offset can be adjusted
- Visual appointment of product inspection - for report printing.

## Automation Architecture

We are expert on a very diverse kind of automation architecture respecting customers preferences

- Siemens
- Allen Bradley
- Omron
- Mitsubishi
- Eaton
- Phoenix Contact
- Toyopuc
- Schneider Electric, ...

 **Dataview Pro**  
Process data viewer software

**ENGEMO**<sup>®</sup>



Easy models and recipes management with sharing of recipes facility and use of similar existing data for new insert.

Very effective process visual screen with all Set Points and Process Values visible also with timing presentation and existing alarms.



Results can easily be found with the results searching screen, where different criteria can be used for results selection, as well as different outputs can be used.

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