

Thiele Technologies

Customer Profile

Thiele Technologies, a \$70M automation OEM company, is a leading provider of automated bag filling and handling, palletizing, cartoning, case packing and placing equipment for a wide range of products.

Application

- Packaging

Industry

- Container filling and palletizing

Location and Web Site

- Minneapolis, Minnesota
- www.marquip.com/thiele/thiele.htm

Key Benefits

- 30% improved uptime with diagnostics for operator
- Faster development
- Advanced diagnostics tools
- I/O configuration simplified

Mission-Critical Capability

- Improved HMI interface

“With Live!, it’s easier to support our customers in the field. An added bonus is that Entivity’s telephone support is the best I have experienced.”

*Jill Johnson
Senior R&D Engineer
Thiele Technologies*



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Thiele Improves Uptime and Diagnostic Capability

The Quest for Higher Productivity

Thiele Technologies researched various ways to increase production rates of their packaging machines. The machinery was already operating near capacity limits for speed. However, they determined that more diagnostic information would help machine operators understand and fix downtime problems more quickly. To get those diagnostics, Thiele initially modified their existing PLC system design and replaced the I/O with intelligent networks such as SDS. These intelligent networks delivered improved system and device diagnostics because they require much less wiring than traditional I/O, making field support easier. At the same time, Thiele provided a standard operator interface to adjust timers and view a limited number of machine faults. This solution was limited, so more advanced operator interface functions were needed. Thiele determined that a traditional PLC was too cumbersome to program support for more functions. Thiele began to look at other technologies such as PC-based control.



Product exits two-story Master™ Series Palletizer machine.

Ease-of-Use Guides Thiele to Entivity

Thiele decided to use Entivity Live!™ PC-based control software for its flowchart programming, diagnostic capabilities, and its I/O interface software. Live! is one product that includes all the tools for project development, debugging, and runtime, which saves Thiele extra costs and support issues. Jill Johnson, Senior Research & Development Design Engineer for Thiele Technologies, stated, “With Live!, it’s easier to support our customers in the field. An added bonus is that Entivity’s telephone support is the best I have experienced.”

New Control has it in the Bag

Thiele is now using Live! software with an SDS network for its Ultrastar™ Bagging System and Master™ Series Palletizer. Live! runs with a scan time of only 8 milliseconds, even when the operator retrieves the User Guide PDF files for on-screen viewing. The Ultrastar™ Bagger system is using one bus and has about 100 I/O points. The Master™ Palletizer uses both buses on an SDS network card, with a total of more than 140 I/O points.

The Ultrastar™ system is a high-speed bagging system used to package granular free flowing products, such as pet food, sugar, salt, seed, fertilizer,

Customer Satisfaction

The quest to improve productivity will always continue at Thiele Technologies. Their innovative spirit has produced a premiere diagnostic option for their packaging machines using Entivity products and intelligent networks. Thiele's satisfied customers want more machines and are requesting even greater connectivity with other systems.



Thiele Technologies recipe selection screen

rice, and petrochemical resin. The Ultrastar™ system packages 20-110 lbs of product in multi-wall paper and poly bags at speeds up to 30 bags per minute. Automatic discharge of unsatisfactory bags, whether unopened or improperly sized, and 3-5 minute tool-less product changeover are among the many advanced technologies featured.

The Thiele's Master™ Series Palletizer is designed to automatically palletize filled bags,

bales, or boxes onto pallets. This eliminates the need to hand stack pallets, thereby increasing operator safety, reducing labor costs, and increasing overall line production.

Thiele's customers want available intelligent I/O network choices, and Live! allows Thiele to quickly modify the control program to support customer preferences. Live! includes all intelligent I/O network drivers at no extra cost. Each I/O driver automatically identifies devices on the network and allows direct access to device attribute information and diagnostic data during development of flowchart and screen programming.

Operator Interface Illustrates Knowledge is Power

The gleaming strong-arm-mounted operator interface sets the stage for the operator to maximize production performance because it delivers the right information. Jim Moss, Technical Communicator, worked with Johnson to build the best

machine operator interface. They created a screen layout that was easy to use and researched colors that are the most appealing and easiest to read. Moss and Johnson also reused machine design drawings made with AutoCAD®, which provided detailed drawings complete with exact part numbers for machine support.

This approach also saved design time because the drawings were provided in bitmap form. These bitmap images were imported into Live! and animated for Fault Help screens. Additional operator screens were designed with Live!'s HMI editor, ScreenView. The HMI

software allows access to the same list of application data names as the flowchart tools; development time is saved because data names do not need to be retyped.

The Ultrastar™ bagger and Master™ Palletizer HMIs have about 50 screens, including a Main Menu and 10 basic machine screens that hot-connect to informative fault screens. From the main screen, operators can select Diagnostic screens, Recipe selections, and Machine Control screens. From the Diagnostics screen, operators can access Fault Help that displays a machine diagram with the problem area flashing on the diagram.

The diagnostic screens also provide access to on-line device manuals, users' guides and communications manuals. Johnson explains, "The operator can quickly assess the problem with this drill-down-to-the-detail method. In fact, our customers are so pleased with the information that is provided with our systems that they want to extend more access to machine diagnostics for their maintenance personnel."

Thiele machines support eight to ten recipes with approximately 50 variables. Customers can create new recipes, modify recipes on-line, and save them to a disk. Johnson used a Live! AMIGOS application, RecipeWerx, for developing recipes. RecipeWerx allows developers to configure and manage recipes for any Live! application. An easy-to-learn, spreadsheet-like form specifies the ingredients in each recipe and the value for each ingredient. The recipes also allow access to flowcharts through shared data tags to control loading and storage of recipes.