



State of the Art

Hydraulics and Controls



For the Snow & Ice
and Mobile Market

Component Technology

A DIVISION OF
 Certified Power Inc.

CONTROLGUARD

TOTAL OPERATOR CONTROL



The 3-Axis Joystick for Total One Hand Control

Many so-called joysticks work on a single axis--forward and back. The ControlGuard System offers three joystick operations with three axis: side to side, forward and back, and twist. The joystick face has six yellow buttons for switching functions easily. The operator can control up to 12 valve sections or 24 separate solenoid functions without moving his hand.



LCD Programmable Display

- Displays road/air temperature information
- Displays granular and liquid rates
- Displays condition indicators
- Displays control mode



Model SG6 ControlGuard

The ControlGuard System is a revolutionary new concept in total operator control of snow plow equipment. Numerous features raise safety and performance to new levels.

- Proportional 3-axis joystick for total hydraulic control in one hand
- LCD programmable display unit--low profile/high visibility
- Adjustable console for a variety of in-cab configurations
- Accepts all StormGuard liquid and granular controllers
- Field replaceable and programmable TouchGuard switch panels
- Turbo mode offering quicker equipment response for experienced operators
- New logic and software system allows for additional communication between AVL systems, spreader controls, RoadWatch® systems and other digital devices

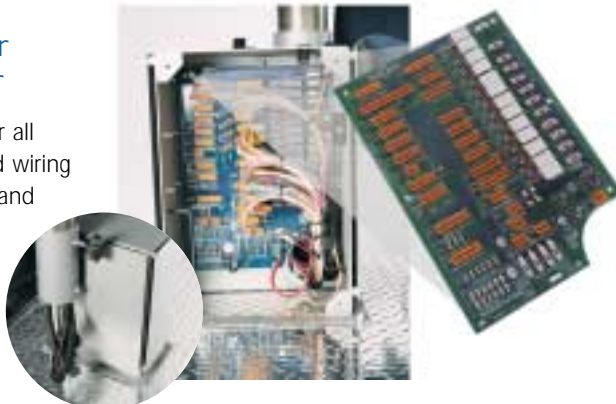
StormGuard Series Control Consoles

The StormGuard line of control consoles has been designed with added variety and flexibility to allow you to customize your system to fit your needs. The "10/11" Series is designed for the light and medium duty truck. Console construction is designed for integration into saddlebag or stand alone for floor or pedestal mount.



CircuitGuard Power Distribution Center

- One central location for all add-on accessories and wiring for ease of installation and maintenance
- Optional accessory mounting panels are available for the CircuitGuard base



Model SG 11 shown with joystick and saddlebag



Model SG 10 with optional front bay

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StormGuard Series Control Consoles

The "20/21" Series and "30/31" Series are designed for trucks requiring more extensive and expandable hydraulics functions and control types. They are compatible with the CircuitGuard Power Distribution Center, available with the TouchGuard switch control System, and offer a variety of control options and joystick options. These include single and dual axis and multi-function capabilities.



Model SG 20



Model SG 31

OUR SYSTEM IS DESIGNED FOR EASY UPGRADING.



TouchGuard Switch Control System

MultiGuard Control System

The options to help you improve or expand your snow and ice capabilities are almost endless with the MultiGuard Control System. You can mix and match the joysticks to fit your needs. Select from a number of our spreader controls or a variety of switch options for your add-on accessories. MultiGuard uses the TouchGuard Switch Control System or the traditional rocker switch system. There are 1, 2, and 3 control stick configurations for on/off or proportional control sticks for a variety of hydraulic systems controls.



MultiGuard Control System

All New TPE Harness System

DURABILITY: Tested to withstand 250 connection/disconnection cycles.

MECHANICAL

SHOCK: Resistance tested after simulated service in a stamping press application.



POWER & TEMPERATURE CYCLING:

Connectors and harness are tested from -25°C to +70°C as a temperature cycle.

SUBMERSION/WASHDOWN: Water tight submerged in 6' of water for 24 hours, in 265' of water for 1 hour and when subjected to a 1000 psi pressure wash.

SALT SPRAY: Designed to resist corrosion even after 500 hours in a 35C salt spray.

- The TPE system simplifies installation and service of electrical systems. LED's for each electric valve indicate power to that valve. All cable ends are molded to the cable to seal out moisture. Connectors are a locking style, each with three separate sealing points.
- Separate cables for the valve, sensors and accessories reduce up front costs and allow for individual replacement. All connectors are zinc die cast E-coated.
- The cable jacket consists of a thermoplastic elastomer (TPE), molded to the connectors which provides exceptional cold weather flexibility and resistance to heat, oil, water, acid/alkali and many other natural and synthetic threats.

ICEGUARD

ANTI-ICING/DEICING SYSTEM

IceGuard



1, 2 or 3 lanes of application



Roadside herbicide vegetation control

Designed for ultimate flexibility, IceGuard not only allows you to switch between anti-icing and deicing but saves the expense of dedicating a truck fleet to a liquid system. The tank, working deck, delivery system and boom are mounted on a free standing frame with self-folding front legs and a universal tailgate bracket. A single operator can load or off-load the system in minutes.



The dual boom system is equipped with a double row of quick change nozzles for high flow or low flow liquid dispersion and stream jet/fan jet selection of spray. With the in-cab LA700 or ML400 control, operators can switch from 1, 2 or 3 lane operation. IceGuard is a year round workhorse: anti-icing/deicing in cold weather, vegetation and dust control in warm weather.



LA700



ML400

IceGuard is driven by StormGuard controls available in a manual liquid sprayer design (ML400) or automatic ground speed controller (LA700).

The StormGuard Pre-Wet System

The StormGuard System is an All-Liquid Pre-Wetting, Low Flow Anti-Ice and Deice System featuring:

- Standard PWM control for variable output
- Integrates with the GL400 for automatic operation and control
- ML100 controller option available
- Low level indicator
- Tailgate mounting kits available
- Easy installation



RESERVOIRS & ENCLOSURES

PROTECTING THE HEART OF YOUR HYDRAULIC SYSTEM

ServiceGuard: Innovative, Durable, Dependable, and Serviceable



ServiceGuard combines the hydraulic fluid reservoir and valve enclosure into one convenient unit. The new bulkhead design does not require internal tubing and hoses, thereby eliminating several potential leak and service points.

It can be used with practically any valve: manual, electric, hydraulic, or air-controlled. Frame mounted units are subjected to incredible abuse from the truck's rear wheels constantly throwing off corrosive materials: ice, snow, dirt, and road salt. It is essential that the hydraulic fluid and valve assembly be protected from these hazards and that is precisely what ServiceGuard does.

The ServiceGuard unit is constructed of heavy seven gauge steel plating. In addition, ValveGuard and ServiceGuard are also available in stainless steel construction. The valve enclosure is kept weather tight by steel plates bolted over form fitted gaskets. Its design greatly reduces downtime and labor costs during service -- once a four-hour job is now reduced to a fraction of that.



Standard frame-mount reservoirs available in sizes 5 gallon to 50 gallon

ValveGuard--for Limited Space

ValveGuard is a valve enclosure that mounts separately from the hydraulic fluid reservoir. It is designed for trucks without the space for a unit that combines valve and hydraulic fluid. Just like the ServiceGuard, it eliminates internal plumbing and potential leak points by mounting directly through the steel plate panel. ValveGuard works with virtually any type of valve.



Shown with MP18 Series valve



50 Gallon "Behind the cab" Aluminum Upright

50 Gallon Aluminum Round

50 Gallon Wet Kit Tank

**Choose from
a Variety of Reservoirs**

AVL

AUTOMATIC VEHICLE LOCATION AND FLEET MANAGEMENT SYSTEMS



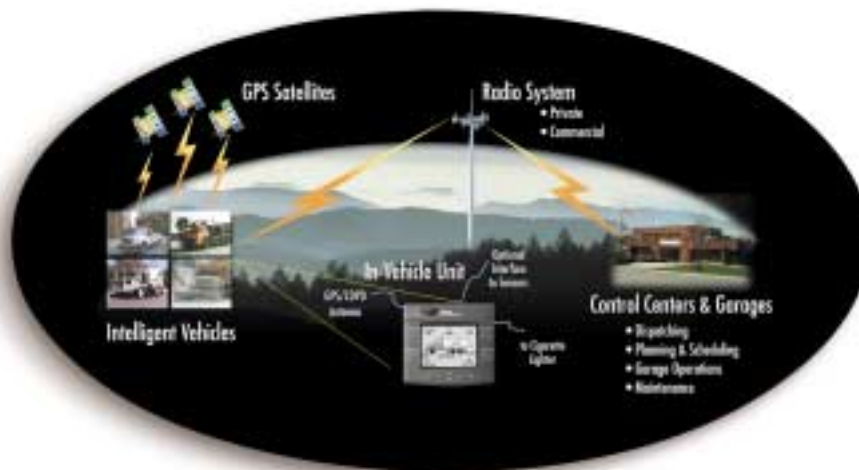
Internet Fleet Tracking and Management System.

The Orbital System is a state of the art, browser-based tracking and management system for state and local fleets. Users log on to the Internet from home, office, or vehicle and connect to their fleets in real

time. Using Global Position System (GPS) satellite technology, the system will track the location and status of fleet vehicles. The system also captures and stores data for post-service analysis.

The Orbital System has three elements:

- **Vehicle Electronics.** Includes inputs from spreader controllers, plow and road temperature sensors with data displayed on a touch screen data terminal.
- **Wireless Communications.** Orbital has developed a number of real time and passive wireless links designed to meet customer requirements and budgets.



- **Command Center.** By harnessing the power of the Internet, Orbital can now provide the most flexible browser-based system available today for plowing snow, sweeping streets, hauling refuse, and other applications.

CompassCom.

CompassCom offers a complete selection of vehicle tracking products and services backed with superior training and support that enable fleet managers to operate their mobile assets more safely and efficiently. CompassCom's AVL system can link with any standard communications

network and is capable of tracking several fleets simultaneously. It can also be customized to integrate with third party computer-aided dispatch systems to track vehicle location and speed, query vehicle status, find best routes, match crews with jobs and analyze performance.



- **Public Works.** Superintendent sees street sweeping and snow clearing progress in real time via frame relay or the Internet.



- **GPS Equipment.** CompassCom offers rugged GPS receivers made specifically for AVL applications. Many have ports to receive input from vehicle sensors. Positional accuracy is from five to fifty meters.



- **AVL Software.** The CompassAVL line of software can be fully customized for commercial and emergency services fleet use.



- **Wireless Communications.** Brand name radios are used for voice and data communications between vehicle and dispatch when customers require the use of private mobile radio.

STORMGUARD

SPREADER CONTROLS AND SOFTWARE



DataGuard

DataGuard software offers unprecedented capabilities for liquid/granular data management. DataGuard downloads data directly to your laptop and works directly with the communications port on the StormGuard GL400 Spreader Control. You can download up to four material types with each material identified by name. Downloads are saved in a format compatible with Microsoft® Excel with which you can create graphic reports and spreadsheets. DataGuard is easy to use. Simply install it and go.

GL400 Granular/Liquid Automatic Spreader Control

The StormGuard GL400 exhibits state-of-the-art microprocessor design and exemplifies big capabilities in one competitively priced package. Whether it is granular, prewet, anti-icing or all three at the same time, the GL400 will keep your operators safe and productive. Programming is Windows based for ease of calibration and self diagnostic. Other features include large LCD dot matrix display, automatic gate height calibration, open-loop or closed-loop operation, and hydraulic and electrically driven liquid pre-wet control.



DS2 Digital Spreader Control

This high performance digital controller allows you to choose from a variety of features to fit your application. The DS2 works with most valves and sensors, offers a digital display for day or night viewing, provides granular and liquid control, and calculates the accumulated pounds that have been dispersed. DS2 has the option to operate in open or closed loop auger control. Providing unique trouble shooting features, the controller alerts you to failed sensors, valve coils, cables, hydraulic stall, blast, zero MPH and auger overspeed.



AS2 Automatic Spreader Control

The AS2 combines the capabilities of the simple manual spreader control and the computerized spreader control.

- Manual or open loop automatic auger and spinner control
- Ground speed sensing for automatic control
- Zero MPH shut-off in automatic control
- Ground speed and overrun indicator



MS2 Manual Spreader Control

The MS2 provides manual control for two hydraulic proportional flow valves used to regulate feed rate and lane width functions. MS2 is not a ground speed controller and, thus, does not require sensors. The MS2 does have an optional ground speed input for single but automatic on/off function of the spreader control. The operator has nine flow control settings for both spinner and auger functions, adjustable PWM frequency, blast pump for instant 100% auger dump or stationary unloading, and adjustable minimum and maximum trims for both valves.



HYDRAULIC SYSTEMS & COMPONENTS

Proven products include the best in the market for pumps, directional valves, motors, accessory valves, reservoirs, enclosures and more.



For the mobile hydraulic market, the Rexroth Bosch Group A10V series pump and the MP18 series valve represent one of the perfect marriages within our extensive pump and valve line. They are the premium in the industry for load sensing technology.

**PATENTED
TECHNOLOGY
PLUS UNIQUE
DESIGN AND
ENGINEERING.**



AV10V Series Pump



MP18 Series Valve

INVENTORY MEANS AVAILABILITY

We are committed to stocking the parts we service and sell. We have millions of dollars of products in our warehouse and other locations ready to serve you.

- Wet kit packages for most applications
- All types of controls
- Poly and steel tanks--direct mount or driveline
- Power units of all types: D/C for liftgates, bail spikes, wheel lifts, hoists & others; A/C units from 1HP to 100HP and larger
- Systems designed to your specifications

Our technology is backed by our Service Department. We also specialize in the repair and remanufacturing of the components we sell.



Pumps



PTOs



Wet Kit Packages



Power Units



*A/C units from
1HP to 100HP*



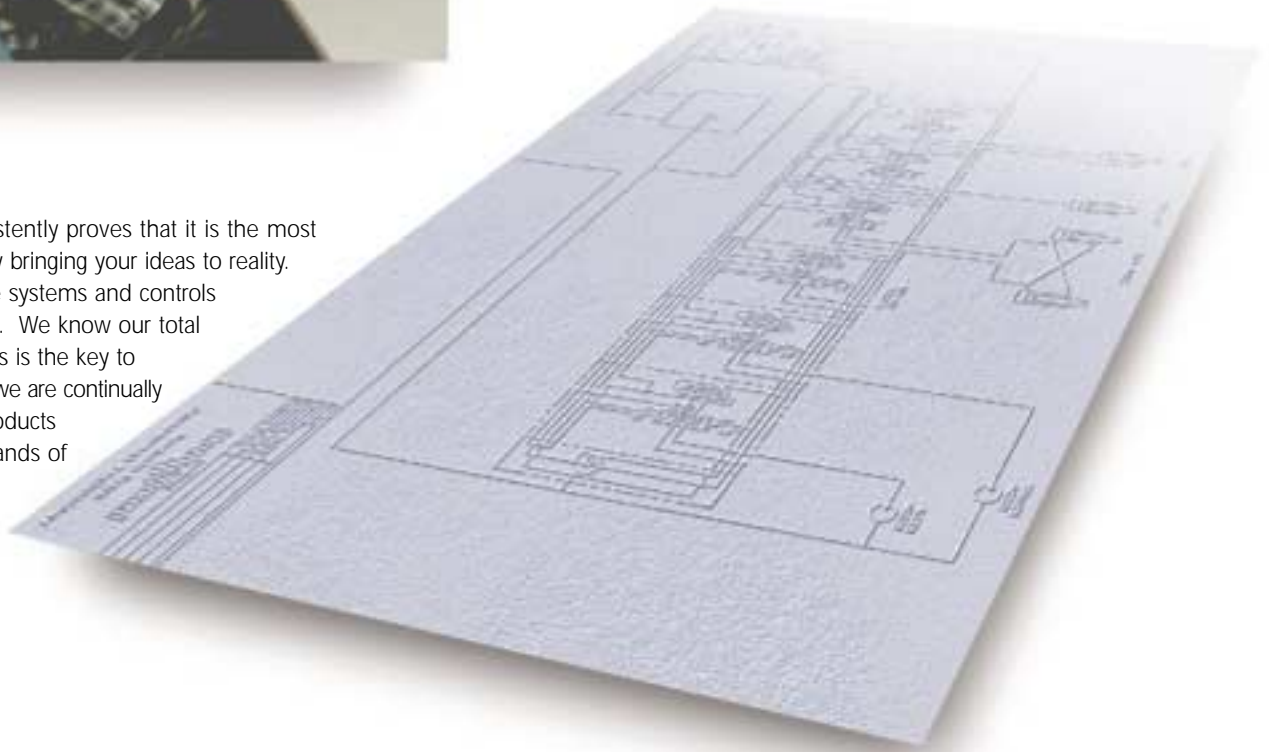
Cartridge Valves

ENGINEERING



ENGINEERING
INNOVATIVE DESIGNS
BRINGING YOU
SYSTEM SOLUTIONS...

Our engineering staff consistently proves that it is the most innovative in the industry by bringing your ideas to reality. We can help you design the systems and controls needed to do your job right. We know our total commitment to your success is the key to mutual success. That's why we are continually striving to bring you new products everyday, to meet the demands of an ever changing market.



*"Starting a
Revolution"*

The StormGuard product line carries on the Component Technology tradition of being the innovative leader in the snow and ice removal industry. We have the experience to do the job. From the operator to the fleet manager, we understand what you need. That's why the entire StormGuard product line is the best available in safety, reliability, durability and ease of maintenance.



"We Know Snow"

No matter where you are, we've got you covered!

We have locations across the country, and we're still growing. With our broad spectrum of product lines, our network of organizations throughout the U.S. gives us the ability to deliver the right parts, components and services at the right time and the right price.

Chicago, IL
Component Technology
888-905-7411
FAX: 847-573-3836

Chicago, IL
Master Mechanic
800-877-8350
FAX: 847-573-3836

Des Moines, IA
Component Technology
800-333-7411
FAX: 515-244-4204

St. Louis, MO
Component Technology
800-999-7411
FAX: 314-344-8554

Burnsville, MN
Certified Power
800-289-1330
FAX: 952-890-0381

Burnsville, MN
Component Technology
800-888-7411
FAX: 452-890-0381

Perrysburg, OH
Component Technology
800-374-7411
FAX: 419-873-8511

Dallas, TX
Certified Power
800-701-7411
FAX: 214-905-0621

Houston, TX
Certified Power
800-731-7411
FAX: 713-674-0127

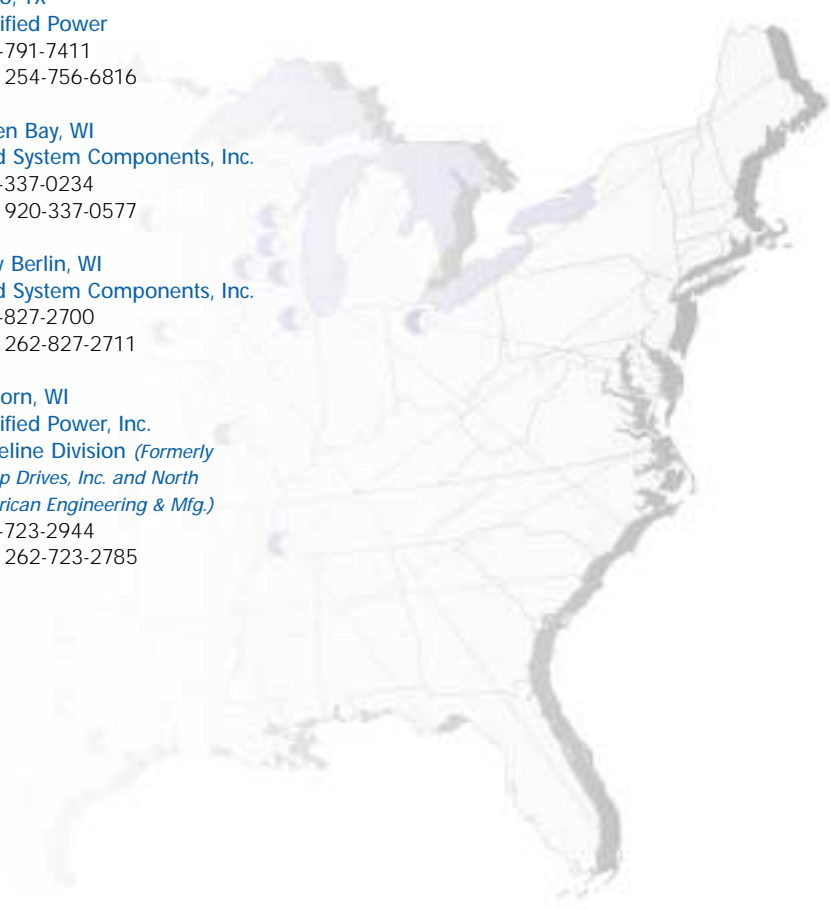
San Antonio, TX
Certified Power
888-761-7411
FAX: 210-229-1005

Waco, TX
Certified Power
800-791-7411
FAX: 254-756-6816

Green Bay, WI
Fluid System Components, Inc.
920-337-0234
FAX: 920-337-0577

New Berlin, WI
Fluid System Components, Inc.
262-827-2700
FAX: 262-827-2711

Elkhorn, WI
Certified Power, Inc.
Driveline Division (Formerly
Pump Drives, Inc. and North
American Engineering & Mfg.)
262-723-2944
FAX: 262-723-2785



Component Technology
A DIVISION OF
 Certified Power Inc.

Certified Power, Inc.
Corporate Headquarters
847-573-3800
FAX: 847-573-3832

www.certifiedpower.com
e-mail: cpi@certifiedpower.com