

PRESS RELEASE

HEINZMANN Achieves Successful New Installations in Ohio

The state of Ohio, USA is home to one of the largest and most diverse manufacturing areas in the world. Manufacturers must invest in the best available control technology for their prime movers to achieve maximum overall “online status” in order to meet their production quotas. Unscheduled down-time or non-optimized critical equipment impairs the ability of the producers to maximize their production or deliver their product on schedule to their global customers. As a result, the producers are faced with lost revenues and reduced profitability.

It was with these demanding customer requirements that HEINZMANN joined in a gas engine equipment upgrade project with Kraft Power Corporation from Massillon, OH and Jay Industries in Mansfield, OH.

Kraft Power Corporation is the authorized Central Distributor for both HEINZMANN and REGULATEURS EUROPA in the Great Lakes and Eastern seaboard regions of the USA (www.kraftpower.com).

Jay Industries is a high-quality vertically integrated manufacturer of machined and fabricated metal-welded assemblies and injection molded plastic products. Their manufacturing operations depend heavily on in-house generator sets that provide prime power/peak shavings to power their manufacturing equipment (www.jayindinc.com).

Upgrade solutions on a Waukesha L7042 GSI gas engine with HEINZMANN’s ARIADNE and PHLOX

Jay Industries recognized a need to upgrade the existing detonation control systems and ignition systems on a Waukesha L7042 GSI gas engine. They operate their generator sets at high load demands, and combined with ambient temperature; detonation has been experienced historically. It was further determined that the existing detonation control was not dependable in detecting and preventing knocking of the engine; and the ignition system was also considered to not be optimal for their application, due to low-output energy, limited I/O, and limited diagnostics.

Upon evaluating all available control solutions, Doug Mackey of Kraft Power and Jay Industries determined that the ARIADNE Detonation Controller and the PHLOX capacitive-discharge Ignition System (both systems from HEINZMANN) were optimal for their upgrade project and successful, long-term ongoing operations.

ARIADNE Knock Control product advantages

Used as part of a gas engine management system, ARIADNE offers the following advantages in terms of performance, protection, and cost:

- The ARIADNE can be applied to all sizes of gas engines to prevent and eliminate detonation; and to protect the engine from mechanical damage caused by knocking.
- It allows engines to be operated at near-knock limits; this maximizes production and guarantees high-efficiency. Properly programmed, the ARIADNE can also assist in maintaining low emissions in conjunction with other engine management systems.
- ARIADNE allows variable quality fuel to be combusted; as customers fuel supplies may vary or fluctuate.
- Less electronics on the engine; a single ARIADNE Module can monitor up to 20 cylinders.
- ARIADNE monitors each cylinder on a cycle-by-cycle basis. This makes it possible for individual cylinders to be fine-tuned, improving engine performance and lowering emissions.



Figure 1: HEINZMANN ARIADNE Knock Control KC 01

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- ARIADNE supports a low cost application option, with the capability of monitoring multiple cylinders using a single sensor.
- ARIADNE is fully compatible with other HEINZMANN systems and the HEINZMANN advanced software user interface DcDesk 2000 or the PANOPTES Touch Screen HMI.
- ARIADNE has an integrated basic operational and diagnostic display; which is extremely useful and user-friendly for operators.
- ARIADNE has a wide range of I/O options, making it suitable for all applications, from use as a stand-alone unit or to utilize as a highly integrated component in an engine management system.

PHLOX Ignition Control product advantages

As mentioned earlier, Jay Industries also determined that it was advantageous to upgrade the ignition system at the same time as installing the HEINZMANN ARIADNE detonation controller system. Again; upon evaluating all available control solutions, the HEINZMANN PHLOX Ignition System was selected as the best available solution.

The primary advantages offered by the PHLOX Ignition System are:

- Up to 8, 12, or 16 cylinders in a single module; up to 32 cylinders with two PHLOX modules in a master/ slave configuration.
- PHLOX is capable of operating on engine speeds between 30 – 3000 rpm.
- 32 bit controller offers extremely precise ignition timing; which maximizes performance and assists in achieving lower emissions.
- High energy level delivery capability; up to 280 mJ.
- Variable energy level to reduce spark plug wear; 32 levels between 25 – 280 mJ.
- Spark duration adjustable between 300 – 600 μ s.
- On-board diagnostics.
- -40 degrees C to +95 degrees C ambient temperature rating.
- Analog and digital inputs and outputs available for configuration; I/O's and CAN bus available for simple integration.

An easy and efficient field installation process with HEINZMANN products

The field installation process of both the ARIADNE and PHLOX was extremely easy and efficient. It was accomplished within the scheduled down-time interval.

The ARIADNE utilizes piezo-electric vibration sensors that can be mounted directly onto the cylinder head bolts or studs; so there is no need to drill and tap castings such as cylinder heads or engine blocks. The ARIADNE module requires a 24 VDC nominal power supply and the biasing signal to the PHLOX ignition module is accomplished via CAN bus. For customers that do not have an ignition module that is capable of receiving a CAN bus signal the ARIADNE is also equipped with an analog signal outputs.

The PHLOX Ignition Module can be configured with various combinations of single and dual magnetic pick-up sensors, and the input and output harnesses are available from HEINZMANN in multiple lengths to fit any application.

The on-board diagnostics of the PHLOX make diagnosing or trouble-shooting any sensor failure, or fault on the primary or secondary sides of the system.



Figure 2: HEINZMANN PHLOX Igniton Control

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HEINZMANN also offers a full complement of ignition leads, spark plug extensions, ignition rails, coils, harnesses, magnetic pick-ups, trigger discs, and spark plugs for all gas engine applications.

Upon installation, a series of tests were performed and compared to the existing equipment results that were taken prior to the installation. Additionally, the Jay Industries operators were kind enough to vary the load and speed of the engines across the complete load and speed range of the engine, in order to simulate all load and speed ranges experienced by the engine in actual service.

Upon conclusion of the successful field tests; representatives from Jay Industries, Kraft Power, and HEINZMANN met to discuss the final evaluation.

It was confirmed that the response characteristics and stability benchmarks were significantly improved over the previous equipment and that the systems were optimized for both maximum protection and performance of this critical engine.

Mr. Jeff Hale, the Maintenance Electrical Technician from Jay Industries stated; "We have realized significantly better performance and stability with the HEINZMANN equipment installed, we can operate at rated speeds, and maximum rated loads without worrying about detonation and potential catastrophic failures of our prime mover."

Mr. Doug Mackey from Kraft Power stated; "The HEINZMANN components were extremely simple to install, program, and commission in the field. The DcDesk 2000 Visualization Software allows for the optimum configuration of all parameters; in this case the detonation levels, and variable timing curves."

The ARIADNE Detonation Controller system and the PHLOX Ignition System have now been operating flawlessly for several months in continuous use; and are highly recommended for all customers that operate gas engines.

The HEINZMANN network of authorized central distributors in Canada and the USA

All HEINZMANN products are available through a network of authorized central distributors that include Advantage Governor & Controls Inc. (Western-Canada); Emission Compliant Controls Corporation (US-West Coast), Kraft Power Corporation (US East Coast and Great Lakes), Waukesha-Pearce Industries (US-Gulf Coast), Wajax Power – East (Eastern Canada), and HEINZMANN America, Inc. (US-Rocky Mountain).

Kraft Power Corporation is a leading provider of solutions for generators and generator power systems, power transmission products, diesel and gas engines, as well as parts and accessories. Kraft also focuses on the distribution, maintenance, and rental of a wide range of high quality power products for industrial, residential, marine, and CHP/co-generation applications.



Figure 3: Upgraded Waukesha L7042 GSI gas engine



Figure 4: HEINZMANN ARIADNE Knock control and PHLOX Ignition Control installed on Waukesha gas engine

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HEINZMANN Company Profile

The HEINZMANN Group is one of the leading system suppliers worldwide for engine and turbine management solutions, specialising in all relevant technologies.

- Complete common rail systems
- Electronic fuel injection systems
- Mechanical and electronic speed governing systems
- Air fuel ratio, ignition and monitoring systems for gas fuelled engines
- Dual fuel system solutions
- Generator management
- Digital and analogue controls
- Electromechanical and hydraulic actuators
- Safety systems for combustion engine

The product portfolio is completed by engine emission management, safety systems for combustion engines, communication software and a variety of accessories. Our system solutions optimise the management of diesel, gas and dual fuel engines and gas, steam and hydro turbines.

HEINZMANN has the appropriate control and system solution for any application involving marine drives, locomotive control systems, construction and agricultural vehicles or gen-sets.

HEINZMANN was founded in 1897 and has been growing ever since. At the end of 2005, HEINZMANN acquired REGULATEURS EUROPA, which supplies electro-hydraulic actuators and diesel engine governors of highest quality. Data Process, a specialist in monitoring and control systems for marine applications, became part of the Group in 2011.

HEINZMANN has two other divisions:

- Innovative hybrid drives for industrial vehicles driven by diesel, gas and petrol
- Electric drive systems for the whole range of industrial applications. This division was expanded in 2008 with the acquisition of Perm Motor GmbH

HEINZMANN continues to pursue a strategy of innovation and absolute customer focus, enabling it to offer the best possible solutions both today and in the future.

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