

# THE IRONHEART SYSTEM

## FEATURES AND BENEFITS



### TOTAL COMMITMENT

Since 1962, our commitment to excellence has enabled SyncroFlo to become the world's leading manufacturer of pumping stations. The SyncroFlo name has become synonymous with quality-built, cost-effective pumping systems. We pioneered pre-assembled pumping systems decades ago. Today, our installed base includes some of the largest pumping systems ever built.

### FOR WHERE IT REALLY MATTERS

SyncroFlo, the pioneer of the pre-engineered pre-packaged pressure booster systems for plumbing applications, has been manufacturing pressure booster systems for 50+ years. With over 50 years of market knowledge, who knows better than SyncroFlo how to manufacture a system that operates as it's designed throughout its life. All of this knowledge and experience was combined into our latest version of the IronHeart. The IronHeart 2017 is the most efficient and one of the highest quality systems available in the market today. There are less expensive solutions to your pumping needs. The table below will show you how owning a SyncroFlo system will give you peace of mind.

**RELAX, YOU JUST BOUGHT AN IRONHEART!**

### ALL SYNCROFLO SYSTEMS ARE MANUFACTURED IN AN ISO 9001 CERTIFIED FACILITY

ISO 2001-2015 is a quality management standard. QMS requires you to identify and describe your processes using business metrics. The purpose of this is to better manage and control the output. By instituting a QMS program, SyncroFlo ensures a quality process. This inevitably results in a higher quality product.



## THE IRONHEART SYSTEM - FEATURES AND BENEFITS

### COMPLETE SYSTEM THIRD PARTY LABELLED QCZJ BY UNDERWRITERS LABORATORY

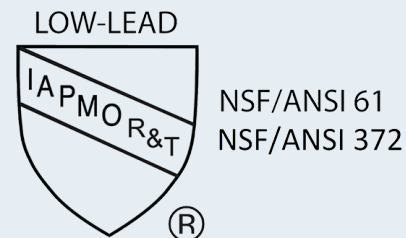
Required by federal law, OSHA 29 CFR 1910. All systems must be listed for their intended use.



### COMPLETE SYSTEM NSF/ANSI-61 AND NSF-372 CERTIFICATION AS A SYSTEM

This certification is required to be compliant with SWDA mandate 1417. It has been in effect since January 4th, 2014. All components, from the source to the tap, must meet this standard.

While NSF 372 (Low Lead Content) is now a federal mandate, it is not required to be 3rd party verified. By paying for the 3rd party verification, SyncroFlo adds transparency to ensure that the standard is met.



### QR CODE ON ALL SYNCROFLO SYSTEMS

The QR code is a two-dimensional barcode that is affixed to all SyncroFlo packaged systems. This is a machine readable, optical label that contains specific information about the product it is affixed to. The QR code on the SyncroFlo IronHeart is installed on the interior panel door. This can be scanned with any handheld device, allowing instant access to all of the project documentation. With the SyncroFlo application, this information can be stored for future use. This technology can also be used to access the SyncroFlo E-Parts store and IO&M while on site.



### VMS PUMPS

SyncroFlo partnered with Ebara as our pump supplier of choice. The Ebara EVMSU vertical multistage pump and the 3U close coupled, end suction pumps offer advantages over other brands:

- EVMSU pumps are fitted with the Shurricane impeller, which reduces axial thrust load. This feature allows the use of standard NEMA motor sizes so the motors are not proprietary. "Any motor any time."
- The thrust bearing is not in the motor, which is why the motors are not proprietary.
- The cartridge type seal enables the replacement of the seal without disassembling the motor bracket.
- Split coupling allows the seal to be changed without removing the motor.



## THE IRONHEART SYSTEM - FEATURES AND BENEFITS

### CCES PUMPS

3U close coupled, end suction advantages:

- The pumps are created with a bulge forming process, which provides better efficiency and less welds/failure points.
- 3U pumps are fitted with a mounting foot on the volute. This provides two more mounting points to the base plate, increasing structural integrity.
- 3U is the top centerline discharge, allowing self venting.



### 304 STAINLESS STEEL FORMED BASE PLATE

Stainless steel has better anti-corrosion properties than carbon steel. It can also be installed in damp environments. The coating system on the painted carbon steel bases will eventually fail. This can happen during the installation process, while moving the system into place. Even if the stainless steel base plate is scratched, it will not affect the longevity of the system. The system is sized to fit through a standard 3-foot door. SyncroFlo base plates may also be grouted.



### 304 STAINLESS STEEL REMOVABLE PANEL STAND

The removable panel stand is designed for quick removal during the installation process if low clearances are encountered. This also allows the system to easily pass through standard commercial doors. This is useful if tight clearances are encountered in transportation or installation.



### 100% FLANGED PIPED SYSTEM

Flanged piping systems are more costly than threaded systems. They typically last longer in applications where vibration is present. In applications where vibration and other mechanical loading occurs, threads have been known to fail. Flanged systems also offer ease of service when a component needs to be replaced. Threaded systems are laborious to service and, depending on where the issue is, require more disassembly. In addition, SyncroFlo headers are also field reversible.



## THE IRONHEART SYSTEM - FEATURES AND BENEFITS

### ADJUSTABLE PIPE SUPPORTS

All headers that overhang the base plate are provided with adjustable pipe supports. Not all floors are level. Having the adjustable support allows you to be sure the headers are properly supported per Hydraulic Institute. This reduces issues with the pumps as a result of pipe strain.



### HEADERS MANUFACTURED WITH THE T-DRILL PROCESS

There are a few ways to add branch piping to a run. Most manufacturers use the saddle method. This is where a window is cut in the run pipe and a branch with a saddle is added. SyncroFlo invested in a T-Drill collaring machine that fabricates the tee directly from the run material. This eliminates the need for factory tees or saddles. This collaring process ultimately allows for stronger pipe and welds than the saddled alternative, as well as improved flow characteristics and cleanliness on the piping interior. All branch piping is welded to the header using the GTAW process. During the welding process, the piping is back purged with an inert gas to eliminate oxidations around the weld. This process is known as sugaring.



### LUG STYLE BUTTERFLY VALVES

With the 100% flanged system, lug style butterfly valves were the natural solution for pump isolation. Advantages to butterfly valves include lighter weight, shorter lay length and ¼ turn operation for rapid open/close cycle.



### SILENT CHECK VALVES WITH VERY LOW PRESSURE DROP 3'

These silent check valves have been designed to be fully open at 3 FPS. Other check valves on the market (with a heavier disc) require flow rates of up to 11 FTS to be fully open. Partially open discs create a flow obstruction, which causes a higher pressure drop. A virtually unobstructed full opening at low flows and lower pressure drop lead to longer service of the valves.



## THE IRONHEART SYSTEM - FEATURES AND BENEFITS

### ALL 304L STAINLESS STEEL PIPING

Type 304 is an austenitic stainless steel, popular for its high corrosion resistance and strength. Type 304L is an extra low carbon version of 304 with better welding properties. Type 304L is commonly used for food and beverage, mining and domestic water applications.



### ALL PIPING IS WELDED BY ASME SECTION IX CERTIFIED WELDERS

SyncroFlo leads the field by requiring all welding operators to be certified to this standard.



### CONTROL PANEL IS UL 508 LISTED "INDUSTRIAL CONTROL PANELS"

Newly installed packaged equipment with the UL508 label certifies our adherence to generally accepted safety standards. Building inspectors who are responsible to enforce code requirements can reject equipment that does not adhere to the accepted safety standards.



### EASY TO USE HMI (HUMAN/MACHINE OR TOUCH SCREEN INTERFACE)

The HMI provides easy access to controlling system operation, monitoring vital system parameters and conditions, trending history of key data, and maintenance indicators / reminders among other features.



## THE IRONHEART SYSTEM - FEATURES AND BENEFITS

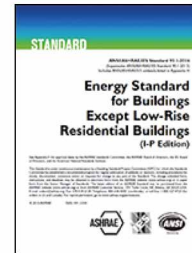
### HMI, VFD AND PLC STANDARD MITSUBISHI PRODUCTS

This allows SyncroFlo to offer a 5 year warranty on our controllers. SyncroFlo uses off-the-shelf components with no proprietary hardware or software like other manufacturers.



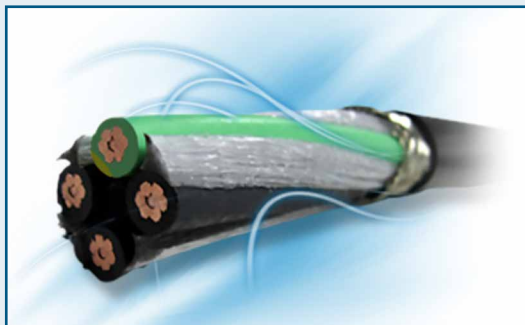
### CONTROL PANEL IS ASHRAE 90.1 COMPLIANT

Due to reduced pipe friction to overcome at lower flow, the controller can save energy by reducing the system pressure set point at lower system flow rates. When purchasing a control panel only, a paddle wheel flow sensor is required for ASHRAE compliance.



### DRIVEFLEX POWER CABLES FROM THE CONTROLLER TO THE DRIVER

The DRIVEFLEX cable is a shielded, multi-conductor cable for use with VFD applications to connect power to the motors from the drives. Electromagnetic interference (EMI) is prevalent in all buildings today. This is why cables are shielded and protected with insulated conductors. Shielding reduces electrical noise, as well as its impact on signals. Poor or corrupt signals from the pressure of flow sensors can affect the operation of the pumping system.



### CONTROLLER IS FITTED WITH FAN AND LOUVER SYSTEM

The fan and filter system has two purposes:

- The system dissipates all of the heat generated by the electrical components.
- It also generates positive internal pressure in the enclosure, not allowing for ingress of any dust or dirt.



## THE IRONHEART SYSTEM - FEATURES AND BENEFITS

### DRIVES UP TO 40 HP MOUNTED IN THE MAIN CONTROLLER

Drives mounted in the main controller keep them out of the elements and away from spraying water in pump rooms. Mounting inside the main enclosure also gives the system a much cleaner look. The only exposed wiring is from the controller to the driver.



### REVERSIBLE HEADERS

All the IronHeart systems are designed with reversible headers allowing the flexibility of installing the system in an alternate location. Neighboring equipment or physical obstructions can be overlooked in the submittal review process or once in the pump room the system may fit better on a different side of the room. With the removal of 8 or 12 cap screws the headers can be flipped.



### STAINLESS STEEL DIGITAL PRESSURE TRANSDUCERS

Pressure transducers are more sophisticated new school technology over traditional pressure switches. A pressure transducer is an electromechanical device for translating pressure values into voltages across a high impedance load. Pressure transducers are more accurate and have higher repeatability.



### LIQUID FILLED PRESSURE INDICATORS

Liquid filled gauges do the same job as dry gauges with a few distinct differences. The liquid inside the gauges help to dampen the effects of pulsation and pressure spikes. The liquid does double duty as it lubricates the internal moving parts, reducing everyday friction. As all moving parts are covered in liquid that keeps moisture and corrosive substances at bay.



## THE IRONHEART SYSTEM - FEATURES AND BENEFITS

### RIGID PIPE SUPPORT

Not only does SyncroFlo provide adjustable pipe supports for the headers we also have added additional pipe support at the system base. This is a rigid support bolted to the system base and the upstream pipe spool directly off the pump volute. This additional pipe support eliminates all stresses placed on the pump nozzle due to piping loads.



### PUMP TYPES

Close Coupled End Suction & Vertical Multistage

### PERFORMANCE

- 3" & 4" Discharges
- Flow Rates to 750 GPM
- Heads to 430'

### FEATURES

- UL LISTING "QCZJ"
- NSF 61 certified by IAMPO
- 100% flanged construction "THE THREAD IS DEAD!"
- 304 Stainless steel pumps close coupled end suction or vertical multistage
- Stainless steel system base with grout holes, anchor holes and pipe supports
- Lug style isolation butterfly valves
- High performance check valves for low station losses
- PLC and HMI based controls with 5 year warranty standard
- Nema 12 enclosure with air filter and fan for heat dissipation
- Bolt on panel stand
- QR code system identification for web based access to system manuals

