ARMSTRONG

Fluid Dynamics

FILE NO:	9.11
DATE:	May 22, 2009
SUPERSEDES:	9.11
DATE:	Dec. 15, 1998

Circulators

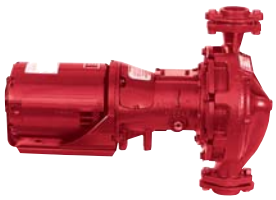
Armstrong in-line circulators are designed to provide reliable performance in residential and light commercial HVAC systems and domestic hot water recirculation systems. Our broad range of circulators, incorporating three-piece, close-coupled, dry motor and wet rotor technologies, enable the best selection of circulator for boiler, chiller, radiant flooring, geothermal, solar and snow-melt applications. All circulator technologies are available in either cast iron construction for closed systems or bronze construction for open systems.

▶S & H Series

S & H Series circulators provide stocked pump convenience when three-piece circulator technology is required in the 1/12 to 1 1/2 hp (0.06 to 1.12 kW) range. The industry renowned Armstrong Seal Bearing Assembly (SBA) provides superior bearing lubrication for long, trouble-free service, and incorporates a common bearing module for many models, which reduces spare parts inventory and simplifies service.

▶Series 1050 & 1060

Armstrong Series 1050 and 1060 three-piece circulators are ideally suited for engineered commercial applications where custom configuration is required to achieve maximum performance and optimum energy efficiency under defined operating conditions. Modules with motor ratings from 1/4 to 3 hp (0.19 to 2.24 kW) are field repairable and replacement parts are readily available from wholesalers and service dealers throughout North America.



▶Astro Series

Compact Astro series 1/25 and 1/20 hp (0.03 and 0.04 kW) wet-rotor circulators provide 'whisper' quiet maintenance-free performance. Use these circulators where operating noise is a prime consideration, such as residential, business office, hospital, library and school applications. A wide array of options enable rapid selection and installation for any application.

▶Astro Express Hot Water Re-Circulation System

The Astro Express system is the ideal solution to provide hot water at the tap for existing homes. This system dramatically reduces wait times for hot water to reach the faucet, and reduces water consumption. Thanks to the adjustable Astro Express system valve, one system suits all homes, big and small, and performance can be tailored to each application and customer preference. The built-in adjustable timer conserves energy when water recirculation is not needed.

▶*ARMflo* E Series Circulator

E Series close-coupled, dry motor circulators bridge the gap between traditional three-piece technology and small wet-rotor circulators in the 1/6 or 2/5 hp (1.25 or 0.30 kW) range. The common seal for all models can be replaced in the field for a fraction of the cost of complete circulator replacement. Combining maintenance-free bearings and outstanding wire-to-water efficiency, E Series circulators provide excellent performance and low cost of ownership.

▶Astro Three Speed Wet Rotor Circulators

Astro Three Speed Circulators provide quiet operation for residential, office, commercial, hospital or educational institutions. Astro circulators also offer an integral manual air vent, a 2-year warranty and are virtually maintenance free. Together, the Astro 30-3 and Astro 50-3 can replace most competitive water lubricated pumps up to 1/20 hp (0.04 kW).

Hydronic Specialties

Armstrong manufactures a comprehensive line of hydronic specialty products including valves, float type air vents and air removal traps. Armstrong hydronic specialty items are specifically designed with ease of installation and maintenance in mind, and constructed to provide years of service under the most demanding conditions. Additional hydronic specialty items not shown below include: reducing valves, relief valves, tank fittings, air chargers and tank drainers and air purgers.

▶Circulator Isolation Flanges

Armstrong Circulator Isolation Flanges (CIF) are used in pairs to connect circulating pumps in hydronic systems. These devices rapidly isolate a circulator for service and eliminate the need to drain and refill the entire system. The CIF integrates a 2-bolt flange connection (common to small circulating pumps) with a full-port ball valve. This practical 'all-in-one' design reduces the number of plumbing connections and results in a more reliable, economical and easily-serviced hydronic system.

▶Flex Flanges

Armstrong Flex Flanges help make initial circulator installation easier and future maintenance faster. The rotating flanges eliminate the need for perfect alignment before circulator installation and the integral check valve saves two pipe connections compared to a separate check valve. Additionally the dielectric flange coupling helps reduce pipe corrosion by avoiding contact of dissimilar metals. For future servicing ease, the integral ball valves enable the circulator to be isolated from the system for removal or replacement, without draining the entire system.

▶Flo-Control Valves

Armstrong Flo-Control valves prevent gravity circulation in a hydronic system when the circulating pump is not running. When the pump starts, the Flo-Control valve opens automatically to permit circulation of water in the heating system. Flo-Control valves are available from ¾ to 3 inches (19 to 76 mm).

▶Combination Valves

Armstrong's economical, C11 brass-construction relief and reducing valves feature built-in strainer and extra large diaphragm. The reducing valve is equipped with an anti-siphon check valve feature, and is easily adjusted to meet system requirements. The special composition valve disc is set on brass, ensuring quiet operation.

▶Automatic Air Vents

The AVA and AVV 'float' type automatic air vents from Armstrong efficiently remove accumulated air from hydronic systems. Hydronic installations must be free of air to minimize noise and maximize heat transfer throughout the system. Typical applications of Series AVA and AVV air vents include any hydronic heating or cooling system that requires the elimination of entrained air.

Balancing Solutions

Armstrong balancing solutions provide leading valve technology for faster and more accurate balancing of fluid flow in HVAC and hot water recirculation systems. Accurate circuit balancing assures design flows are available throughout the system, as required for optimum system performance, energy efficiency and overall occupant comfort.

▶MS Series Mini-Sweat Valves

Armstrong Mini-Sweat valves are ideal for applications where compact circuit balancing valves (CBVs) are required, such as in hydronic baseboard radiators or terminal unit panels. Available for ½ or ¾ inch (13 to 19 mm) sweat pipe connections, these economical valves provide 360 degrees of flow regulation adjustment; four times the precision of a 1/4 turn ball valve. After flow adjustment and system balance verification, the handle can be locked in place to avoid loss of system balance by unauthorized adjustment.

▶ARMflo Series Venturi Based Valves

Armstrong Venturi based CBVs are needed for large commercial buildings where a small error in flow measurement through a large number of terminal units can add up to significant energy waste for the life of the system. These models provide ±5% flow measurement accuracy over the entire operating range, not just when wide open, and speed adjustment by as much as 50% over variable orifice models. The wye pattern, globe valve design and 5-turn, non-rising handle provides 20 times the adjustment precision of a ¼ turn ball valve. For ½ to 2 inch (13 to 51 mm) pipe sizes, these valves are available for sweat, NPT or BSPP pipe connections for installation convenience. All models include an adjustable memory stop, so the valve can be easily returned to any required set point after system service.

▶ARMflo Series Split Case Valves

These 2½ to 12 inch (64 to 305 mm) commercial/industrial grade circuit balancing valves provide the robust construction, installation flexibility and long life required for large commercial building projects. The split case design enables conversion from straight to elbow configuration in seconds, without additional parts or special tools. System connections include industry standard grooves for lowest possible installed cost and ARMgrip flange adapters or fixed flanges for installation convenience. The unique service seal enables stem packing gland replacement under pressure, eliminating the need for unscheduled system shut-down and draining.

▶Flow Measurement Equipment

CBDM analog and DPM digital manometers provide reliable differential pressure readings for HVAC system balancing and trouble-shooting using comprehensive performance charts and balancing tools available from Armstrong. The 2½ to 12 inch (64 to 305 mm) APO orifice plates or APV venturis may be close coupled to split-case CBVs or remote mounted for fixed orifice flow calibration speed and measurement accuracy to ±1%.

▶KNX Hydronic Hook-up Kit Solution

Armstrong KNX Series Hydronic Hook-Up Kits integrate the components required to connect piping to hydronic heating or chiller system equipment. These kits are available in connection sizes from ½ to 2 inch (13 to 51 mm) and are configured to the system designer's specifications. Each kit is tested, bagged, tagged, boxed and labeled at the factory prior to shipment to the building site.

Pre-engineered, pre-assembled, pre-tested KNX Hydronic Hook-up Kits:

- ▶ Virtually eliminate engineering/compatibility verification effort and issues
- ▶ Reduce the component count per HVAC device by up to 80%
- ▶ Reduce on-site component connections from as many as 54 to as few as 4
- ▶ Ensure the correct components are installed at the correct location in the system
- ▶ Reduce the risk of leaks and re-work after the pressure test

Engineered Products

Armstrong's engineered products offer savings in space and installation costs. Innovative design, combined with engineering knowledge, manufacturing excellence and full service capability deliver an unbeatable range of products for the fluid flow marketplace.

▶Suction Guides

Armstrong's Model SG Suction Guides are designed for direct mounting to the suction side of horizontal or vertical pumps. Space savings are achieved through elimination of long radius elbow, suction entrance pipe and conventional Y strainer. Units are available with a cast iron body and cover in sizes 2 to 20 inches and supplied with fine mesh start-up strainer and permanent stainless steel strainer.

▶Flo-Trex Valves

Model FTV Flo-Trex triple function valves are designed for installation on the discharge side of centrifugal pumps and combine the features of a check valve, throttling valve and a shut-off valve. The convertible body design permits the valve to be changed on site from a straight to angled configuration. Armstrong Model FTV Flo-Trex valves are available in sizes from 2½ to 12 inches (64 to 305 mm) and in two different configurations: ductile iron valve body with standard grooved end connections or cast iron body with hard flanged connections.

▶Vortex Air Separators

Armstrong Vortex Air Separators eliminate entrained air from heating and cooling systems, improving heat transfer efficiency. Armstrong's Models VA/VAS from 2 to 6 inches (51 to 152 mm) are available in cast iron. All sizes from 8 to 24 inches (203 to 610 mm) are made of fabricated steel. Sizes larger than 24 inches (610 mm) are also available as a custom order.

▶Series AX, AX-V, L Expansion Tanks

Armstrong's precharged diaphragm and bladder-type tanks separate air and water for space savings and improved system operation. These tanks are available in vertical and horizontal formats, in sizes up to 80% smaller than conventional tanks. Both residential and ASME code vessels are available.

▶Dirt & Air Separator

When system water is heated, air is released within an HVAC system, which affects the performance of fluid flow or heat transfer equipment. Armstrong Dirt & Air Separators (DAS) are designed to eliminate entrained air and suspended dirt particles associated with the start-up and maintenance of hydronic systems. The DAS incorporates a robust stainless steel coalescing medium which directs dirt particles of all sizes to the collection chamber, at the bottom, and allows the air to be released through an air vent at the top.

Vertical In-Line Pumps

Armstrong Vertical In-Line (VIL) pumps serve a wide variety of applications including HVAC systems, automotive, transportation, municipal, glass and plastic, as well as general industrial and power plants. In addition to reduced maintenance and servicing costs, the VIL design generates considerable savings in floor space and installation costs.

▶Vertical In-Line Series 4300

Armstrong Series 4300 VIL pumps realize 60% savings in space compared to base-mounted pumps. The split-coupled design allows mechanical seal replacement without costly removal of the motor or pump from the piping. The high-performance outside-type mechanical seal combines the advantages of a multiple-spring balanced seal with premium quality materials, while the inside-type mechanical seal provides an economical alternative. The double suction design is available in sizes 12 inches and larger. Series 4300 VIL pumps are available in bronze-fitted, all iron and ductile iron construction.

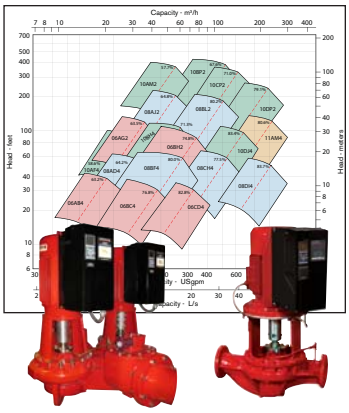
▶Vertical In-Line Series 4360

Armstrong's Series 4360 is an economical, lower-range VIL pump for HVAC, domestic water systems and industrial applications requiring a compact pump. Positive sealing is assured by proven inside-type mechanical seal. The radially split volute permits removal of the motor and pump rotating assembly without removing the pump volute from the line. Units are available in bronze-fitted, all bronze or all iron construction, in a range of sizes.

▶Vertical In-Line Series 4380

Armstrong's close-coupled VIL pump features an economical inside-type, single-spring mechanical seal. The unit is serviced by removing the rotating assembly while the pump casing remains in the line. The dynamically balanced impeller assures smooth, vibration-free operation and the radially split volute features equal suction and discharge flange sizes. This design also provides separate tapped openings for gauge, flush and drain connections. Units are available in bronze-fitted, all iron and ductile iron construction.

▶Design Envelope HVAC Pumps



The Armstrong Design Envelope is a pre-set range of the most efficient pump selections for a given capacity range. The Design Envelope approach to system selection allows you to reduce design risk and avoid costs resulting from equipment change orders. Calculating your preliminary design requirements, and then selecting a Design Envelope that provides a sufficient comfort zone around the preliminary design point ensures that your pump selection will be future-proofed against system changes during construction and over the life of the building.

There is no longer a need to oversize your initial design point. The Design Envelope functions as a safety net for any anticipated system changes due to as-built design, building envelope adjustments, tenant demographic changes, or changes in building usage. Specifying an oversized pumping unit typically results in lower efficiency under actual operating conditions. Using the Design Envelope approach, you can select and specify a unit that suits your current and anticipated needs. Armstrong variable speed pumping units will deliver excellent efficiency throughout the entire Design Envelope and the operating range of the unit.

▶Integrated Variable Speed (IVS) Sensorless Series

The Armstrong IVS Sensorless pump is designed to meet the need for energy-efficient pumping systems in today's buildings. Traditional pumping systems incorporating constant-speed pumps waste energy through crude throttling valve flow control. The IVS Sensorless automatically adjusts operating speed to match the system load at all times. The resulting energy savings can pay for the initial cost of the pump in as little as three years.

▶dualARM Series 4302 and 4382

Armstrong's dualARM VIL pumps incorporate two Series 4300 or 4380 pumps in a single casing. The Series 4302 is designed with split spacer couplings so that the mechanical seals can be serviced without disturbing the pump or motor connections. The Series 4302 is available with outside balanced or inside seals. The Series 4382 is an economical close-coupled design. Both types are supplied with a swing discharge port in order to hydraulically separate the casings and prevent recirculation when only one pump operates. Built-in isolation valves enable the isolation of one pump for service or removal while the second pump remains in operation.

▶Vertical MultiStage Series 4700

Series 4700 pumps, designed for temperatures ranging from 5°F to 250°F (-15°C to 120°C), are well suited for pressure boosting and boiler feed applications, condensate recovery and air conditioning systems. Easy to incorporate into industrial environmental engineering equipment, our stainless steel Vertical MultiStage pumps combine the advantages of compact design, quiet operation and ease of maintenance.

▶Pump-in-a-Box (PiB)

The PiB Series builds on the quality and unsurpassed performance customers have come to expect from Armstrong products. PiB models are packaged for warehouse distribution or shipment within hours of an order placement. Current PiB models include the 4360 and 4380 Series VIL pumps, available with an extensive selection of impeller and motor combinations, to cover a wide range of head and flow requirements.

Horizontal Pumps

Armstrong's horizontal pumps are designed for dependable, continuous service in a wide range of heavy-duty industrial and commercial applications including: HVAC, machinery cooling and product transfer, pollution control systems and powerhouse auxiliary services.

▶Base Mounted Series 4030

Armstrong offers a comprehensive range of single-stage, end suction, radially-split centrifugal pumps designed for a wide variety of applications. Armstrong base mounted pumps feature a self-venting casing to prevent air binding, heavy duty bearings that are typically sealed and lubricated for life, and a back pull-out bearing frame for easy removal during servicing. Standard features include silicon carbide mechanical seals, OSHA compliant coupling guard and free-standing base designed to ANSI/HI 1.3.5 rigidity standards. The units are available in bronze-fitted and all iron construction.

▶Motor Mounted Series 4270

The Armstrong Series 4270 is a close coupled, motor mounted pump that is available in bronze-fitted and all bronze construction. All models provide tapped openings for venting, draining and gauge connections. All units feature heavy-duty, permanently lubricated motor bearings, Viton®/carbon/ceramic seals as standard, non-ferrous engineered resin impeller and a stainless steel shaft and faceplate.

▶Motor Mounted Series 4280

Armstrong Series 4280 pumps are a motor mounted version of the horizontal end suction pump, with flanged connections, and a radially-split volute with center-line discharge. The motor features heavy-duty, grease-lubricated ball bearings. All units include a self-lubricating silicon carbide mechanical seal and cast bronze balanced impeller designed for smooth performance and long life. Available in bronze fitted and all iron construction.

▶Horizontal Split Case Series 4600

The Armstrong Series 4600 is a full featured Horizontal Split Case (HSC) pump – based on the 'tilted parting' concept to minimize turbulence at the eye of the impeller with its straight laminar approach. This design provides maximum efficiency and also results in the lowest profile and smallest footprint of any HSC. All units feature cartridge seals and bearing removal nuts for ease of maintenance.

Heat Exchangers

Armstrong heat exchangers provide dependable, efficient performance for a broad range of commercial and light industrial applications where water and liquid must be quickly heated or cooled. Armstrong heat enchangers offer industry-wide compatibility and are available in several materials and working pressures to suit most requirements. The standard Armstrong design meets or exceeds Section 8, Division 1 of the ASME code.

▶Plate and Frame Heat Exchangers (PHE)

Armstrong PHE plate and frame heat exchangers consist of a number of specially corrugated stainless steel plates assembled in a frame and bolted between two pressure plates (one fixed and the other adjustable). High turbulence is created in the liquid flow channels, producing very high heat transfer coefficients and resulting in a compact efficient heat exchanger. Units are also available with titanium plate construction.

▶W, WS and WR U-Tube Heat Exchangers

Armstrong's economical U-tube heat exchangers offer durable construction with a removable bundle. Armstrong U-tube heat exchangers are recommended where a low cost removable bundle design is needed for clean tube side fluids. The U-bend design provides a long service life for the exchanger by eliminating the effects of thermal expansion and construction. All units feature carbon steel construction with ¾ inch copper tubes and a rugged cast iron head. Optional materials are available for head, tube sheet and tubing.

▶Tank Heaters

For immersion heating of water in storage tanks, these units feature ¾ inch copper tubing, brass tube supports, a carbon steel tubesheet and a tank collar. Tubing is available in single or double wall copper and cupronickel. Tubesheets are also available in brass or stainless steel.

▶ABX Brazed Plate Heat Exchangers

A compact Brazed Plate heat exchanger, the ABX model is highly effective for heat recovery applications. It is designed for pressures up to 450 psi (3102 kPa) and temperatures up to 385°F (196°C). ABX units are ASME Code designed and available from stock.

▶WX, WSX and WRX Double Wall U -Tube Heat Exchangers

Armstrong double wall U-tube (tube-in-tube design) heat exchangers are designed for applications where it is critical that the shell and tube side fluids remain separated, e.g., potable water heaters. These units, in the event of a leak, allow the liquid to drain to atmosphere. Where an upgrade to potable water is required, the tube bundle from a WX heat exchanger will fit the shell of an existing Armstrong U-Tube heat exchanger.

Systems

Armstrong's expertise in systems engineering benefits everyone concerned with fluid flow and HVAC demand. Armstrong engineered systems provide uniform water supply, reduced costs and reduced floor space requirements. The systems include sump and sewage, pressure booster, fire pump, heat transfer and condensate. Many of our systems are available in standard and custom package configurations, with horizontal and VIL pump options.

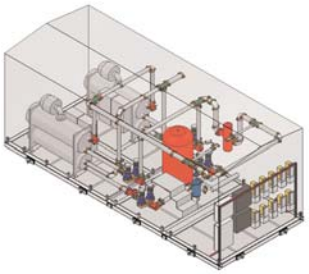
▶Pressure Booster Systems

Armstrong is one of the world's leading manufacturers of packaged pressure booster systems. Decades of experience in the design of custom packages ensure uniform water supply, reduced costs and reduced floor space requirements. Systems are available in a range of configurations from simplex to quintuplex, with vertical pumps, for continuous or intermittent operation. System part-load conditions are managed effectively by Armstrong's variable speed system controls.

▶Sump and Sewage Systems

Series 5200 and 5240 sump and 5400 sewage systems are available in simplex and duplex column configurations. These systems are designed to meet a wide range of medium and heavy-duty industrial and commercial applications such as: waste water removal, unscreened sewage, condensate transfer, bilge water, and drainage runoff. Armstrong Sump and Sewage systems are available with cast iron volutes and choices of iron or bronze impellers as well as steel or stainless steel shafts. They provide reliable and efficient performance and can be configured with a variety of accessories and options.

▶Integrated Plant Package (IPP-CHW)



The Armstrong chilled water line of Integrated Plant Package (IPP-CHW) systems bring customers today's most energy efficient solution for the 150 to 1080 ton (60 Hz) or 500 to 3600 kW (50 Hz) range.

Available for exterior installation with full enclosure or mechanical room installation, the IPP-CHW solution brings about a new way of constructing a facility. The IPP-CHW solution is a pre-fabricated factory-built solution, optimized for quick installation with future service needs in mind. All IPP-CHW solutions incorporate Armstrong VIL Series 4300 pumps, Turbocor™ oil-free frictionless compressors, and Armstrong IPC 11550 ultra-efficient chilled water plant control systems. This packaged solution provides important benefits for the end user including:

- Operating plant efficiencies of less than 0.5 kW/ton or COP of 7.3 (on an annual average basis)
- Remote monitoring and control through a web-based interface, for mutli-facility operation
- Lubricant (oil) free compressor operation (reduces maintenance time and lubricant costs)
- Extremely quiet operation from the Turbocor™ (less than 75 dBA) compressor and the VIL pumps
- Extraordinarily low vibration levels from the VIL pumps and Turbocor™ compressor
- Easy access to components
- Superior user interface for capturing operation data or fine-tuning system parameters

The IPP-CHW solution is available as a variable primary flow configuration. Units can be configured to include a variable flow cooling tower, or a cooling tower can be connected on-site separately.

▶Fire Pump Packaged Systems

Armstrong fire pump systems are constructed in accordance with the requirements of Underwriters Laboratories Inc. (UL), Underwriters Laboratories of Canada (ULC), and Factory Mutual Research Corporation (FM). Our fire pumps and packaged fire systems comply with recommendations of the National Fire Production Association (NFPA) Pamphlet 20. System configurations are available with either horizontal end suction, horizontal split case or vertical pumps and with either an electric or diesel driver.

▶ Packaged Pumping Systems

The Armstrong Series 8200 *ARMPak* is a line of pumping packages specifically designed to meet the requirements of chilled water and heating water systems in a commercial building. Armstrong *ARMkool* Series 8100 HVAC Chilled Water Packages include a range of traditional HVAC components that are brought together in an UL Listed package to save installation time, reduce material costs and improve the quality of assembly.

A unique feature of the *ARMPak* that separates it from the competition is its compact, modular design. For example, two units, a constant-speed *ARMPak* and a variable speed *ARMPak* can be connected to create a packaged pumping and control solution for a constant-primary/variable-secondary chilled water system.
By mixing and matching *ARMPak* units for any desired combination of HVAC pumping system configuration, system designers can optimize mechanical room space. The variable speed *ARMPak* includes controls with pre-designed terminal block connections for seamless communications between units.

All *ARMkool* packages include a structural steel base suitable for grouting (floor mount systems only), Armstrong Series 4300 VIL or Series 4030 horizontal base-mounted pumps, IEC rated motor starters and 6 panel-mounted pressure gauges. Units also include Armstrong Suction Guides and Flo-trex triple function valves, all inter-connecting piping spools and elbows, isolation valves, electrical wiring, suction and discharge headers, single-point electrical power connection and flanged connections.

▶ Integrated Pumping System (IPS)

Armstrong's Integrated Pumping System (IPS) automatically ensures delivery of required pumping capacity to match key building loads, while pumping energy costs are kept to a minimum.

With the use of system load detectors, such as differential pressure sensors, at one or more remote load locations, the Armstrong IPS automatically and continuously provides the required flow for the current needs. HVAC system load requirements vary considerably during a typical day. Considerable energy savings result when pumping capacity is continuously matched to the load.

Pumps may be operated as 100% standby or in a multiple pump, staged parallel sequence. Armstrong's IPS can control as many as 6 pumps in parallel, with up to 18 remote system load sensors.

Dedicated Variable Frequency Drives (VFDs) may be used, with or without power bypass systems. Armstrong offers the most advanced IPS available, with features to serve the most demanding pumping applications.

- IPS 3000
- IPS 5000
- IPS 9000

Armstrong's IPS concepts should be considered for constant-speed primary with variable speed secondary, or variable speed primary heating and cooling systems.

▶ Ultra-Efficient Chilled Water Integrated Plant Control (IPC 11550)

The IPC 11550 system creates a new standard for HVAC system communications, with full remote control capabilities through web-based interfaces. In addition to helping predict equipment failures, the 'all variable speed' IPC 11550 controller helps avoid system failures, as operating at a lower speed will extend equipment life.

'All variable speed' plant control offers the greatest opportunity for energy savings. The IPC 11550 system employs the Hartman LOOP® Natural Curve sequencing logic to ensure that the variable speed chillers are always operating as close as possible to their maximum efficiency.

The IPC 11550 system also provides secure, remote plant assessment, easily downloadable plant data, operator assistance with plant alarms, protocol translation between field hardware and the BMS, scalability for future plant extensions and a user-friendly touch-screen interface.

Since our founding in 1934, Armstrong has pioneered an uncompromising range of products for residential, commercial and industrial markets. From the very beginning, the Armstrong name has been a benchmark for quality in design, engineering and manufacturing.

Today, as we market our products throughout the world, our original commitment to production of the highest quality is unchanged. We will not compromise this expectation of us, and we will never allow an inferior product to carry the Armstrong name. Identifying market needs, offering superior technology, and keeping our customers satisfied, are all part of the Armstrong family tradition.

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