ENVELOPE™

Heat. Fluid. Data.

All in perfect flow.

Welcome to Armstrong Envelope.

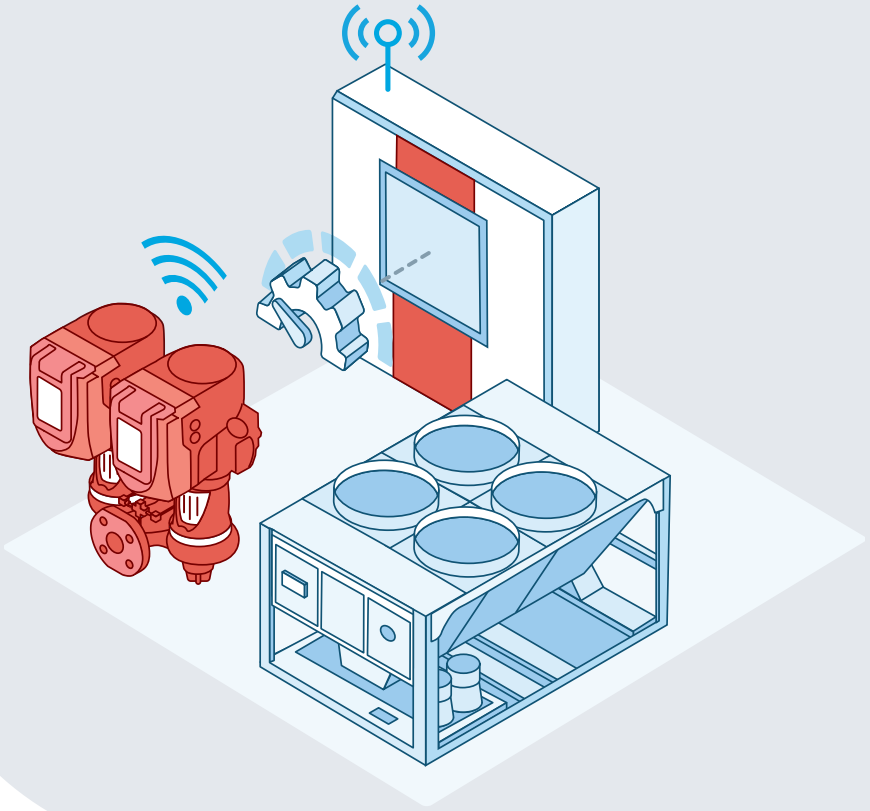
The world's most efficient cooling system.

Systems Envelope | SE-A10, SE-A20

Air-cooled chiller plant optimization

Decades of heat transfer and fluid dynamics knowledge.

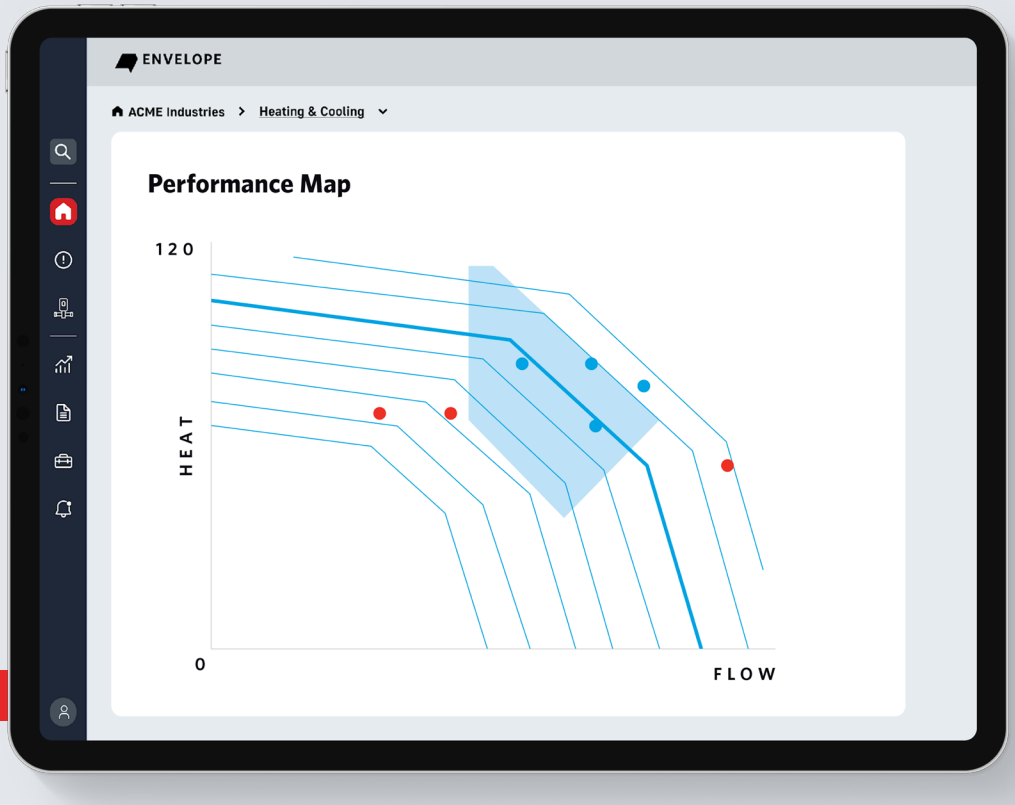
Plus the latest in data-optimized controls.
In a single package.



Systems Envelope delivers comprehensive, systems-level thinking.
We build the world's most efficient systems by taking the complexity out.

Performance Mapping: Nobody sees the whole system the way Armstrong does.

Systems Envelope identifies all components in a system, studies how they work together and creates performance maps.



Demand for cooling is always changing, so Systems Envelope is always updating the performance map to find the most efficient strategy for cooling. At every moment, it operates the right number of pumps and chillers at the right levels.

System components work in perfect unison, always in their most efficient range.
That's how Envelope delivers the best COP in the industry.

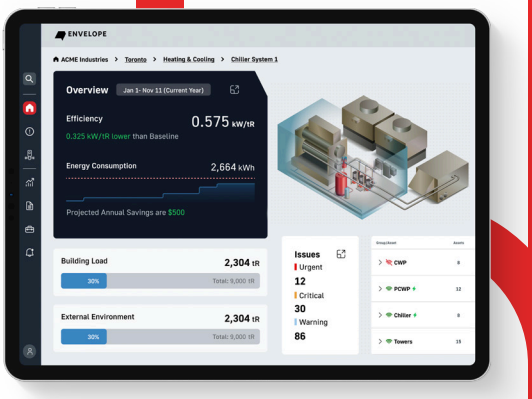
Out-of-the-box brilliance.

Instantly unite components to create a single optimized HVAC system.

- Pre-programmed and field adjustable
- Powered by the Niagara Framework
- Local or remote operation for easy troubleshooting
- Near instant software upgrades for uninterrupted plant operation
- Responds to sudden changes in demand load with ease
- Limitless plant cooling capacity

Access your building performance. Anywhere. Anytime.

EcoPulse™ is a cloud analytics service that stays in constant contact with your air-cooled HVAC system and sends you the most important insights.



- Constantly compares performance against efficiency targets
- Clean, intuitive user interface
- Issues are detected before they become performance stealing problems
- Performance data and trends are reviewed by Armstrong experts, quarterly

Systems Envelope

Any cooling system

Any mix of components

Any mix of manufacturers

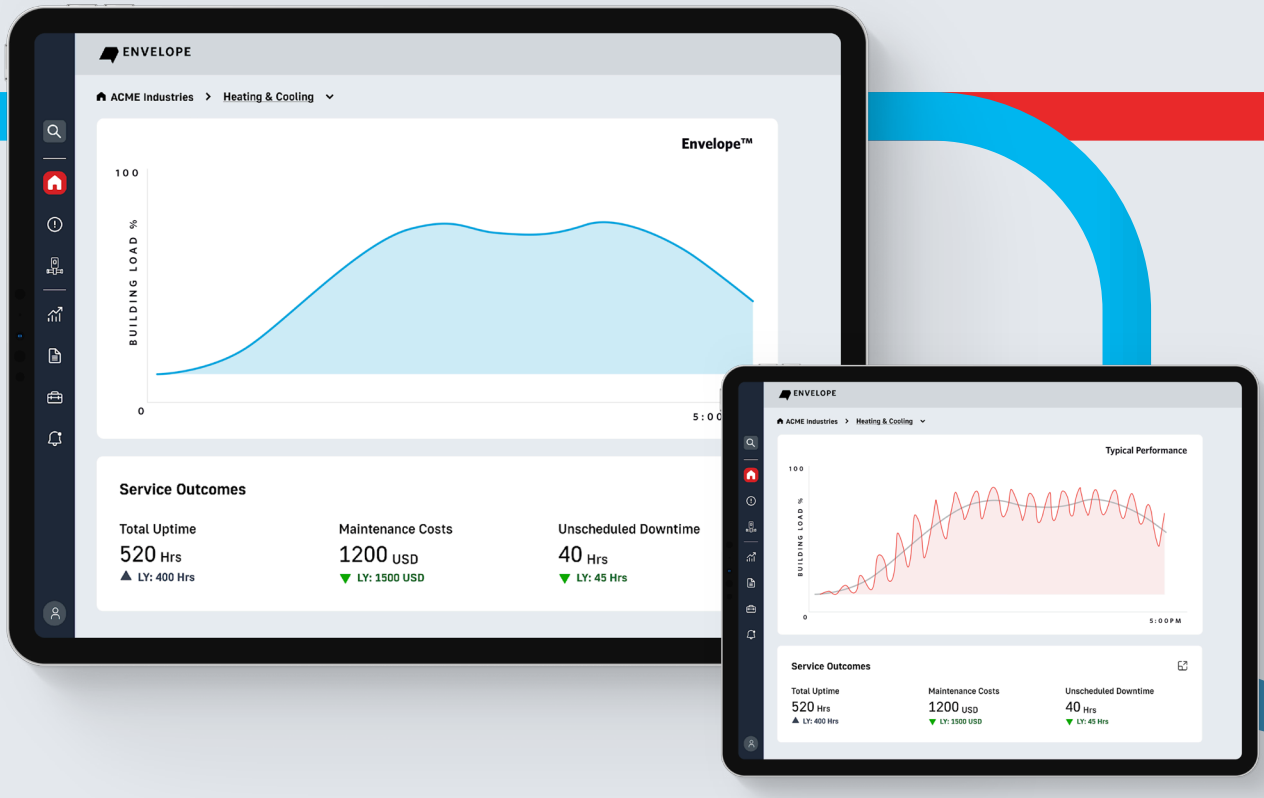
Envelope gets everything in flow

Stop hunting target temps. Predict the curve. Save big.

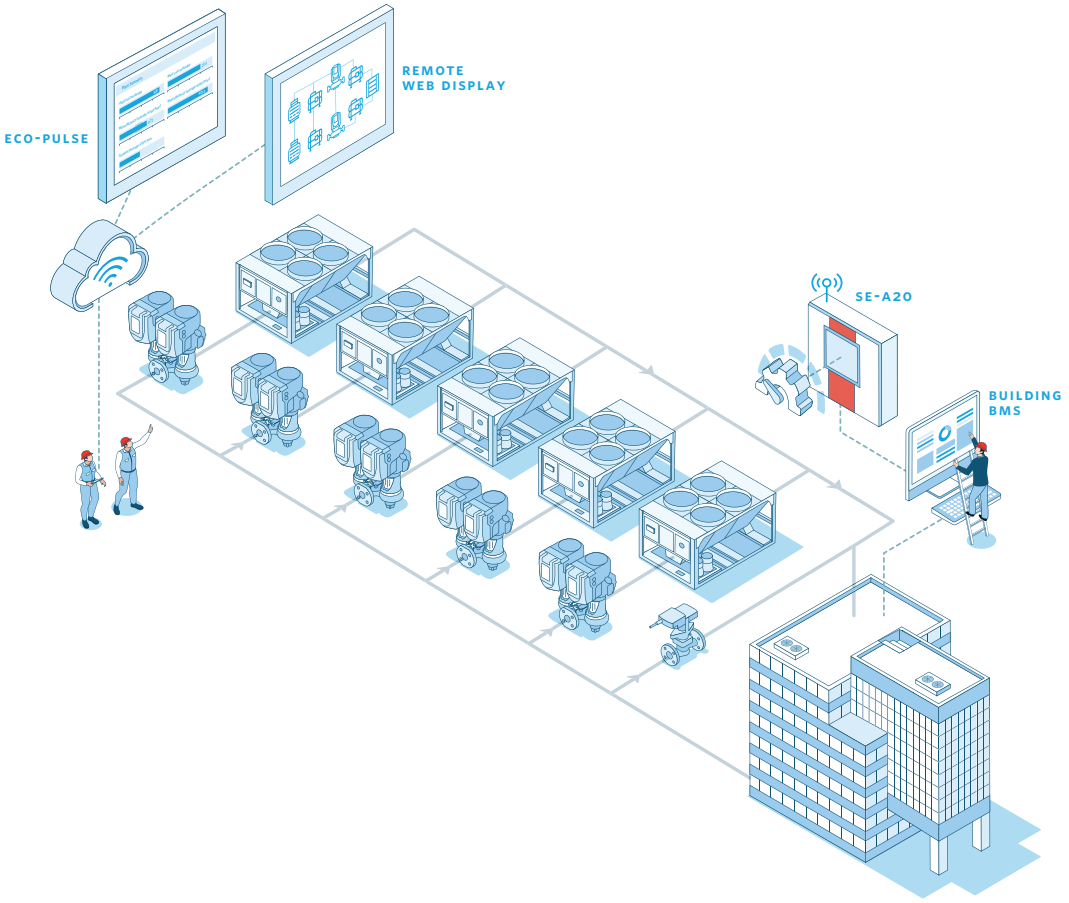
Systems Envelope takes a different approach to provide consistent temperatures:

- Uses Dynamic Compensation control to anticipate demand
- Delivers seamless performance of output variables
- Uses continuous, real-time monitoring to fine tune output
- Stages plant components based on best efficiency

Systems Envelope modulates components to create one unified system.
The result is **maximum efficiency and minimum wear** from from excessive on/off cycling.



Optimizing your system with Systems Envelope is an easy decision.



Choosing the size is even easier.

SE-A10
Up to three (3) chillers and pumps

SE-A20
Up to five (5) chillers and pumps

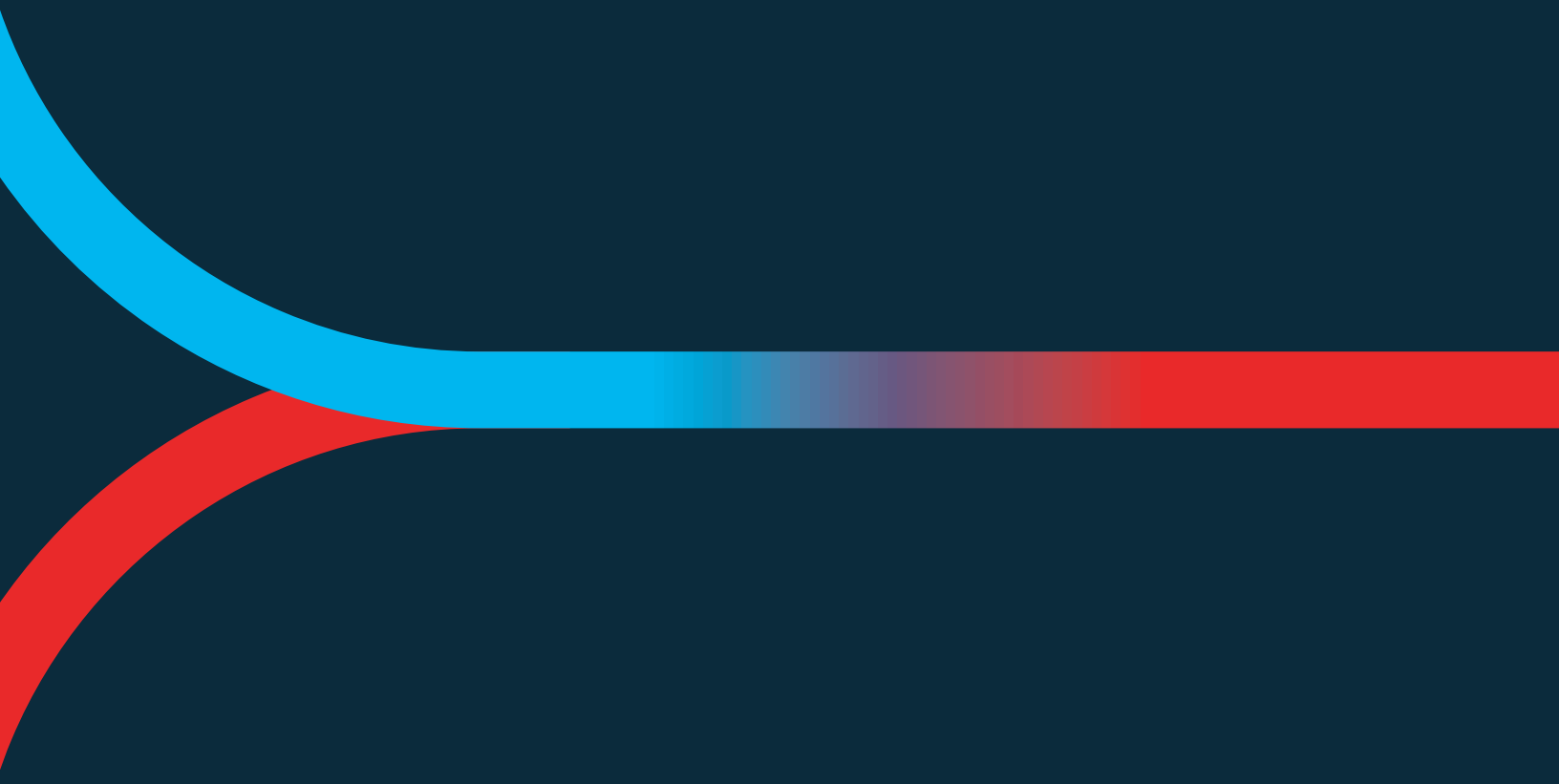
Systems with 6+ chillers and pumps
Armstrong engineers will promptly custom design your ideal unit.

Systems Envelope SE-A10

Product Type	Systems Envelope SE-A10
BACNET CONFORMANCE	Conforms to the BACnet Building Controller (B-BC) Standard Device profile, as defined in BACnet 135-2012 Annex L, Protocol Revision 14
BACNET OBJECTS	Maximum number of BACnet objects: 500
3RD PARTY INTEGRATION	Supports up to 500 total BACnet and/or Modbus integration points
POWER	24 V AC ±10%, 50–60 Hz, 24A | 24V DC, 24W
	COMMUNICATION
ETHERNET PORTS	2 × 10/100 Mbps (RJ45 connector)
SERIAL PORT 1	RS-485 serial port with 3-screw connector
SERIAL PORT 2	RS-485 serial port with 3-screw connector
HMI	Phoenix WP6101-WXPS IP55 Touch Panel with 10.1" widescreen (16:9) XGA, PCAP display. Software:Qt browser
MICROPROCESSOR	1 GHz AM335X ARM® Cortex™-A8
PLC	JENEsys Edge 534 with options fitted to support 5 devices and 500 points
ENVIRONMENTAL RANGE	0–60 °C (32–140 °F) 5–95% RH, non-condensing
MEMORY	512 MB DDR3L 800 MHz, 4 Gb 8-bit embedded mmc on-board flash
REAL TIME CLOCK	Battery-powered clock included to store description/setup values including year, month, date, hours, minutes and seconds
COMPLIANCE	Approved: FCC 47CFR Parts 15B and 18, EN 55022, EN 55011, ICES-003, RoHS, UL 916, CSA C22.2 No. 205-17, EN 61010-1: 2010, IEC 61010-1, 3rd edition
	ENVIRONMENTAL SPECIFICATIONS
ENCLOSURE	IP55 / NEMA 4 panel rating
PLASTIC RATING	Fire retardant plastic ABS UL94-5VA
MOUNTING	Flat panel and 35 mm DIN rail mounting options standard

Systems Envelope SE-A20

Product Type	Systems Envelope SE-A20
BACNET CONFORMANCE	Conforms to the BACnet Building Controller (B-BC) Standard Device profile, as defined in BACnet 135-2012 Annex L, Protocol Revision 14
BACNET OBJECTS	Maximum number of BACnet objects: 1,250
3RD PARTY INTEGRATION	Supports up to 1,250 total BACnet and/or Modbus integration points
POWER	24 V AC ±10%, 50–60 Hz, 24A | 24V DC, 24W
	COMMUNICATION
ETHERNET PORTS	Dual 10/100 Base T Ethernet ports supporting BACnet over IP and/or BACnet/Ethernet or Modbus TCP/IP
SERIAL PORT 1	For communication with the following:
	BACnet/MSTP network at 9,600 to 115,200 bps
	Modbus serial network at 9,600 to 115,200 bps
SERIAL PORT 2	For communication with the following:
	BACnet/MSTP network at 9,600 to 115,200 bps
	Modbus serial network at 9,600 to 115,200 bps
USB PORT	USB type A connector (Back-up and restore support)
HMI	Phoenix WP6101-WXPS IP55 Touch Panel with 10.1" widescreen (16:9) XGA, PCAP display. Software:Qt browser
MICROPROCESSOR	TI AM3352: 1000MHz ARM® Cortex™-A8
PLC	Lynxspring JENE-PC8000 controller with 25 Device Core & 1,250 points. Includes standard open drives. Supports up to 25 devices and 1,250 points. Requires Niagara 4.0 and higher.
ENVIRONMENTAL RANGE	(-20 to 60 °C (-4 to 140 °F))
MEMORY	1Gb DDR3 SDRAM Removable micro-SD card with 4Gb flash total storage/2Gb user storage
REAL TIME CLOCK	Yes
COMPLIANCE	UL 916 CE EN 61326-1 FCC Part 15 Subpart B, Class B FCC Part 15 Subpart C C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment" 1999/5/EC R&TTE Directive CCC SRRC RSS RoHS
	ENVIRONMENTAL SPECIFICATIONS
ENCLOSURE	IP55 / NEMA 4 panel rating
PLASTIC RATING	Fire retardant plastic ABS UL94-5VA
MOUNTING	Base: Plastic, DIN rail or screw mount options. Cover: Plastic



For more information, contact your
Armstrong representative or visit us at:
ArmstrongFluidTechnology.com/ContactUs

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