

**GET IT  
RIGHT**



**Start-up Suite**



**ACTIVE PERFORMANCE MANAGEMENT™**

OPTIMIZED EFFICIENCY  
AND PERFORMANCE

## ACTIVE PERFORMANCE MANAGEMENT™

LEARNS  
PREDICTS  
OPTIMIZES

With Active Performance Management at the plant level, you can save up to

**40%**

annual energy savings

Active Performance Management is a systems management approach that optimizes HVAC systems at any stage of a building's life-cycle by continuously learning from a broad network of installations and responding to changing HVAC requirements. The combination of SMART Commissioning with real-time alerts and system transparency addresses performance drift and maintains occupant comfort.

SERVICES FOCUSED ON MANAGING  
FOR PERFORMANCE

## START-UP SUITE

One of five service suites offered by Armstrong, the Start-up suite enables Active Performance Management in the equipment and systems you've chosen. The services included in the suite are SMART Start-up and SMART Commissioning. They work at the equipment level to establish and confirm optimum operation from the

outset. Armstrong can design your new plant, manage your system start-up, and optimize system performance during commissioning. Where many new installations can require years of trial and error to reach promised efficiencies, the services included in the Start-up Service Suite ensure that your first days, months and years are a success.



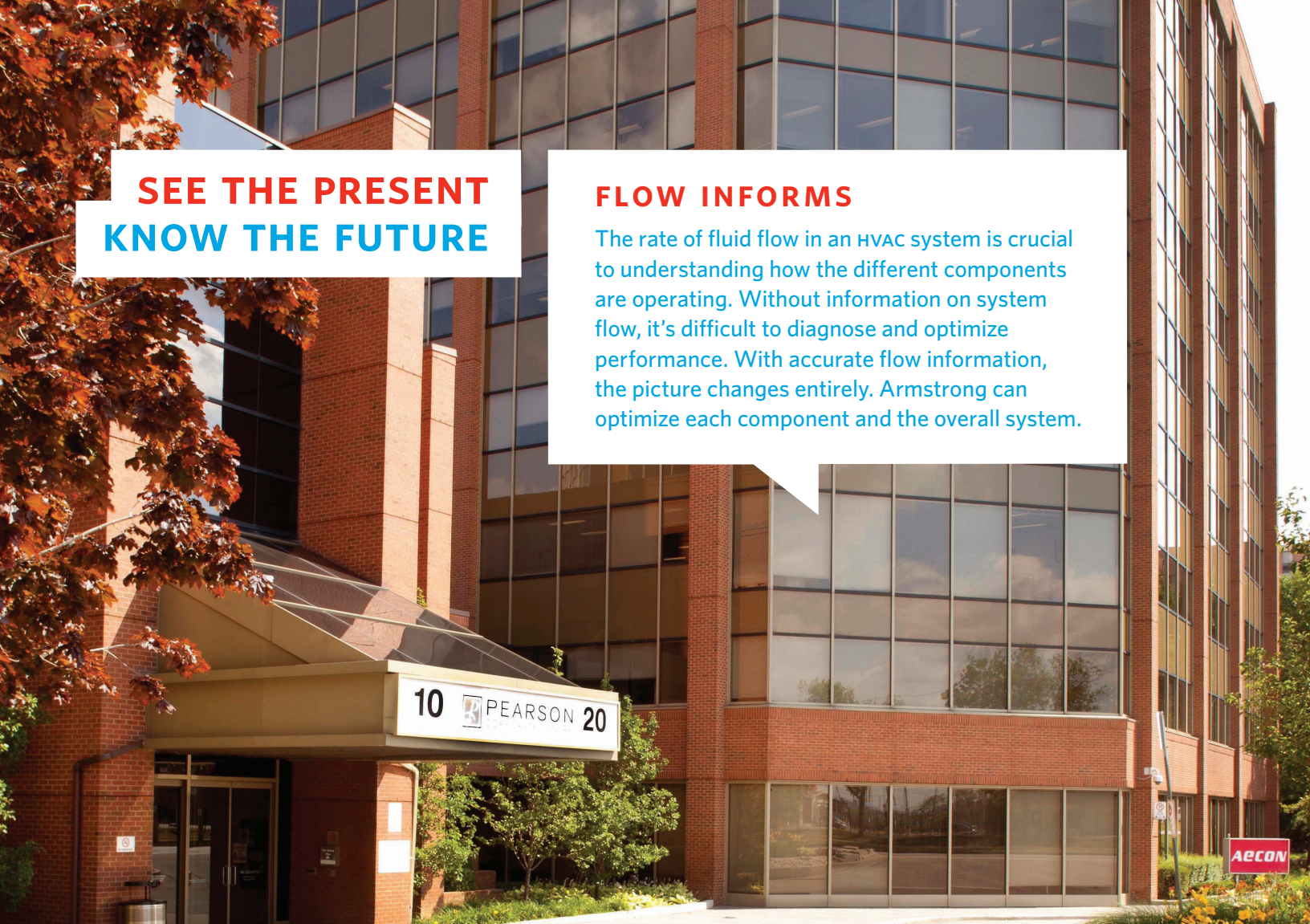
Start-up Suite is one of five service suites that enable Active Performance Management



**SEE THE PRESENT  
KNOW THE FUTURE**

**FLOW INFORMS**

The rate of fluid flow in an HVAC system is crucial to understanding how the different components are operating. Without information on system flow, it's difficult to diagnose and optimize performance. With accurate flow information, the picture changes entirely. Armstrong can optimize each component and the overall system.



**GET  
CONNECTED**

**AND GET  
IT RIGHT**

**SMART Start-up** manages system start-up for minimized risk and energy savings from day one

**SMART Commissioning** optimizes commissioning and documents operating parameters based on real building loads performance



**CASE STUDY | Carlson Court**

ANNUAL ENERGY SAVINGS  
**87%**

Armstrong upgraded existing pumps to leverage the capabilities of Design Envelope and Pump Manager for connectivity and performance tracking from day one.

The data reports from Pump Manager combined with the flow monitoring accuracy of Design Envelope helped optimize pump performance, boosting efficiency by 87%.

**ANNUAL ENERGY COST**

BEFORE	AFTER
\$140,072	\$18,380
CAD	CAD
AVERAGE	AVERAGE

ANNUAL COST SAVINGS **\$121,692** CAD

**CO<sub>2</sub> EMISSIONS**

BEFORE	AFTER
150,847	19,794
kg CO <sub>2</sub>	kg CO <sub>2</sub>
AVERAGE	AVERAGE

ANNUAL CO<sub>2</sub> EMISSION REDUCTION **131,053** kg CO<sub>2</sub>

**THE SERVICES IN THE START-UP SUITE INCLUDE:**

Detailed equipment checks at the beginning to ensure proper start-up and optimal operation from day one

One-year subscription to Pump Manager for in-depth pump data analytics with connectivity from day one

Optimization of equipment for on-site load conditions during commissioning

Certified start-up and commissioning report

**FACILITY TYPE**  
Large Office Complex

**LOCATION**  
Toronto, Canada

**SIZE**  
300,000 ft<sup>2</sup>



# SMART START-UP

# KEY BENEFITS

SMART Start-up ensures that an Armstrong Design Envelope certified technician completes a sequence of detailed equipment checks and connects the Design Envelope pump to Pump Manager. In the life of an HVAC system,

changing components can be difficult because of discontinuity in data. SMART Start-up facilitates change management through easy access to reliable pump data for faster support.

**SMART Start-Up ensures that pumps and related equipment are optimized for site load conditions from the first day of operation**

## Design value

Validation of design and selection of the equipment during start-up

## Operation value

Expert sequencing of start-up protocols extends equipment life and gives you peace of mind.

Maximum operating efficiency from day one — savings of up to 30% of pumping energy

Data insights inform actions that reduce performance drift

## Installation value

Expert attention at start-up plus real-time performance data, alarms and alerts help identify and resolve issues.

Proper asset management is an important responsibility for Facility Managers. Pump Manager functions as a complete asset management solution, with real-time insights into fluid flow and performance dashboard data to confirm savings.

Professional commissioning minimizes call-backs and requests for re-commissioning

# KEY FEATURES

Confirms that the equipment is properly powered and ready for operation

Ensures proper bleeding of air

Ensures the connection to Pump Manager

Confirms link to the Building Automation System, if one exists at the time of start-up

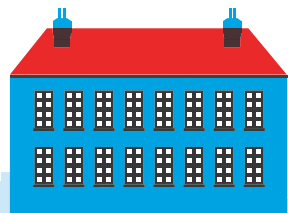
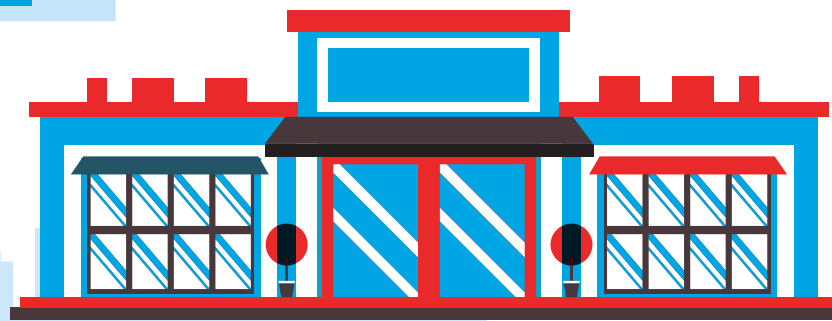
Latest firmware and software updates are installed

A comprehensive start-up report

The equipment is checked for leaks, noise, alarms and vibration



For more information on Pump Manager, read the Performance Management Suite brochure (file 70.10)



# SMART COMMISSIONING

SMART Commissioning gives you easy access to reliable data that helps benchmark for future analysis and comparison, with reporting designed to help owners understand the performance efficiencies and savings potential.

Insights from Pump Manager are used to adjust the pump for optimum performance. These additional insights provide peace of mind for building owners and extends the resilience of the building.

## Design value

Real-time in-depth pump data proves the success of the installation and informs future building designs.

## Operation value

For excellence in asset management, including quick recovery to service and advance notice of maintenance requirements, pump settings and operating curve data are stored remotely.

## Installation value

Pump Manager reduces the need to revisit the site multiple times to repeat the commissioning process. It also makes troubleshooting easier, and supports expedited warranty resolution for issues.

Data from Pump Manager can be used to verify savings for any project that involves performance commitments.

Removing uncertainty about pump efficiency lets you finish the project faster.

### USAGE



# KEY BENEFITS

SMART Commissioning ensures that pumps and related equipment are optimized for site load conditions from the first day of operation

Additional 1-year Extended Warranty program on Armstrong commissioned equipment

Cost certainty through coverage of genuine replacement parts under Extended Warranty program

Better coordination between various components in your plant

A comprehensive study by NRCAN found that basic commissioning of new buildings yields energy savings of 13 percent. SMART Commissioning combined with optimization boosts pump efficiency by up to 30%.

# KEY FEATURES

Review of real-time building load conditions for commissioning

Test each pump at design duty to ensure the equipment works within the parameters identified in the project specification

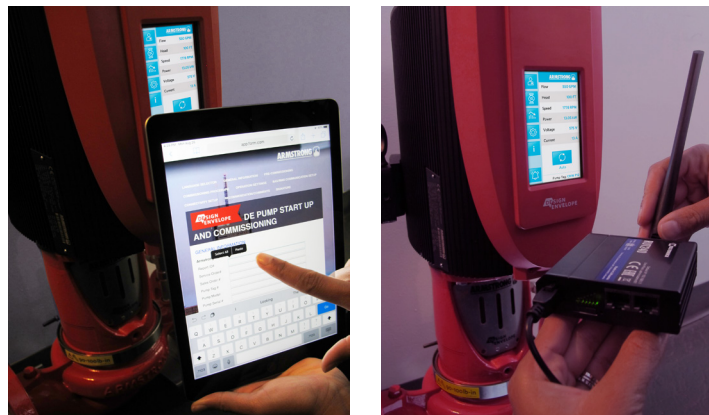
Tuning each pump to operate at optimum efficiency

Comprehensive commissioning report provided with operating parameters

Latest firmware and software updates are installed

Review of performance data from Pump Manager






An Armstrong service representative will commission your equipment on-site by connecting the equipment online with the accompanying router



# OUR SUSTAINABILITY VISION



Ask your Armstrong Representative about the entire family of five service suites that enable Active Performance Management:

	<b>MANAGE YOUR SYSTEM</b>	➔	<b>PERFORMANCE MANAGEMENT SUITE</b>	<ul style="list-style-type: none"> <li>Pump Manager</li> <li>ECO+PULSE</li> </ul>
	<b>UPGRADE YOUR SYSTEM</b>	➔	<b>PERFORMANCE UPGRADE SUITE</b>	<ul style="list-style-type: none"> <li>Pump Retrofit</li> <li>Upgrade legacy pumps</li> <li>Upgrade Booster package</li> <li>OPTI-VISOR</li> <li>TOWERMAX</li> </ul>
	<b>GET IT RIGHT</b>	➔	<b>START-UP SUITE</b>	<ul style="list-style-type: none"> <li>SMART Start-up</li> <li>SMART Commissioning</li> </ul>
	<b>BOOST YOUR UPTIME</b>	➔	<b>MAINTENANCE, OPERATIONS, REPAIRS SUITE</b>	<ul style="list-style-type: none"> <li>Replacement parts</li> <li>Emergency services</li> <li>Service agreements</li> </ul>
	<b>UNDERSTAND THE POSSIBILITIES</b>	➔	<b>CONSULTING SUITE</b>	<ul style="list-style-type: none"> <li>Pump energy consulting</li> <li>Booster energy consulting</li> <li>Plant energy consulting</li> </ul>

## PLANET PROPOSITION

**T**hrough our Planet Proposition charter, Armstrong has committed to minimizing our impact on the environment. Around the world, Armstrong's Planet Proposition teams have taken on projects that are helping us meet our targets. Two examples of ongoing projects are:

### 2 BY 22

Armstrong is committed to helping existing customers reduce GHG emissions of installed equipment by two million tons by the year 2022. Under this initiative, Armstrong works with customers to upgrade existing installations and continues to develop new energy-savings solutions.

### NET ZERO CARBON BUILDINGS COMMITMENT

The Net Zero Commitment positions energy efficiency as a central component to achieving decarbonization globally. In signing the Net Zero Carbon Buildings Commitment, Armstrong has pledged to ensure our entire portfolio of buildings operates at net zero carbon by the year 2030.



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**ARMSTRONG FLUID TECHNOLOGY**  
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For more information, contact your  
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[ArmstrongFluidTechnology.com/ContactUs](http://ArmstrongFluidTechnology.com/ContactUs)

MAKING  
ENERGY  
MAKE  
SENSE™