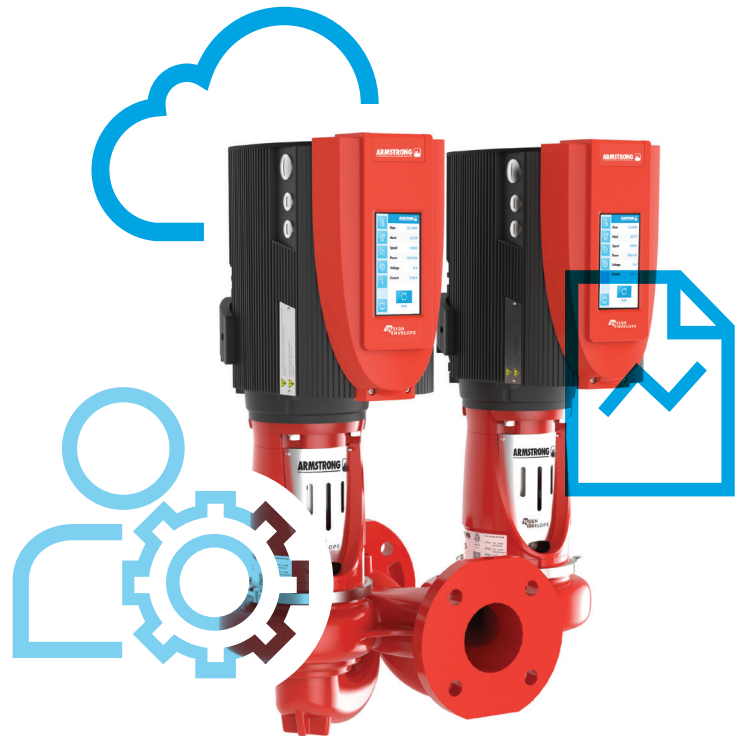




## Design and Start-up Suite

# GET IT RIGHT



ACTIVE PERFORMANCE MANAGEMENT™

FILE NO: 70.12  
DATE: JULY 2024

SUPERSEDES: 70.12  
DATE: FEBRUARY 2023

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 lifecycle 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.

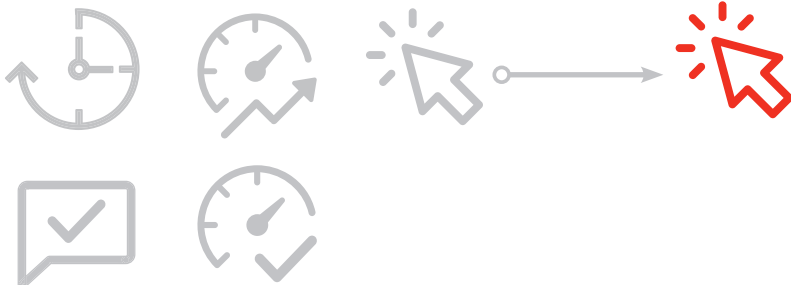


**SERVICES FOCUSED ON INSTALLATION, START-UP, COMMISSIONING AND PERFORMANCE ANALYSIS TO OPTIMIZE EQUIPMENT.**

## **DESIGN AND START UP SUITE**

One of five service suites offered by Armstrong, the Design and Start up Suite enables Active Performance Management in the equipment and systems you've chosen. Included in the Suite are SMART Start-up, SMART commissioning and SMART recommissioning. These services work at the equipment level to establish and confirm optimum operation from the outset. Armstrong can help you design your new plant, manage your

system startup, and optimize system performance during commissioning. Where many new installations can require years of trial and error to reach promised efficiencies, SMART Start-up and SMART commissioning services ensure that your first days, months and years are a success. SMART Recommissioning maximizes performance of existing Design Envelope Pumps effectively.

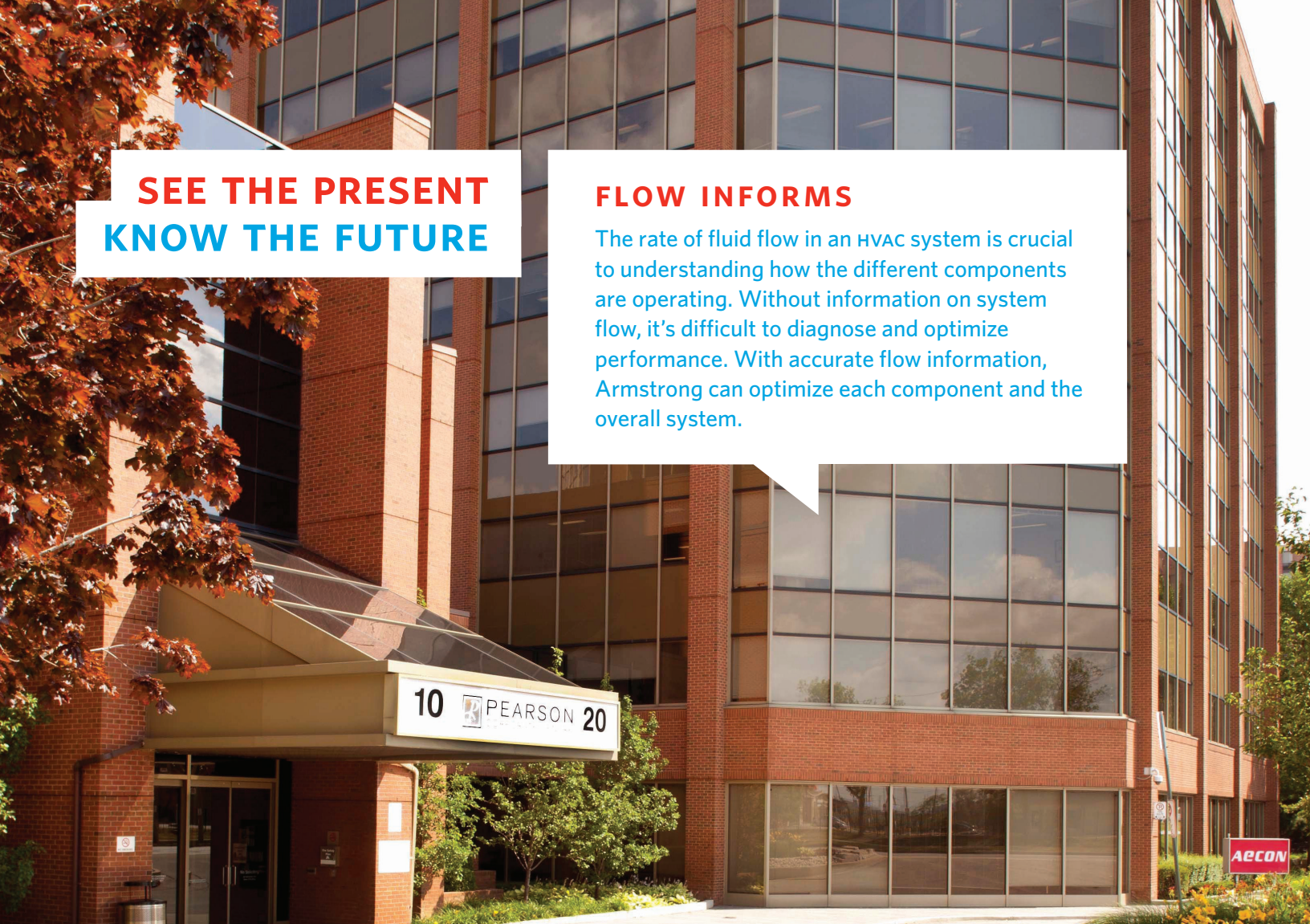


**Design and Start-up Suite is one of five service suites that enable Active Performance Management**

**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, Armstrong can optimize each component and the overall system.



**CASE STUDY | Carlson Court**

ANNUAL ENERGY SAVINGS



**87%**

Armstrong upgraded existing Design Envelope pumps to use Pump Manager and leverage the new capabilities for connectivity and performance tracking from day one, when the pumps were started. The data reports from Pump Manager combined with the flow monitoring accuracy of Design Envelope helped optimize pump performance, boosting efficiency by 87%.



**FACILITY TYPE**  
Large Office Complex



**LOCATION**  
Toronto, Canada



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

**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>



# GET

# CONNECTED

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

# GET

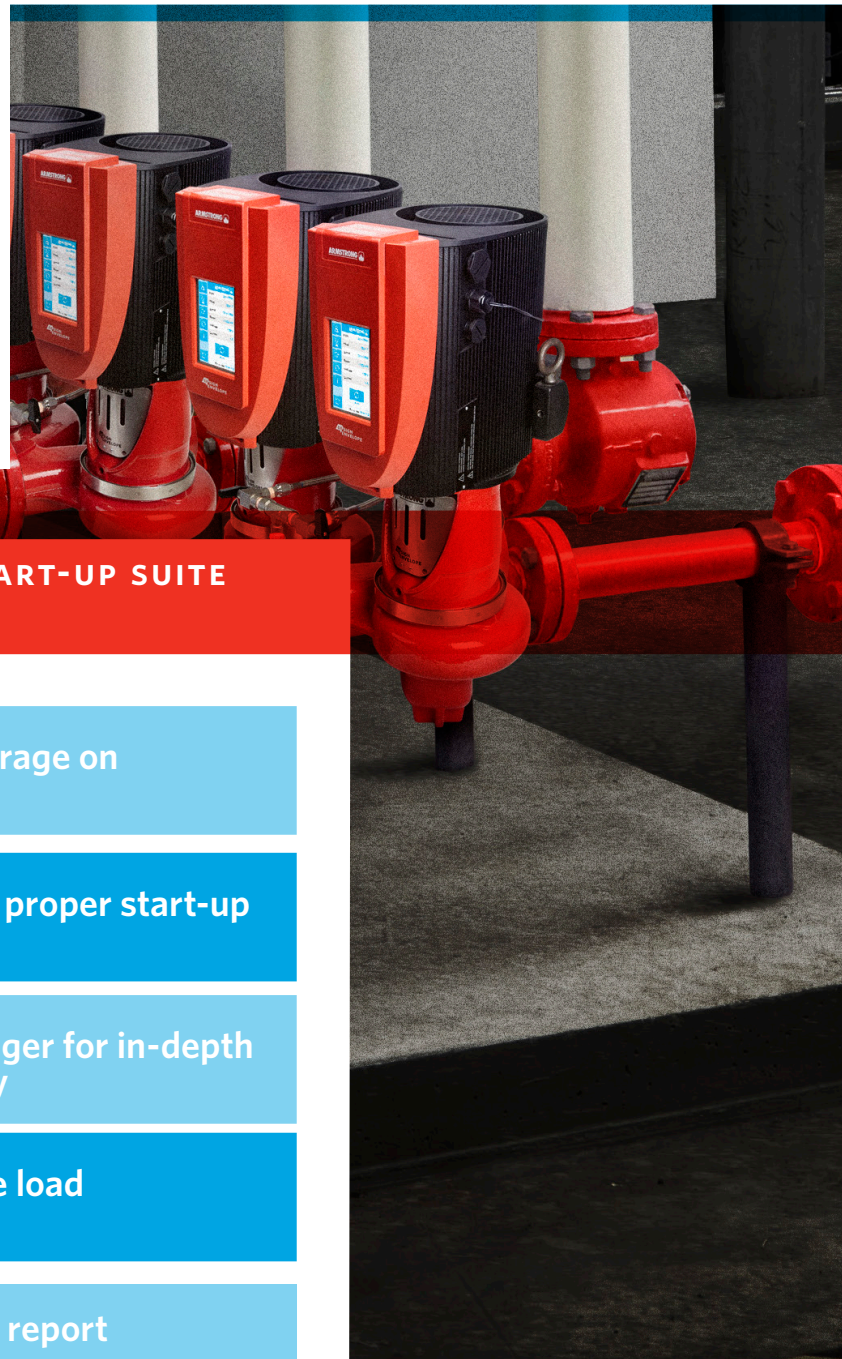
# IT RIGHT

**SMART Commissioning** optimizes commissioning and documents operating parameters based on actual building load conditions

# GET

# IT CHECKED

**SMART Recommissioning** optimizes existing installations by adjusting setpoints, enabling cloud connectivity and documenting performance and asset details



THE SERVICES IN THE DESIGN & START-UP SUITE INCLUDE:

Cost certainty through warranty coverage on genuine replacement parts

Detailed equipment checks 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

Optimization of equipment for on-site load conditions during commissioning

Certified start-up and commissioning report

# SMART START-UP

SMART Start-up ensures that a certified technician completes a sequence of detailed equipment checks and connects the Design Envelope pump to Pump Manager for Active Performance Management. 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.

## Design Value

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

## Operation Value

Expert sequencing of startup protocols extends equipment life and gives you peace of mind.

## 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.



For more information on Pump Manager, read the Performance Management Suite brochure



# KEY BENEFITS

**SMART Start-up ensures that the installation and start-up of the Design Envelope pump is completed properly for long-term equipment reliability**

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**Cost certainty through warranty coverage on genuine replacement parts**

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

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**Data insights inform actions that reduce performance drift**

# KEY FEATURES

**Factory standard warranty on Armstrong equipment extended by 12 months**

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**Inspection to ensure proper connection of power and equipment readiness**

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**Check to confirm proper connection to Pump Manager**

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**Equipment firmware updates to the latest versions**

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**Check equipment and piping connections for leaks**

**Check equipment status for alarms and vibration**

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**Confirmation of proper bleeding of air and flush lines**

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**Confirmation of link to Building Automation System, where applicable**

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**Check alignment, pump rotation, suction pressure and discharge pressure**

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**Comprehensive start-up report, plus a follow-up 7-day performance report from Pump Manager**



# 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 design decisions

## 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 and repeat the commissioning process. It also makes troubleshooting easier, and supports expedited warranty resolution for issues.

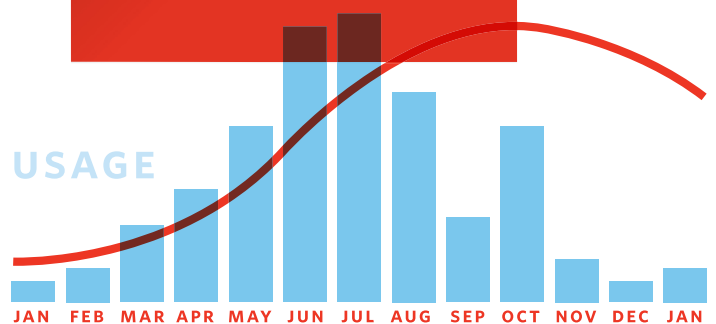
An Armstrong Service Representative will commission your equipment and ensure the pumps are connected to Pump Manager.



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 from the first day of operation pumps and related equipment are optimized for site load conditions.**

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Pump settings are accurately tuned to align with the real-time system loads

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Avoids flow imbalances and vibration

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Extends pump life and minimizes lifetime cost

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Saves energy from Day 1 by avoiding performance drift

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Facilitates remote support & minimize call backs

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Better coordination between system components

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

Recommission equipment against current real-time building load conditions

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

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Tuning each pump to operate at optimum efficiency

Comprehensive SMART Start-up report, and a follow-up 7-day performance report from Pump Manager.

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Equipment Firmware updates to the latest versions

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Ongoing real-time asset performance review in Pump Manager

# SMART RECOMMISSIONING

SMART Recommissioning is an OEM-verified service that ensures Design Envelope technology is properly installed and promptly configured in existing sites using Design Envelope pumps. An Armstrong certified technician will optimize the

equipment for present building loads, refigure controls strategies and BAS integration. Recommissioning addresses performance drift, reduces operating costs, minimizes asset risks and extends the life of the equipment.

## Design Value

Validation of design and equipment selection. Documentation of real-time flow rates to support system optimization.

## Operation Value

Early warnings for potential issues ensure consistent performance, prevent unexpected downtime and the related costs for emergency maintenance and repairs.

## Installation Value

Expert recommissioning and start-up ensure easy access to performance data, alarms and alerts. Real-time data helps with early identification of issues for longer asset life.



For more information on Pump Manager, read the Performance Management Suite brochure



# KEY BENEFITS

**SMART Recommissioning optimizes existing installations of Design Envelope pumps by ensuring Pump Manager is activated to support advanced performance tracking.**

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**Optimize for actual building loads, preferred control strategies and BAS integration.**

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**Recommission to address the risk of the performance drift**

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**Reduce operating costs - cut energy use by 20% and maintenance spend by up to 30%**

# KEY FEATURES

**Includes 12-month subscription to Pump Manager performance tracking service**

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**12-month warranty entitlement following recommissioning execution**

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**Multi-point check of pump operation**

**Activation of Design Envelope performance bundles: Parallel Sensorless Pump Control, Flow Protection, Dual-season setup, Energy Performance**

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**Firmware updates as required**

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**30-day comprehensive service report**

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



**MANAGE YOUR SYSTEM**



**PERFORMANCE MANAGEMENT SUITE**

Pump Manager  
ECO\*PULSE



**UPGRADE YOUR SYSTEM**



**PERFORMANCE UPGRADE SUITE**

Pump Retrofit  
Upgrade legacy pumps  
Upgrade Booster package  
OPTI-VISOR  
TOWERMAX



**GET IT RIGHT**



**DESIGN AND START-UP SUITE**

SMART Start-up  
SMART Commissioning  
SMART Recommissioning



**BOOST YOUR UPTIME**



**MAINTENANCE, OPERATIONS, REPAIRS SUITE**

Replacement parts  
Emergency services  
Service agreements



**UNDERSTAND THE POSSIBILITIES**



**CONSULTING SUITE**

Pump energy consulting  
Booster energy consulting  
Plant energy consulting





# OUR SERVICE TO THE PLANET



## 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.

## 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.



WATCH THE VIDEO



See how we achieved a key target in reducing greenhouse gas emissions by 2 millions tons



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