



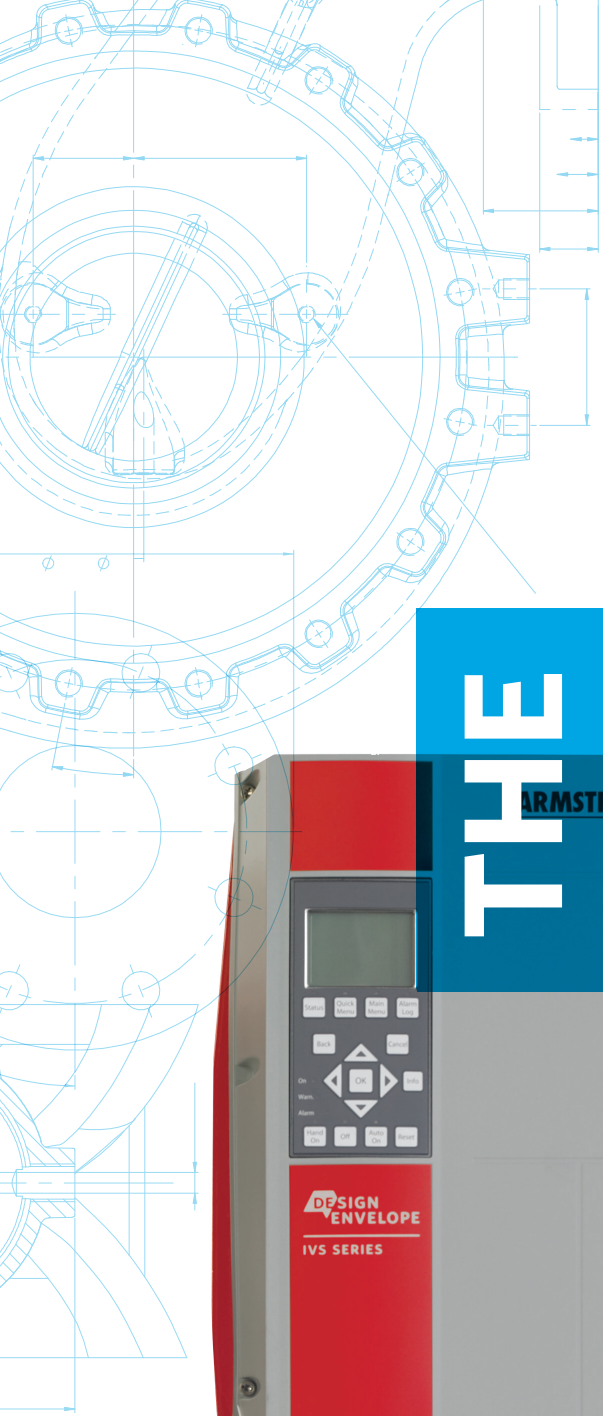
DESIGN ENVELOPE

Design Envelope 4392 & 4312 Twin pump

SOLUTION OUTLINE

FILE NO: 100.16
DATE: FEBRUARY 2016

SUPERSEDES: 100.16
DATE: AUGUST 2014



THE CHALLENGE

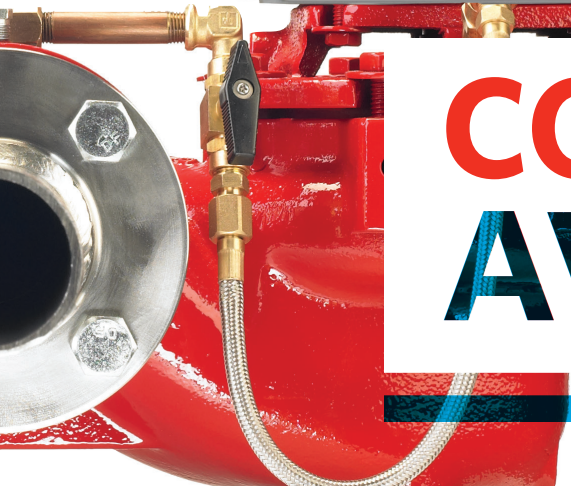
Managing a commercial building involves wrestling with new challenges every day, particularly where building temperatures are involved. The energy needed to run your HVAC systems represents an enormous percentage of your overall operating costs, and the challenge of balancing cost control against the comfort of your tenants can certainly make life interesting.

With some pump designs even a simple seal replacement can cause a downtime of six to seven hours. If your HVAC system doesn't have built-in redundancy, building temperatures will be affected, and your tenants will notice.

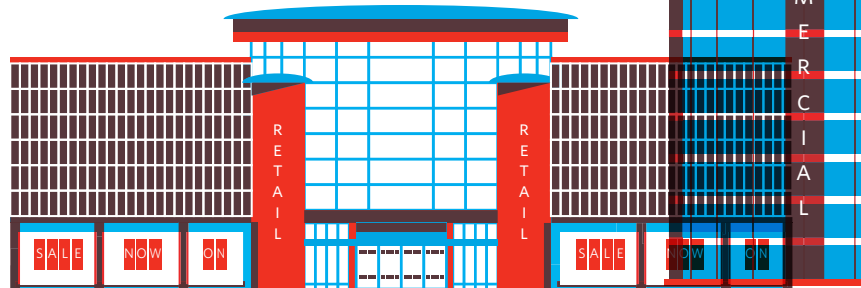
If external service providers are required, any maintenance work that takes place outside regular hours can be expensive. You could end up overspending on your maintenance budget, and still have unhappy tenants.

With increased expectations for financial performance and tenant satisfaction, commercial buildings need HVAC systems that combine high-efficiency with constant availability.

CONSTANT AVAILABILITY



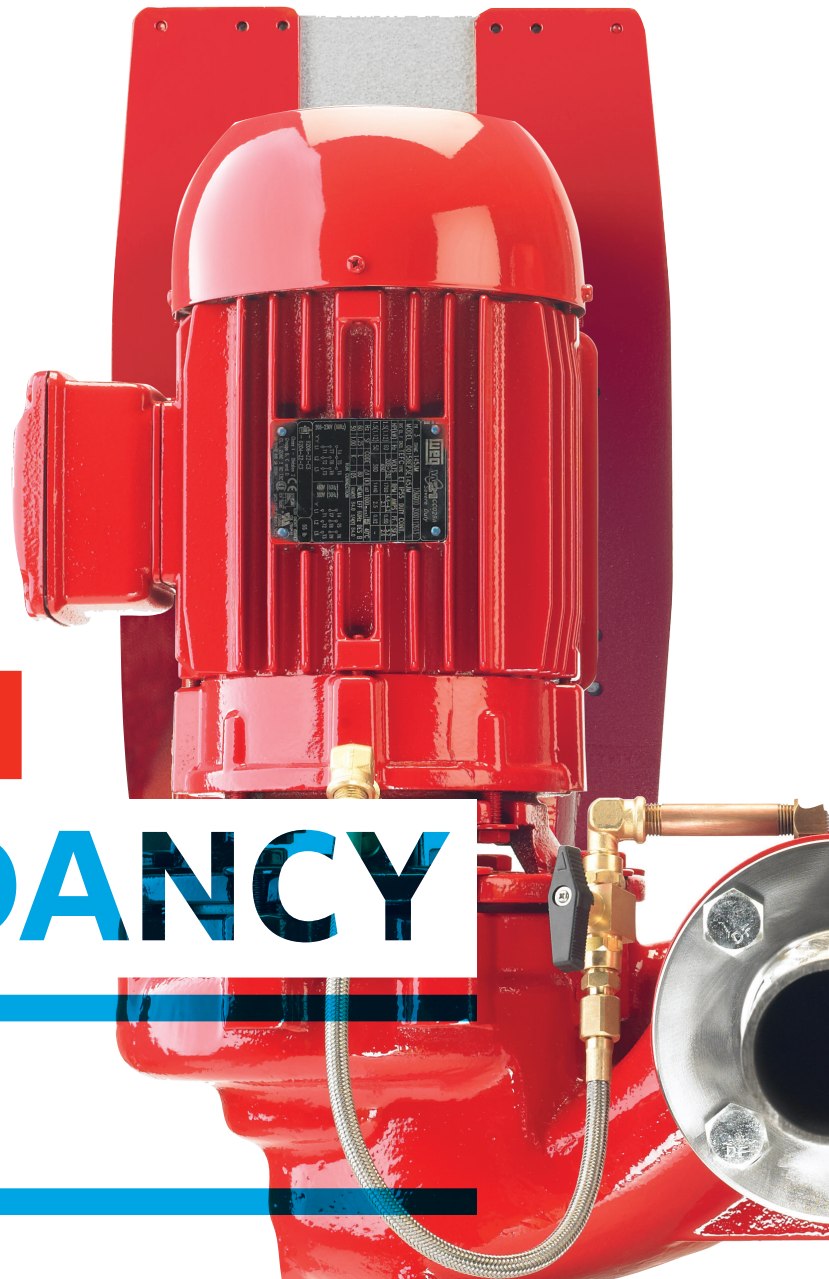
But upgrading to a redundant system may not be as straightforward as it sounds. In many instances building designs don't allow adequate space in the mechanical room for a separate standby pumping unit. And even if there is floor space available, once you factor in the costs for a concrete base, pipe, additional fittings and installation labour, a standby pump can be prohibitively expensive.



To address these issues Armstrong offers an advanced solution that gives you the security of a 100% redundant pump in a compact design that will fit almost any installation. The Armstrong Design Envelope Twin Vertical In-Line pump draws on a proven, industry-leading design that makes it the most cost-effective solution for commercial HVAC systems and the perfect choice for your project.

THE ASSURANCE: **BUILT-IN** **REDUNDANCY**

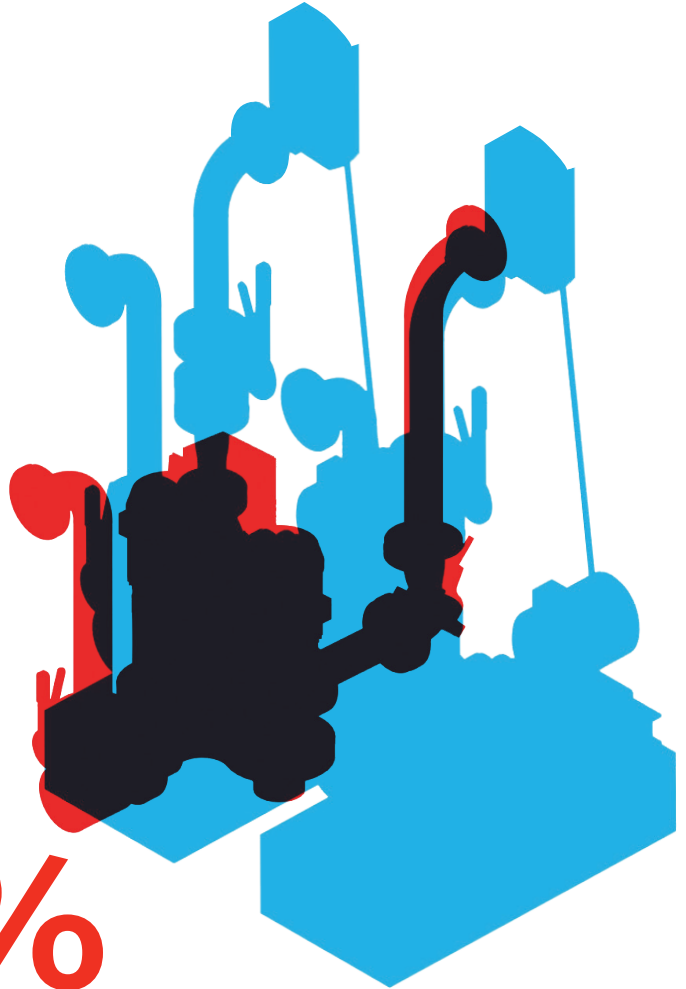
If your pump application is highly critical, the [Armstrong Design Envelope dualArm](#) offers continuous operation during repair.



SAVINGS

FLOOR SPACE SAVINGS

Because the two rotating assemblies are integrated into one casing, a Twin pump requires only 25% of the floor space needed for two end suction base-mounted pumps. You can install the redundancy you need without expanding the mechanical room, and a smaller mechanical room means more square feet of rentable space within your building.



REQUIRES ONLY **25%** OF TYPICAL FLOOR SPACE

	MODEL	FOOTPRINT (SQ.FT.)	RATIO TO END-SUCTION PUMPS
ONE TWIN	4312	6.4	0.26
VS.	5HP MOTOR		
TWO END SUCTION PUMPS	5HP MOTOR	25	1.0

EVERYWHERE

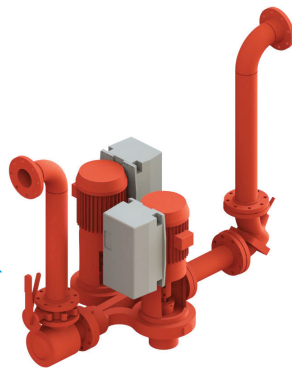
PURCHASE & INSTALLATION SAVINGS

View your savings and ROI using real data from your installation. Ask your Armstrong representative.

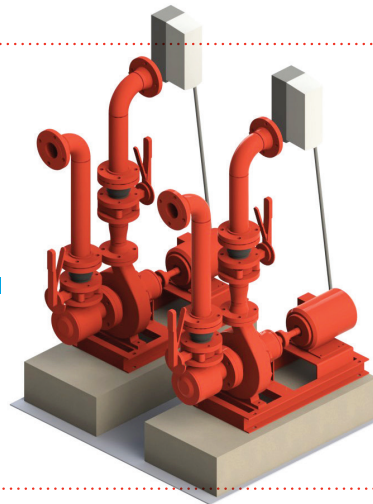
TWIN PUMP

END SUCTION

Compared to industry-standard solutions the Armstrong Design Envelope Twin pump saves over 60% of the costs related to installation.



VS.



IDENTICAL APPLICATION

One 4312 Twin pumping unit

Two pump end suction unit system

1.00

INSTALLATION COST*

3.96

*Costs are normalized so no units are shown.

Everything included

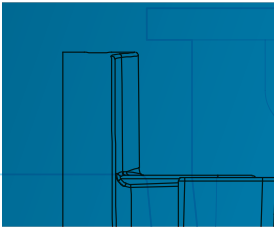
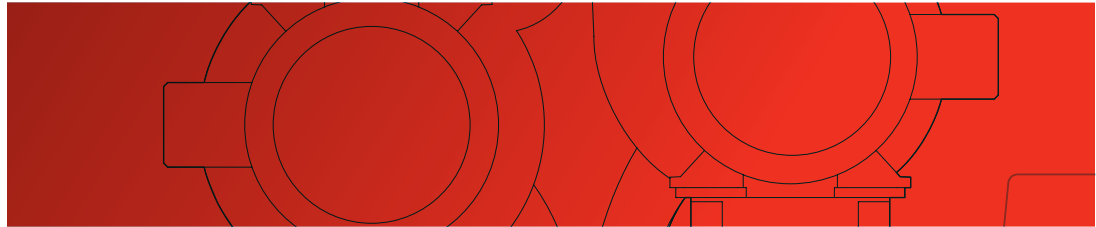
- Elegant space-saving design
- All-in-one pump and VFD solution
- Perfectly matched pump-motor-control combination
- No mounting of VFD to wall
- No re-alignment of shaft and coupling
- No flexible piping connectors
- No inertia base or grouting

Contents required

- Flex connectors
- Inertia base
- Remote sensor
- Extra set of pump trim

Labour requirements

- Grouting
- Shaft realignment
- Wiring to VFD
- Mounting and wiring of remote sensor



DESIGN SAVINGS

The small footprint of the Twin vertical in-line pump means you can include it in your drawings without redesigning the mechanical room to make space. Design Envelope selection lets you choose a pumping solution based on your HVAC requirements, and not worry about having to update your selection because of changes to the project.

REDUCED TENANT COMPLAINTS

Constant uptime supported by built-in redundancy means the Armstrong Design Envelope Twin pump is always available to meet the demand for heating or cooling.

MAINTENANCE SAVINGS

The Armstrong Vertical In-Line design allows easy access to the mechanical seal, so routine maintenance can be completed in less than 30 minutes. The 100% redundancy means you can schedule repairs at convenient times, and avoid emergency service rates.

ENERGY SAVINGS

UP TO **70%**

DESIGN ENVELOPE

Armstrong's Design Envelope pumps integrate a perfectly matched Vertical In-Line pump, motor and intelligent variable speed controller to create a complete pumping solution for HVAC systems. Design Envelope maximizes pumping efficiency by adjusting pump speed in response to system demand. Variable speed technology combined with sensorless control can reduce your energy costs by up to 70%.

FOR DETAILS ON

- Design Envelope Selections
- Demand-based variable speed operation, and
- Sensorless technology

please see the [Design Envelope brochure](#) (FILE NO. 100.11)



KEY FEATURES

SENSORLESS TECHNOLOGY

Provides increased overall efficiency, matching pump operation to the demands of the HVAC system more accurately than industry-standard remote sensors.

VERTICAL IN-LINE DESIGN

Reduces costs for component purchases and installation. Because the pump hangs in the HVAC system piping, there is no requirement for a concrete pad, grouting or flex-connectors.

AVAILABLE FITTED PLATE

Installs in the casing to allow removal of the entire rotating assembly for service. With the fitted plate in place, the backup pump operates normally until the duty pump is serviced and returned.

VERTICAL ORIENTATION

No requirement for realignment as part of a mechanical seal change.

TWIN PUMP APPLICATION RANGE*

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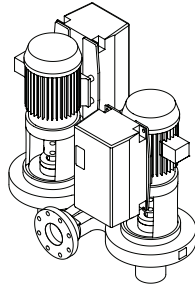
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ARMSTRONG FLUID TECHNOLOGY
ESTABLISHED 1934



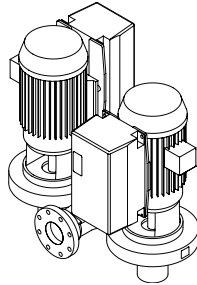
4312 SPLIT-COUPLED DESIGN ENVELOPE

INDOORS

Integrated to 40hp

OUTDOORS

Integrated to 40hp



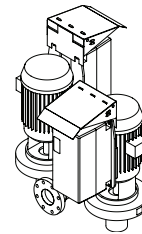
4392 CLOSE-COUPLED DESIGN ENVELOPE

INDOORS

Integrated to 7.5hp

OUTDOORS

Integrated to 7.5hp



Armstrong
Design Envelope
pumps are available for outdoor
applications in
Series 4312 and
4392.

*Single phase available to 7.5hp / 5.5kW

Contact us at:

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armstrongfluidtechnology.com/DE

View your savings and ROI
using real data from your
installation. Ask your
Armstrong representative.

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