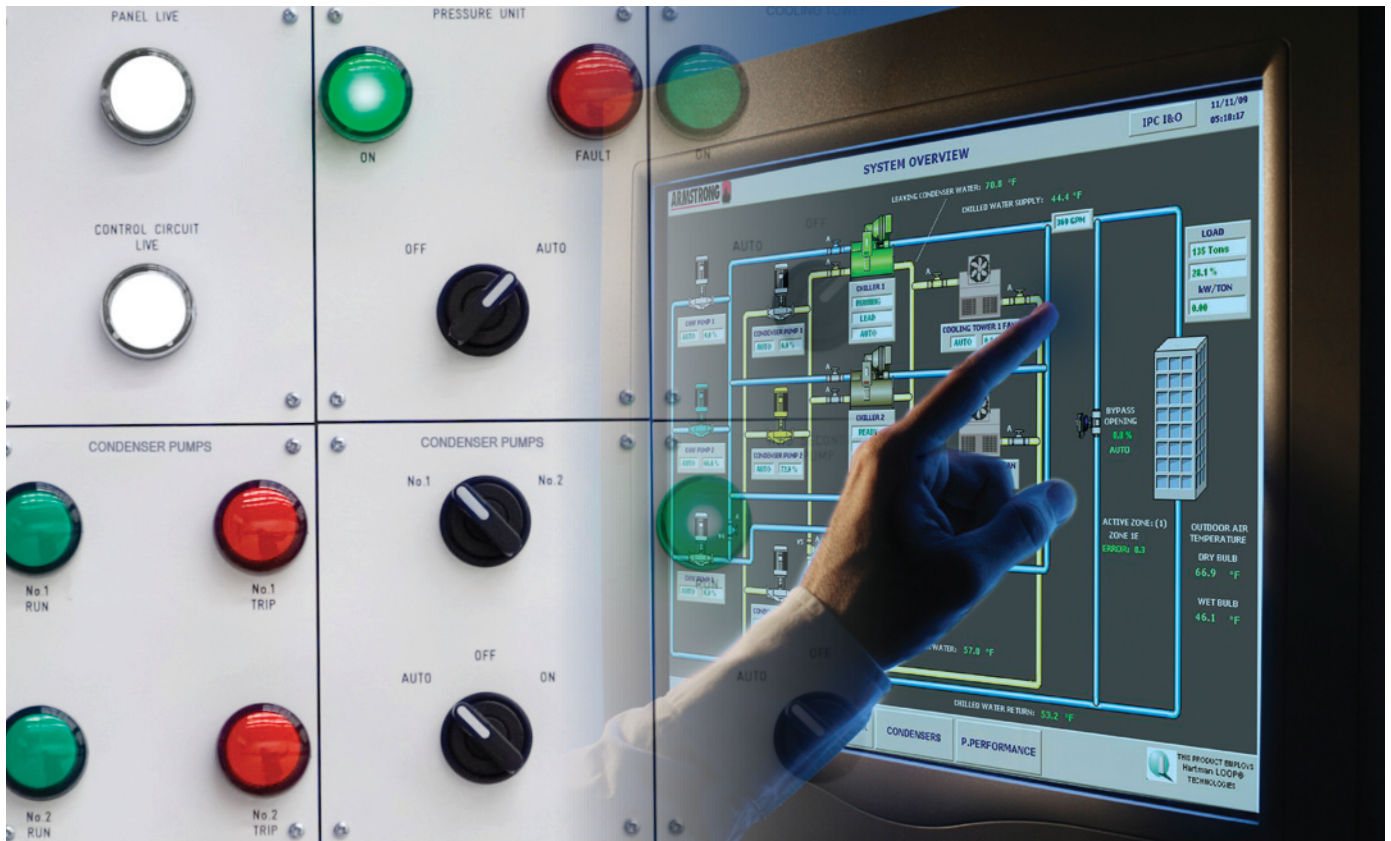


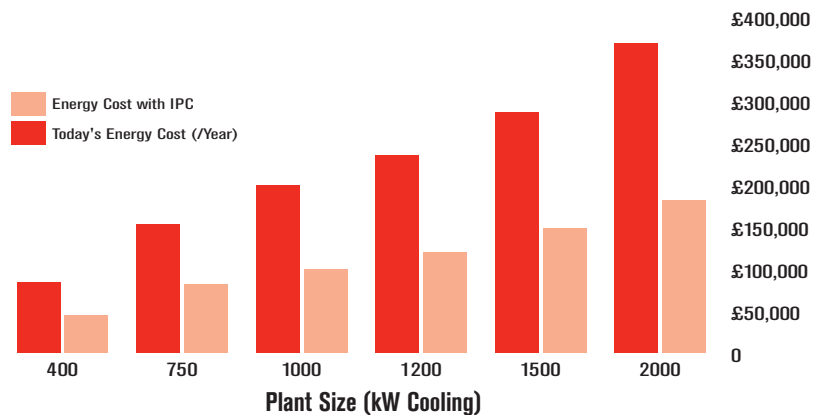
Planning To Upgrade A Chilled Water Plant To An Ultra-Efficient System?



Bank On The Early Payback

Any Heating or Cooling system that is more than three years old will benefit from a carefully planned Integrated Plant Controller (IPC) retrofit project. Considering the costs of energy and maintenance, and the comparatively low investment required to upgrade your systems, it just makes sense to go ahead with the IPC retrofit. You could see payback on your retrofit within two years, and a substantial accumulation of savings over the life of the equipment.

Annual Energy Cost Reduction with IPC Plant Automation



Installing an IPC unit can reduce the annual energy consumption of your HVAC system by 35 – 40%. That's a savings opportunity you just can't ignore.

Most existing chiller plants, even those with variable speed chillers, are either manually activated, or switched on by a building management system. This type of system design doesn't optimise the performance of the plant. Chilled water pumps, condenser water pumps, cooling tower fans, or even the chiller compressors typically draw twice the power than they would if the component running speed integration and the power relationships were optimised.

The Armstrong IPC 11550 employs Hartman LOOP® technology to ensure that the variable speed chillers are always operating as close as possible to their maximum efficiency. Even if your current system includes modern energy-saving variable speed drives, you will see dramatic energy savings when the system components are optimised using an IPC 11550 system from Armstrong.

Conversion Guide – Key Steps to Make Your Building Ultra-Efficient

Required Elements of the Conversion	Variable speed chillers with variable primary flow automation	Variable speed chillers with variable secondary flow	Convert constant speed chiller with addition of variable speed drive	Retrofit a constant speed chiller with variable speed compressor	Retrofit the constant speed chiller plant with variable speed chillers
New chillers					●
Replace constant speed with variable speed compressors				●	
Install variable speed drives on the chillers			●		
Replace constant speed primary pumps with variable speed IVS		●	●	●	●
Install a flow meter on the secondary loop		●	●	●	●
New Intelligent Variable Speed (IVS) condenser water pumps	●	●	●	●	●
Convert cooling towers to variable flow	●	●	●	●	●
Install IPC 11550 chilled water plant automation system	●	●	●	●	●
Typical annual energy savings*	34%	41%	49%	53%	57%
Typical simple financial payback period (years)*	2.7	2.6	2.8	3.6	4.9
Approximate installed cost (£/kW, varies with plant size)*	£200	£250	£300	£400	£800

* Based on 10 months operation/year, £0.10/kW-hr

Installation of an IPC can generate enough energy savings to cover the cost of financing the project plus additional positive cash flow.

Converting your plant is easier than you think. Whether your existing plant has constant speed chillers or variable speed chillers, your plant can be upgraded to an all-variable speed design that will likely offer immediate positive cash flow.

Annual energy cost reduction	£100,000/year
Possible revenue increase	For lease/rent commercial space will be more attractive to tenants interested in green buildings
Building appraised book value effect on building earnings (cap rate of 8)	£796,000
Simple payback period (after 30% utility rebate)	4.7 years
Monthly positive cash flow impact effective day one (with 70% financing)	£3,200
Building GHG reduction	12%