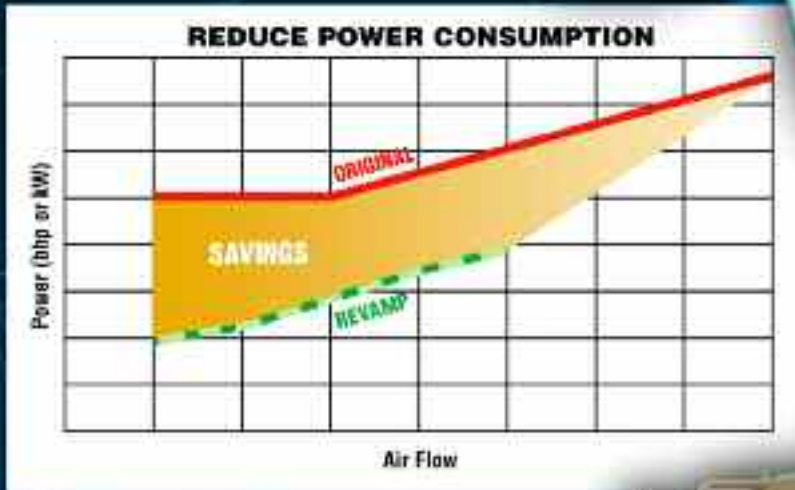
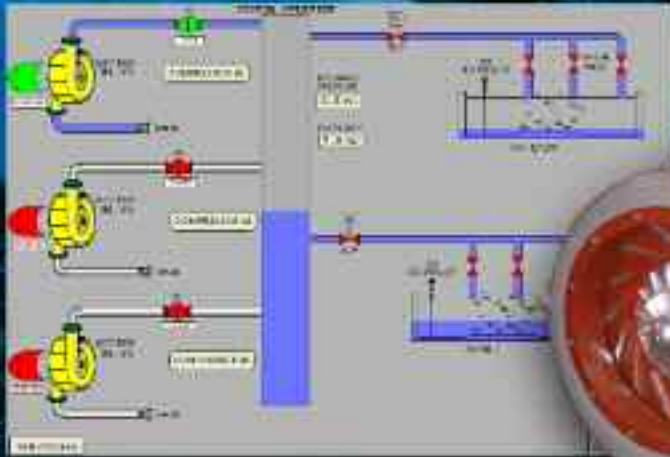




Roots

Blowers, Compressors and Controls

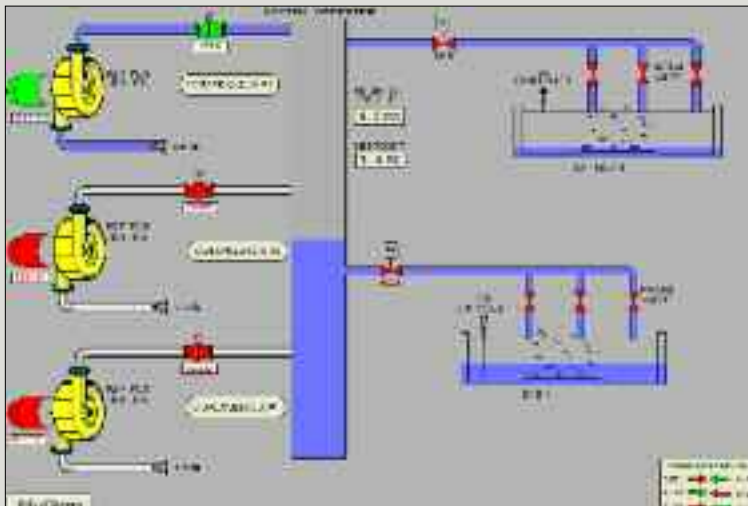


Revamp™ Services



ROOTS® Revamp™ Services offers scalable standard and customized complete mechanical and control solutions to meet your changing system demands, including:

- **On-site blower and aeration system performance audits**
- **Performance warranties**
 - Aeration control precision
 - Power consumption reduction
 - Thorough on-site or factory testing
- **Minimal plant disruption with service coordinated to your schedule**
 - Equipment removal
 - Full system re-installation
 - Factory testing
 - On-site testing
 - Start-up
 - Training



ROOTS® control solutions for your aeration process are state-of-the-art.



Ensuring your plant's optimum Dissolved Oxygen (DO) at minimal energy consumption.



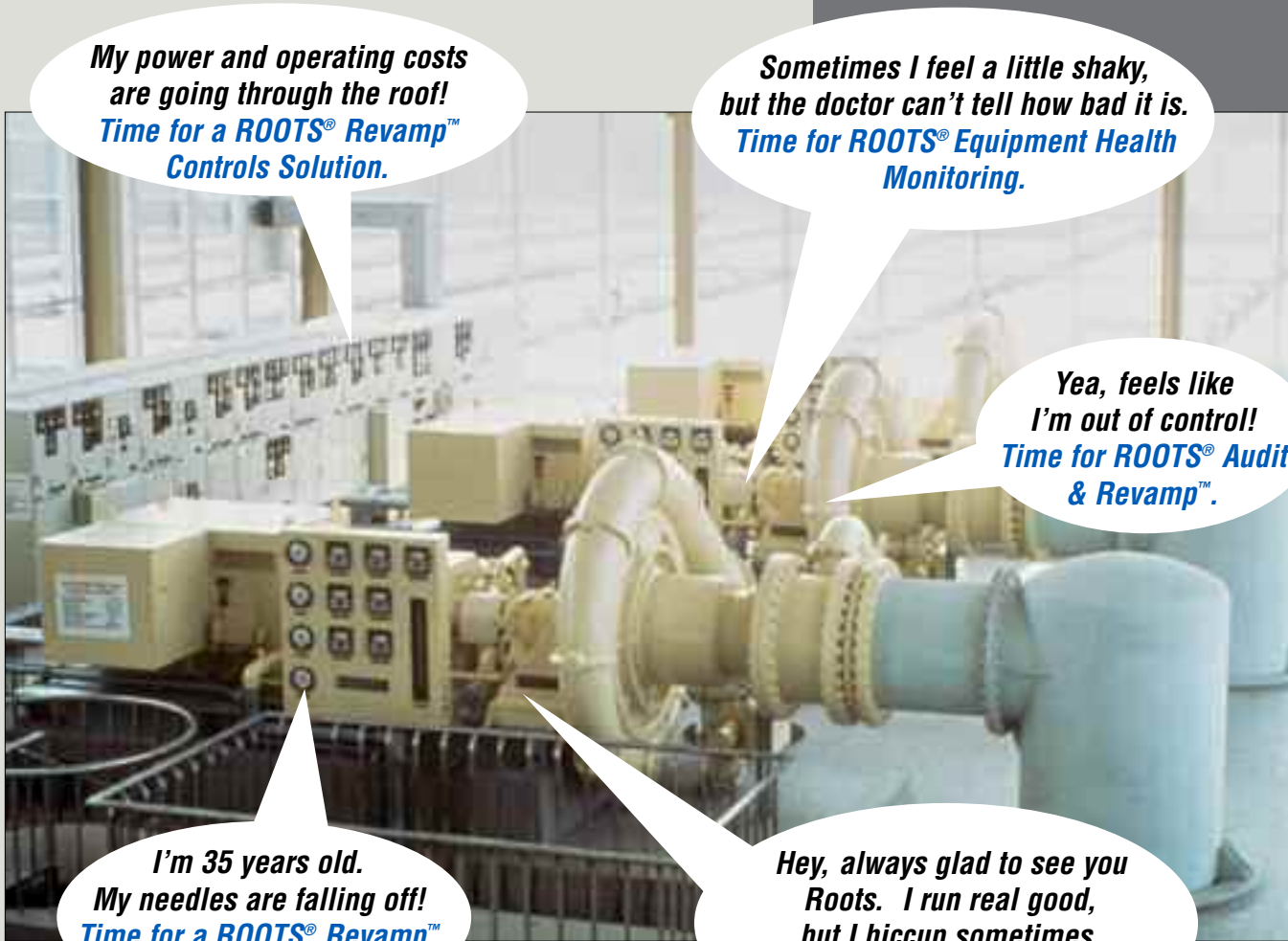
Compressors and blowers can be given extended life with service and modifications to match your plant's evolving needs.

Dresser Roots is the leading provider of aeration solutions for the wastewater industry. With over 150 years of blower experience, Roots continues to maintain its reputation for world-class efficiency, ingenuity, durability and reliability.

In 1931, Roots became the first blower manufacturer to apply positive displacement blowers to the wastewater process. Just five short years later, we were the first manufacturer to apply centrifugal blowers to the process.

Our ongoing history of innovation is exemplified by the latest and most robust control systems for best aeration performance.

This combined expertise is available to your plant with our Revamp™ Services. Let Roots extend your aeration process to match you plant's changing needs at a fraction of the cost and time required for a new plant upgrade.



My power and operating costs are going through the roof! Time for a ROOTS® Revamp™ Controls Solution.

Sometimes I feel a little shaky, but the doctor can't tell how bad it is. Time for ROOTS® Equipment Health Monitoring.

Yea, feels like I'm out of control! Time for ROOTS® Audit & Revamp™.

I'm 35 years old. My needles are falling off! Time for a ROOTS® Revamp™ Controls Panel.

Hey, always glad to see you Roots. I run real good, but I hiccup sometimes. Time for ROOTS® Active Surge Control.

ROOTS® Revamp™ – extending your equipment life at a fraction of the cost and time. There's still more life left in your existing ROOTS® equipment than others have in their new equipment!

10% Power Savings Case Study:

St. Louis, MO

St. Louis' system requirements had changed since the original design and specifications.

A 10% reduction was achieved in their blower annual power consumption by updating the blower's performance to match today's requirements.

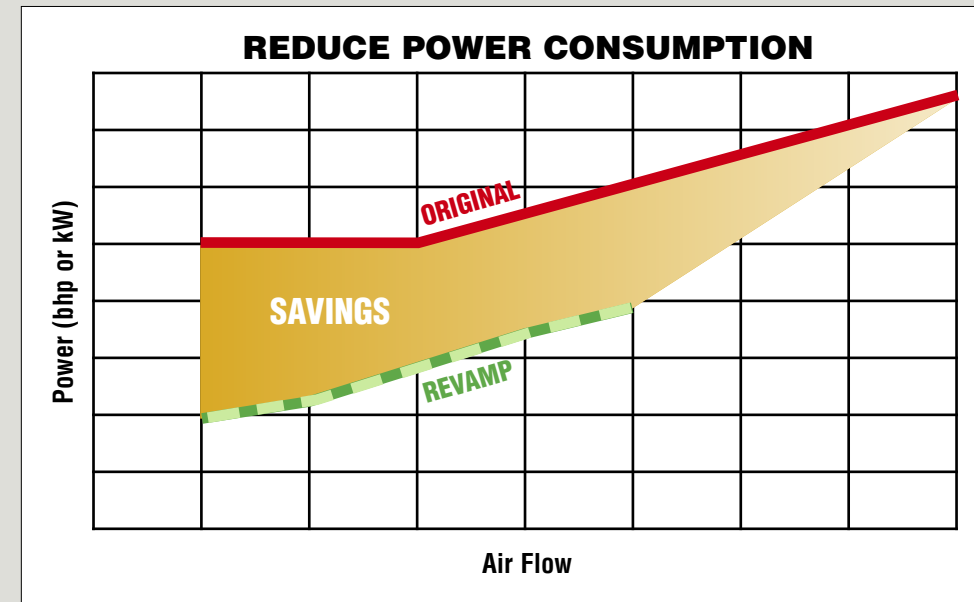
This was realized through a design modification to the blower's impellers.



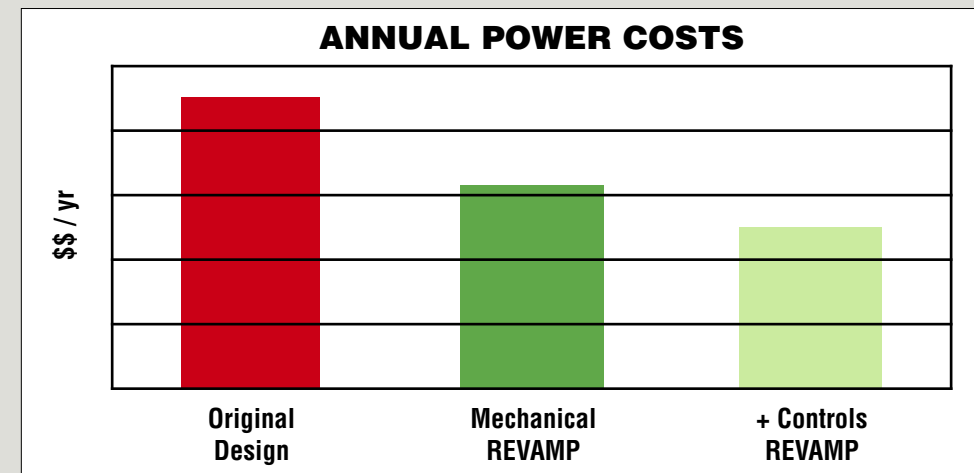
Reduce Power Costs

Your current aeration blower system may be the biggest single opportunity to reduce your power overhead.

When first installed, your aeration blowers were matched for best efficiency at the original performance conditions. Times change, conditions change, demands change... ROOTS® Revamp™ Services looks at your current and projected demands, analyzing and establishing updated best performance requirements for your blowers and your complete aeration control.



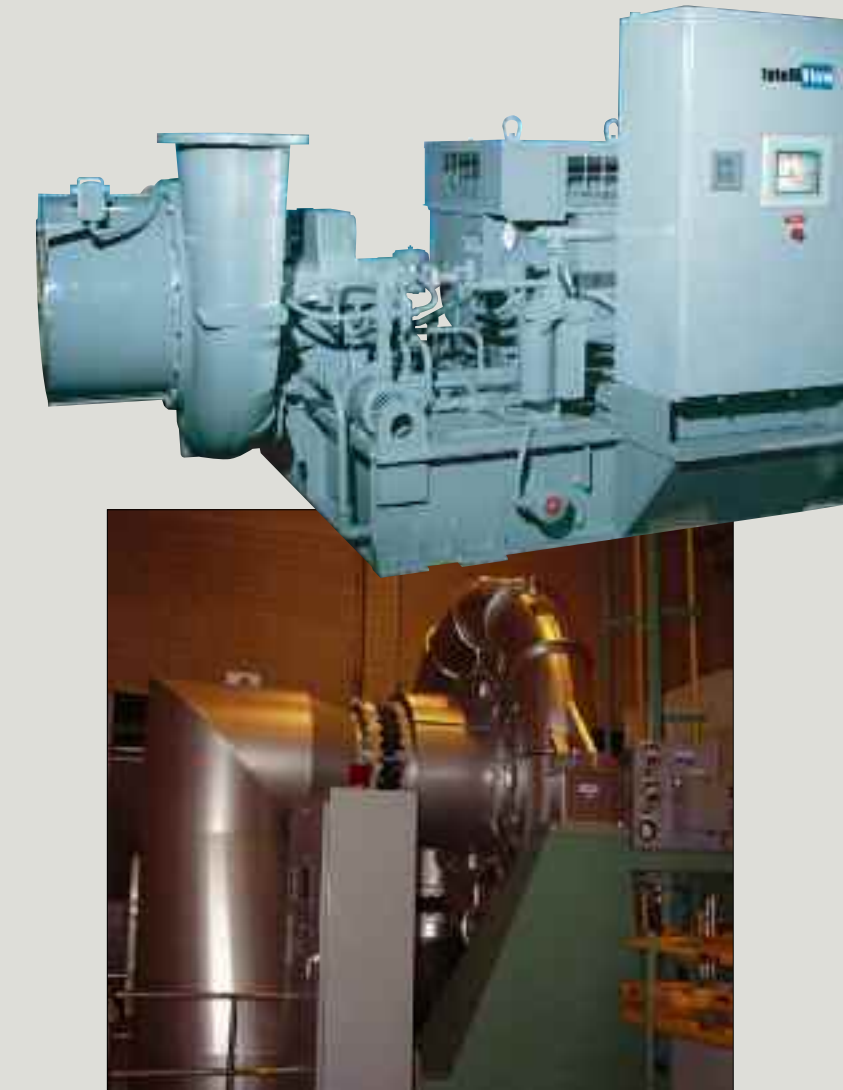
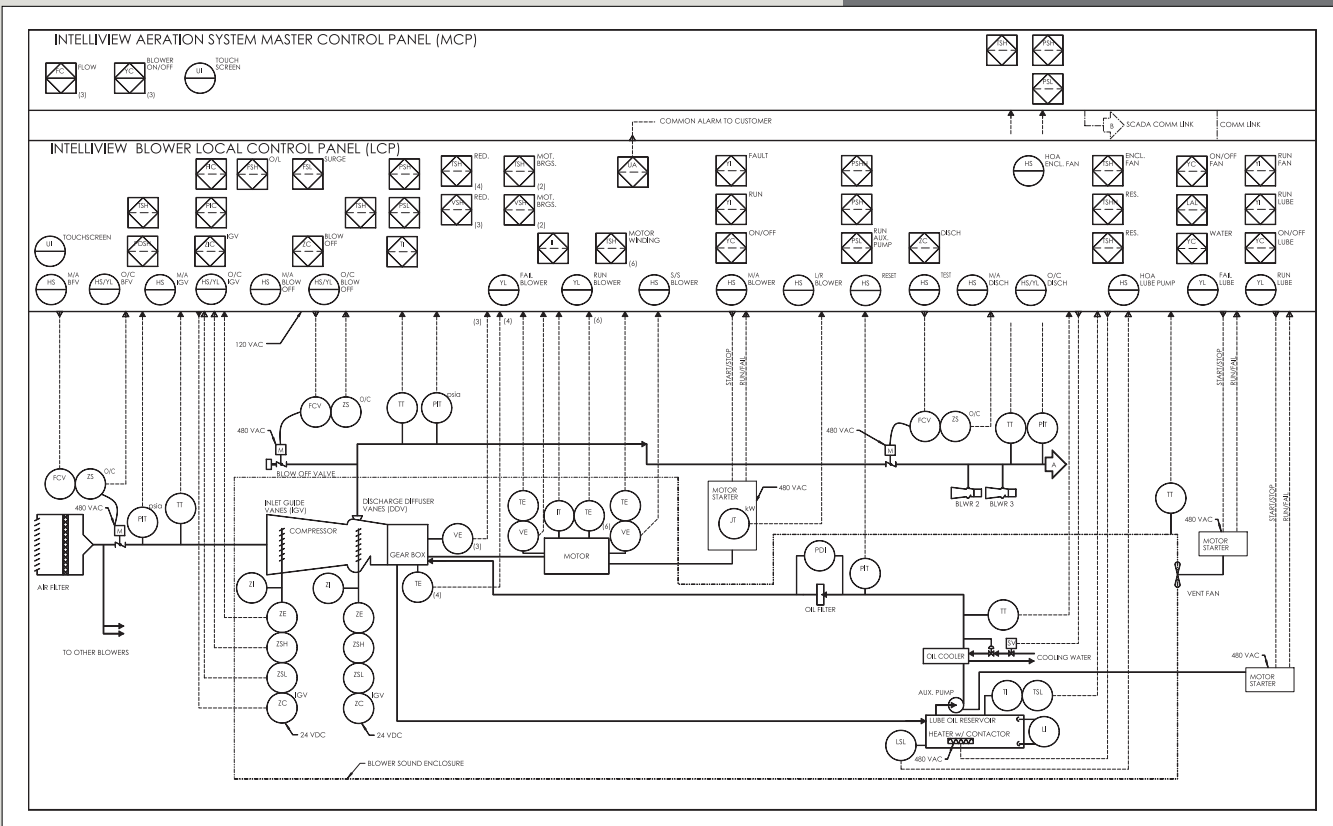
Our analysis establishes the best performance requirements for your aeration system – from blowers to complete aeration controls.



For example – a system originally designed for 10 psig but now running at 8 psig may use 6% more power than if the blower had a Mechanical Revamp and was running with a redesigned 8 psig impeller.

Scalable Aeration Controls

ROOTS® Revamp™ Solutions can extend the life of your aeration equipment by years at a fraction of the cost and time of a new plant upgrade. Our systems can be scaled to meet your precise requirements by taking advantage of our standard or customized control solutions.



Sole Source System Responsibility ...one stop shopping:

- IntelliView® Process Controller
- Control Panels and Algorithms
- HMIs
- DO Transmitters
- Flow Control Valves
- Air Flow Transmitters
- Variable Frequency Drives (VFDs)
- Motor Starters
- Pressure Transmitters
- Equipment Health Monitoring
- Turnkey Solutions
- Commissioning
- Training
- Minimal Plant Disruption
- Service Contracts
- Performance Warranties

CONTROL OPTIONS

		Large PD	VSMS	H-Multistage	IGC	OIB
IntelliView, HMI, Control Panel	IntelliView HMI Screen size	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	IntelliView only - /w deduct	4"	4"	10.1"	10.1"	10.1"
	Roots Service Start-up	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
Blower	Pressure Inlet	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD
	Pressure Outlet	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Temperature Inlet	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Temperature Outlet	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Vibration Velocity/Accel	STANDARD	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL
	Vibration ProSTANDARD	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD
	Tacho - RPM	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Temperature Bearings RTD	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD
	Pressure Barometric	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Inlet Guide Vanes	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
Motor	Vibration	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Current	OPTIONAL	STANDARD	STANDARD	STANDARD	STANDARD
	Temperature Bearings RTD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
Others	VFD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Starter	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Dissolved Oxygen	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Flow	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Temperature Oil Lube	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD
	Temperature Enclosure	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Alarm Horn	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
E-stop	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	
Valves	Unloading & Relief	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Inlet Valve	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Discharge Valve	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
Cooling Water Valve	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	
Software	Equipment (Sensor) Health	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	DO control	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Spin Timer / Rolling Restart	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Fault Log	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Flow/Pressure Control	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Schedule Flow - 4 daily	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Alams - shut downs	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Air flow Monitoring	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Stop Motion Detection	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Run Time Monitoring	STANDARD	STANDARD	STANDARD	STANDARD	OPTIONAL
	Hour Meter	STANDARD	STANDARD	STANDARD	STANDARD	OPTIONAL
	Blocked Filter Detection	STANDARD	STANDARD	STANDARD	STANDARD	OPTIONAL
	Barometric Pressure	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	AuSTANDARD lube pump	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD
	Enclosure Vent Fan	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Pressure Inlet	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Pressure Outlet	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Pressure Differential	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Temperature Inlet	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Temperature Outlet	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD
	Temperature Differential	STANDARD	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Surge Control	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
	Surge Protection	OPTIONAL	STANDARD	STANDARD	STANDARD	STANDARD
	Inlet Guide Vanes posn. Reading	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD
	Lube Monitoring	OPTIONAL	OPTIONAL	STANDARD	STANDARD	STANDARD

*VSMS: Vertically Split Multi-Stage centrifugal blower *H-Multistage: Horizontally Split Multi-Stage centrifugal blower

About Dresser, Inc.

Dresser, Inc. is a leader in providing highly engineered infrastructure products for the global energy industry. The company has leading positions in a broad portfolio of products including air and gas handling equipment, valves, actuators, meters, switches, regulators, piping products, natural gas-fueled engines, and retail fuel dispensers and associated retail point of sale systems. Leading brand names within the Dresser portfolio include Dresser

Roots™ blowers, compressors and controls, Wayne® retail fueling systems, Waukesha® natural gas-fired engines, Masoneilan® control valves, Mooney® regulators, Consolidated® pressure relief valves, and Roots® rotary gas meters. It has manufacturing and customer service facilities located strategically worldwide and a sales presence in more than 100 countries. The company's website can be accessed at www.dresser.com

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