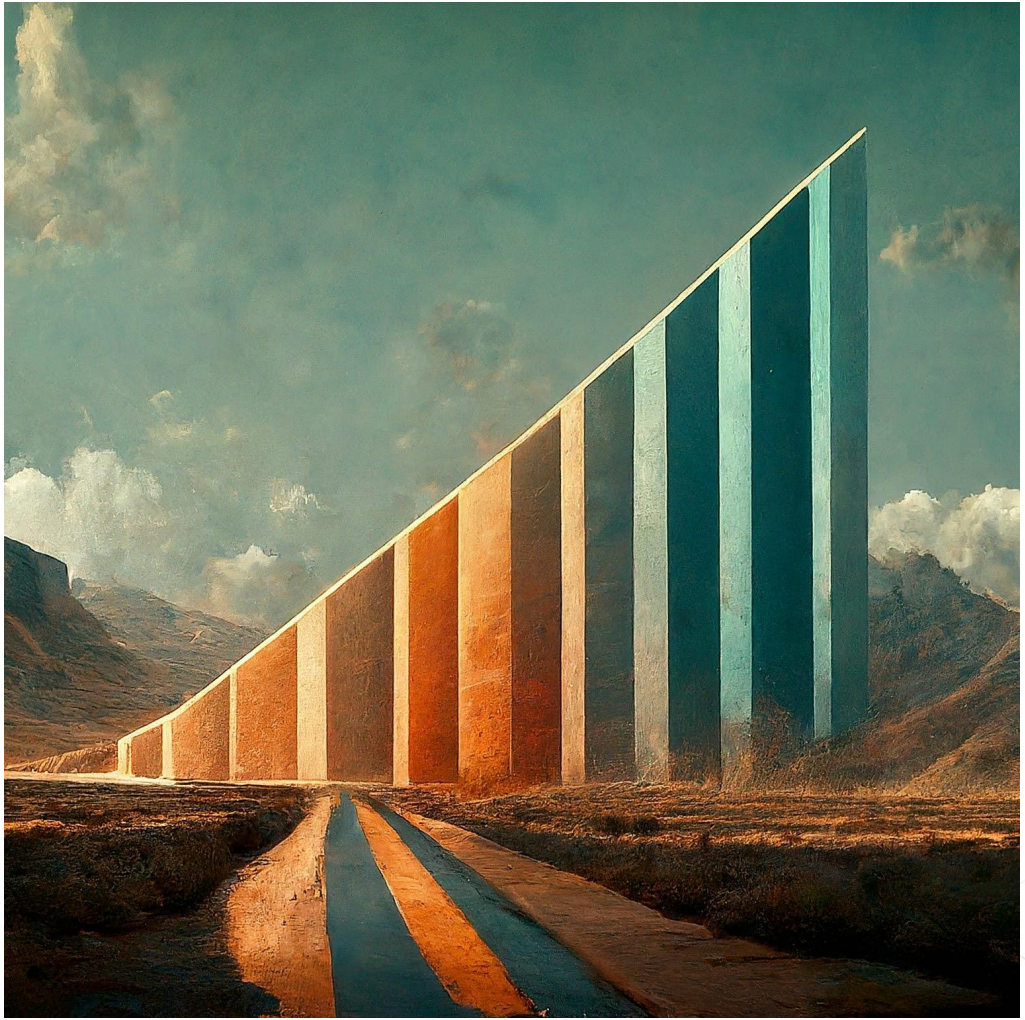
ECOGATE®

Maximizing ROI

The Energy-Saving Dust Collection System



Purpose of the Session

Define it

Show me the money

Who uses it?

What will it cost?

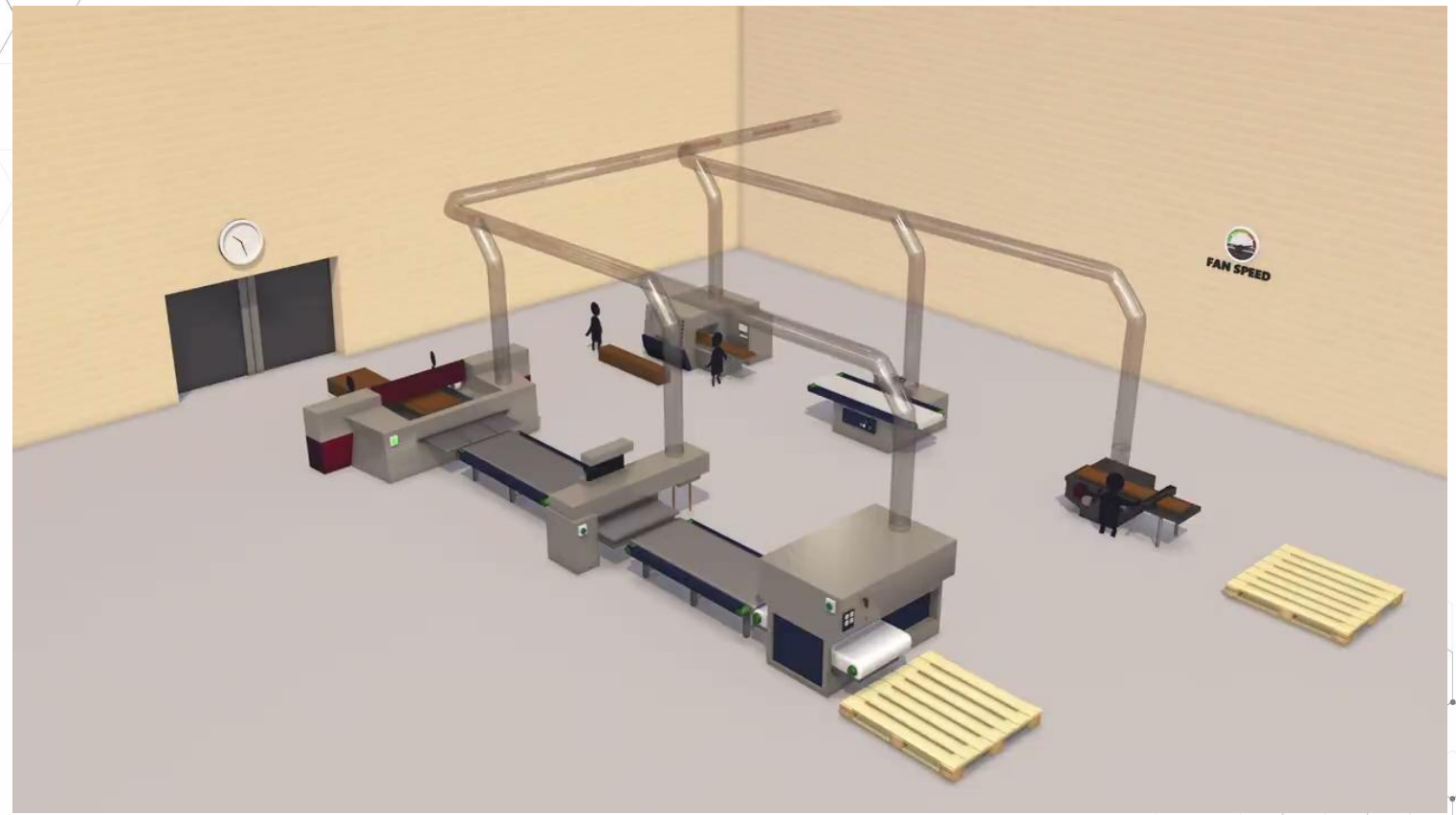
How can I pay for it?

Who is **Ecogate**?

Est. 1997

Manufactures the world's best-selling **On-Demand Control System** for Industrial Ventilation

Introductory **Video**



Lets **Begin**

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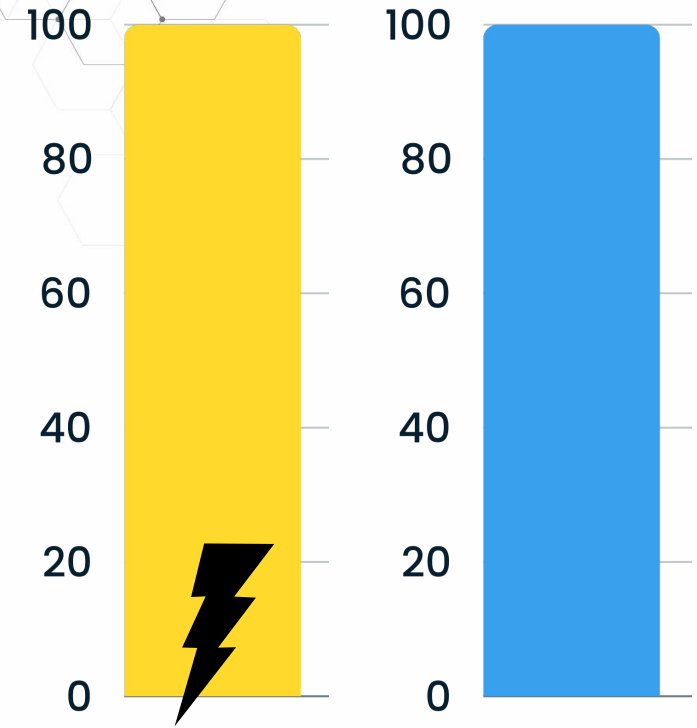
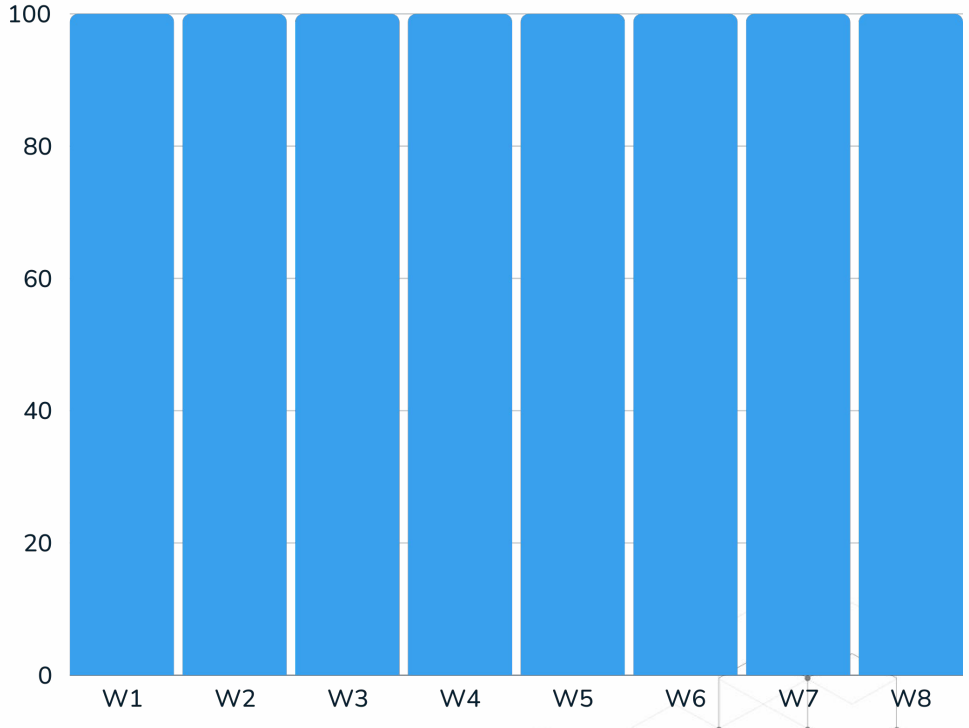
Dust Collection System - Initial Setup



Fan Power

Main Duct

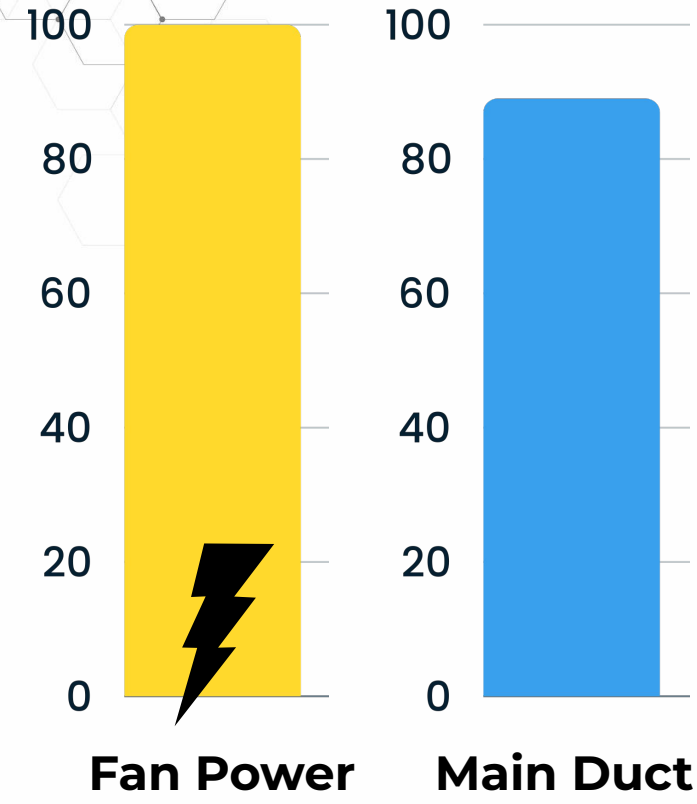


Workstations

100 = Minimum Conveying Velocities

100 = Drop Air Velocities

Dust Collection System - Inevitable Add Ons



Fan Power

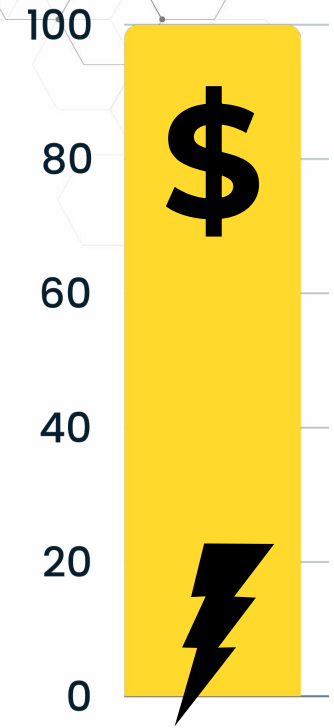
Main Duct

Workstations

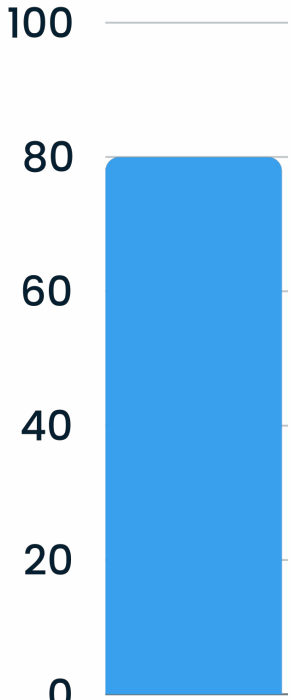
100 = Minimum Conveying Velocities

100 = Drop Air Velocities

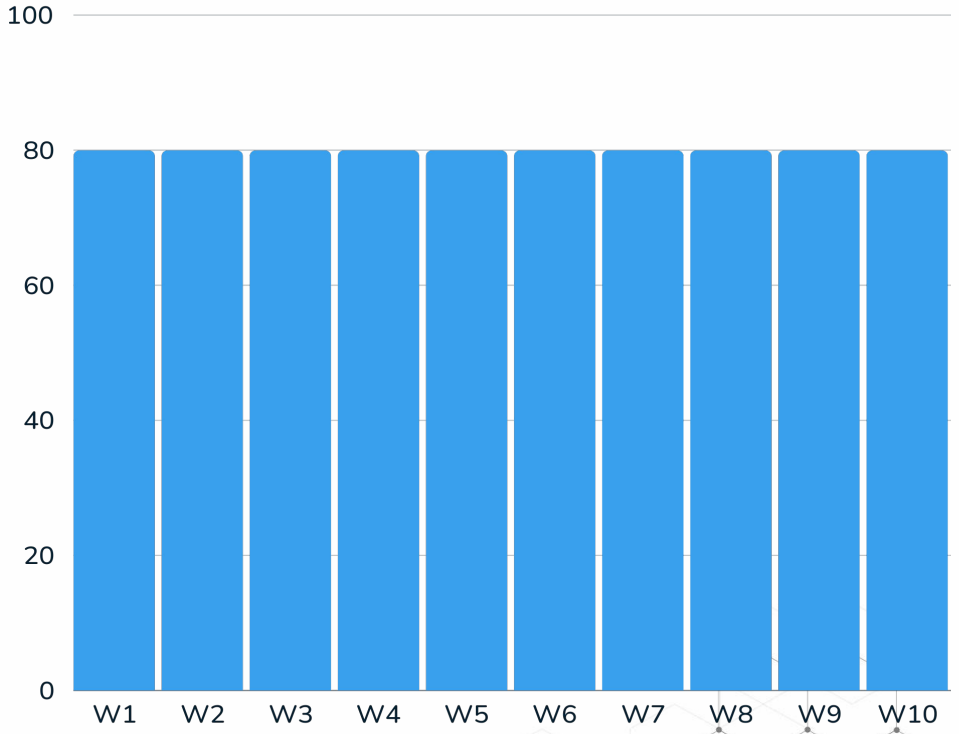
Dust Collection System - Today



Fan Power



Main Duct

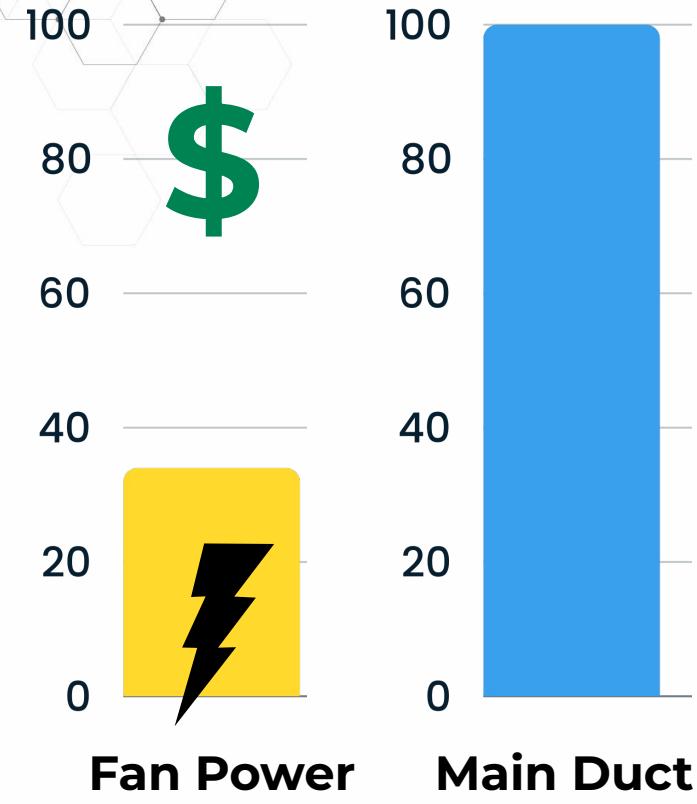


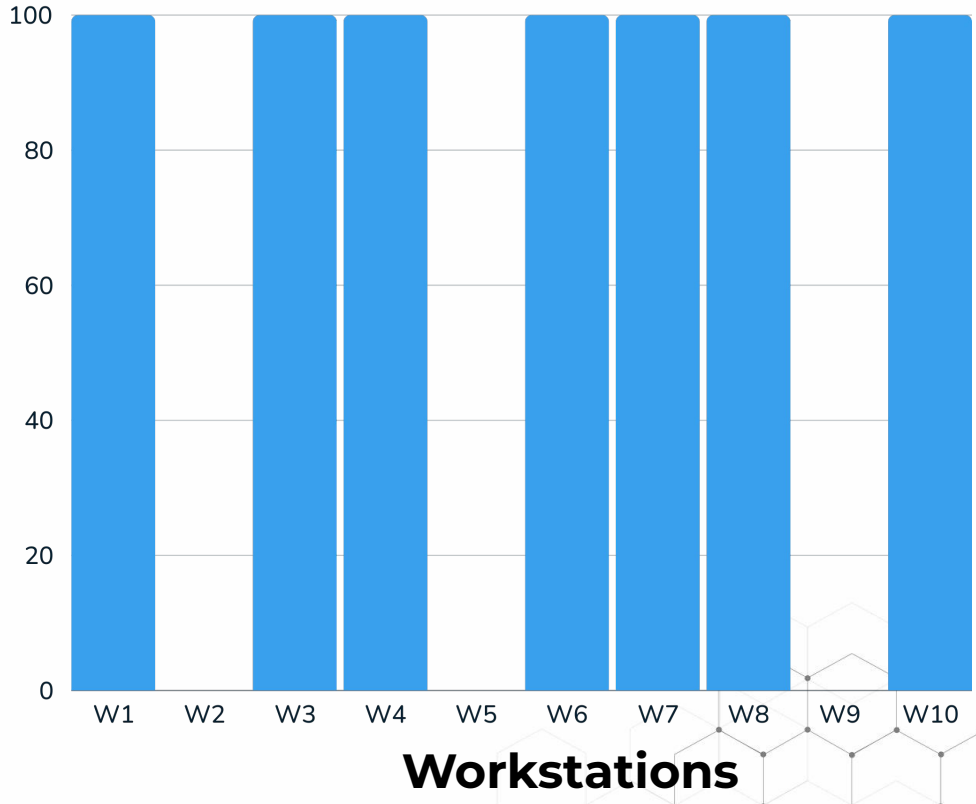
Workstations

100 = Minimum Conveying Velocities

100 = Drop Air Velocities

On-Demand Dust Collection System



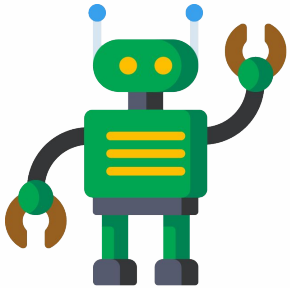


100 = Minimum Conveying Velocities

100 = Drop Air Velocities

Electricity Reduction, Minimum Airflow + **Other Benefits**

Automation
Minimum Conveying Velocities
Increased Capacity
Noise Reduction
Insightful Analytics
Lower Carbon Footprint
Improved Safety

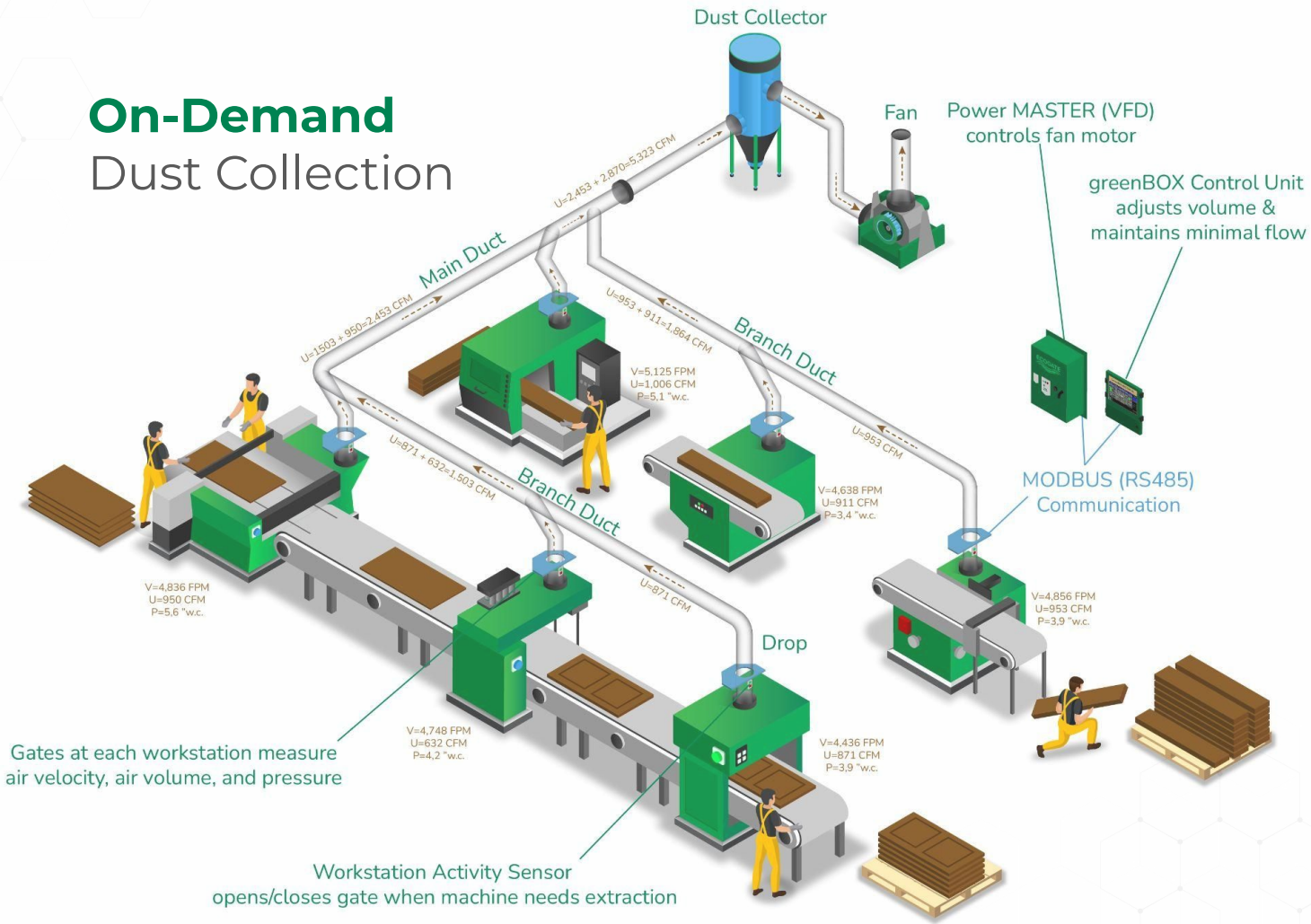


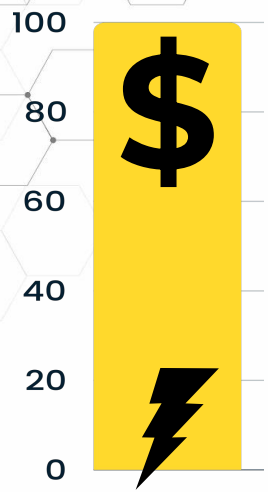
What is **On-Demand** Dust Collection?

ECOGATE®

Traditional
Dust Collection

On-Demand
Dust Collection

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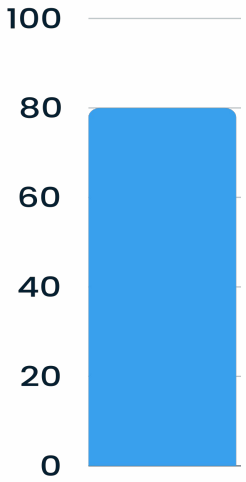
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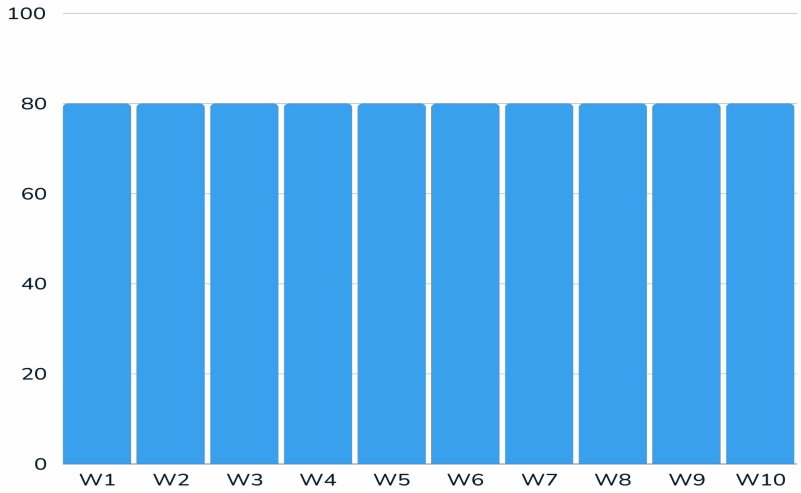
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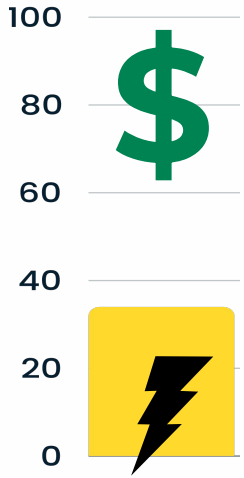
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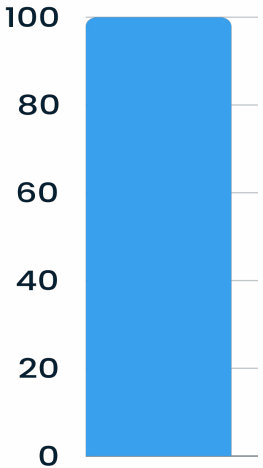
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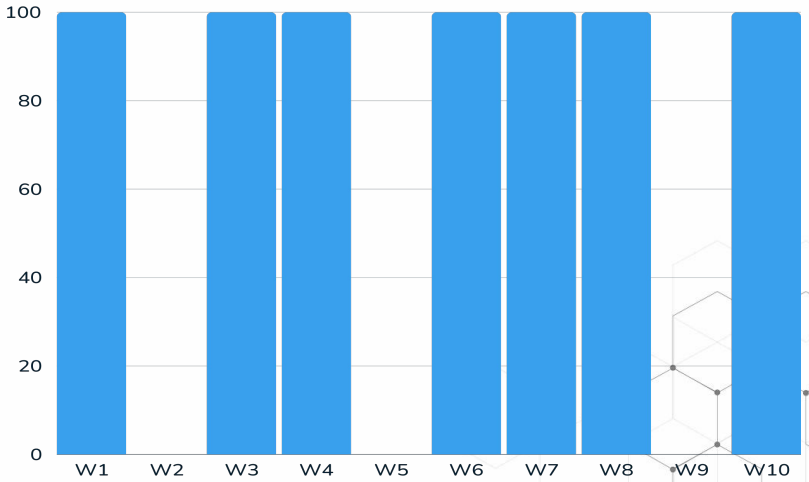
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Active Workstation **Utilization**

ECOGATE®

Active Workstation **Utilization**

The amount of time a machine is producing dust requiring dust collection.

NOT when the machine is turned on.

Measured in % of shift.

Dry Contact or PLC Programming

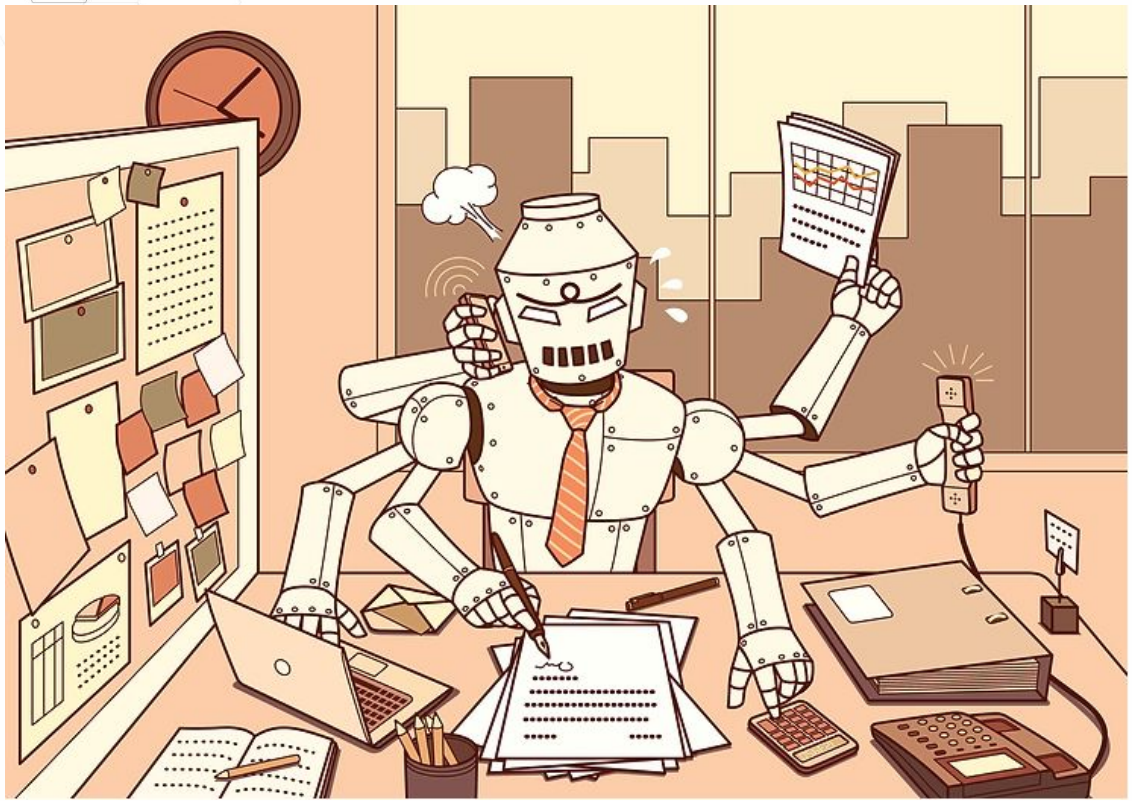
Workstation **Activity** Sensors

Volt Sensors

Current Sensor

Laser Sensor

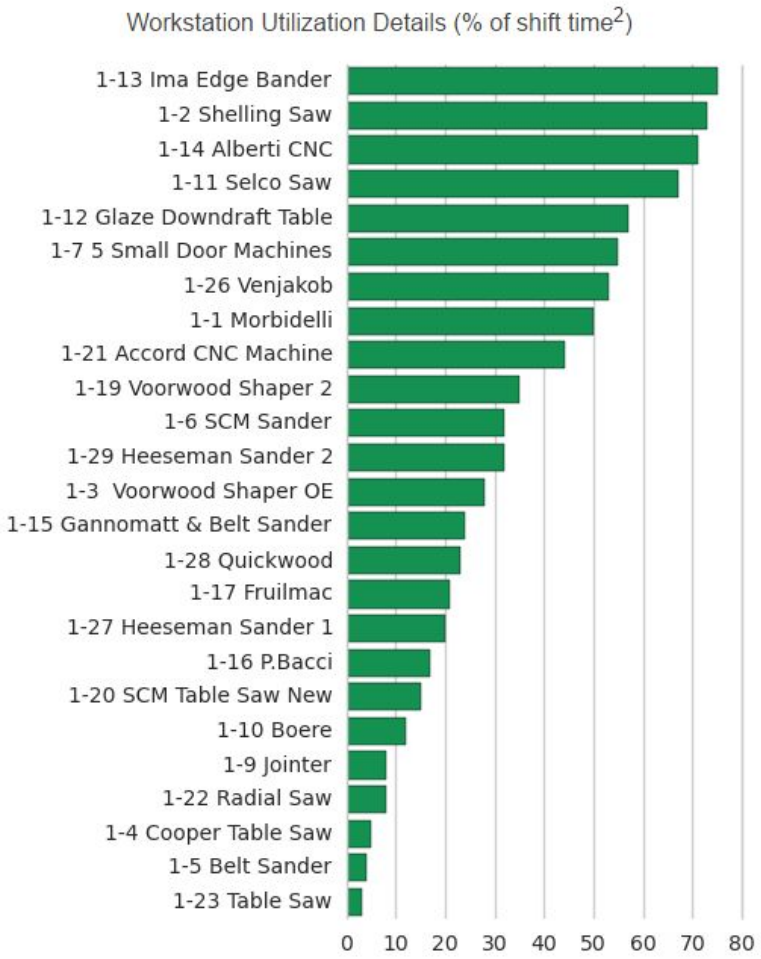
Active Workstation **Utilization**



+80%

Average

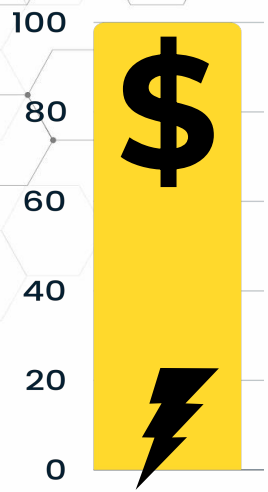
Measuring **Active** Workstation **Utilization**



Workstation **Active** Utilization

50%

Average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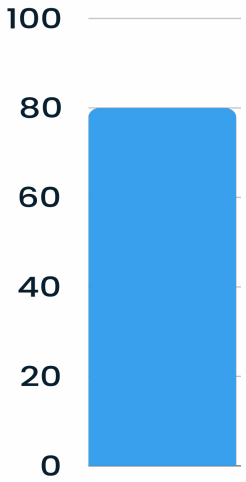
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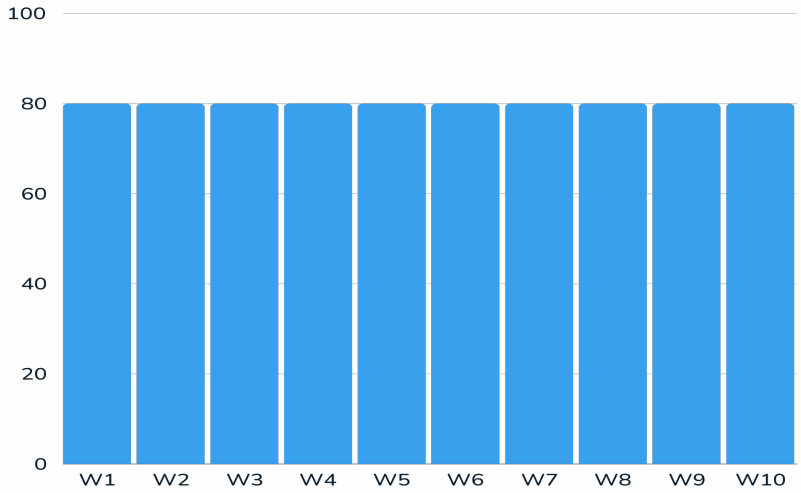
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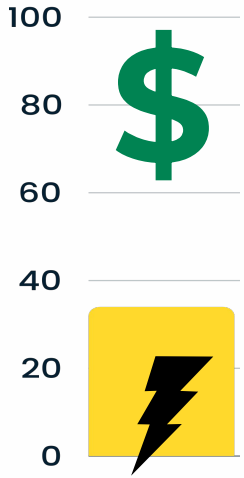
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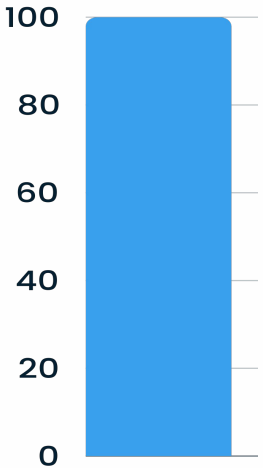
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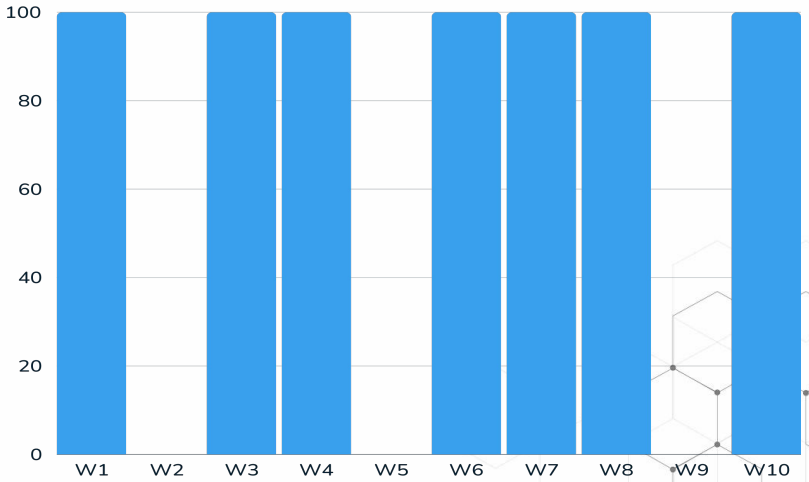
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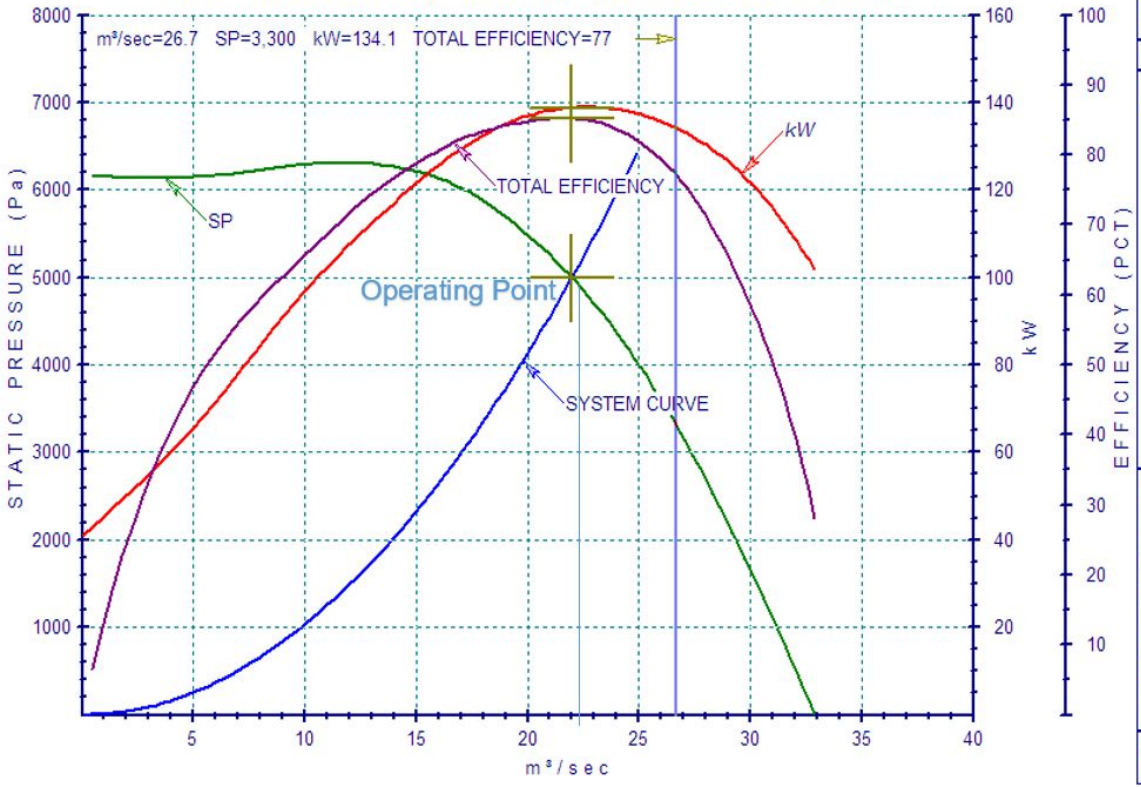
113

Customer:	Fan Tag:
Job ID:	Model: 402 BCS
STANDARD, no modifications of WITH, no modification of DIAMETER	

TWIN CITY FAN AND BLOWER PERFORMANCE CURVE



m³/sec	22
SP:	5,000 Pa
RPM:	1961
kW:	138.84
Outlet Velocity:	25.4 m/sec
Density:	1.201 kg/m³

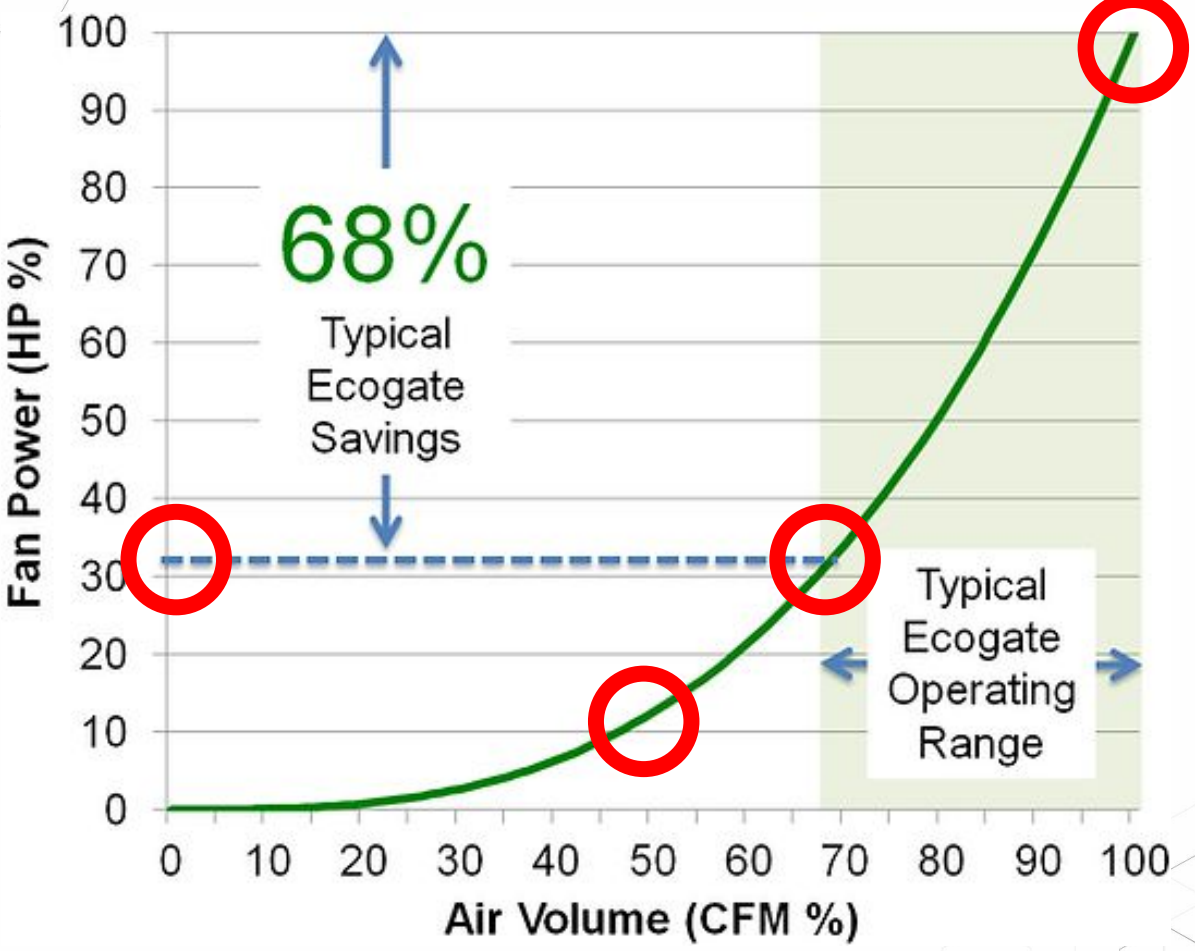
Corrected for: Compressibility

Inlet Sound Power

Octave	Level
1	118
2	112
3	107
4	108
5	108
6	107
7	103
8	95

in db re 10^{-12} watts

24.11.2013



Power Consumption ∝ (Air Volume)^3

Power Consumption ∝ (Air Volume)^3

0.343 ≈ (0.7)^3

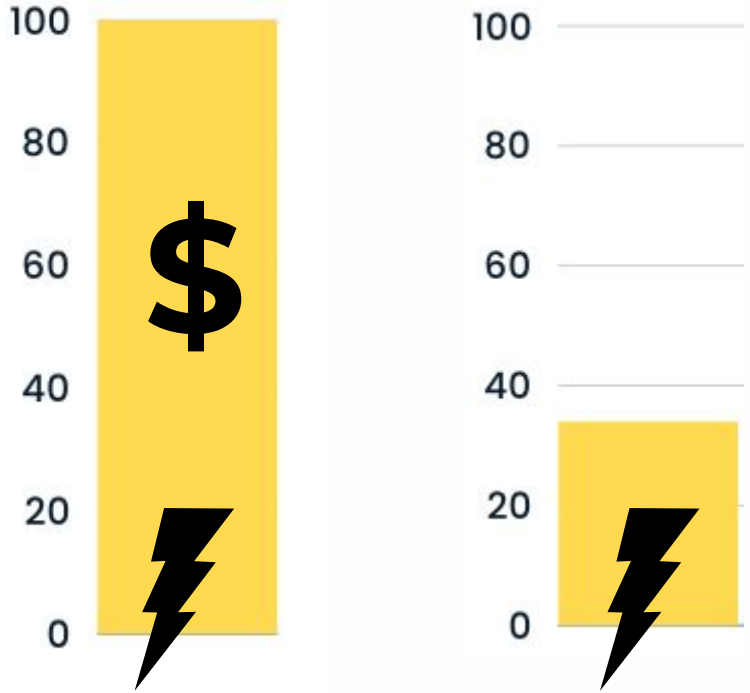
(at 70% Air Volume)

Affinity Fan Law Says..

Reduce CFM by 10% = 27% SAVINGS

Reduce CFM by 25% = 68% SAVINGS

Reduce CFM by 50% = 87.5% SAVINGS



Fan Power Usage

34.3%


Donaldson.
Donaldson.

Questions Thus Far?

ECOGATE®

Dynamic Capacity

ECOGATE®

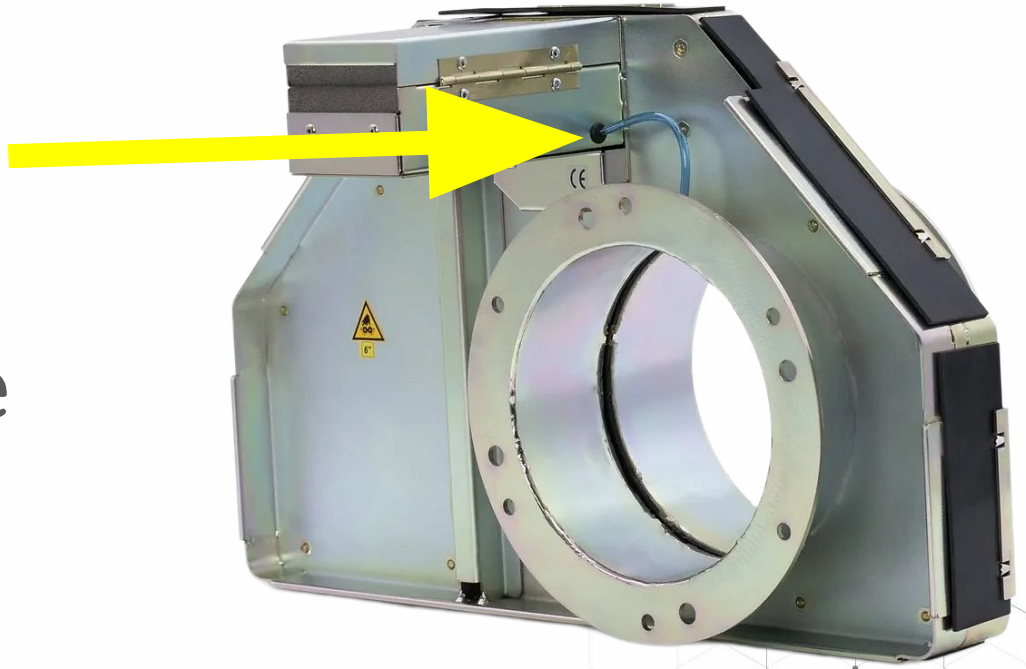
Smart Gates

Monitors:

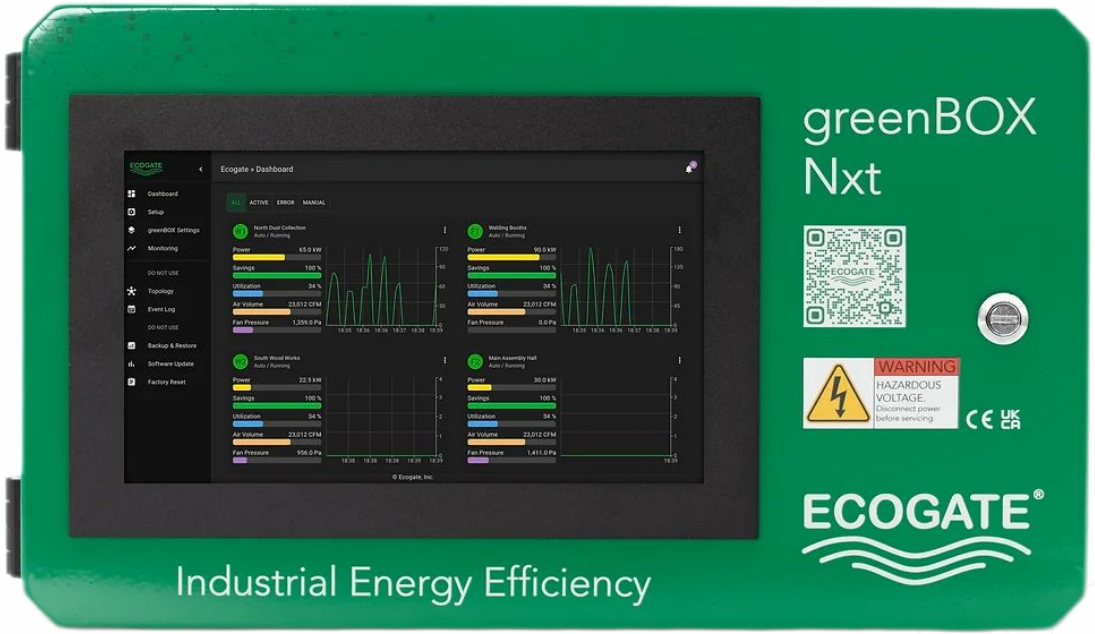
Air Volume

Air Pressure

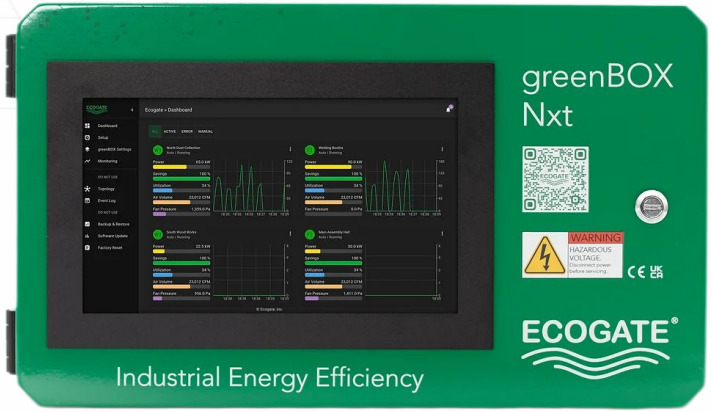
Air Velocity

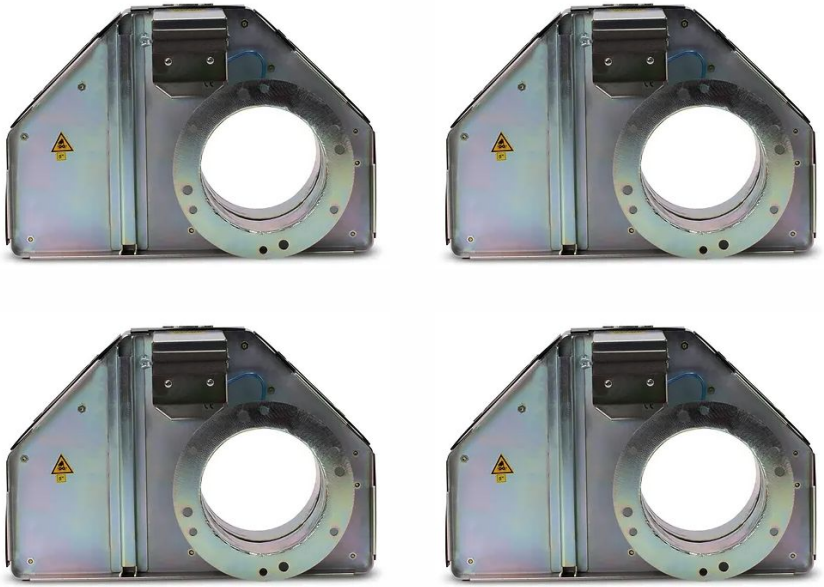


Intelligent Controller



Maintaining **Minimum Conveying** Velocities



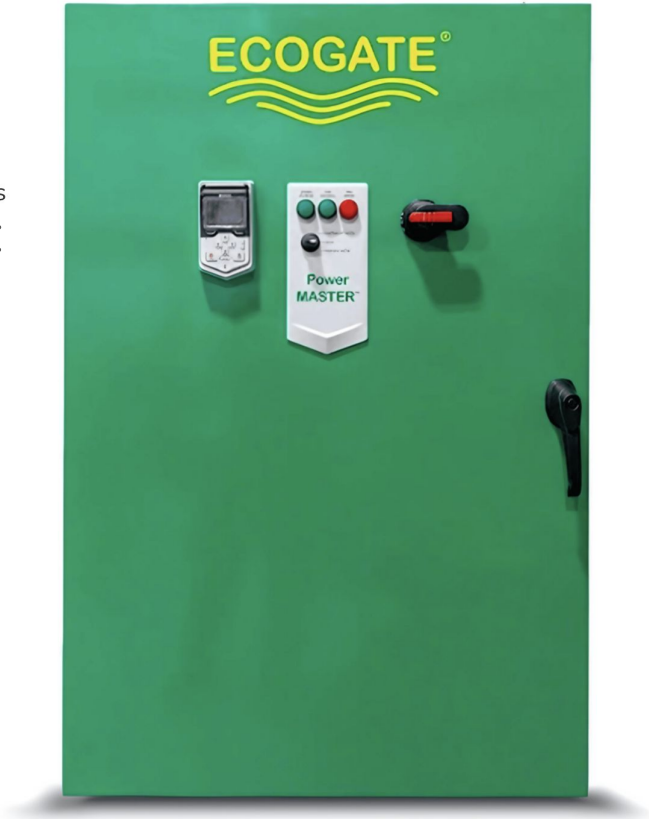


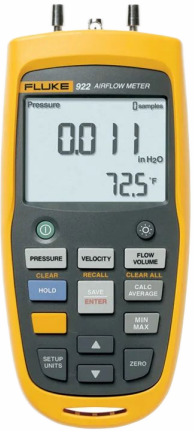
Sum of Gate Air Volumes

Averaging **Air Velocity** Sensor

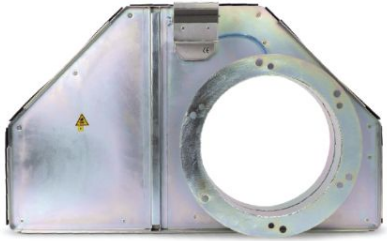
There's **Always** a Way

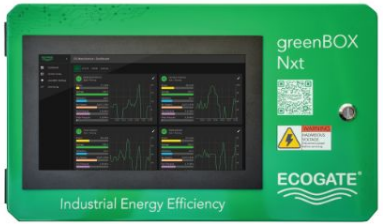
- Fan Power
- Fan Total Static Pressure
- Fan Efficiency





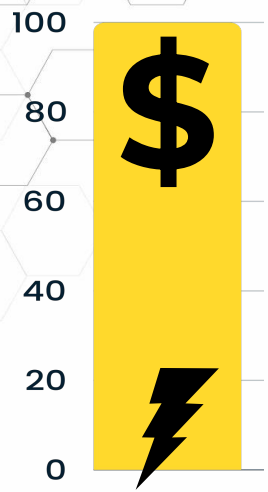
Ecogate On-Demand System





Any dust collector error stops fan

1. Operator starts cutting
2. Sensor becomes active
3. Gate processor transmits sensor info
4. greenBOX opens gates, calculates fan speed
5. VFD starts fan and dust collector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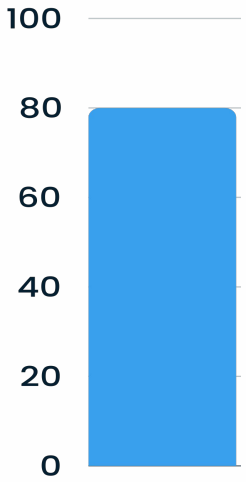
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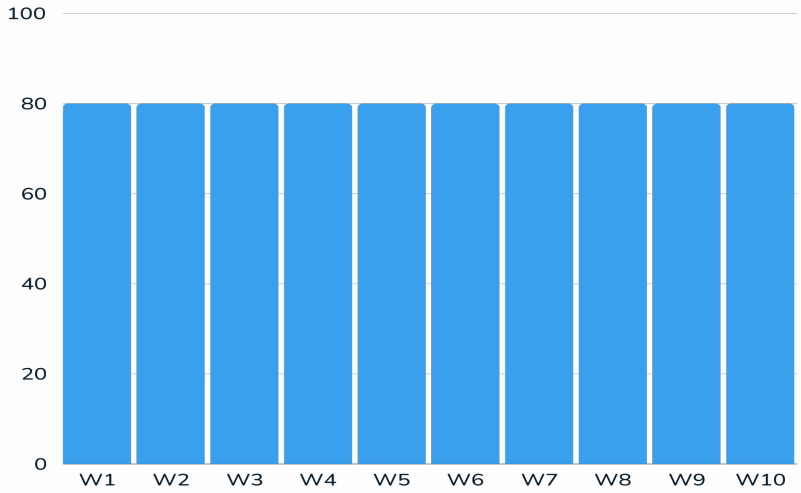
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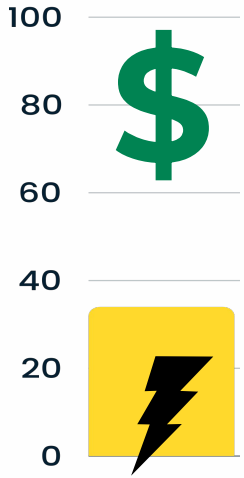
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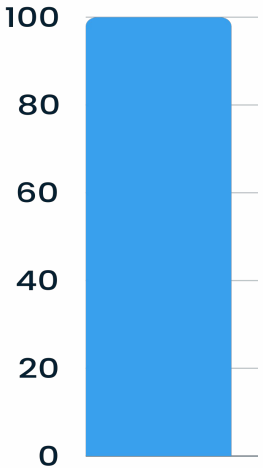
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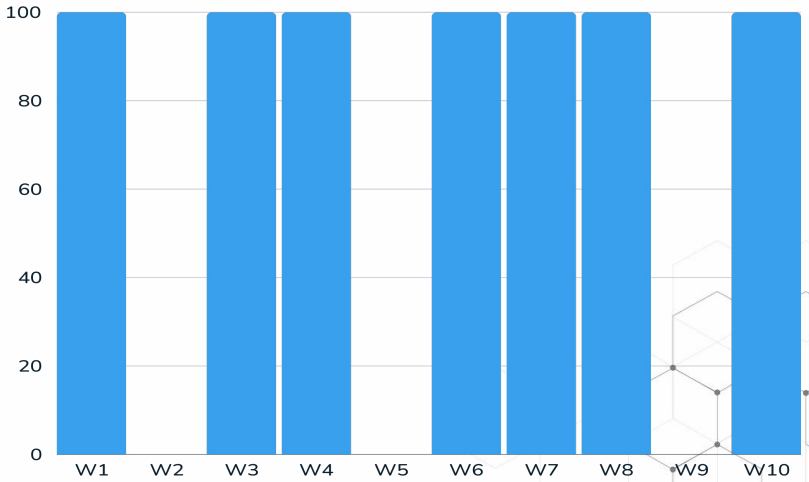
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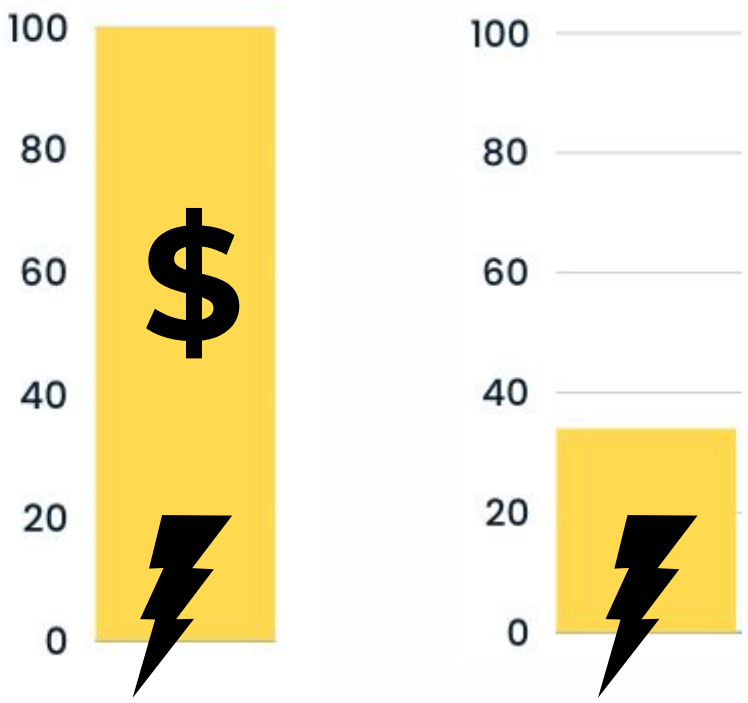
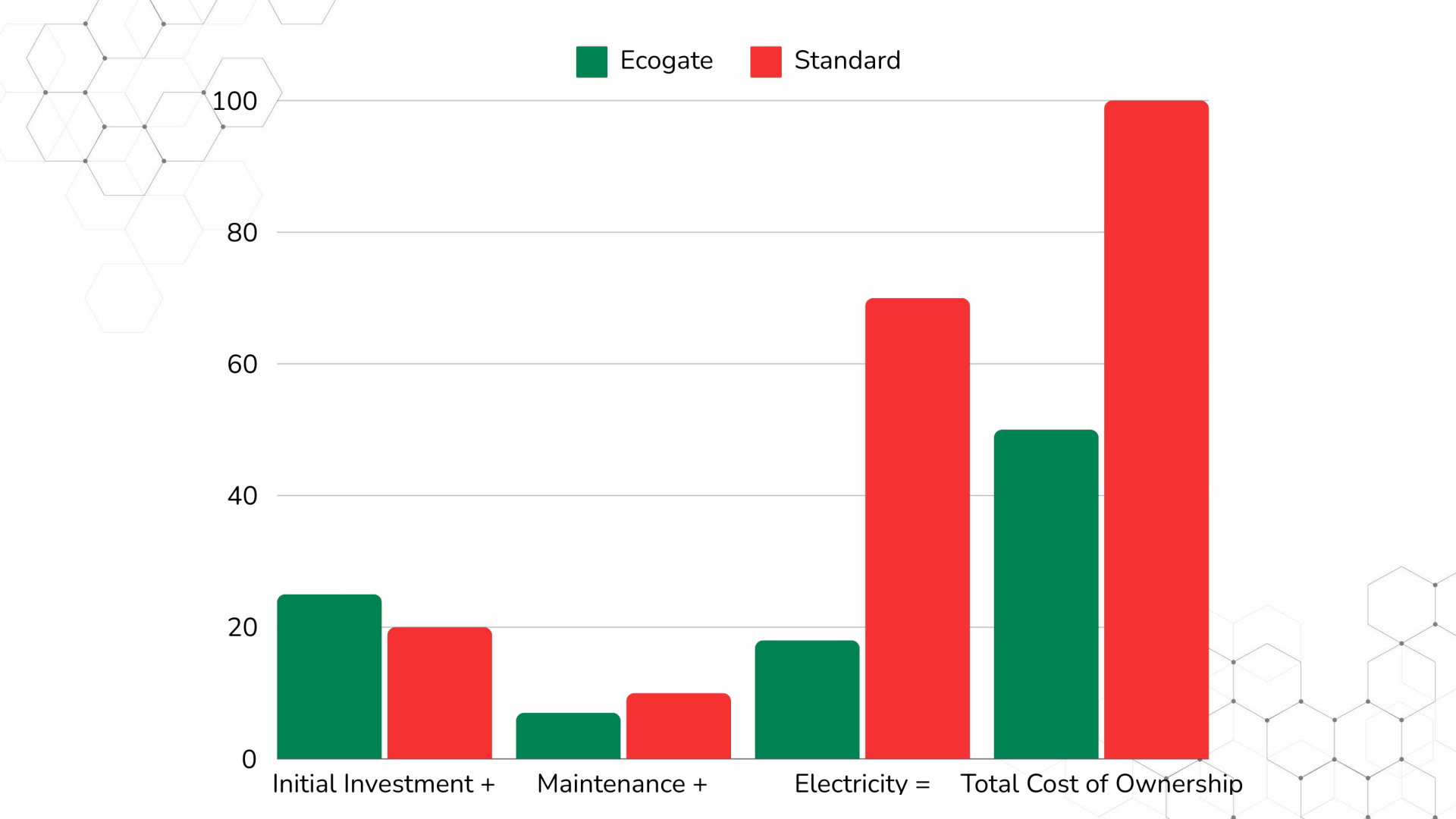


Fan Power Usage

Saving 65.7% /month = ROI


Ecogate
Standard
100
80
60
40
20
0
Initial Investment +
Maintenance +
Electricity =
Total Cost of Ownership

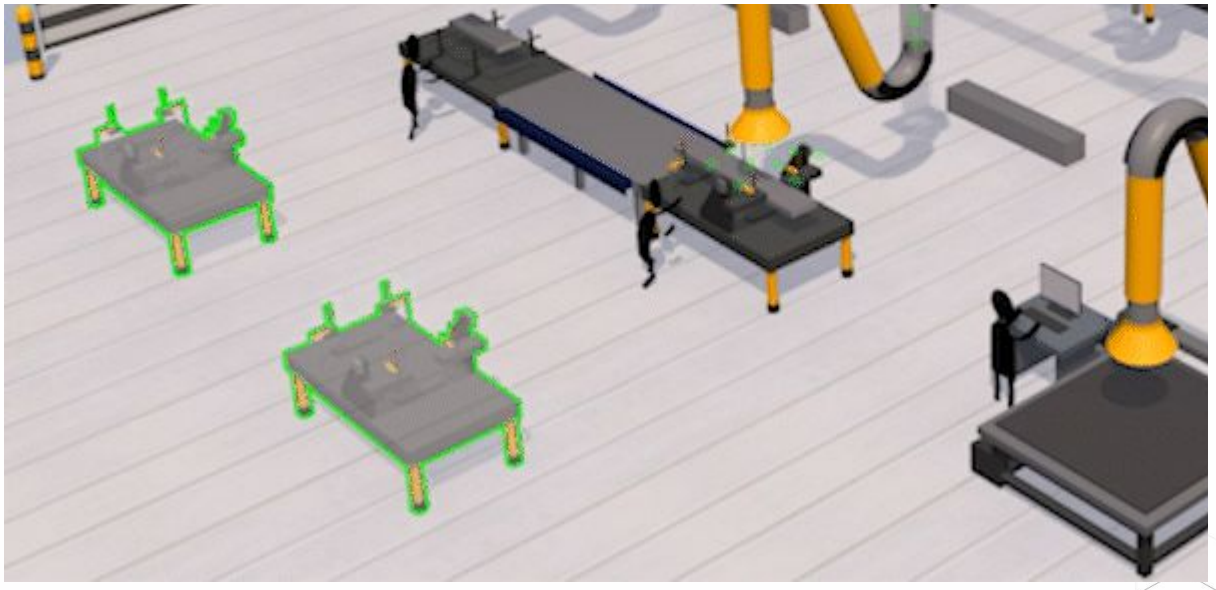
Questions Thus Far?

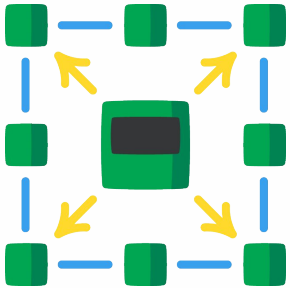
ECOGATE®

The Other **Benefits**

ECOGATE®

The **Other Benefits** - Increased Capacity

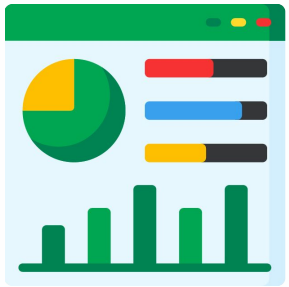


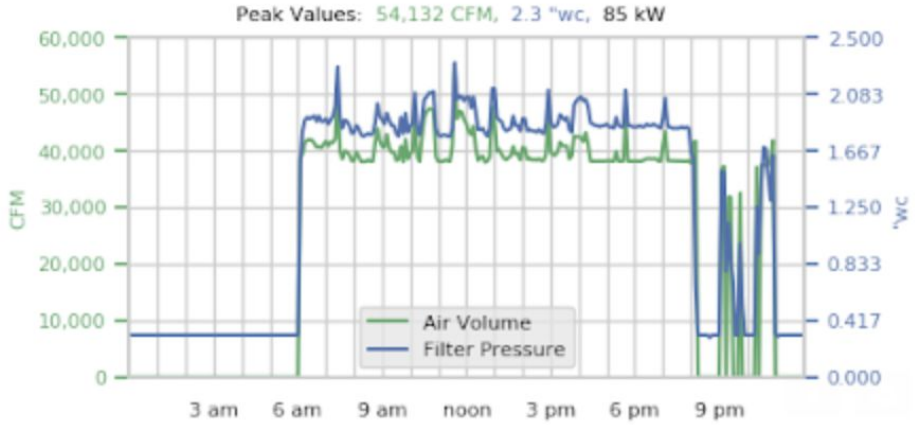


The **Other Benefits** - Noise Reduction

Data **Analytics**

Daily Reports

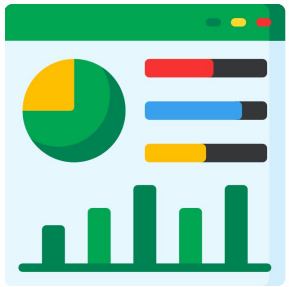


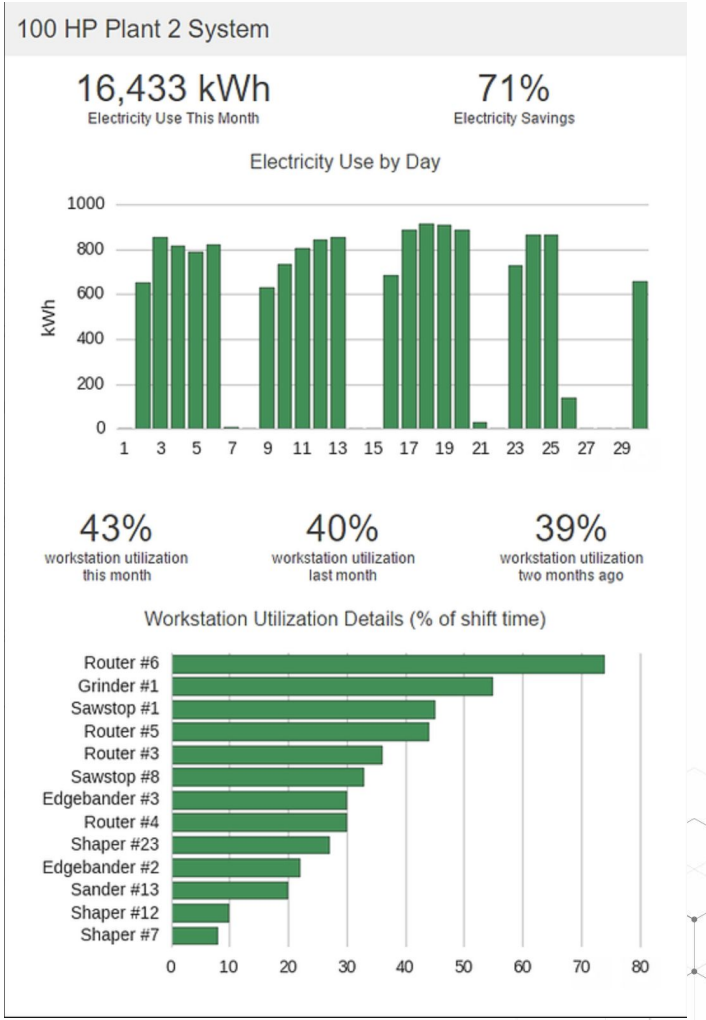


64 kW Avg. Fan Motor Load	976 kWh Total Energy Used	42% Energy Savings
35,963,026 Total Air Volume (in cubic feet)	3,194 FPM Avg. Main Duct Air Velocity	40,140 CFM Avg. Main Duct Air Volume
10% Avg. Workstation Utilization	4,841 FPM Avg. Drop Air Velocity	15:11:40 Fan Run Time
12.2 "w.c. Avg. Fan Total Pressure		1.8 "w.c. Avg. Filter Pressure

Data **Analytics**

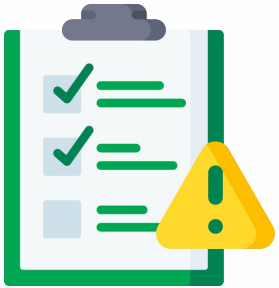
Monthly Reports





Lower **Carbon Footprint**

Improved **Safety**



On-Demand Dust Collection is **Good**

ECOGATE®

Purpose of the Session

✓Define it

✓Show me the money

Who uses it?

What will it cost?

How can I pay for it?

Shutler Cabinets

Moundsville, WV

On the road to $1M in savings

ECOGATE®

Shutler Cabinets
Moundsville, WV

“You don’t really have to do anything. It just runs, it’s just there everyday saving you money. I wish everything ran as smooth as that [Ecogate System] does” - Chris Williams, Shop Foreman

Andersen Door Factory,
Bayport, MN

Over $1M saved each year

ECOGATE®

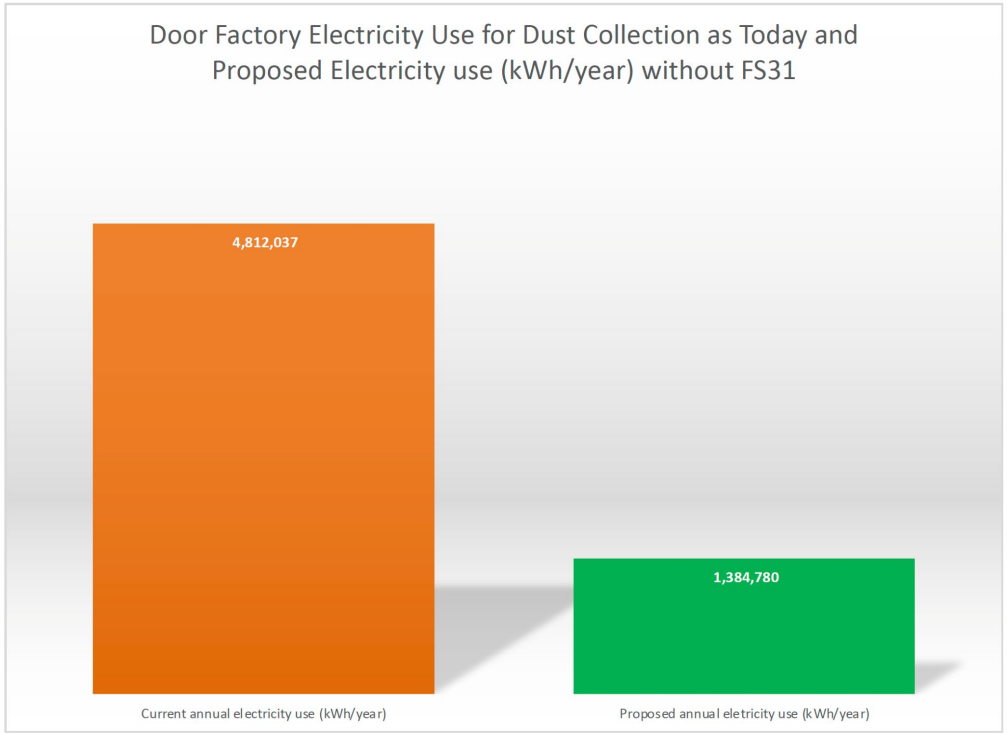
Andersen Windows, Bayport, Minnesota

Door Factory Filter Systems FS29, FS30, FS31, FS42, FS32

- 200+ drops
- 2 factory levels
- Winter Mode Kit

Electricity Savings for **Andersen Windows**

Savings = 3,5 mil. kWh per year in one factory



Purpose of the Session

✓Define it

✓Show me the money

✓Who uses it?

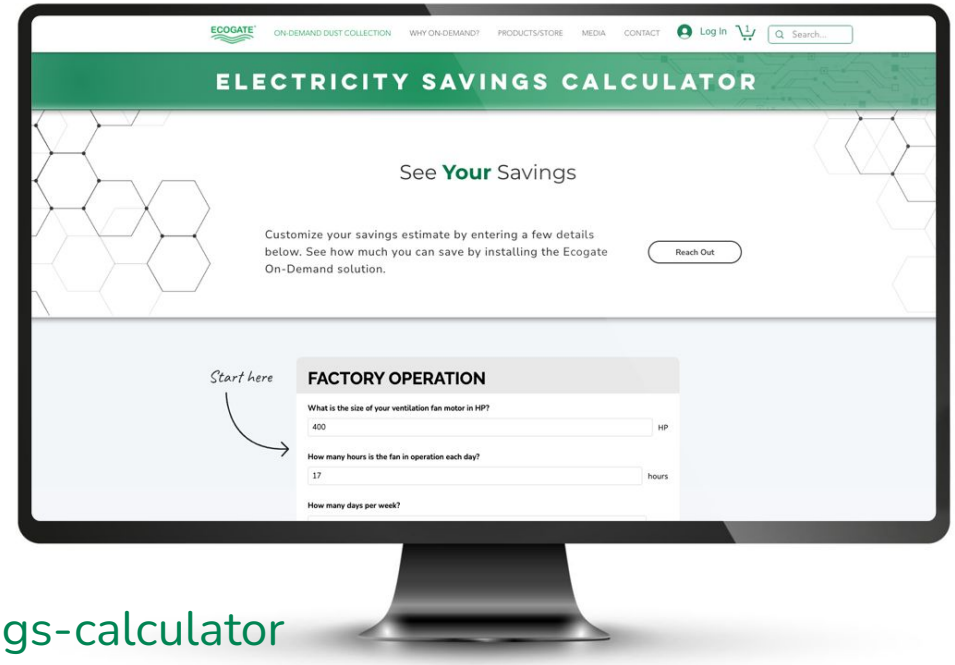
What will it cost?

How can I pay for it?

Calculating the Cost of an **On-Demand Control System**

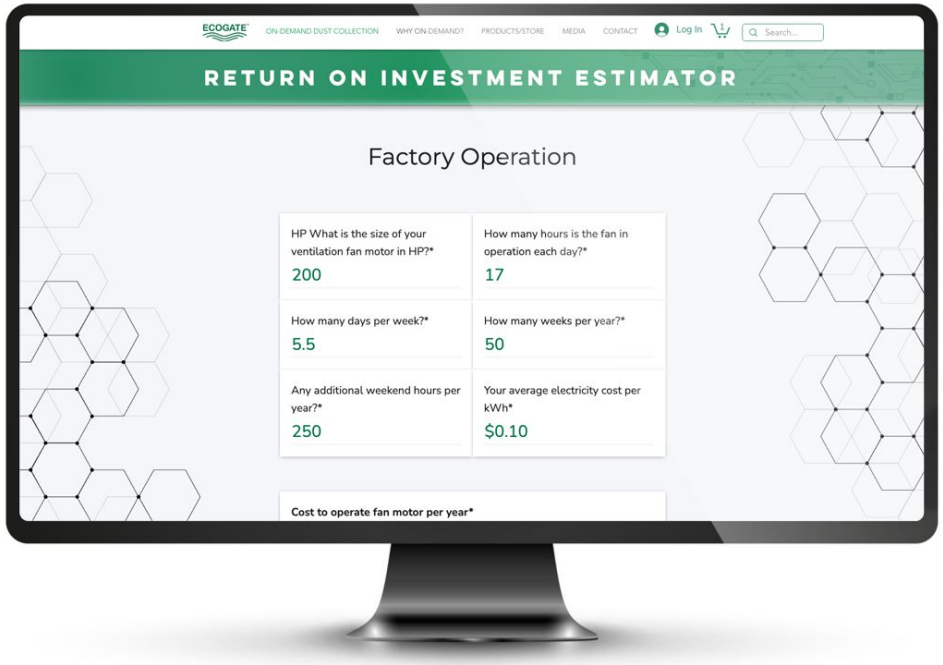
ECOGATE®

Electricity **Savings** Calculator



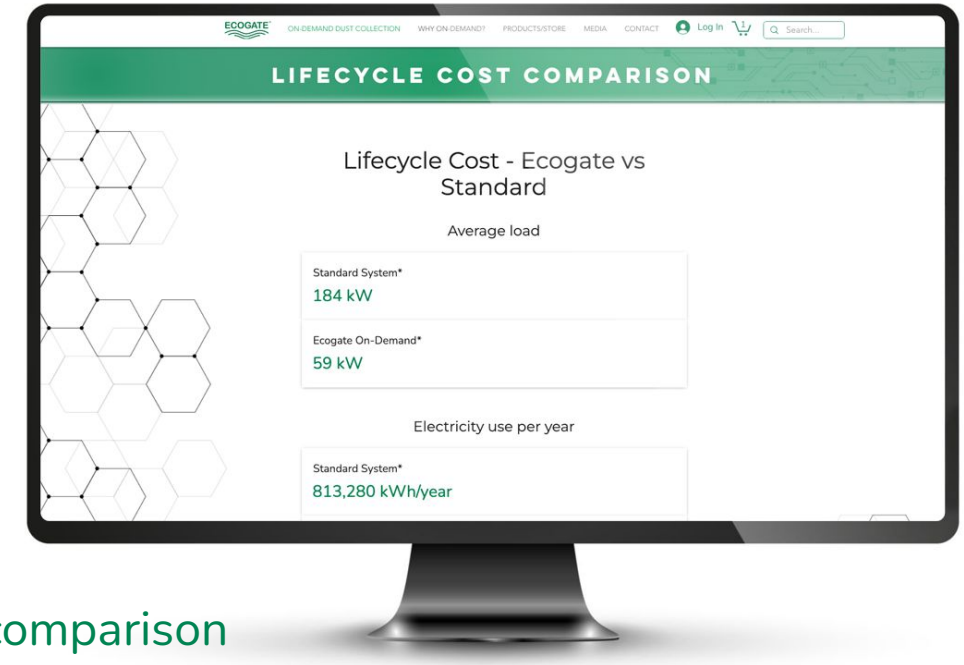
ecogate.com/electricity-savings-calculator

Return on **Investment** Estimator



ecogate.com/roi-estimator

Lifecycle **Cost** Comparison



ecogate.com/lifecycle-cost-comparison

How much does an **On-Demand Control System** Cost?

ECOGATE®

System **Core Components**

greenBOX Control Units - 72, 144 & 288 gates

Smart Gates - 2” - 26”

Workstation
Activity
Sensors

Power
Master
VFD

Installation **Components**

Ecogate Sensor Cable

Ecogate Master Cable

Standard Angle Flanges

QuickFit Options

Standard Angle Flanges

Flange-to-**QF Adapters**

Questions Thus Far?

ECOGATE®

Installation of an **On-Demand Control System**

ECOGATE®

Installation of a **Power Master VFD**

Ecogate's Variable Frequency Drive

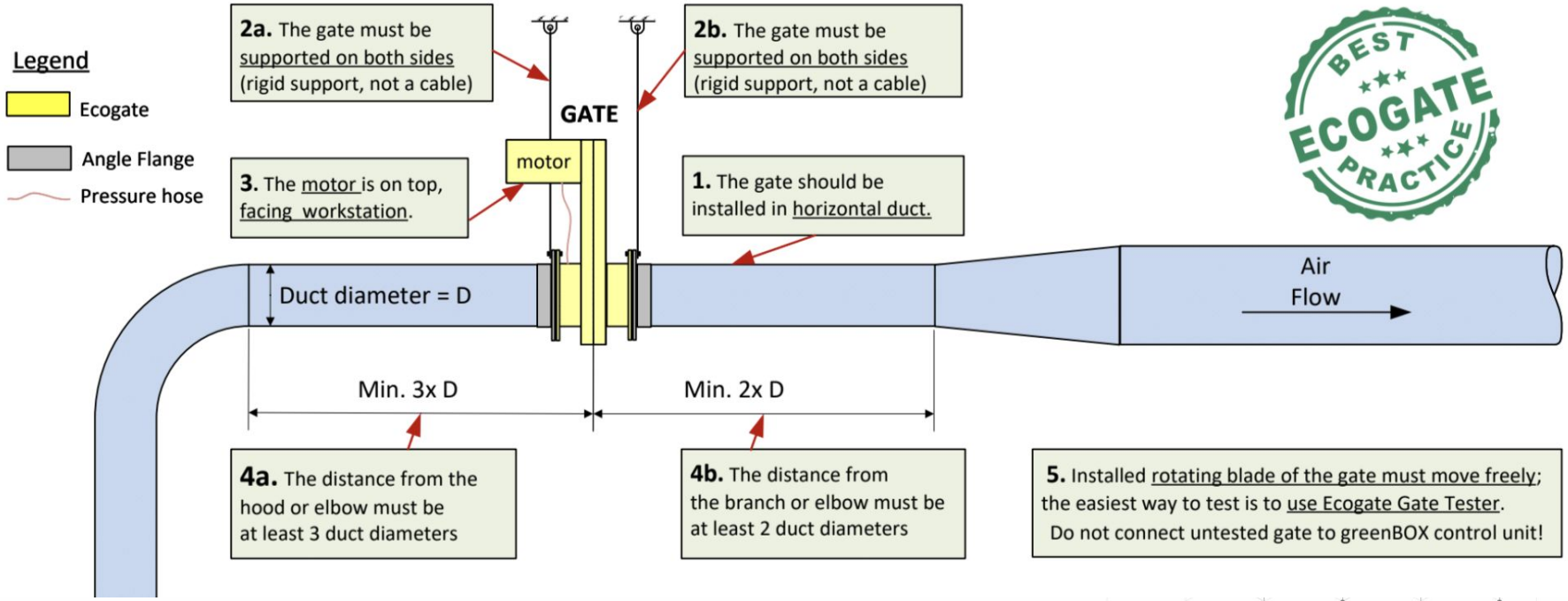
- **Ecogate** Setup Assistant
- Programs hundreds of parameters within seconds.
- Reduces downtime and human error.

Mechanical Installation

Mechanical Installation of Ecogate Gates

CONTENT

Mechanical Installation Best Practice



Electrical Installation

- Power Master = high voltage
- Gates/sensors = low voltage

Rule of Thumb

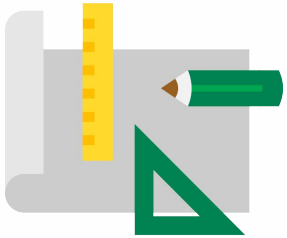
If fully outsourced ..

Installation cost = product cost

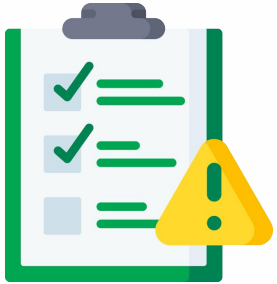
Many opportunities for DIY

Every job is different

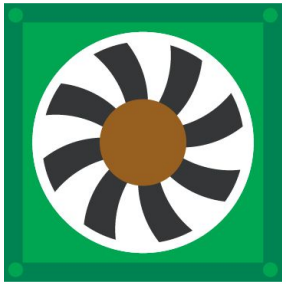
Ecogate **Services**



Design of New System



Review of Existing System



Fan Sizing

Purpose of the Session

✓Define it

✓Show me the money

✓Who uses it?

✓What will it cost?

How can I pay for it?

Paid by **Savings**

ECOGATE®

Paid by **Savings** Program

A deferred payment offering

Project must meet specific requirements (engineered solution, size, & ROI)

30% due upon PO, 30% due upon shipping of hardware

Customer keeps 60% of the (documented) electricity savings.

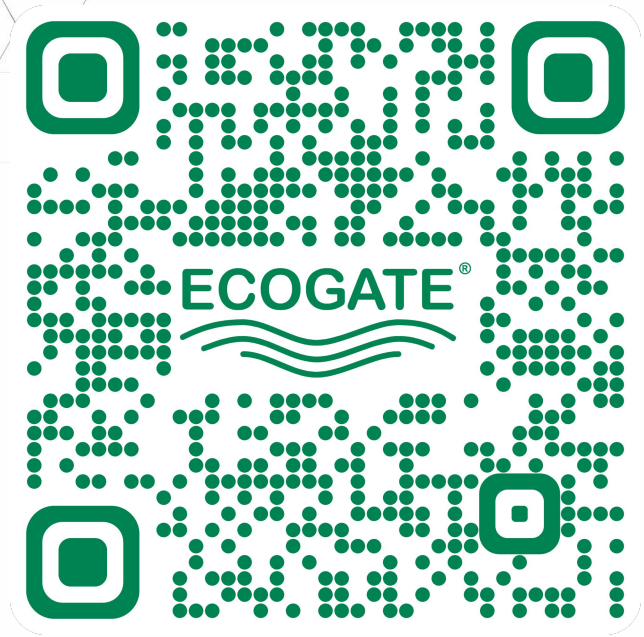
Customer pays 40% of the electricity savings to Ecogate

Paid by **Savings** Program Example from 2024

Quote # 2023084-02-RM			
USA Location			
	Standard Quote		**Pay by Savings**
Ecogate Hardware	$65,007		$39,004
Installation	$68,138		$40,883
TOTAL	$133,145		$79,887
Toal Savings per Year	$57,182		
	Customer keeps		$34,309
	Ecogate earns		$22,873

Purpose of the Session

- ✓ Define it
- ✓ Show me the money
- ✓ Who uses it?
- ✓ What will it cost?
- ✓ How can I pay for it?



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