

# Appleton Compressor

Service & Supply, Inc.

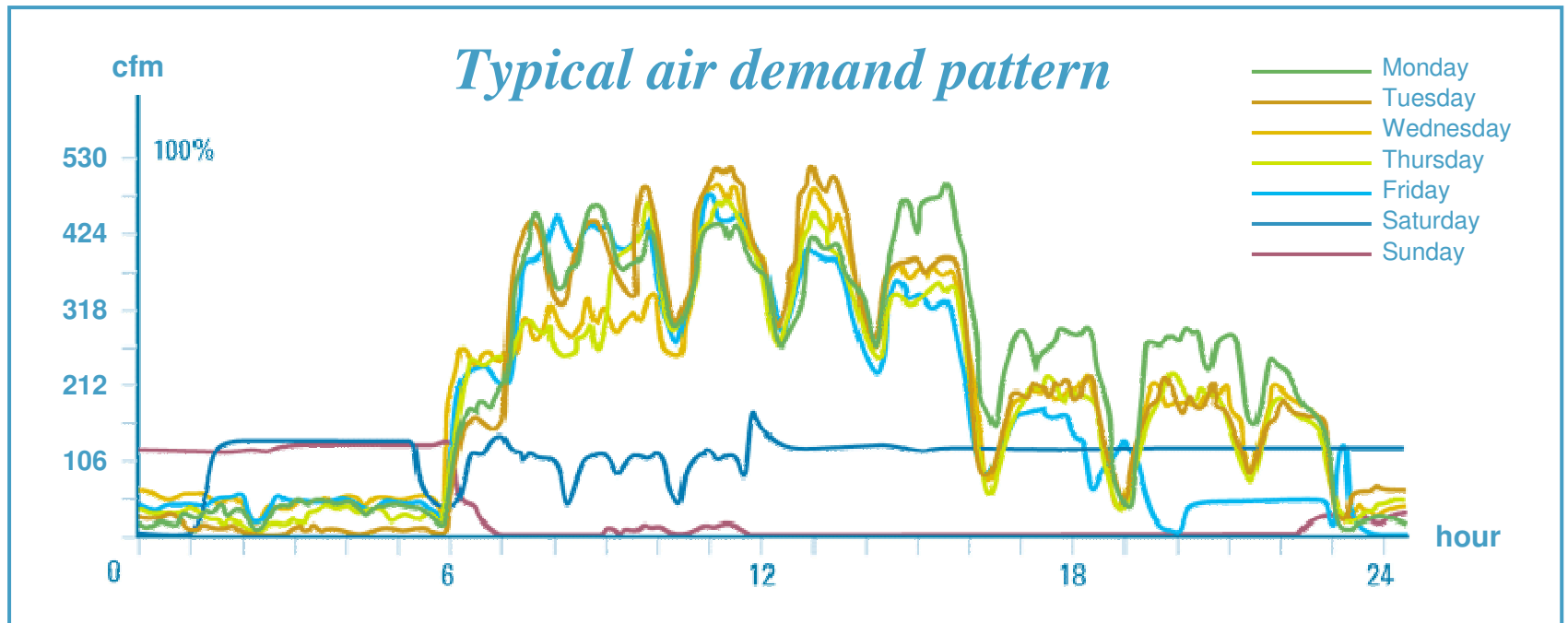


presenting

**VSD PROGRAM**  
*oil-free*

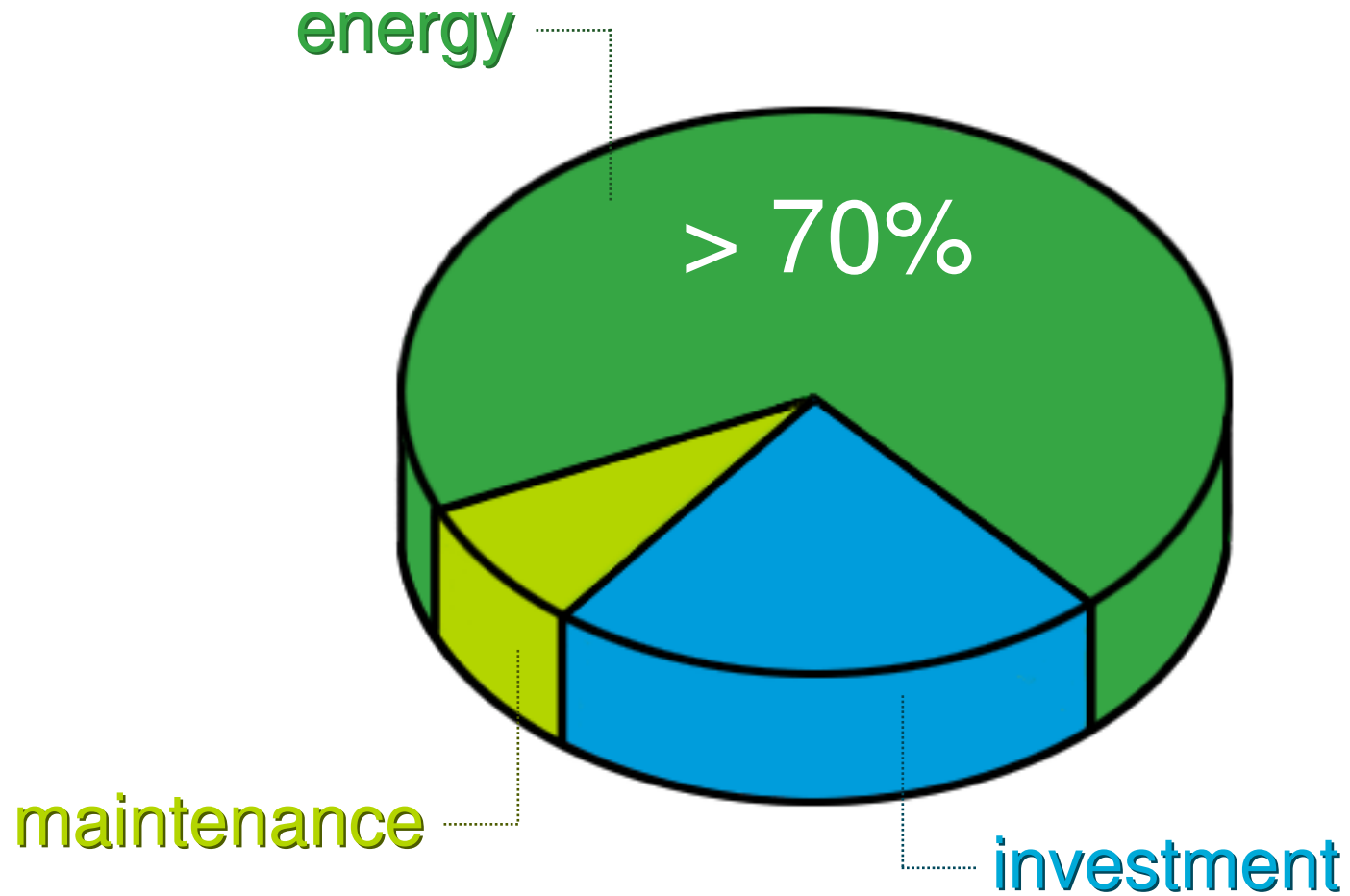
# WHY VSD?

Match compressed air supply to exact demand ...

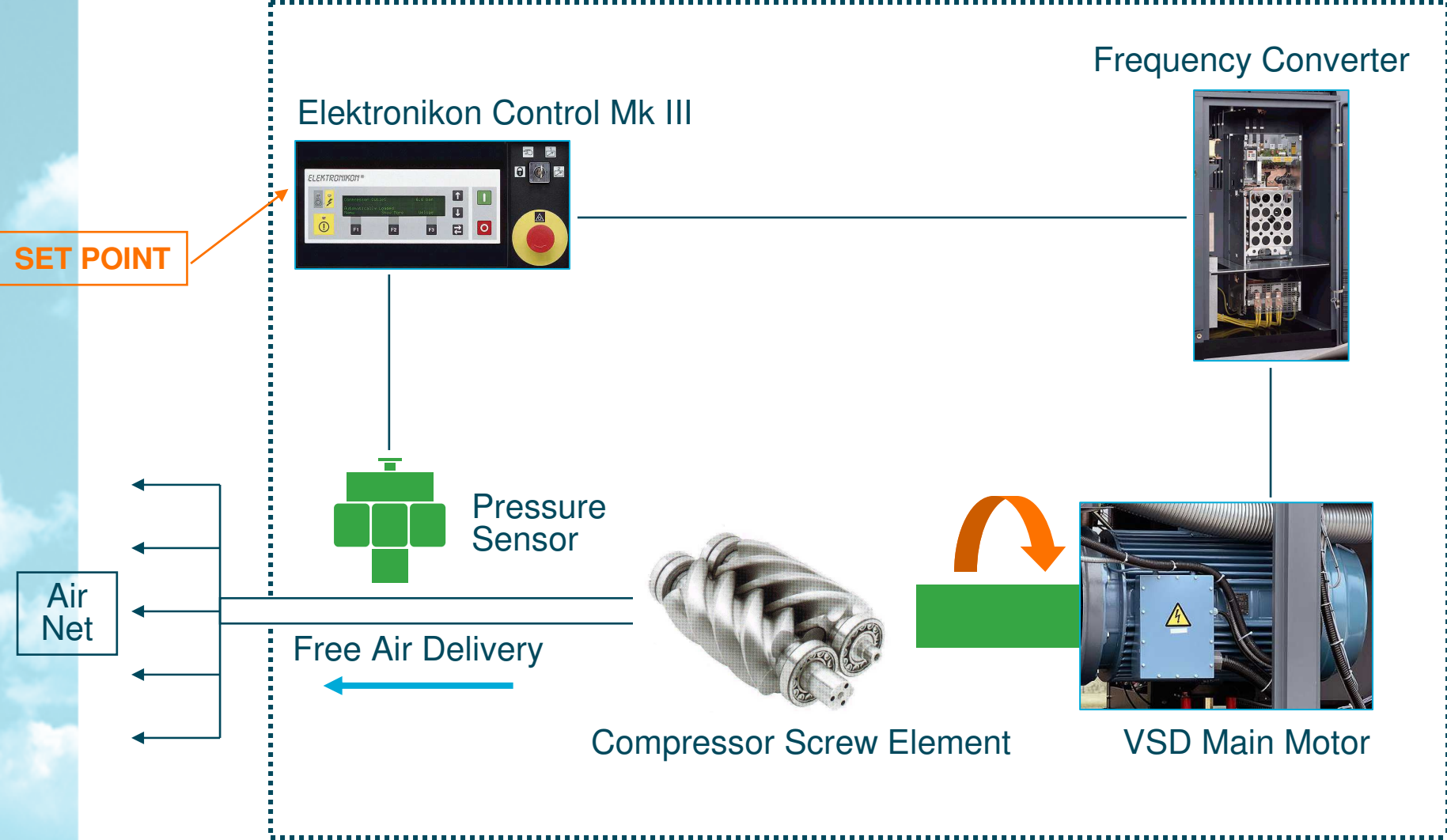


... with minimum energy spendings.

# TOTAL LIFE CYCLE COST OF A COMPRESSOR



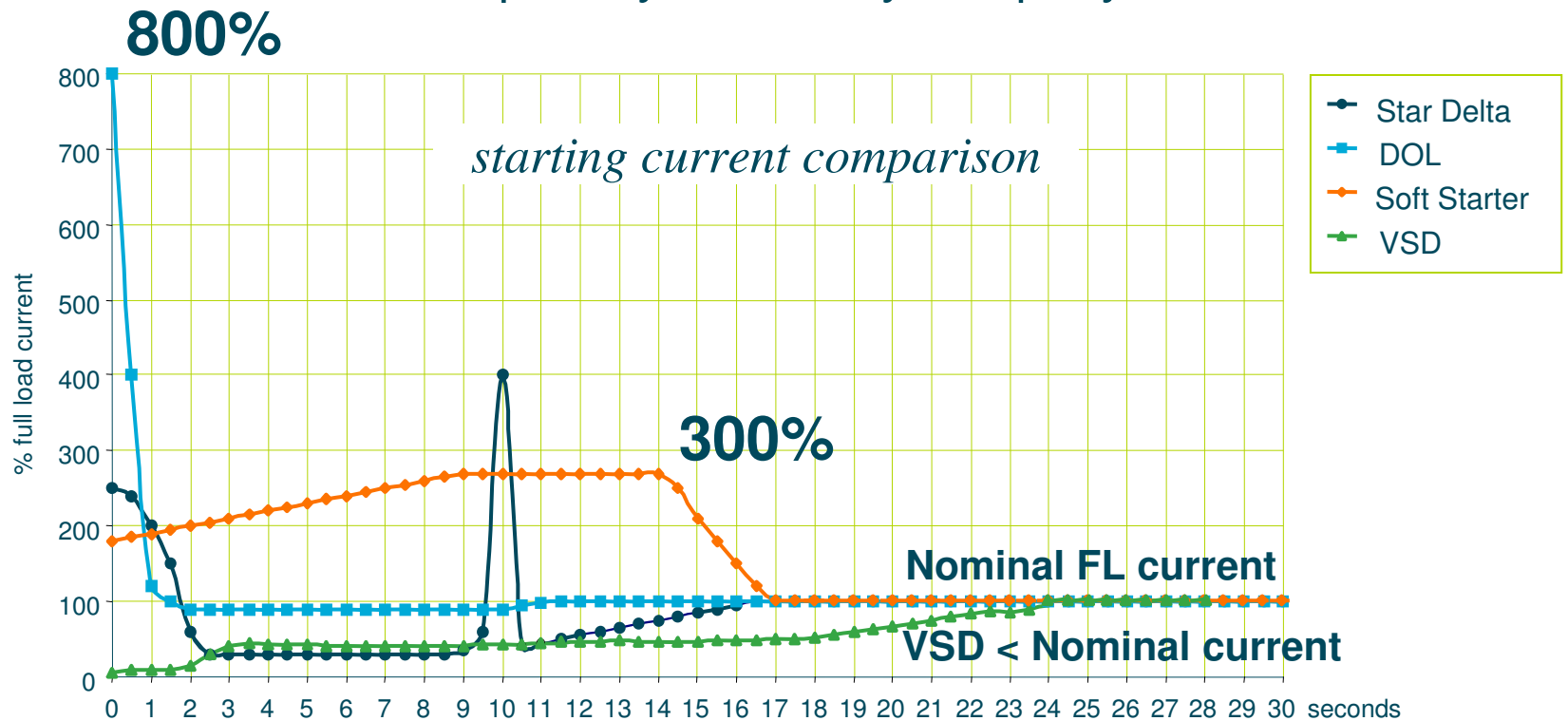
# HOW VARIABLE SPEED DRIVE SYSTEM WORKS



# VSD: CUSTOMER BENEFITS

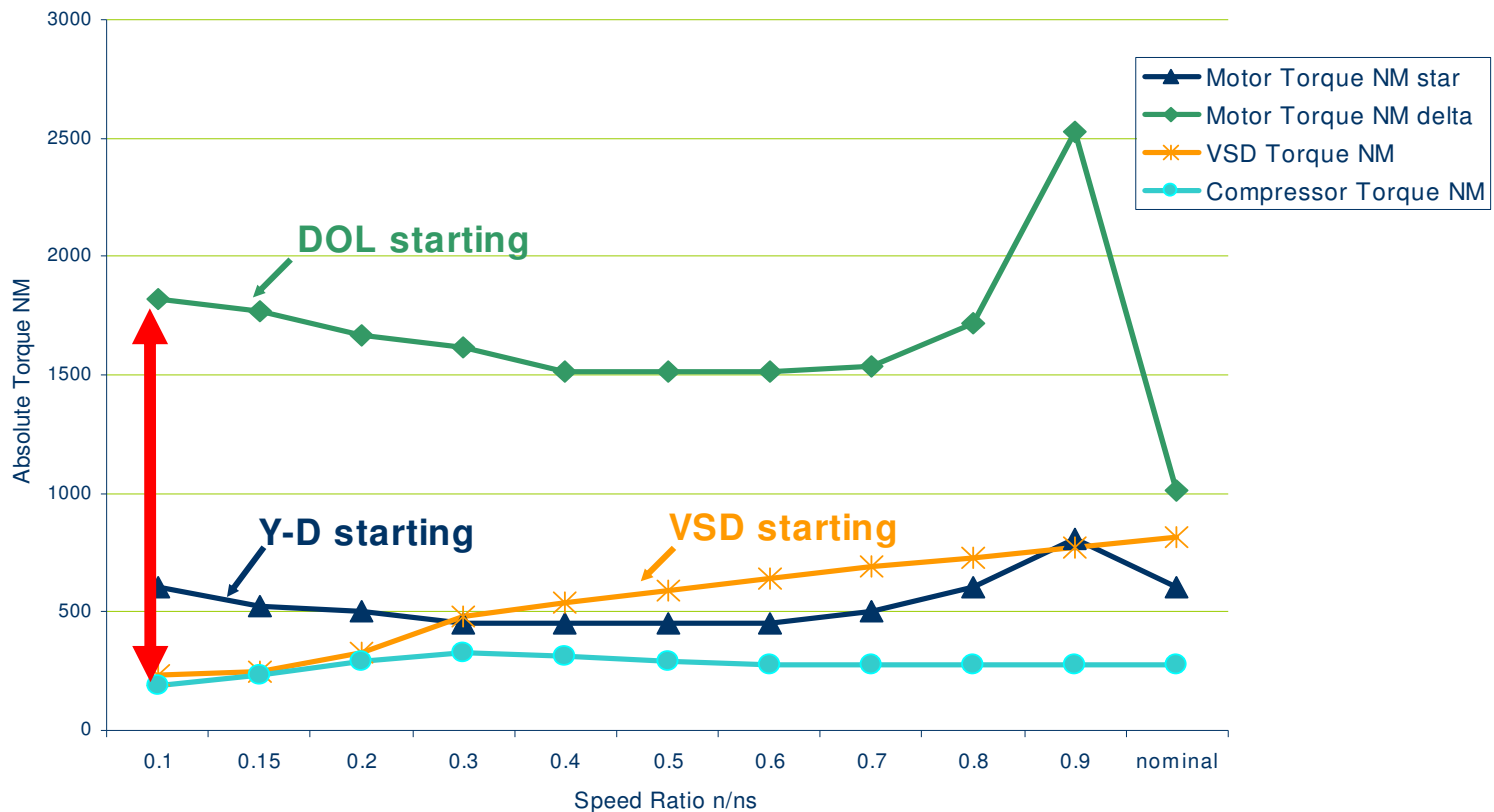
## — Low Starting Current —

- no current and torque peak; soft start
- lower investment in electrical equipment
  - no penalty from utility company



# VSD: CUSTOMER BENEFITS

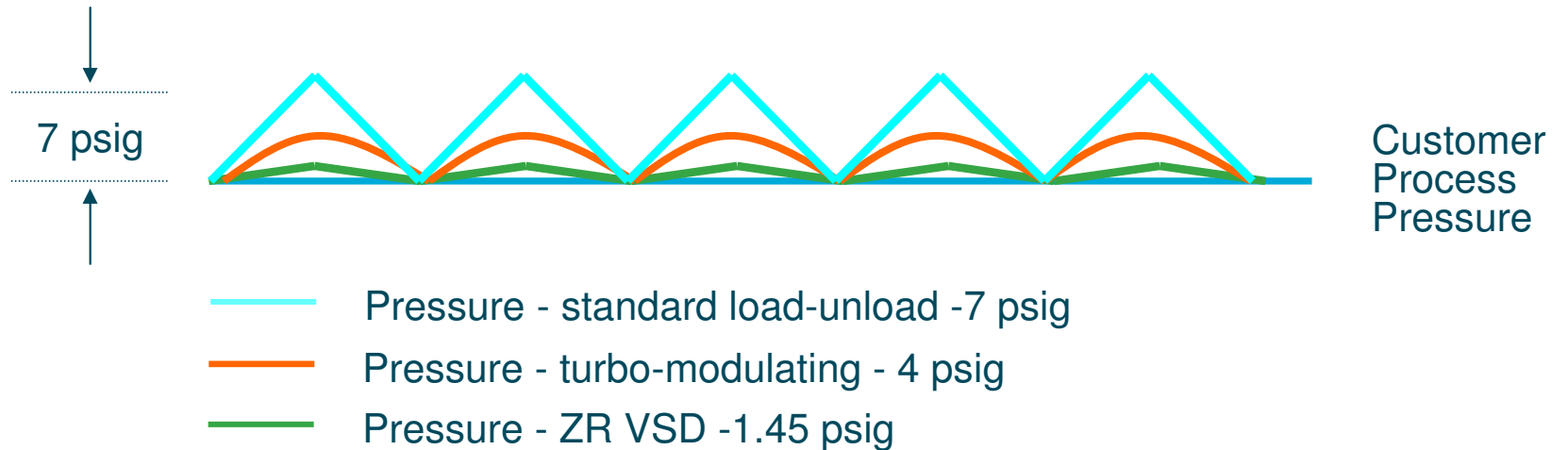
## — Low Starting Torque —



- Conventional systems have high motor torques at start-up
- Large torque transmission - shock loading and injury at start-up

# VSD: CUSTOMER BENEFITS

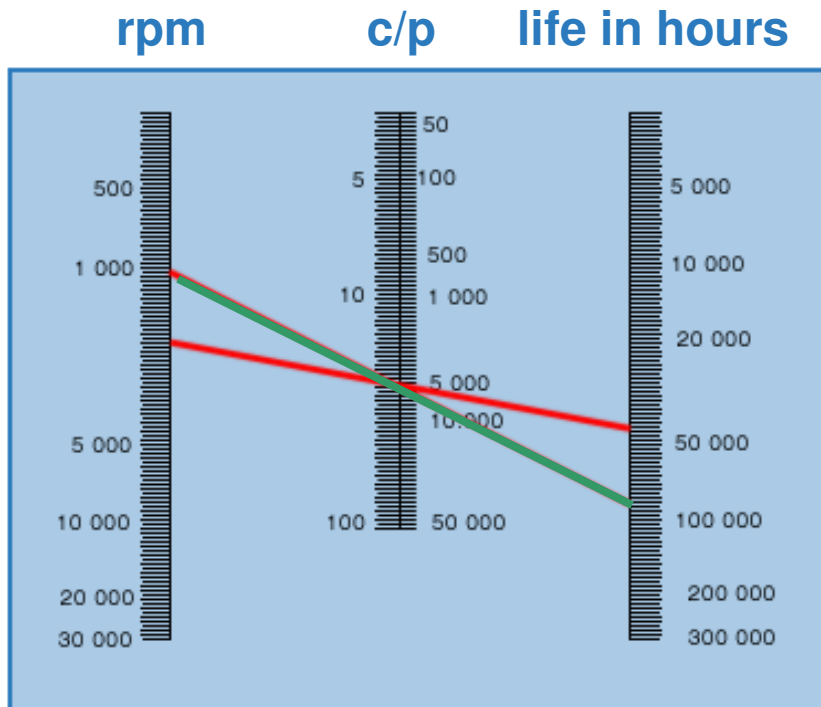
— *Constant Pressure* —



- ✓ *No pressure over-shoots*
- ✓ *Less energy expenses*
- ✓ *Higher process stability*

# VSD: CUSTOMER BENEFITS

— *Lower Maintenance Cost* —  
*provided proper selection of a VSD*



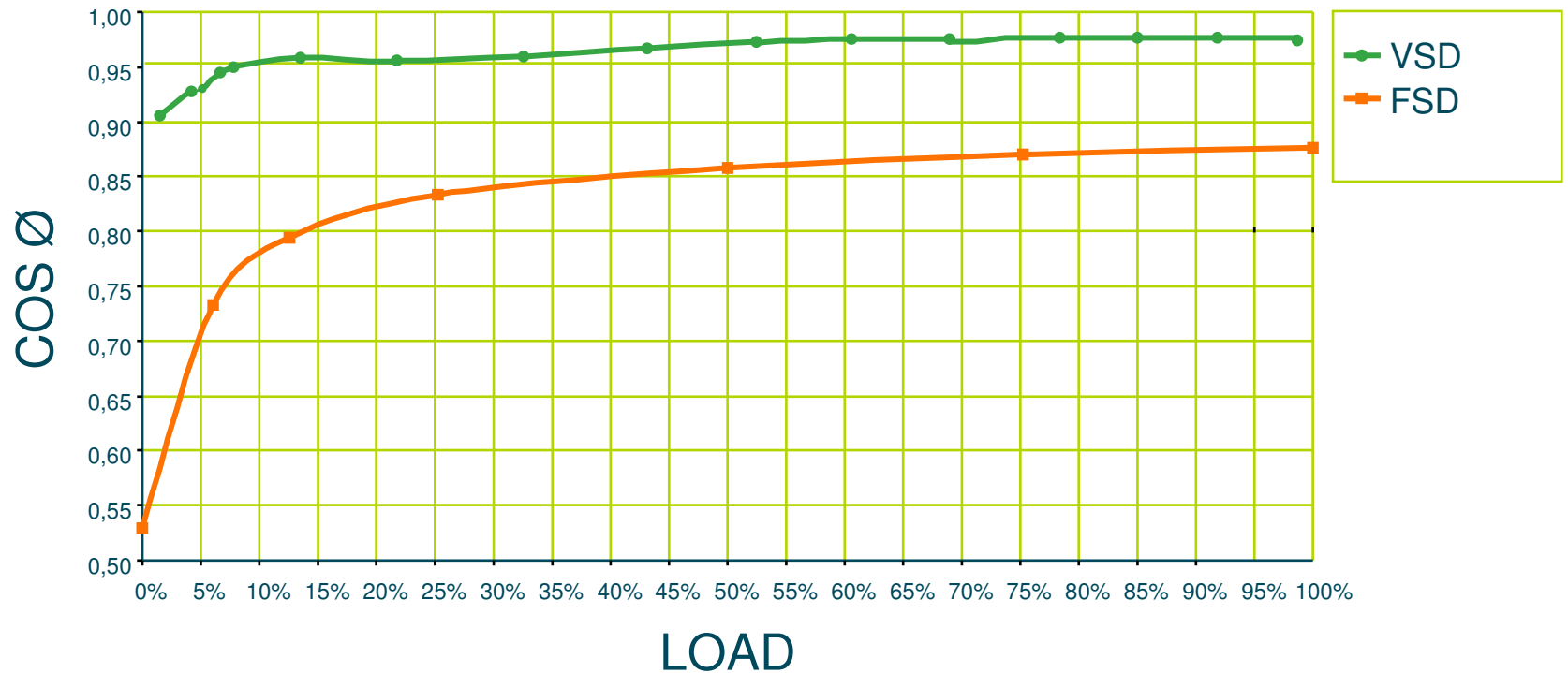
sample : bearings

- No torque peaks
- Less load/unload cycles
- Lower average revolutions of elements compared to a fixed speed machine

## HIGHER EXPECTED LIFE TIME

# VSD: CUSTOMER BENEFITS

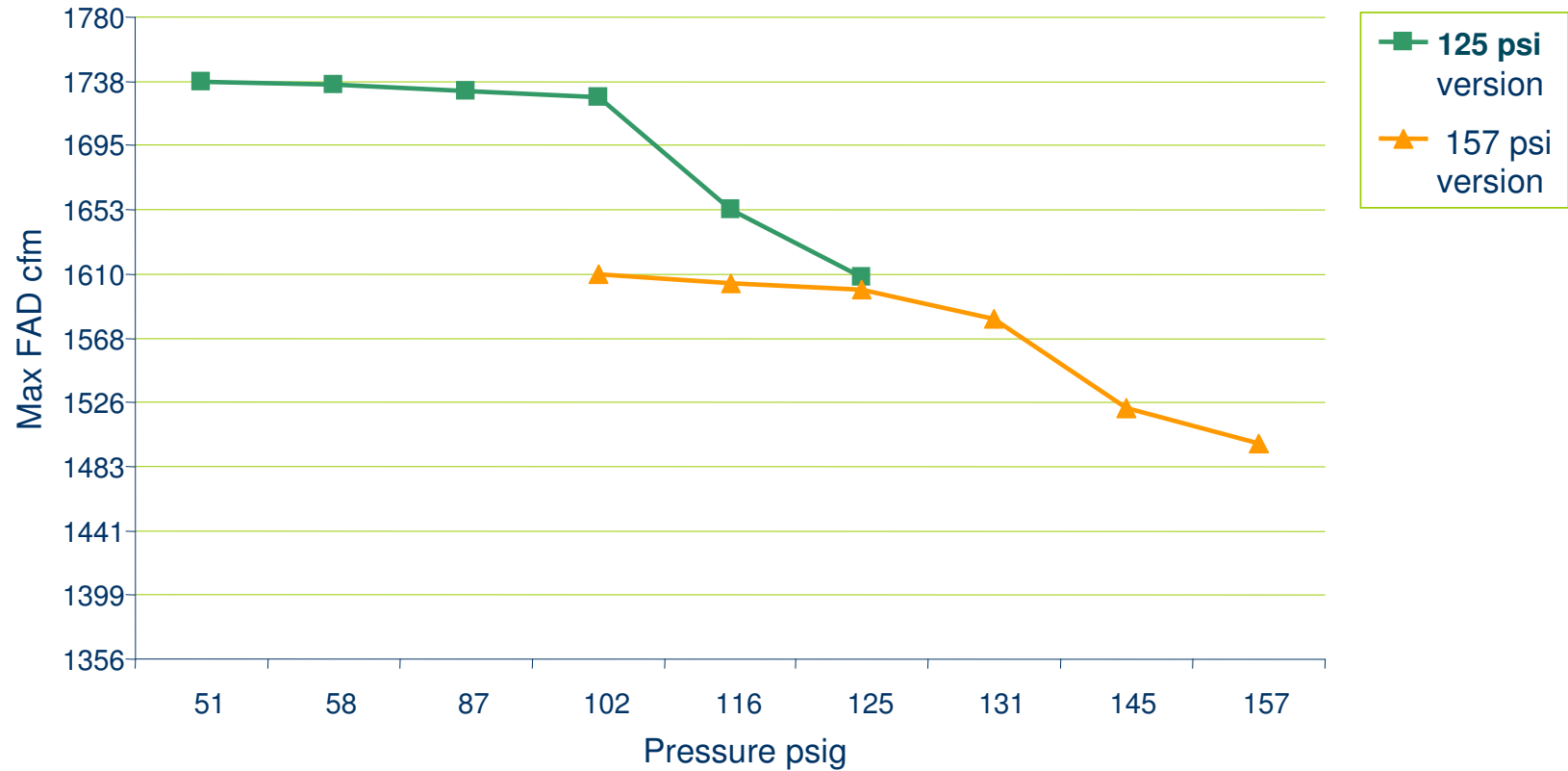
— *High Power Factors* —



- ✓ No customer investment in power factor improvement devices
- ✓ Lower currents at all loads

# VSD: CUSTOMER BENEFITS

## — *Electronic Gearing* —



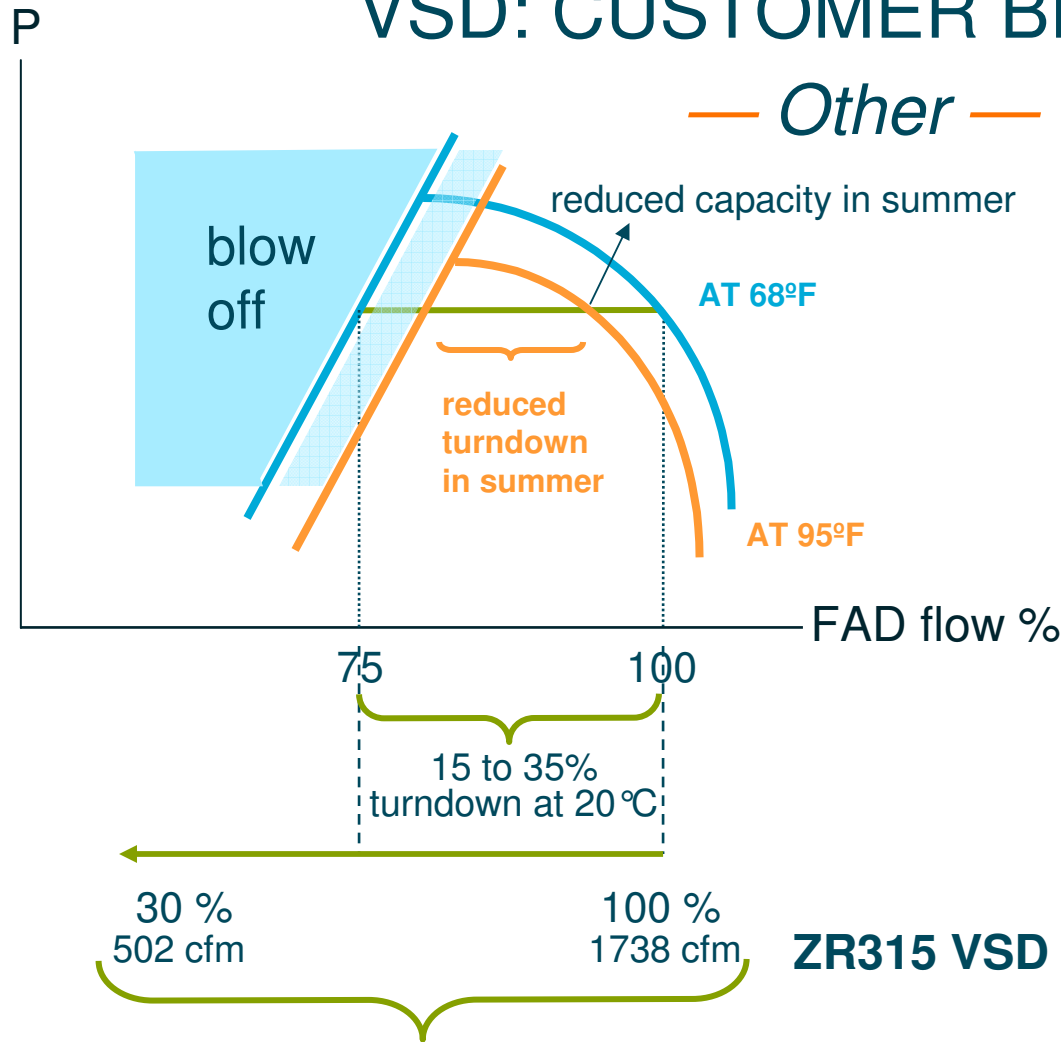
- For lower pressure the flow is higher - without re-gearing
  - Flexibility to get most out of the machine

# VSD: CUSTOMER BENEFITS

## — *Other* —

- Optimal combination of VSD and motor from one manufacturer
- Receivers not required within speed range
- Further energy savings with energy recovery systems

# VSD: CUSTOMER BENEFITS



*Compared to a similar capacity turbo*

Larger and constant "turndown"

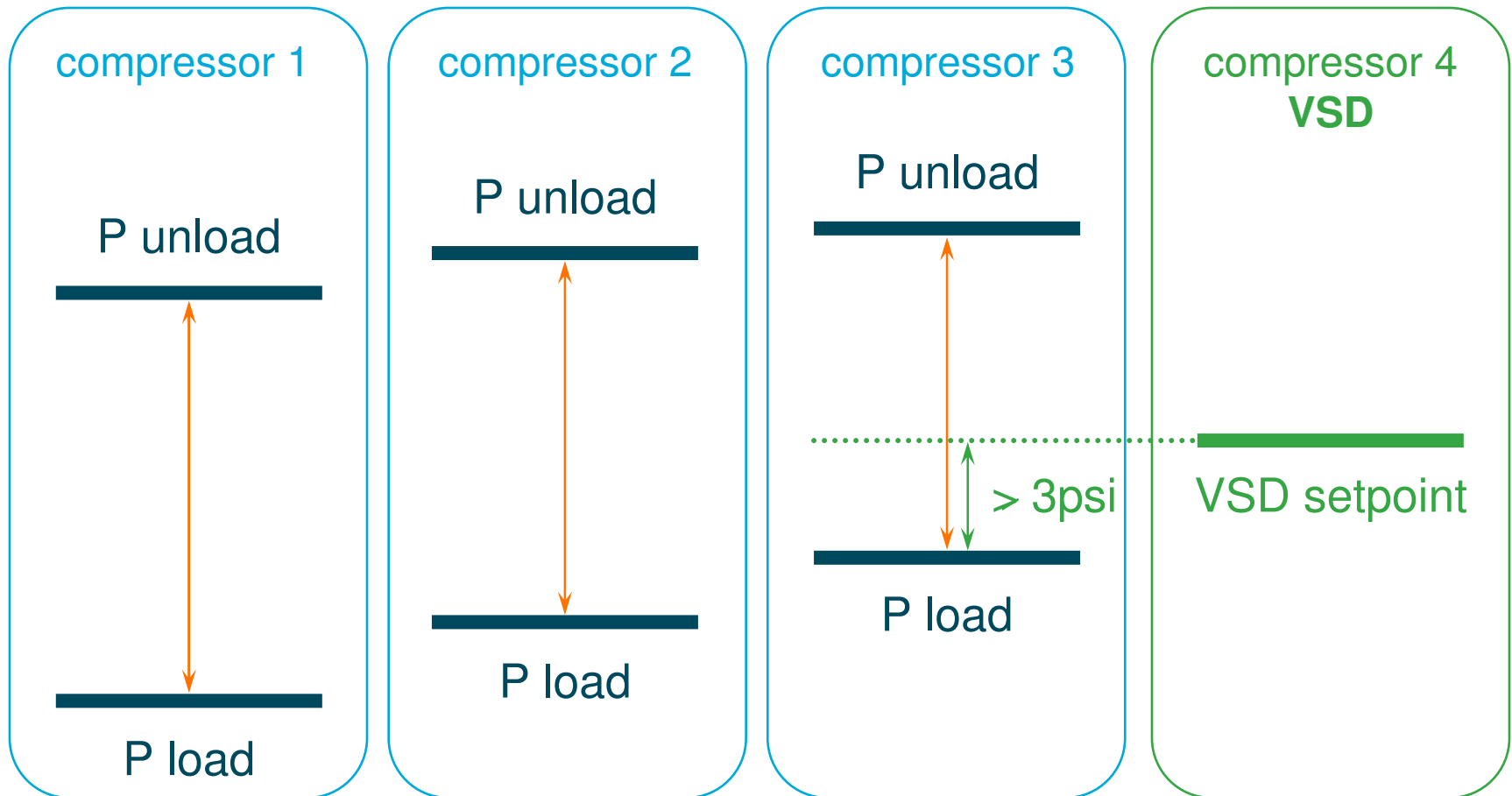
No surge

No blow off

*70 % turndown independent of weather conditions*

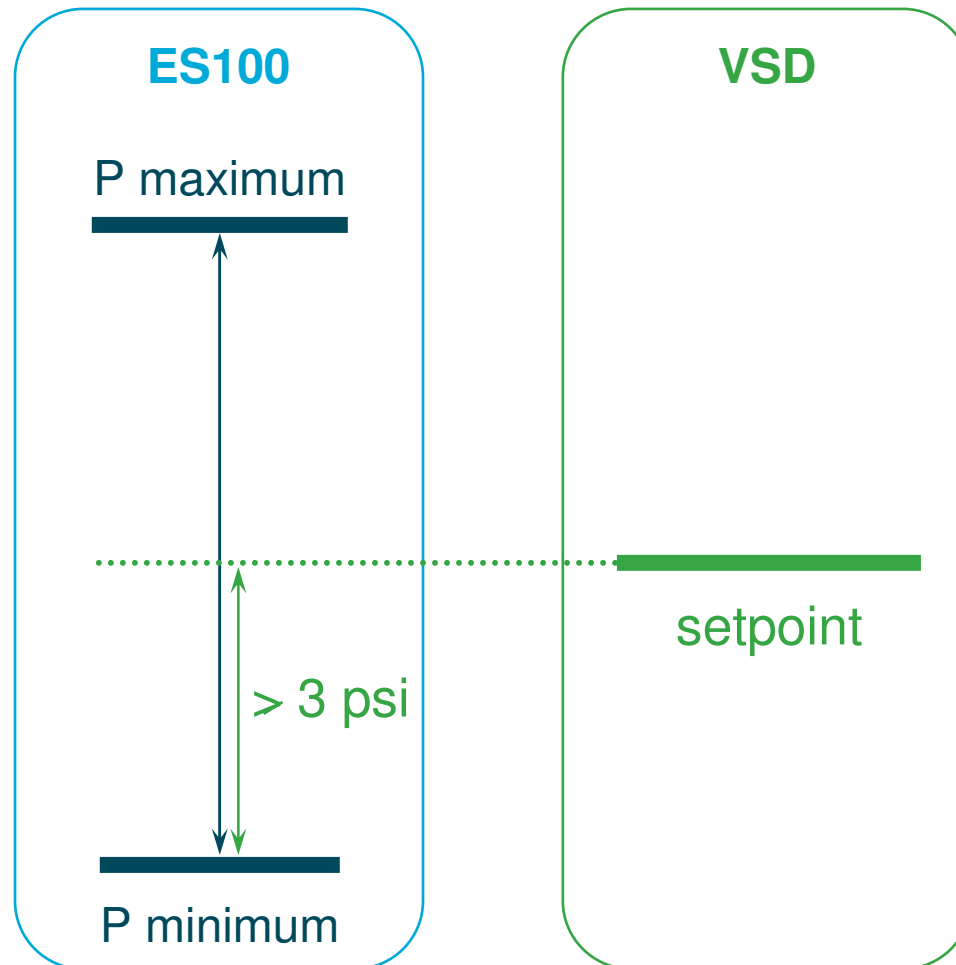
# HOW TO LINK A VSD TO A MULTIPLE COMPRESSOR INSTALLATION?

## 1. No central controller



# HOW TO LINK A VSD TO A MULTIPLE COMPRESSOR INSTALLATION?

## 2. With ES100





# Ultrasonic Leak Detection

# Target Markets

- Pulp & Paper & Converting
- Printing
- Machining
- Foundries
- Food
- Dairy

# Saving Money

- Compressors consume 10% to 30% of a plant's total energy bill
- Leaks may account for 25% to 30% of compressor demand

## Annual Energy Costs

Motor HP	260
CFM Capacity	1040
Operational Hours	8736
Energy Cost /kW	\$0.055
Full load motor efficiency	91%
Total cost energy/year	<b><u>\$102,411</u></b>

## Leaks are expensive

- **Small Leaks** - \$125/year
- **Medium Leaks** - \$270/year
- **Severe Leaks** - \$350/year

Supporting Data:

24/6

\$.065/kW

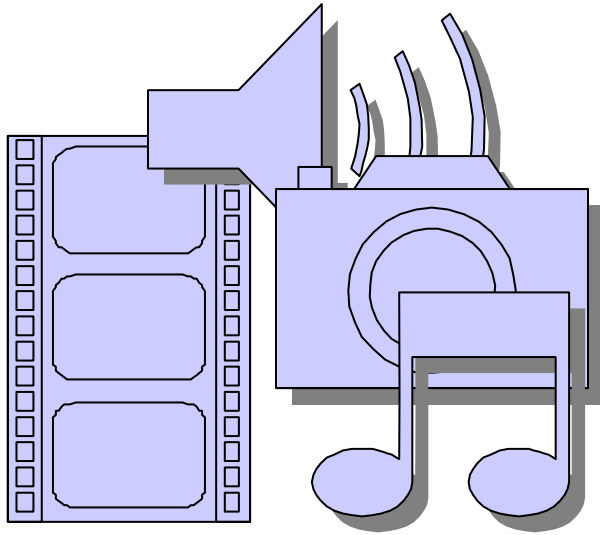
## Ultrasonics – How they function

- Turbulence from leaks creates white noise with a strong ultrasonic component
- Pinpoints all pressurized gas & vacuum leaks regardless of ambient background noise

## Common Problem Areas

- Couplings & Pipe joints
- Air tool Fittings
- Poly tube fittings
- Hose leaks
- Pressure Regulators
- Lubricators
- Compression fittings
- Actuators

# Record Process



Listen

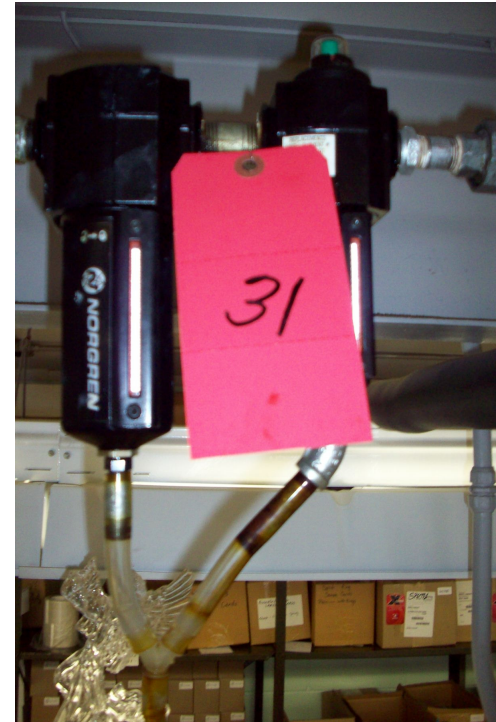
Tag

Record

# 3-Part Tag



# Leak Pictures



```
ERROR: undefined
OFFENDING COMMAND: V;U-XE_T
STACK:
```