

Turbo Air[®] 3000 Centrifugal Compressors

Oil-Free Air



**COOPER
TURBOCOMPRESSOR**

Proven Performance Worldwide



One 350 HP (260 KW) Turbo Air® Compressor installed at an automotive facility.



Six 350 HP (260 KW) Turbo Air® Compressors installed at an automotive facility.



Two 200 HP (150 KW) Turbo Air® Compressors installed at a chemicals facility.



Two 1250 HP (930 KW) Turbo Air® Compressors installed at a chemicals facility.



Three 200 HP (150 KW) Turbo Air® Compressors installed at an electronics facility. Three 500 HP (370 KW) Turbo Air® Compressors are also installed.



Two 300 HP (225 KW) Turbo Air® Compressors installed at a water treatment facility.



One 300 HP (225 KW) Turbo Air® Compressor installed at a major university for instrument air.



Four 1250 HP (930 KW) Turbo Air® Compressors installed at a glass facility.



One 10,000 HP (7455 KW) MSG® Air Compressor installed at an air separation facility. One 11,000 HP (8200 KW) MSG® combination Nitrogen Feed/Recycle Compressor is also installed.

Cooper Turbocompressor — The Leader in Oil-Free, Centrifugal Compressors

Cooper Turbocompressor (founded by Joy Manufacturing Company over forty years ago) is a leading manufacturer of modern, high efficiency, oil-free centrifugal compressors. Cooper Turbocompressor's refinement of the design of this technologically superior style of compressor has resulted in the continuing worldwide replacement of older, less efficient, more costly compressors used to supply air for manufacturing and process applications. The success of our Turbo Air® and MSG® Turbocompressors for these applications has produced over 6,000 installations worldwide.

Cooper Turbocompressor continues in the forefront of state-of-the-art compressor design with fully integrated facilities that are dedicated entirely to the engineering and manufacturing of centrifugal compressors.

ISO 9001 certification is testimony to Cooper Turbocompressor's commitment to be the best in the compressor industry. It means quality is an all-encompassing, company-wide attitude.

Cooper Turbocompressor offers a broad line of oil-free centrifugal air compressors, each designed for long lasting performance, easy operation and convenient service. This brochure details the Turbo Air® 3000 Centrifugal Compressor designed for nominal flows from 2000 CFM to 4000 CFM. Other configurations are available from 550 CFM to 70,000 CFM.

Industries worldwide depend on Cooper Turbocompressor for efficient and reliable oil-free air.

- Textiles
- Food and Beverage
- Automotive
- Snowmaking
- Refineries
- Glass Manufacturing
- Iron and Steel
- General Manufacturing
- Water Treatment
- Pharmaceuticals
- Chemicals
- Bottles
- Industrial Gases
- Power Generation
- Electronics
- Pulp and Paper
- Transportation Equipment
- Aerospace

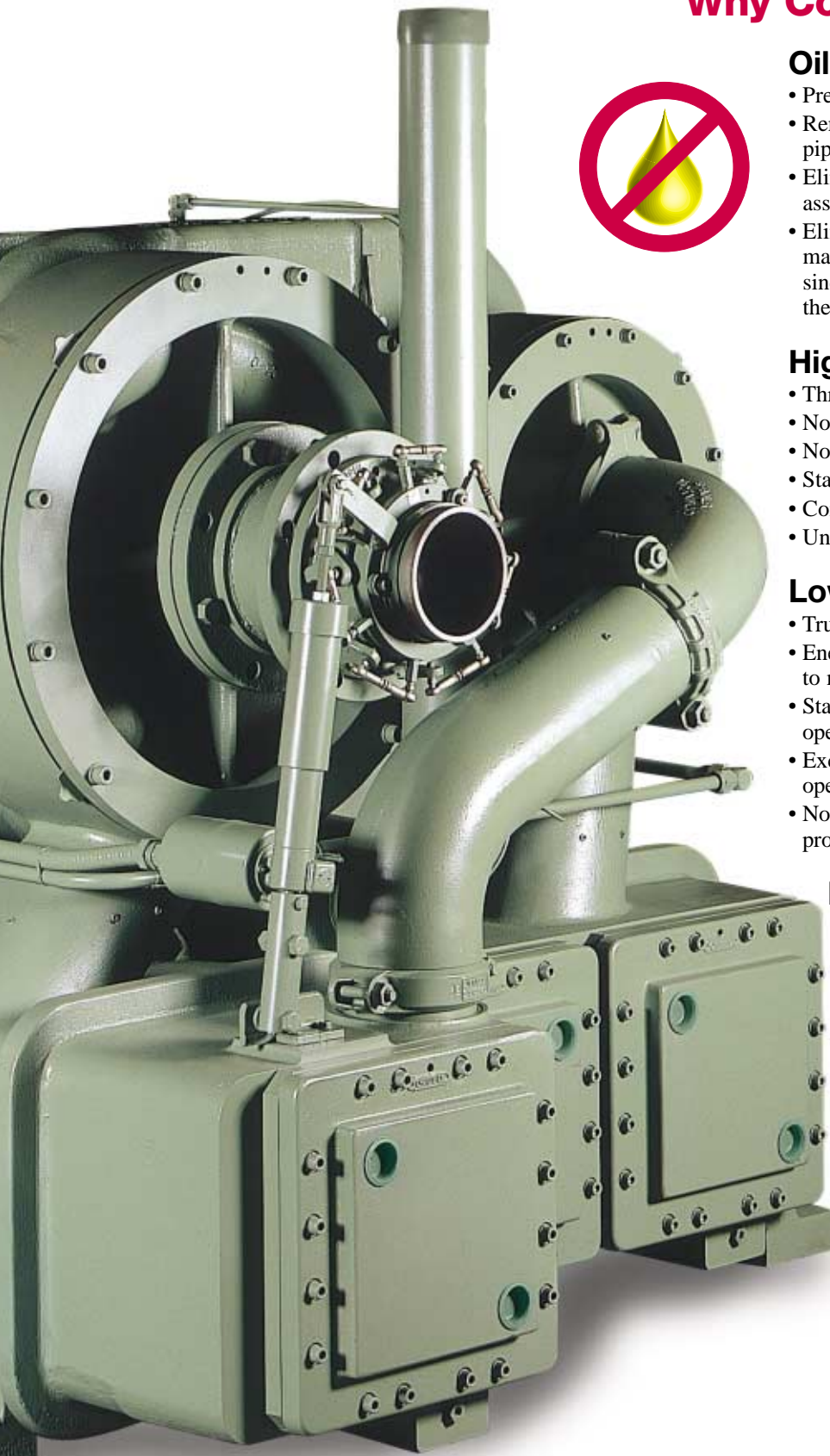


Cooper Turbocompressor offers a complete range from 70,000 CFM (2,000 M³/MIN), 22,000 HP (15,000 KW) to 550 CFM (16 M³/MIN), 150 HP (112 KW).



Fully integrated manufacturing facilities located in Buffalo, New York, USA are dedicated entirely to centrifugal compressors.

Why Cooper Turbocompressor?



Oil-Free Air

- Prevents oil contamination of your system.
- Removes the potential for compressed air pipeline fires caused by oil carryover.
- Eliminates costly waste disposal problems associated with oil-laden condensate.
- Eliminates the expense and associated maintenance requirements of oil removal filters, since no oil enters the compressed air stream in the compressor.

High Reliability

- Thrust loads absorbed at low speed.
- No wearing parts.
- Non-contact air and oil seals.
- Stainless steel compression elements.
- Conservative high quality gear design.
- Unlimited life pinion bearing design.

Lowest Cost Operation

- True unloading capability.
- Energy savings and increased uptime translate to minimum operating life cycle costs.
- Standard inlet guide vanes for highest efficiency operation year round at all ambient temperatures.
- Excellent part-load efficiencies for any operating load.
- No sliding or rubbing parts in the compression process causing wear and thereby efficiency loss.

Easy Operation

- State-of-the-art electronic controls with the QUAD® 2000 Control System.
- Totally automatic operation for any operating condition.
- Self diagnostics.
- Quiet operation.

Easy Maintenance

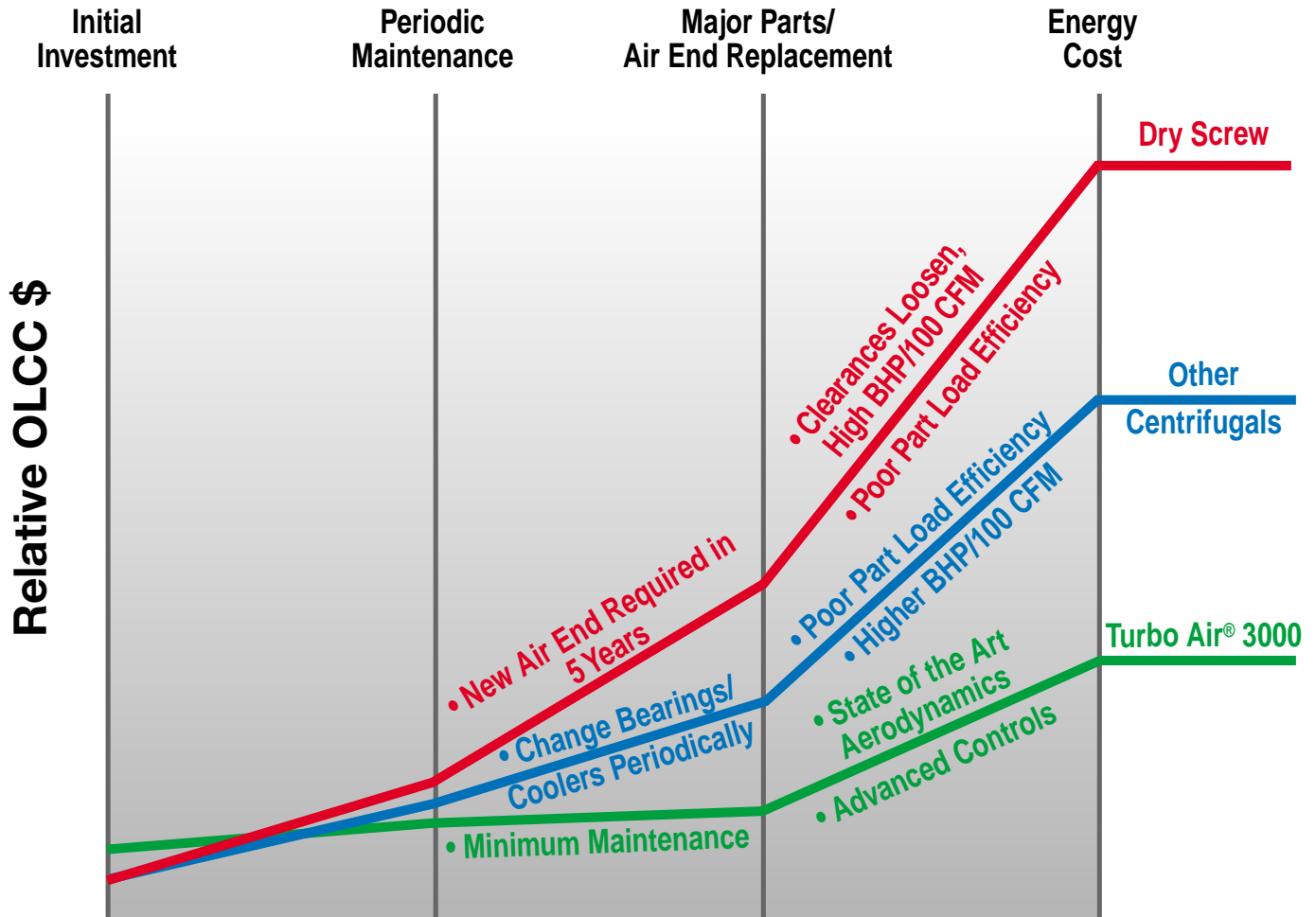
- No wearing parts requiring periodic changes or replacement in the compression elements.
- No oil removal filters to clean.
- Accessible horizontally split gear box for quick inspection.
- Intercooler bundles are easily removed for cleaning.
- Water-in-the-tube design intercoolers and after-coolers allows for simple mechanical cleaning.

Simple Installation

- Complete package including aftercooler, controls, motor, and lubrication system.
- Minimum number of external connections.
- Compact design requires minimum floor space.
- Meets OSHA's sound level requirements.

The Lowest Compressor Operating Life Cycle Cost

Operating Life Cycle Cost (OLCC)



The Turbo Air[®] 3000 Compressor is engineered with three stages of compression to deliver greater flow for every KW. The system provides much better operating economy than rotary screw or other centrifugal compressors.

Compared to other machines of similar capacity, the Turbo Air[®] 3000 Compressor has the best KW-to-flow ratio for ultimate power

savings. This alone can significantly speed up payback on your initial investment - and the savings continue to build the more you use the Turbo Air[®] 3000.

Turbo Air[®] 3000 Compressors are the most efficient oil-free compressors at full load, part load, and no load.

Turbo Air® 3000 Centrifugal Compressors

The most advanced package available -

Easy, low cost installation and operation. Includes built-in aftercooler.



QUAD® 2000 Control -

For optimum control and ease of use. Option available to communicate with your DCS or PLC system.



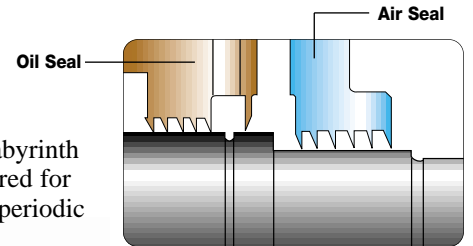
Superior Pinion Bearing Design -

For unlimited life and operation at any load.



Advanced Lubrication System -

Self-contained, low pressure system.



Seals - Non-contact, non-wearing labyrinth air and oil seals. No buffer air required for oil-free air. Eliminates the need for periodic replacement of carbon seals.





Horizontal Split Gear Box -
Allows for easy access when customer's maintenance policy requires periodic inspection.



Impellers -
Advanced design combines the best features of a semi-radial and backward leaning impeller.



Vaned Diffusers -
Matching diffusers for superior efficiency.

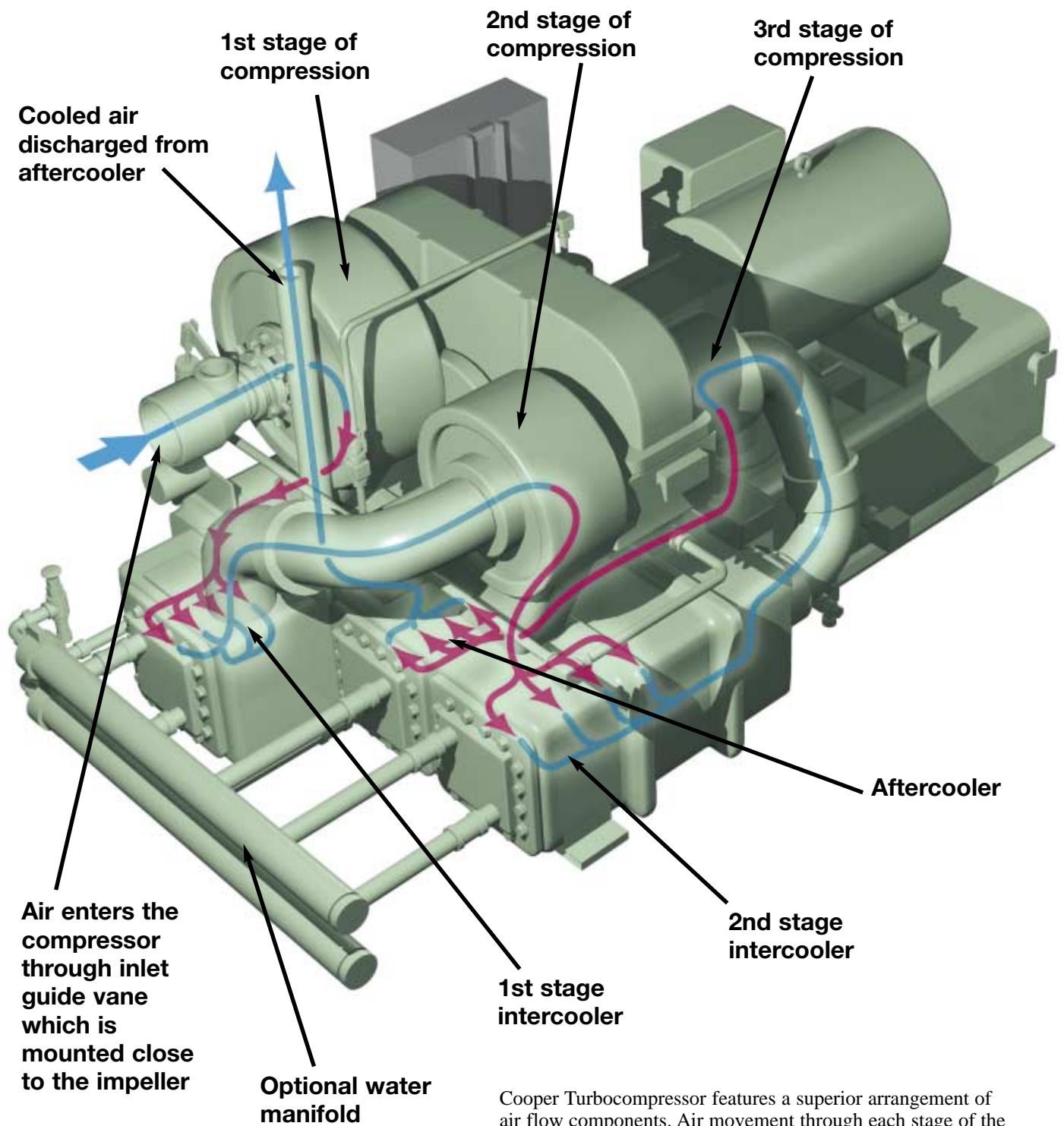


Guide Vanes - Inlet guide vanes are mounted close to the impeller to achieve maximum benefit.



Intercoolers - Water-in-tube intercooler and aftercooler bundles slide out for easy inspection and cleaning.

Airflow Diagram - 3 Stages of Compression



Cooper Turbocompressor features a superior arrangement of air flow components. Air movement through each stage of the compressor is directed so turbulence is reduced. Energy is added to the air in each stage which increases the pressure. Air is cooled after every stage to assure high efficiency. A built-in aftercooler eliminates the need for a separate pipeline type cooler.

QUAD® 2000 CONTROL

The most advanced microprocessor control system.



The Turbo Air® 3000 Compressor features Cooper Turbocompressor's exclusive QUAD® 2000 microprocessor control as standard equipment for maximum ease of use and compressor efficiency.

The QUAD® 2000 control panel features a user-friendly, four-line LCD display to provide you with over 200 items of information with the touch of the keypad. The combination load/unload and constant pressure control system provides optimum efficiency regardless of system demand.

Standard Control Panel Features

- Auto/Dual Control
- Motor Overload Protection
- Surge Protection
- NEMA IV Enclosure
- Access Code Protection

Optional Control Panel Features

- Constant Pressure Control
- Signal for Automatic Oil Pump Control
- Automatic Condensate Control
- Dry Contacts for Alarm and Trip
- Visual Alarm and/or Trip Indication
- Remote Permissive Start Indication
- Remote Control Indicator
- Panel Cooler
- Auto Start/Auto Stop
- UL Approval

Systemiser® Multiple Compressor Control

Multiple compressor control and monitoring sub-system that can coordinate up to eight individual machines.

X-Link™ Communications Gateway

The X-Link™ communications adapter allows thirty QUAD® 2000 control panels to communicate with an array of industrial networks. Your computer system will be able to control compressor starting, stopping, and adjusting setpoint levels. Some of the benefits of X-Link™ include:

- A reliable, off-the-shelf solution for plant networking.
- Allows remote monitoring.
- On-Line monitoring and diagnostics available.
- Field configurable/upgradeable.
- Supports major industrial PLC networks including Modicon, Ethernet, GE Fanuc, and many others.

CommLINK

Remote monitoring by PC for up to eight compressors.

QUAD® 2000 CONTROL PANEL MONITORING FUNCTIONS	Readout	High Level		Low Level		Faulty Sensor	
		Alarm	Trip	Alarm	Trip	Alarm	Trip
Item							
Final stage inlet air temp.	X	X	X			X	
System air pressure	X					X	
Oil pressure	X	X		X	X	X	
Oil temperature	X	X	X	X	X	X	
First stage vibration level	X	X	X				X
Main motor current	X						X
Power supply voltages	X	X		X			
Total running time	X						
Calendar/Clock	X						

Optional Monitoring Functions

- Discharge Air Pressure
- Additional Vibration Channels
- Additional Temperature Detectors
- Oil Filter Pressure Drop
- Oil Level Switch