

ZMED Medical Air Systems



BEACONMEDÆS®

Complete Medical Air Solution

The BeaconMedæ's Lifeline® Z MED Medical Air System delivers clean, dry air with optimum efficiency and reliability to meet the increasing demands of today's healthcare facilities. The Z MED Medical Air System features an all-inclusive, fully engineered modular air system that is comprised of:

- Duplex or multiplex oil-free two-stage rotary tooth compressors
- Compressors ranging from 20 Hp through 74 Hp
- Duplex desiccant dryer module sized specifically for each system
- Master controller for the compressors and dryers
- Receiver tank with electronically controlled condensate drain
- Water-cooled or Air-cooled systems

Integrated Design

The Z MED modules integrate seamlessly, ensuring that your medical air system works exactly as BeaconMedæ's designed it to work, every time.

- Air delivery is maximized
- Energy consumption is minimized
- Installation is simple and cost-effective



Code Compliance

BeaconMedæa designed the Z MED Medical Air System in accordance to all NFPA 99 code requirements for medical air. Choosing the Z MED guarantees your facility an all-inclusive medical air system with all safety features factory installed.

NFPA 99 Features

- *Dew point and CO transmitters*
- *Visual and audible alarms with isolated contacts for remote alarm*
- *3 valve receiver by-pass*
- *Duplex final line regulators*
- *Oil indicator test*
- *Inlet coalescing filters*
- *Afterfilters including one active carbon filter*
- *Duplex safety relief valves*
- *Valved sample port*

Certified 100% Oil Free

When it comes to providing clean, pure medical air for your patient care, you can't afford to risk oil contamination. Certified ISO 8573-1 CLASS 0 by the internationally renowned TÜV Institute, the Z MED is your guarantee that no oil will enter your medical air from the compressor system. Zero oil means zero risk of contamination. Your certification for truly oil free air and peace of mind.

Dryer Efficiency – Dew Point Purge

The Z MED heatless desiccant dryers utilize dew point dependent purge control to guarantee the lowest possible energy losses for desiccant regeneration while delivering a totally stable and reliable dew point. The dew point transmitter controls the dryer purge cycle by starting the desiccant bed regeneration cycle when the dew point rises beyond a set point.

Purge consumption is matched to compressed air demand, resulting in significant purge air reductions.



Installation Ease

Installation of the Z MED is straightforward with minimal piping, wiring and drain connections. Factory-piped and wired in accordance to NFPA 99, the comprehensive dryer module eliminates the need for on-site “extras” and reduces installation costs to an absolute minimum.

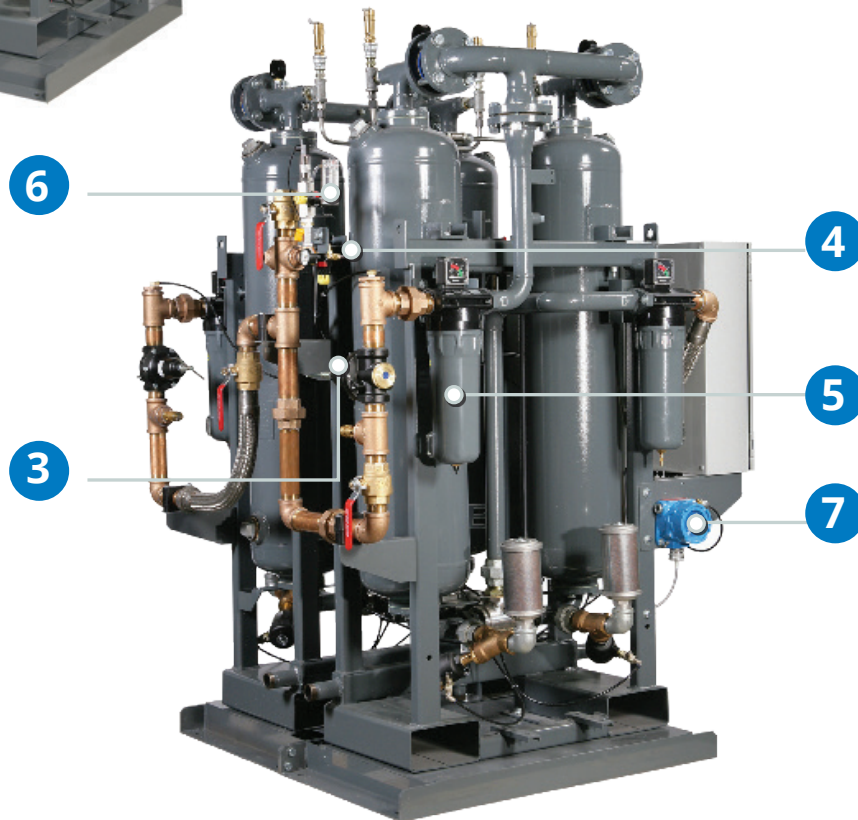
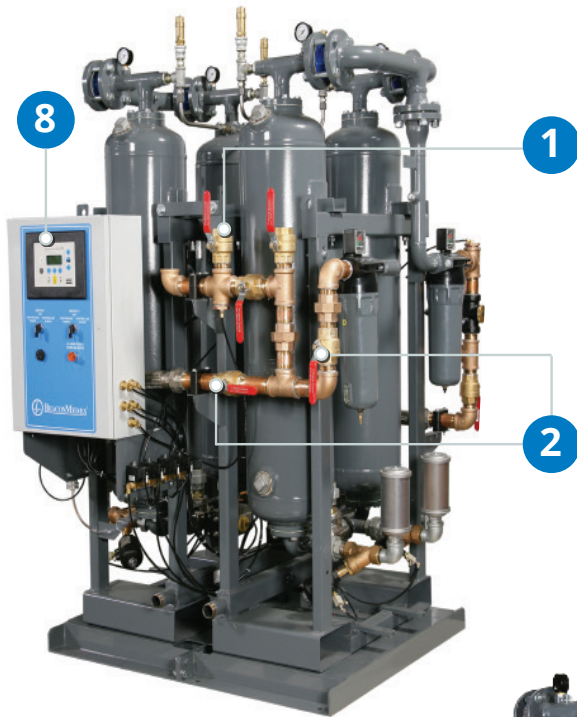
Minimum Space Required

With the all-in-one compact design, the Z MED dryer package requires only minimal floor space compared to other dryer installations.

- *Sized specifically for each system*
- *Duplex dryers mounted to base frame*
- *Factory-mounted filters, regulators, and monitors*

Premium Components

Equipped with carefully selected filtration, transmitters, and regulators, the Z MED dryer module is your peace of mind that your medical air system always produces clean, dry and pure air. And thanks to the low pressure drop across the system, you can save on compressor power, adding to the overall cost- efficiency of the Z MED Medical Air System.



Standard Features On All ZMED Dryer Modules

1. 3 valve receiver by-pass
2. Tower switching valves
3. Final line regulators
4. Oil indicator test
5. Carbon after-filter
6. Dew point transmitter
7. CO transmitter
8. Master controller



Superior Control

The Z MED is packed with features such as the master controller that lower your overall cost of ownership and save energy. Utilizing a central controller in a multi-compressor installation leads to the lowest overall energy costs and achieves a tight pressure band.

Utilizing a single pressure transmitter, the master controller will start and stop the network compressors to keep the pressure within the limits of the pressure band. A reduced pressure band saves both energy and money.

Master Control Features

- Precise pressure control for optimal efficiency
- Control of multiple load/unload compressors
- Control of multiple variable speed drive compressors
- Lead/lag sequencing
- Compressor alternation – first-on/first-off principle
- Reserve unit activation if required
- System restarts after voltage failure with simultaneous start prevention
- Equalization of running hours
- Control of regeneration cycles of dryers
- If master control fails, each machine returns to local control

Communication Connection

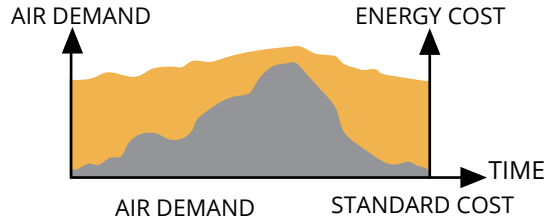
Compressors connect to the master controller using a daisy chain of 3 core cables and connectors. Minimal installation with optimal communication.

The Right Core Technology...

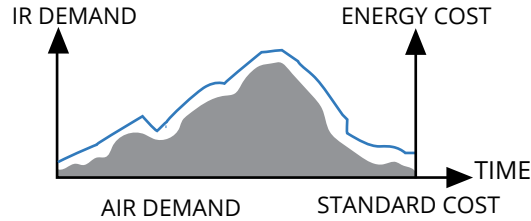
The Z MED oil-free rotary tooth compressor provides more flow for a given kW with a low, specific-energy consumption, resulting in the most efficient compressor in this size range. The unique rotary tooth element increases efficiency thanks to two-stage compression. As no venting of the pressure element is required, the energy consumption is considerably lower compared to single stage compression systems. With its symmetrical and dynamically balanced design, the double tooth element delivers higher flow and consistent performance over time. The ratio of clearance to captured volume is better on a rotary tooth than a screw compressor, resulting in less air leakage. Also, with the larger captured volume, the elements can turn slower and reduce gearbox losses.



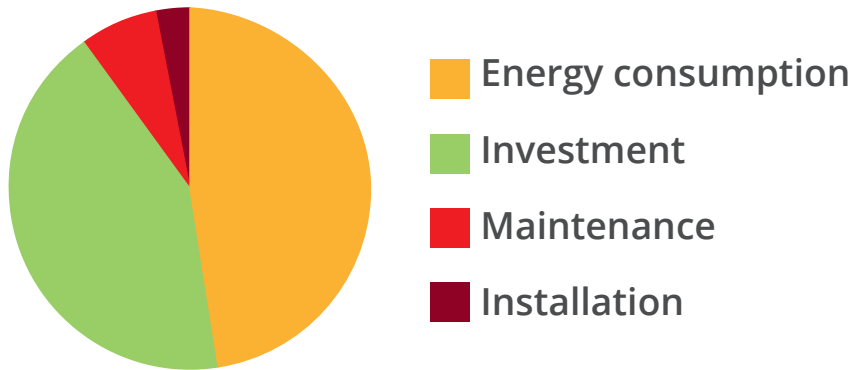
**FIXED SPEED HIGH PRICE
FLUCTUATING DEMAND**



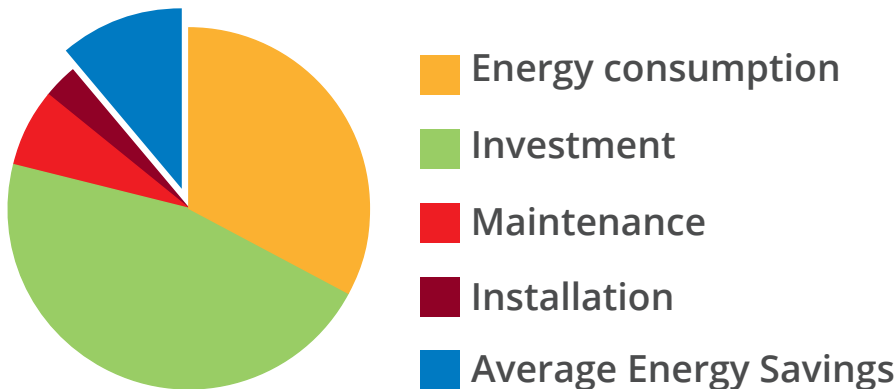
**VSD: VARIABLE VOLUME-
CONTROLLED COSTS**



LIFECYCLE COST OF A FIXED SPEED COMPRESSOR



LIFECYCLE COST OF A VSD COMPRESSOR



Variable Speed Drive

The Z MED VSD series features an integrated frequency converter that varies the speed of the drive motor to exactly match the changes in the medical air demand. By automatically tuning compressor capacity to the precise air demand, only a minimum amount of energy is required, resulting in energy savings for you and the environment. Medical air systems are sized to handle peak demands but usually operate at much lower flows and react to enormous fluctuations in air demand throughout the day. The Z MED rotary tooth technology with variable speed drive features a 75% turndown from maximum motor speed, meaning a large range of flow for the system to exactly match all the medical air demands without wasting excess energy. Because there is no unnecessary power generated, the Z MED VSD could reduce energy costs by 35% or more. In general, the extra cost of a VSD compressor system compared to a fixed speed one can be earned back after just one to two years.

Additional Variable Speed Drive Benefits:

- Lower and constant air net pressure provide efficiency and end-use stability
- Low starting torque reduces stress to machine components
- Low starting currents reduce unnecessary power surges
- Constant, high power factor throughout speed range

...In The Right Package

Compact, silenced packages feature a drive motor, coolers, moisture drains and filtration along with a controller to ensure optimum performance and reliability.

The Elektronikon® controller is an advanced microprocessor based, real-time operating system fit to every Z MED compressor.

- *Local compressor control and communication with Z MED master controller*
- *Proactive compressor protection with service and warning indications*
- *Easy to read display*
- *Historical and actual data including working pressure, operating temperatures, number of motor starts, and operating hours.*

In every detail Z MED oil-free rotary tooth compressors are designed and manufactured to the highest standards of quality and reliability.



VSD COMPRESSOR

High Efficiency

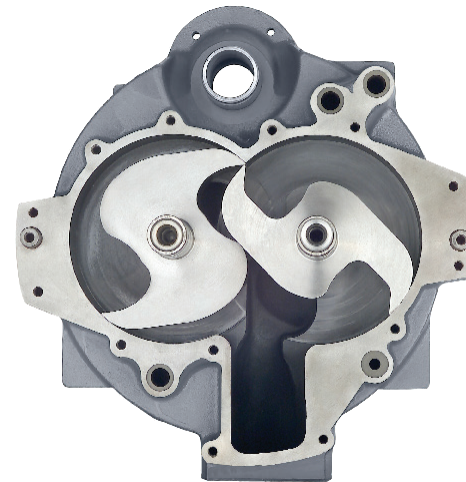
- 1 Inlet air filter – SAE fine 99.5% and SAE course 99.9%
- 2 Induction motor – available in two versions: IP 54 for VSD models and IP 55 for fixed speed models.

Energy Savings

- 3 Two stage compression – lower energy consumption compared to a single stage compression system.
- 4 Integrated variable speed drive – minimizes energy consumed with full regulation between 30 and 100% of maximum capacity.

Total Supervision and Monitoring

- 5 Elektronikon® - Advanced control and monitoring system with proactive compressor protection.



System Start Up

For every Z MED installation, an authorized BeaconMedæ service technician provides the system start-up. With critical functions relying on the medical air system, BeaconMedæ ensures the system's proper installation and functioning during start up.

- *Proper system operation is assured*
- *Time and money savings if problems occur at start up*
- *Elimination of potential warranty issues in the future*

Preventive Maintenance

The simple modular construction and service friendly design of the Z MED Medical Air Systems keep maintenance interventions to a minimum in both frequency and time. Effective service access combined with extended service intervals reduces maintenance downtime and increases compressor availability.

- *Low level of consumable parts*
- *Direct access to all service points*
- *Single point greasing on all motors of 40 Hp and above*
- *Greased for life motors on all units 30 Hp and below*
- *Service warning function available via the Elektronikon® controller*
- *BeaconMedæ Planned Maintenance Program available*



| Load/Unload ZT (Air-cooled) and ZR (Water-cooled) | | | | | | |
|---|-------|----------|----------------------|---------------------|--------------------|--------------|
| Model Number | Power | Capacity | FAD2 (CFM) @109 psig | FAD2 (l/s) @7.5 bar | Receiver (Gallons) | Noise Level3 |
| | HP | KW | | | | |
| DUPLEX | | | | | | |
| ZT15 MED | 20 | 15 | 80 | 37.4 | 240 | 65 |
| ZT18 MED | 25 | 18 | 102 | 48.6 | 240 | 67 |
| ZT22 MED | 30 | 22 | 125 | 59 | 240 | 69 |
| ZT30 MED | 40 | 30 | 167 | 79.6 | 240 | 63 |
| ZR30 MED | 40 | 30 | 167 | 79.6 | 240 | 63 |
| ZT37 MED | 50 | 37 | 204 | 96.9 | 240 | 65 |
| ZR37 MED | 50 | 37 | 204 | 96.9 | 240 | 65 |
| ZT45 MED | 60 | 45 | 243 | 113.7 | 400 | 67 |
| ZR45 MED | 60 | 45 | 243 | 113.7 | 400 | 67 |
| TRIPLEX | | | | | | |
| ZT15 MED | 40 | 30 | 160 | 74.8 | 240 | 68 |
| ZT18 MED | 50 | 36 | 204 | 97.2 | 240 | 70 |
| ZT22 MED | 60 | 44 | 250 | 118 | 400 | 72 |
| ZT30 MED | 80 | 60 | 334 | 159.2 | 400 | 66 |
| ZR30 MED | 80 | 60 | 334 | 159.2 | 400 | 66 |
| ZT37 MED | 100 | 74 | 408 | 193.8 | 400 | 68 |
| ZR37 MED | 100 | 74 | 408 | 193.8 | 400 | 68 |
| ZT45 MED | 120 | 90 | 486 | 227.4 | 400 | 70 |
| ZR45 MED | 120 | 90 | 486 | 227.4 | 400 | 70 |

| Variable Speed Drive ZT (Air-cooled) and ZR (Water-cooled) | | | | | | |
|--|-------|----------|----------------------|---------------------|--------------------|--------------|
| Model Number | Power | Capacity | FAD2 (CFM) @109 psig | FAD2 (l/s) @7.5 bar | Receiver (Gallons) | Noise Level3 |
| | HP | KW | | | | |
| DUPLEX | | | | | | |
| ZT22 VSD MED | 30 | 22 | 44-117 | 20.6 - 55.3 | 240 | 69 |
| ZT37 VSD MED | 50 | 37 | 88-215 | 41.3 - 101.1 | 240 | 68 |
| ZR37 VSD MED | 50 | 37 | 88-215 | 41.3 - 101.1 | 240 | 68 |
| ZT55 VSD MED | 74 | 55 | 88-303 | 41.3 - 142.5 | 400 | 68 |
| ZR55 VSD MED | 74 | 55 | 88-303 | 41.3 - 142.5 | 400 | 68 |
| TRIPLEX | | | | | | |
| ZT22 VSD MED | 60 | 44 | 44-234 | 20.6 - 110.6 | 400 | 72 |
| ZT37 VSD MED | 100 | 74 | 88-430 | 41.3 - 202.2 | 400 | 71 |
| ZR37 VSD MED | 100 | 74 | 88-430 | 41.3 - 202.2 | 400 | 71 |
| ZT55 VSD MED | 148 | 110 | 88-606 | 41.3 - 285 | 400 | 71 |
| ZR55 VSD MED | 148 | 110 | 88-606 | 41.3 - 285 | 400 | 71 |

1. Normal operating conditions at a maximum ambient of 105°F. Consult factory for higher ambient conditions.
2. All capacities are shown as NFPA system capacities (reserve compressor on standby). Reference conditions: absolute inlet pressure 1 bar (14.5 psi); intake air temperature 20°C (68°F); 7.5 bar (109 psi) max. working pressure. (14.5 psi); intake air temperature 20°C (68°F); 7.5 bar (109 psi) max. working pressure.
3. All noise levels are shown in db(A) and reflect 1 compressor running (duplex) or 2 compressors running (triplex).

