ROTARY LOBE COMPRESSOR PACKAGES
DELTA HYBRID GENERATION 5

Intake volume flow from 65 cfm to 5,300 cfm
Quiet, Compact, Energy Efficient

deltaHybrid

AERZEN
aerzenusa.com
Rotary Lobe Compressor

The Rotary Lobe Compressor is the result of a synergy between the rotary lobe blower and the screw compressor technologies.

The Delta Hybrid was developed with the focus on increasing energy efficiency and achieving a significant reduction of energy costs and greenhouse gas emissions.

Wire-to-process energy usage reduction can exceed 30% over typical positive displacement blowers depending on operating conditions and turndown range.

Optimized fluidic design of inlet and discharge ports provides for ideal flow conditions and reduced slippage. Moreover, the belt-driven Delta Hybrid offers the significant advantage of exact sizing: the greatest advantage comes from the energy that does not need to be used. A 5% excess in volume flow corresponds to a 5% higher energy use.

Further measures that improve energy efficiency:

- Very wide flow control range with use of a VFD up to 4:1 turndown
- Optimized fluidic design of inlet and discharge reduces internal pressure losses
- Belt drive offers the flexibility to match exactly the required air flow even without the use of a VFD
- High performance belt drive system with losses under 3%
- High efficiency means lower discharge temperature. This reduces aging of downstream membranes or diffusers in synthetic materials.
- Optimal air flow within the acoustic enclosure brings cool air directly to the intake side and increases compression efficiency
- Silencer without absorption material and with reduced pressure losses to maintain downstream air free of contamination by absorption material, therefore preventing the loss of efficiency in a diffuser or aeration system.
Aerzen’s Generation 5 Delta Hybrid
The 5th generation of Aerzen modular compact packages combines tradition and innovation.

1 Easy installation with forklift or pallet jack for placement

2 Room-saving, compact, side-by-side installation

3 Easy access to all components with one oil drain/oil fill point

4 Oil level can be observed from the outside

5 Automatic belt tension—No adjustment required

6 Oil change intervals extended to over 16k operating hours with Aerzen Delta Lube

7 Typical machinery noise average SPL 75-80 dB(A) with acoustic hood

Hybrid Rotary Compressor Stage

3+4 rotor profile with internal compression for low pressure applications.

3+3 rotor profile with twisted rotors and patented pulse charging as well as low squeeze losses.

8 Aerzen patented bearing system extends the bearing life to over 60,000 operating hours (at a differential pressure of 1000 mbar (15 psi))

9 Reactive discharge silencer without internal absorption material

For more information, visit www.aerzenusa.com
The accessories that make the difference.

**Instrumentation**
- Standard filter maintenance indicator and p2 gauge

**Discharge Manifold**
- With integral full bore check valve for low pressure drop. The check valve can be inspected without disconnecting the piping. Non-chatter check valve suitable for adjustable speed operation.

**Discharge Flexible Connector**
- Reinforced rubber. Downstream of discharge silencer to reduce transmission of structure-borne noise.

**Reactive Discharge Silencer**
- Machined support surface for blower. Stiff for installation on vibration isolating mounts. Low pressure drop design. No absorption packing material. ATEX spark arrester.

**Vibration Isolating Mounts**
- Rubber-type. Located under the supporting base. No special foundation required.

**Belt Guard**
- Designed for easy access to the drive. OSHA standard.

**Hinged Motor Plate**
- Steady alignment and consistent tension provided by the motor weight. No springs needed. Constant high efficiency.

**NEMA F3 Premium Efficiency TEFC Motor**

**Pressure Safety Valve**
- Spring-loaded. Specifically designed for low pressure applications. Mounted vertically downstream of the silencer for longevity.* (hidden in photo)

**Aeromat Start Unloading Valve (Optional)**
- Allows startup of the main motor with no load. The valve is completely self-activating and does not need any auxiliary electrical or pneumatic power source.

**Instrumentation package:**
- AERtronic Control System includes pressure transmitters for intake, discharge and oil pressure, as well as resistance temperature detectors (RTD) discharge and oil temperature and operator interface.

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*PED compliant pressure vessel
Driving Processes Economically.
From Our Installation to Your Satisfaction.

The Delta Hybrid has a differential pressure capability of 1.5 bar (22psi). Vacuum operation can now be extended from -500 mbar (-15″Hg) to -700 mbar (-21″Hg). The Delta Hybrid provides higher reliability under high ambient temperatures, elevated altitudes, and high differential pressures in positive or negative pressure applications; it can now operate safely at discharge temperatures of 160 to 180 degrees C (320 to 356 degrees F).

Low noise, low pulsation levels
- New pulsation reduction in the compressor stage
- Silencer without absorption materials (patented)
- Additional insulation
- Inlet cone to further reduce inlet noise (patented)
- Optimized acoustic enclosure

Additional advantages of the Delta Hybrid
- Discharge silencer designed as spark arrester certified for ATEX applications
- PED pressure-vessel guidelines approval (discharge silencer and pressure safety valve), for all machines; ASME VIII U Stamp is a standard option above 15 psig
- Same pipe connections as Delta Blower Generation 5
- The up to 4:1 turndown adaptibility of the Delta Hybrid enables plants to operate efficiently at minimum capacity without blowing off excess air
- Extended process turndown with a minimum number of machines
Aertronic. Intelligent Control for Fast Processes.

Scope of supply

- Newly designed Rotary Lobe Compressor
- Discharge silencer integrated in base frame
- Combined filter and silencer
- Premium efficiency electric motor
- High-performance belt drive
- Hinged motor plate
- Connecting housing with check valve
- Pressure safety valve
- Flexible pipe connector with clamps/or flanged expansion joint

Accessories

- Acoustic enclosure for indoor or for outdoor installation
- Cooling fan: shaft or electric motor driven
- Start unloading valve
- Aerzen controller AERtronic or gauges

Modifications and upgrades

- ATEX certification
- ASME, GOST, China License certification
- All-in-one-solution with integrated starter panel
- Separate control panel
- Frequency inverter (VFD)
- Other accessories on request

Aerzen controller AERtronic

The new Aerzen AERtronic controller is based on a modular design approach and offers a solution tailored to each individual application. The controller includes an intuitive touch screen, the base module as well as application dependent add-on modules. All measured operating data is retrievable and parameters adjustable in a user-friendly menu structure. The base unit used across the Aerzen product range includes the following features: processor unit, oil level control, inlet and discharge pressure, motor temperature and speed, three free digital inputs, a relay output, and bus communication interface with control panel and expansion modules.

The expansion module offers three digital inputs and three relay outputs as well as inputs for temperature and pressure measurements (for example, oil temperature, compressor outlet temperature, oil pressure). Additional digital inputs, relay outputs, Pt 1000 and analogue inputs and outputs for pressure or temperature control with use of a VFD, as well as bus interface for communication with a master controller or other systems and for data communication can be provided with additional application-related expansion and special modules.
## Delta Hybrid Performance Data

### Positive Pressure

<table>
<thead>
<tr>
<th>Aerzen Hybrid Model</th>
<th>Differential Pressure (max mbar)</th>
<th>Volume Flow (max m³/h)</th>
<th>Motor Power (max kW)</th>
<th>Noise Pressure Level* (max dB (A))</th>
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<tbody>
<tr>
<td>D 12 H</td>
<td>1500</td>
<td>670</td>
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<td>81</td>
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</table>

* Machine emitted noise with acoustic enclosure and with connected and insulated piping, tolerances ± 2 dB(A)

### Vacuum

<table>
<thead>
<tr>
<th>Aerzen Hybrid Model</th>
<th>Differential Pressure (max mbar)</th>
<th>Volume Flow (max m³/h)</th>
<th>Motor Power (max kW)</th>
<th>Noise Pressure Level* (max dB (A))</th>
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<tbody>
<tr>
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<td>D 152 E</td>
<td>-700</td>
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</tr>
</tbody>
</table>

* Machine emitted noise with acoustic enclosure and with connected and insulated piping, tolerances ± 2 dB(A)

### Nomenclature:

**Example:**

D 62 S

**Style:**

- **H** = high differential pressures to 1500 mbar (22 psi)
- **S** = short, differential pressures to 1000 mbar (15 psi)
- **L** = long, differential pressures to 800 mbar (12 psi)
- **E** = Vacuum (exhauster) design to 700mbar (-21” Hg)

Max. Volume flow in m³/min (approx.)

Rotary Lobe Compressor

For more information, visit [www.aerzenusa.com](http://www.aerzenusa.com)
Aerzen means trouble-free compression.

Aerzen’s modular blower packages have been offered since the 1960s. Aerzen Delta Blower packages have been in successful operation since the 1990s. They are just one of the offerings in our single stage positive displacement program. Whatever your application and installation requirements, be sure to consider Aerzen.

**Delta Care Maintenance Agreement**

Warranty: 5 years optional with our Delta Care Maintenance Agreement

**For Pressure**
- Up to 15 psi: G5 Blower packages
- Delta Hybrid up to 22 psi
- 10 to 51 psi: Oil-free and air-cooled VM and VML screw compressors

**For Vacuum (Dry)**
- Up to 15” Hg: G5 Blower packages
- Hybrid up to 20” Hg
- Up to 25” Hg: G5 Blower packages with pre-inlet cooling
- Up to 25.5” Hg: Oil-free and air-cooled VM screw compressors at same flow (30% more efficient than PD blowers)
- Vacuum boosters to 10⁻² mbar absolute

**For Extended Pressure/Vacuum**
- Up to 40,000 cfm available
- For other gases, higher pressure/vacuum consult factory

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**Dimensions**

<table>
<thead>
<tr>
<th>Hybrid Model</th>
<th>Depth D (mm)</th>
<th>Width W (mm)</th>
<th>Height H (mm)</th>
<th>Nozzle Size DN (mm)</th>
<th>Weight (approx kg)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1350</td>
<td>1500</td>
<td>100</td>
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<td>D 152 S/E</td>
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<td>2850</td>
<td>2345</td>
<td>300</td>
<td>2100</td>
</tr>
</tbody>
</table>

Dimensions expressed, not binding

Weight without motor

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Aerzen USA is a certified LEED Gold, Green facility.

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