



AERZEN®

**one
step
ahead**



**Single-Stage
Oil-Free
Air-Cooled
Rotary Screw
Compressors**

DELTA
P a c k a g e s
Screw Compressor

If reliability and return on investment are your main criteria in selecting a single-stage, oil-free rotary screw compressor, consider Aerzen's Delta Screw packages. These simple, sturdy machines offer superior performance and long service life.

A totally field-proven design:

Aerzen has been making screw compressors since 1943. Thousands of them are performing in the toughest applications around the world: on land or at sea; at all latitudes and in all climates; in environments from the cleanest to the dustiest.

Dry compression: The conveying chamber is completely dry. Clearances between rotors are maintained by the timing gears. Since compression is accomplished without oil lubrication, there is no possibility of oil contamination of the process stream.

Optimum performance: With the Delta Screw Compressor series, Aerzen can tailor rotor profile, operating speed, internal compression ratio, and a choice of accessories to individual requirements. And all with optimal energy efficiency.

Capacity control: With the use of a frequency inverter drive, Aerzen can regulate the volume of the VM and VML series efficiently over a

wide range, up to a 4:1 turndown ratio, with corresponding power savings. Unloading valve systems are also available.

Service life: It is not unusual to find Aerzen screw compressors still in service after decades. Aerzen designs and builds the machines to be reliable and long-lived, so that downtime and maintenance expense are at a minimum.

Air cooled: The compressor housing is air cooled for highest compressor reliability.

Reliable performance: Our steel rotors are machined to final tolerances without need for coatings, which are temporary in nature.

Modular packages: A wide range of accessories is available within the modular format of the compressor package. Whatever the options, installation of the factory assembled Delta Screw Compressor package is easy and requires no special foundation.

Simple operation and

maintenance: The only routine maintenance required consists of inlet air filter, oil, and oil filter changes, as well as safety component checks. The controlled, closed loop, oil lubrication system, in conjunction with the instrumentation, protects the machine from abnormal operating conditions. All maintenance points are readily accessible from one side. The maintenance can easily be carried out by plant personnel.

Extremely low vibration level:

Precision machining, dynamic balancing of the rotors, foot-mounted compressor stage, and the ability to accurately align the drive all contribute to a low vibration level.

Typical applications: Aerzen packages are used for reliable compression of clean air or neutral gases for many diverse requirements, including: water treatment; pneumatic conveying; glass production; air separation; ozone generation; ground-water remediation; cement barge unloading; raw meal blending; harbor oil booms; deep water aeration; jet engine starters; and gas-air mixing.

Technical Description

General range: VM series up to 5,000 icfm and discharge pressure of 51 psig (3.5 bar g); VML series up to 9,000 icfm and continuous discharge pressure of 30 psig (2.0 bar g); VML can also serve as a very efficient dry vacuum pump for 70% or 21"Hg vacuum, and in Aerzen pre-inlet version, for 85% or 25"Hg vacuum

Compressor stage: The core of the package is the well known Aerzen VM or VML screw compressor

Housing: Air cooled

Rotors: Asymmetric profile, VML 3+4 and VM 4+6 lobes, dynamically balanced to ISO 1940 G 2.5

Drive shaft rotation: Clockwise, viewing the drive shaft

Sealing: At the rotor chamber — vented, restrictive, carbon rings type, labyrinth seal; at the drive shaft — labyrinth seals (no lip seals)

Bearings: Anti-friction type

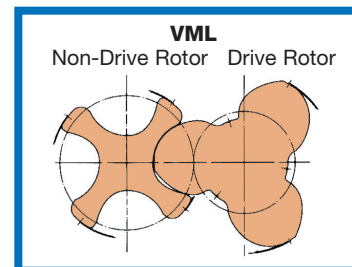
Gears: Both speed increasing and timing gears* are located on the cool, suction end; AGMA 12 quality level, helical type, surface hardened and ground; service factor per AGMA: 1.7 minimum

Lubrication

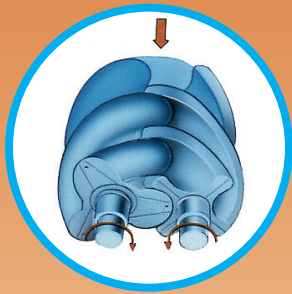
system: Force feed lubrication system, including: positive displacement oil pump, externally accessible, driven off the female rotor shaft; aluminum plate type, air cooled, oil cooler with drive-shaft-driven cooling fan; oil temperature control valve, oil overflow valve, cartridge type oil filter; recommended oil is standard and can be procured locally by the operator

Materials of construction:

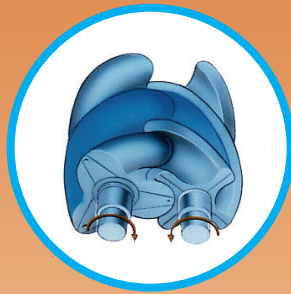
Housing: Grey cast iron GG25 (equivalent to A278 class 40)
Rotors: Carbon steel C45N (equivalent to AISI Type 1043)



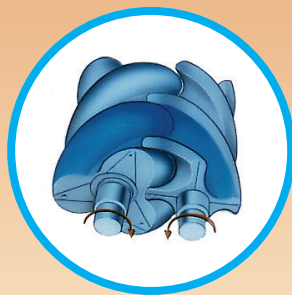
The VM and VML Compression Process



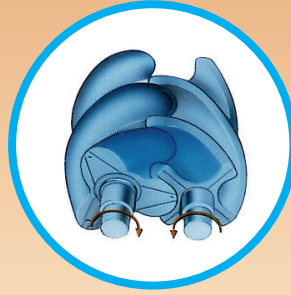
Inlet Air



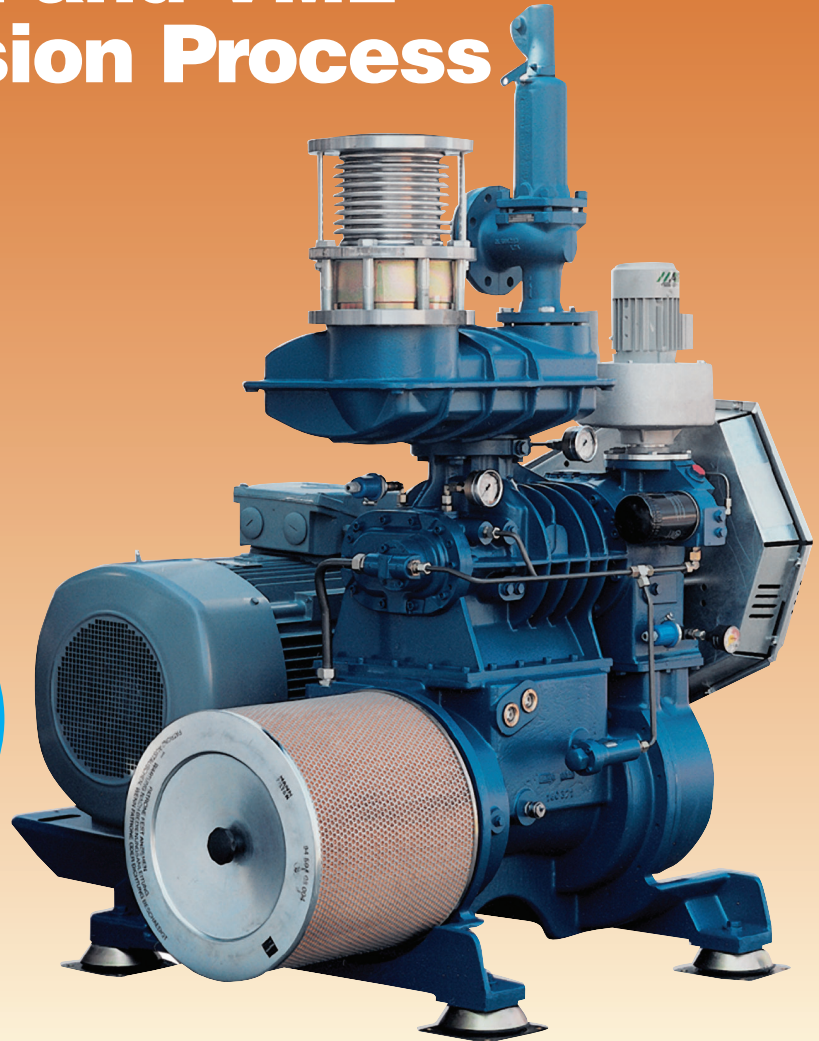
Compression



Compression

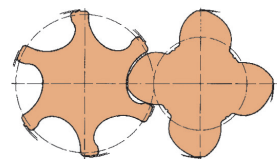


Discharge Air



VM

Non-Drive Rotor Drive Rotor



Accessories

Positive pressure unit, minimum standard scope of supply.

Air intake filter

Discharge silencer with code stamp

Pressure relief valve: 5% pressure accumulation; with code stamp

Discharge check valve: Spring loaded, with metal seat

Stainless steel bellow expansion joint.

Drive coupling and guard: Dry, flexible type, fully accessible. Service factor ≥ 2.0 ; coupling with steel hubs*

Structural base frame mounted on vibration isolating mounts: Common to compressor and motor

Instrumentation package: NEMA 4 panel housing gauges and shutdown switches for gas and oil pressure and temperature monitoring; solid-state first-out fault indicator

Optional accessories:

- Electric motor: readily available standard style; foot-mounted, two-pole and four-pole NEMA, IEC, CSA, or other depending on customer's specifications; if

preferred, customers can supply their own motors

- Custom instrumentation
- Sound enclosure: Indoor or outdoor, with integral skid/oil drip pan
- Idling speed/full-load control system
- Motor starter
- Frequency inverter
- Aftercooler: Air or water cooled
- Air dryer
- Consult factory for custom options

*VM-R and VML-R series are belt-driven: providing additional flexibility as well as best meeting the needed performance. 2-pole motors only, limited selection of motor manufacturers.

Aerzen means trouble-free compression of air.

The single-stage positive-displacement program includes a full spectrum of product offerings. Whatever the application and installation requirements are, be sure to consider Aerzen.

For Pressure:

- Up to 15 psi: Compact blower packages
- Up to 51 psi: Oil-free and air-cooled VM and VML screw compressors

For Vacuum (Dry):

- Up to 15" Hg: Compact blower packages
- Up to 24" Hg: Compact blower packages with pre-inlet cooling
- Up to 25.5" Hg: Oil-free and air-cooled VM and VML screw compressors

For gases other than air, please consult factory.



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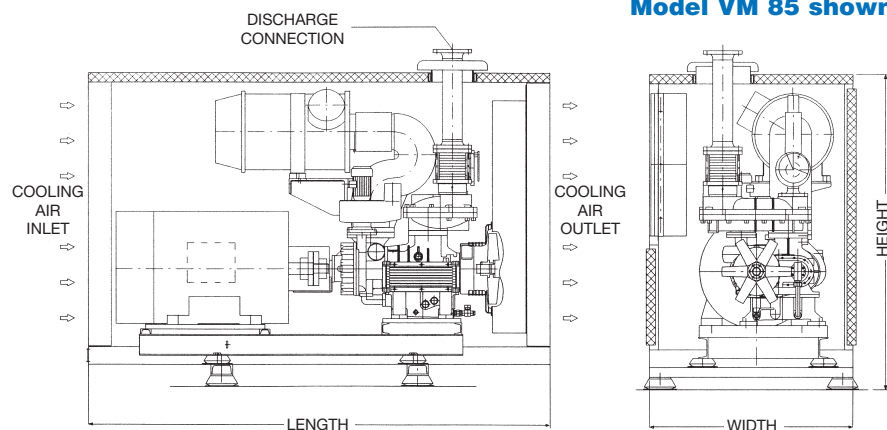
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Package designed for use with TEFC or ODP motors

Type/size	Length [inches]	Width [inches]	Height [inches]	Discharge flange	Oil fill [USG]	Approx Weight [lbs] w hood	Approx Weight [lbs] w/o hood
VML 18R	70	55	65	3"/150#	3	1875	1325
VML 25R	80	70	90	5"/150#	6	2870	1770
VML 40R	100	70	95	6"/150#	9	3310	2100
VML 60	120	70	80	6"/150#	5	5910	8560
VML 95	150	70	90	10"/150#	7	8160	12350
VML 150	180	100	110	12"/150#	12	11030	14560
VML 250	220	100	120	16"/150#	24	15660	20950
VM 8R	70	55	65	2.5"/150#	5	2470	1370
VM 15R	75	65	80	2.5"/150#	7	2540	1440
VM 21R	78	70	90	3"/150#	7	2980	1875
VM 37R	100	75	100	6"/150#	14	3420	2210
VM 45	130	70	80	6"/150#	5	5980	8710
VM 75	160	70	90	8"/150#	7	8270	12680
VM 85	160	70	90	8"/150#	13	8830	13240
VM 140	200	80	110	10"/150#	17	13240	18750

Note: weight without main electric drive motor

VML series maximum 30 psig continuous

Type/size	Belt drive	Direct drive	Max std. NEMA frame motor	Maximum flow at max discharge pressure = 30 psig		Minimum flow at discharge pressure = 15 psig	
VML 18R	X		405TZ	702 icfm	83 BHP	232 icfm	19 BHP (1)
VML 25R	X		405TZ	998 icfm	119 BHP	249 icfm	21 BHP (1)
VML 40R	X		447TZ	1442 icfm	169 BHP	518 icfm	38 BHP (1)
VML 60		X	449TS	2646 icfm	292 BHP	420 icfm	35 BHP (1)
VML 95		X	5010US	4162 icfm	456 BHP	680 icfm	55 BHP (1)
VML 150		X	5810US	6635 icfm	600 BHP	1060 icfm	86 BHP (2)
VML 250		X	5812USS	8121 icfm	868 BHP	1800 icfm	141 BHP (2)

VM series maximum 51 psig continuous

Type/size	Belt drive	Direct drive	Max std. NEMA frame motor	Maximum flow at max discharge pressure = 51 psig		Minimum flow at discharge pressure = 36 psig	
VM 8R	X		365TZ	280 icfm	71 BHP	85 icfm	19 BHP (1)
VM 15R	X		405TZ	546 icfm	105 BHP	142 icfm	29 BHP (1)
VM 21R	X		444TZ	835 icfm	157 BHP	162 icfm	31 BHP (1)
VM 37R	X		447TZ	862 icfm	154 BHP	285 icfm	51 BHP (1)
VM 45		X	449TS	1750 icfm	292 BHP	390 icfm	68 BHP (1)
VM 75		X	5010US	3180 icfm	532 BHP	920 icfm	138 BHP (1)
VM 85		X	5810US	3635 icfm	610 BHP	1020 icfm	158 BHP (2) (3)
VM 140		X	5812USS	6070 icfm	1043 BHP	1490 icfm	232 BHP (2) (3)

Data based on air at 68F/14.7 psia @ inlet

Notes: Performance

(1) motor input speed 3550 rpm

(2) motor input speed 1780 rpm

(3) highest flow range possible only with 3550 rpm motor speed