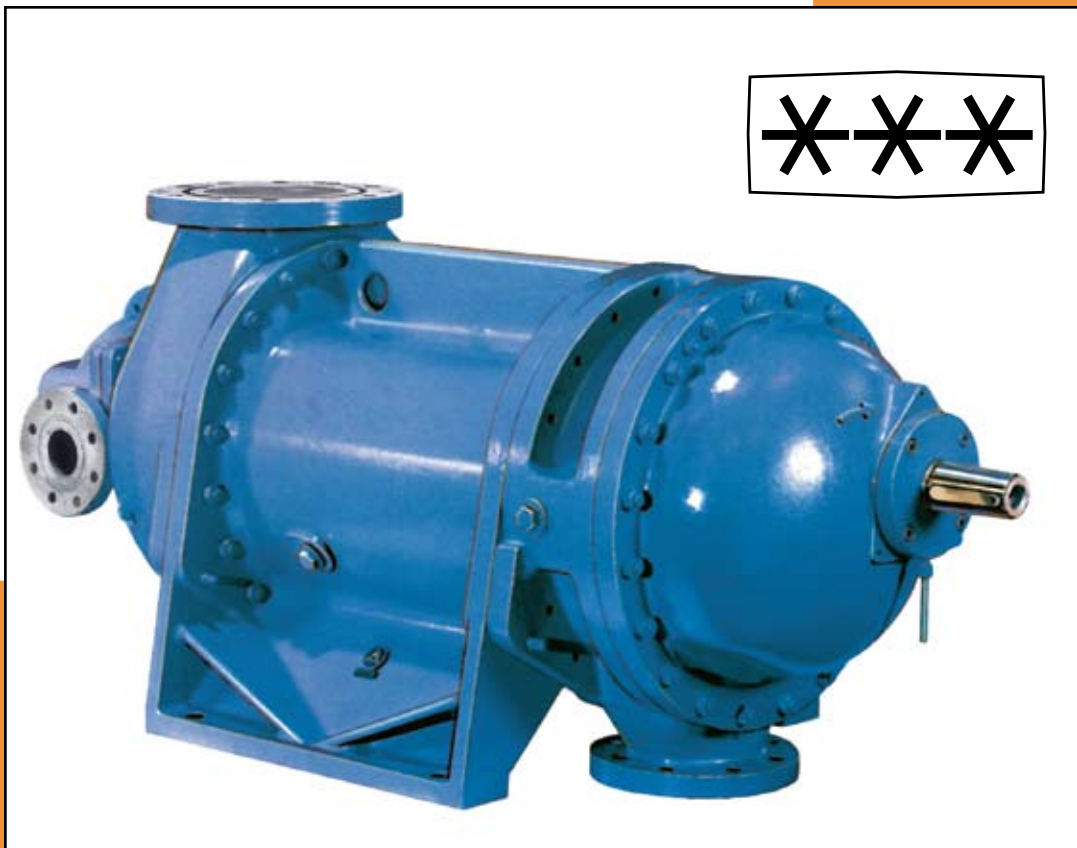


# **AERZEN**

## **SCREW COMPRESSORS**

Aerzen Screw Compressors VMY with oil injection and  
integral capacity control for refrigeration  
series -36



**AERZEN**

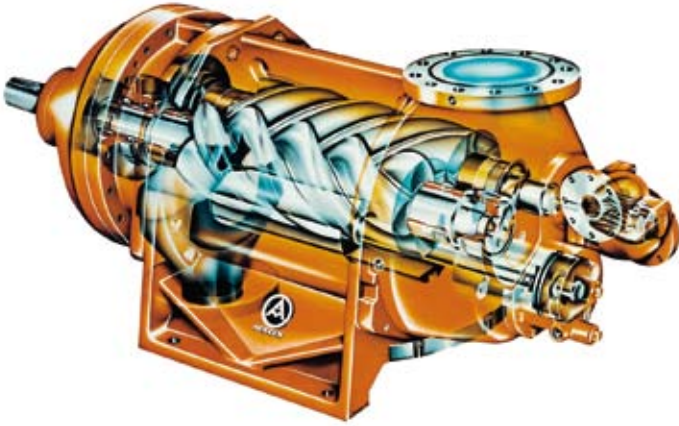
**AERZENER MASCHINENFABRIK**  
**GMBH**

V1-035 | 02 | EN

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## General

Aerzen VMY screw compressors feature oil injection and capacity control. Flow rates at inlet conditions range from 700 to 10.000 m<sup>3</sup>/h at operating speeds corresponding to 50 and 60 c/s power supplies. Pressures up to 20 bar can be reached in a single stage (higher pressures are available upon request).



## Fields of application

These controllable VMY screw compressors of series -36 for refrigeration cycles are available in 12 sizes, making it possible to adapt the performance to any operating requirement.

The VMY is the ideal choice for a whole range of marine- and industrial applications, where reliability and low operating costs are prime requirements.

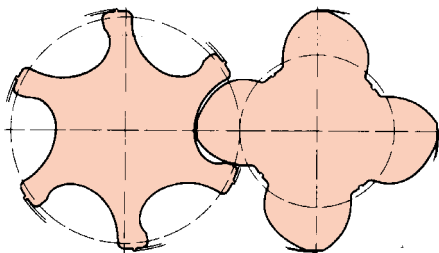
Typical refrigerating applications include:

- Food industry - breweries, dairies, slaughterhouses, fast food, vegetable and other food process plants
- Cold and chill stores
- Chemical and petrochemical industries
- Marine refrigeration and air conditioning

## Design and principle of operation

The gas flows through the VMY compressor from top to bottom. The rotors are positioned horizontally in the housing. The gas compression takes place in progressively reduced chambers formed between the lobes of the intermeshing rotors and the cylindrical walls of the compressor housing.

series -36



female rotor

male rotor

The male rotor directly drives the female rotor; there are no timing gears. The oil injected into the compression chamber provides ample lubrication and removes most of the heat of compression. The clearances between the rotors and the housing are filled with oil, preventing backflow and thereby improving the volumetric efficiency. Radial loads are handled by sleeve bearings. These are generously sized to deal with the heaviest loads and being located adjacent to the compression chamber. Their short span avoids rotor deflection under high differential pressures. The high axial loading exerted on the male rotor is greatly reduced by means of a hydraulic compensating piston. The rotors are axially located by anti-friction bearings.

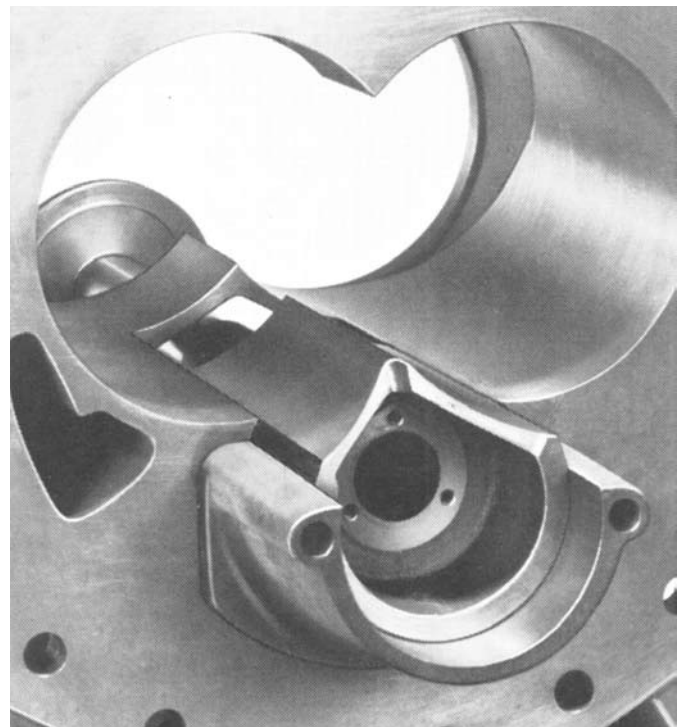
Lubrication of the entire unit is ensured by a gear-type pump, flanged onto the compressor and driven from the female rotor.

The VMY compressor housing sections and the drive shaft are sealed by means of O-rings and a mechanical seal. Allowing the standard machine to be used up to 25 bar internal static pressure.

## Infinitely variable capacity control

All VMY compressors, as standard production machines, equipped with a slide valve for capacity control allowing the flow to vary from 100 to 20 %.

The position of the control slide valve incorporated in the housing is changed, leading to a corresponding orifice between the inlet - and the compression chamber. A proportionally larger or smaller volume of gas drawn into the machine flows back uncompressed to the inlet.



Slide valve in compressor housing

The power required is reduced, determined by the flow rate regulation, which is nearly in proportion to the volume of gas compressed. Therefore, energy saving, economic operation is achieved. The VMY compressor is the ideal machine for varying operating conditions. The cooling achieved by the oil injection enables it to cope with fluctuations in flow, temperature and pressures, occurring on the inlet side as well as on the discharge side.

### Unloaded start

Starting under reduced torque load conditions can be achieved by a controlled minimum setting of the capacity slide valve.

### Quality

Experience in the production of twin shaft rotary piston machines is also reflected in quality assurance. Since 1990, Aerzener Maschinenfabrik counts itself among the manufacturers capable of certifying quality assurance to ISO 9001. Upon request the screw compressors can also be delivered with acceptance tests carried out by classification companies.

### Summary

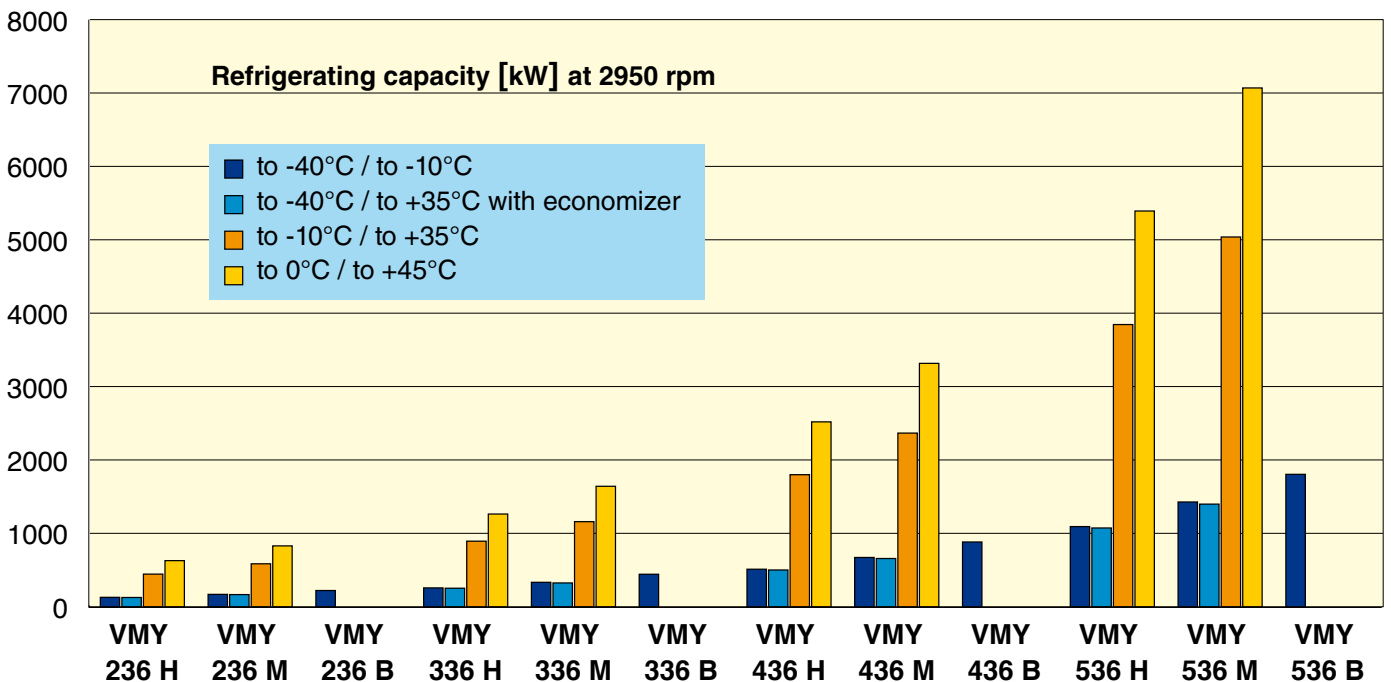
VMY compressors have been developed specially for the refrigeration market. The main features of the VMY compressor range include:

- Four rotor diameters
- Available in three different lengths, i.e.,  
H = high differential pressure  
M = medium differential pressure  
B = low differential pressure
- All models equipped with economizer and SOC connections for best selection of substantial capacity gain in each individual application
- Externally flanged oil pump
- Infinitely variable capacity control
- Worldwide more than 3000 installed in refrigeration
- Acceptance test DNV, GL, LRS and BV
- Design acc. to API 619 with deviations



### Nominal capacity

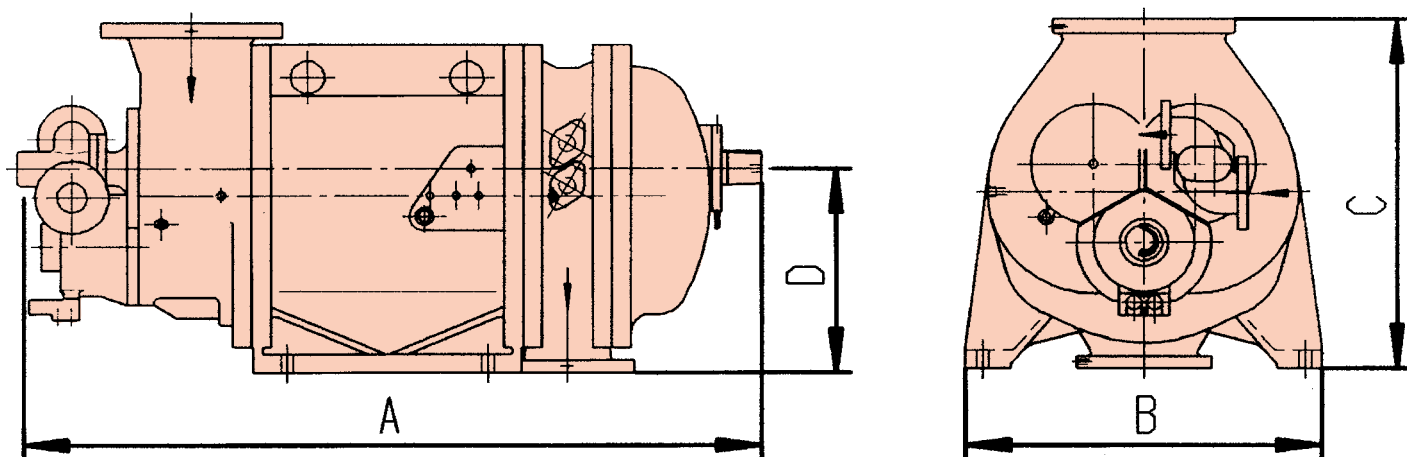
**Ammonia (R 717)** - Condensing temperature +35°C and subcooling of liquid 5K



### Typical refrigerants handled by Aerzen oil injected compressors

R717 (NH<sub>3</sub>), R134a, R1270 (propene), R290 (propane), R600 (butane), R507, R404a, R22 - further refrigerants upon request.

## Technical Data



Dimensions, weights and performance data are non-binding examples!

Compressor Type	A [mm]	B [mm]	C [mm]	D [mm]	Weight approx. kg	V <sup>1.)</sup> [m <sup>3</sup> /h]	$\Delta p_{\max}$ [bar]
VMY 236	H	1070			530	699	20
	M	1158	550	565	600	920	16
	B	1276			700	1221	8
VMY 336	H	1273			880	1381	20
	M	1380	700	700	980	1809	16
	B	1520			1100	2411	8
VMY 436	H	1452			1300	2708	20
	M	1588	800	800	1430	3558	16
	B	1755			1600	4733	8
VMY 536	H	1822			2500	5699	20
	M	1992	950	960	2750	7459	16
	B	2197			3200	9937	8

Measures (in mm) not binding. All data are subject to alteration without prior notice.

1.) V - swept volume at 2950 rpm.



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