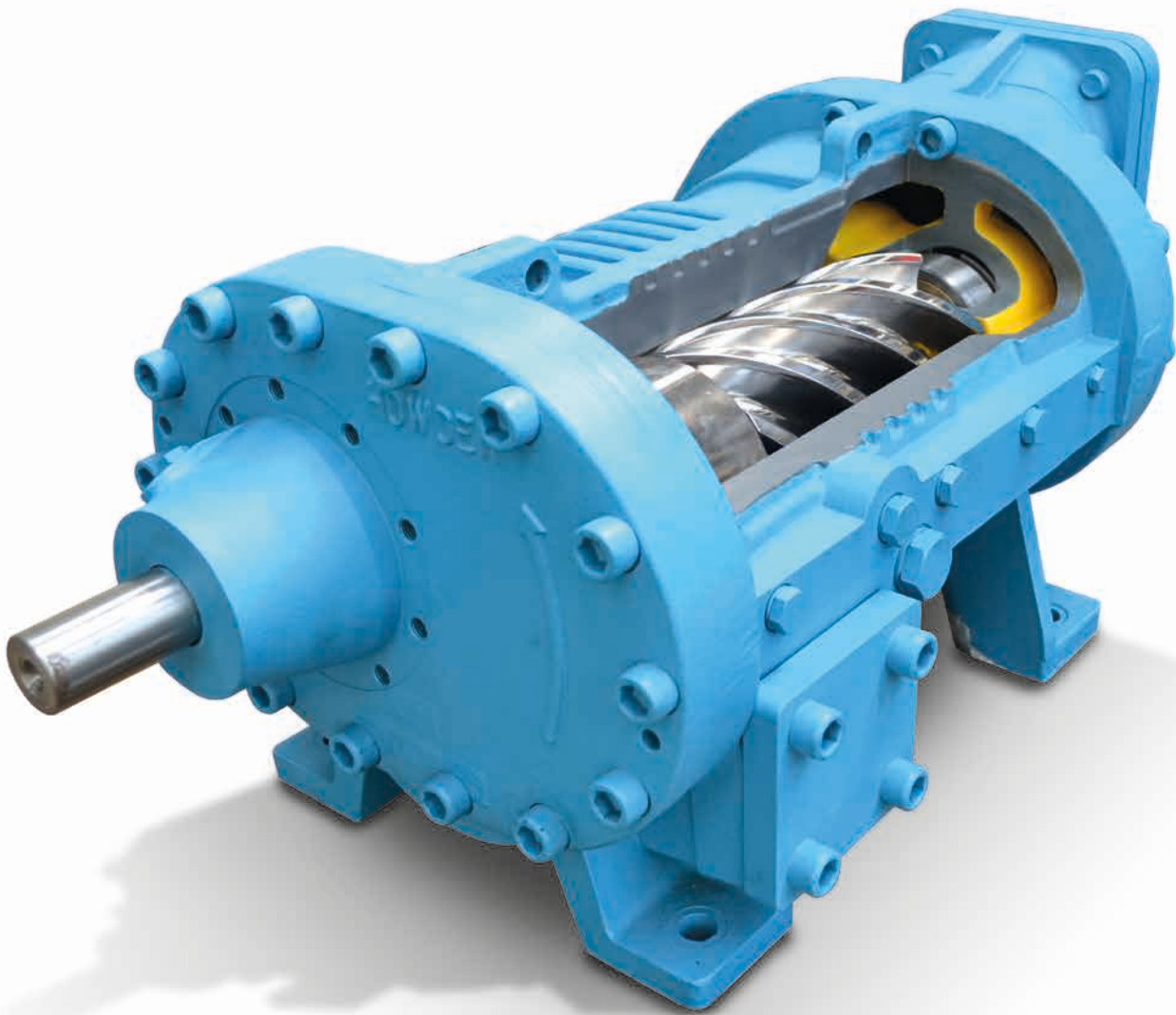


M127 industrial-standard Screw Compressor

For high efficiency, flexibility and reliability



The M127 product concept: A new industrial-standard quality built screw compressor.

The M127 compressor is engineered with a suite of specification options which meet the design and build needs of compressor packagers as well as reduce the operating costs for end users.

Howden has unrivalled knowledge, experience and expertise in designing, manufacturing and applying industrial-standard screw compressor technology to the refrigeration, oil and gas, power and other industry sectors – Howden Compressors, in the late 1930s, was the first company in the world to commercialise screw compressors. The new M127 screw compressor is an important addition to our already industry-leading wide range of oil injected industrial bare shaft products.

This new but proven design concept, with its array of additional optional features, all optimised to get the very best out of high efficiency-enabling motors and variable speed drive technology, supports our global nominated compressor packagers to easily specify and source complimentary components to achieve the most cost-effective yet robust package design solution for their end-user customers.

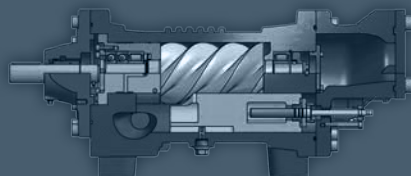
M127: Industrial-standard and energy efficient

The new M127 has improved overall efficiency compared to previous 127mm models, due in part to the new high efficiency rotor profile allowing high volume and low power consumption able to operate with variable speed drive to control capacity (1500 – 6000 rpm).

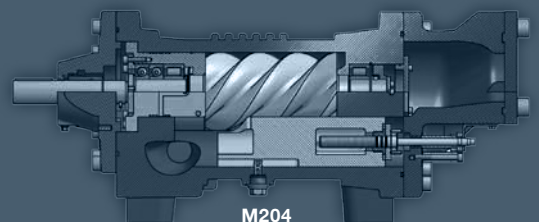
This new design concept will be scaled up to include 163mm and 204mm size models:



M127

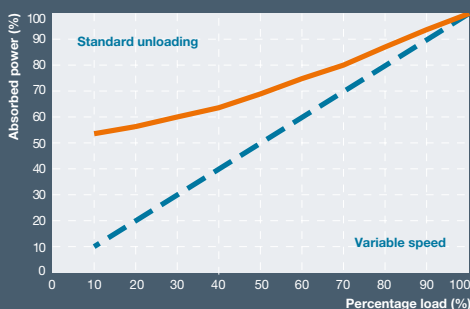


M163



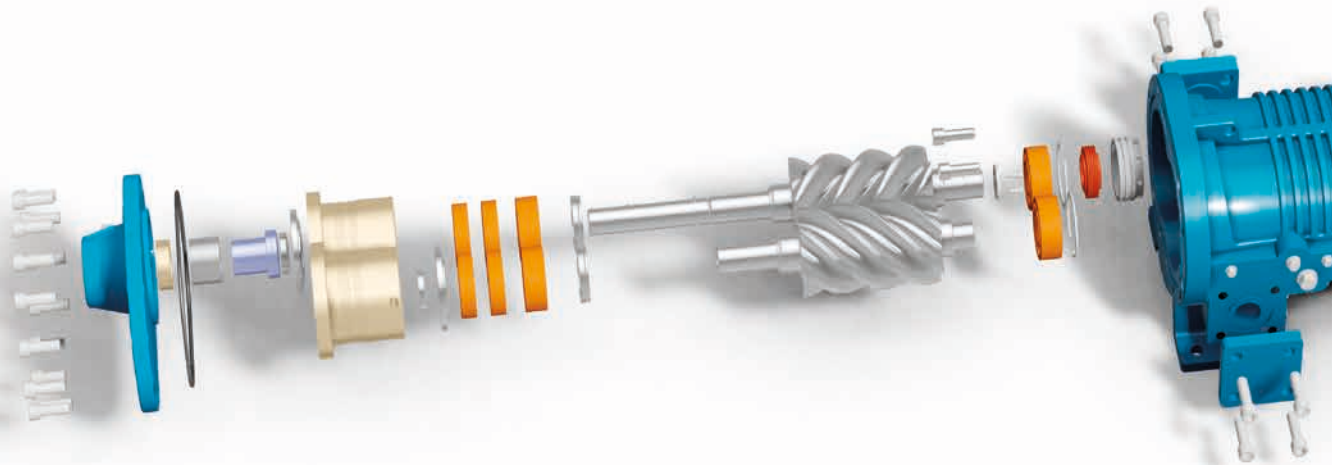
M204

Part load curve



M127 key performance parameters:

Max pressure	22 bar g	320 psi g
Max flow	588 sm ³ /hr	364 CFM
Max power	166 Kw	223 hp
Max speed	6,000 rpm	



Features and benefits

Modular design for ease of packaging

Offers flexibility for selection of most suitable component options. Access for inspection and service is greatly simplified – down time is minimised.

Modular construction promotes great flexibility for application and standard maintenance. Bearing replacement and reassembly can be carried out with minimal disruption to overall system; and similarly, discharge end seals can be accessed and replaced.

Advanced rotor profiles

Howden's unique rotor profiles enable improved performance and efficiency.

High quality anti-friction bearings used throughout

Ensures accurate rotor positioning and saves energy, for optimum performance and component life.

Options for capacity control

Capacity control steps of approximately 50% and 75% can be provided if the poppet valve option is selected. These can be used alone or in conjunction with variable speed or stop/start operation according to control requirements.

Options for capacity control include:

- Speed variation using variable speed driver.
- Poppet valves giving capacity steps, stop/start control.
- Or any of the above.

Low noise and vibration levels

Typically within 75 dB, means no need for expensive acoustic enclosures.

Central oil supply point for lubrication

Central lubrication of bearings, actuation of the poppet valves and injection into the compressor chamber simplifies the lubrication system and reduces cost of packaging.

Ability to handle high oil injection temperatures

Higher oil injected temperatures allow the use of an oil cooler which reduces the cost for the packager, especially when the machine is operated in high ambient temperature environment.

Key markets for the new M127



Oil and Gas

The M127 is an ideal small volume capacity machine for the natural gas field extraction applications. Either using variable speed drive or bolt on reduction gearbox the fluctuations in field pressure can be satisfied. Foot mounting or flanged mounting the compressor/drive provides a packaged compact assembly

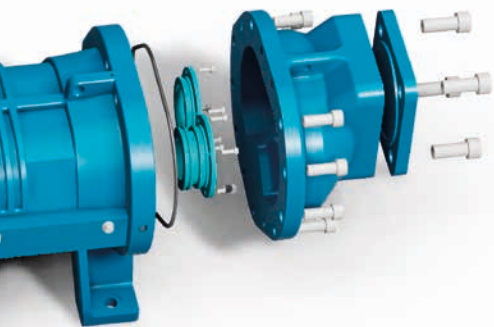
Notable features:

- Clockwise rotation with gears
- Acceptable increased oil supply temperature.
- Simple lubrication system.
- Operating at variable speeds
- Non-pumped lubrication



Waste heat recovery expanders

The M127 basic design compressor is also used as an expander, which uses waste heat from internal combustion engines exhaust and cooling jacket, chemical industries, food processing, wet steam from geothermal aquifers (natural and man-made) etc, to generate useful power. This involves reversing the direction of rotation of the rotors.



M127 as an integral component to reduce energy costs

Screw compressor + permanent magnet motor + VSD = Highest Efficiency

To support the growing end-user demand for improvements in energy efficiency throughout their operational facilities, Howden recommends the use of permanent magnet electric motors and variable speed drives, together with the new M127 screw compressor, as the optimal means of reducing industrial plant energy costs.

The integration of this latest technology offers solutions adapted to the industrial environment, and produces optimum electrical and mechanical performance:

Extended speed range

High torque

Very high efficiency

Compact design

A refrigeration compressor example:

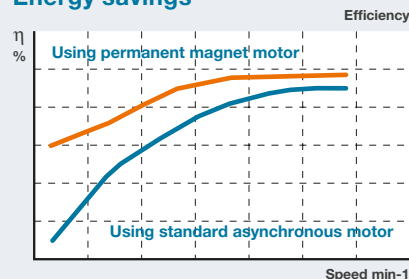
An installation comprising four fixed speed screw compressors was enhanced with the addition of a variable speed screw compressor equipped with a highly efficient permanent magnet motor and inverter. This drive solution delivers outstanding efficiency especially at part load.

Coefficient of performance increased from 3.6 to 4.1

Huge energy savings of 600,000 kwh/year

Permanent magnet synchronous motors have efficiencies that are higher than those of asynchronous motors and more stable over the entire selected speed range (see graph below).

Energy savings



M127 illustrative performance:

M127	Swept volume m ³ /hr	Nominal capacities in kw for R717			Dimensions in mm basic unit L x W x H	Weight (basic direct drive unit) kg / lbs	Sound pressure level dba
		High stage -10/+35°C	Booster -40/-10°C	With economiser -40/+35°C			
At 3600 rpm	353	213	67	65	834 x 426 x 340	220 / 485	75*
At 4500 rpm*	441	270	117	85	834 x 426 x 340	220 / 485	75*

*Higher speeds may be possible subject to duty conditions after referral to HCL Engineering



Industrial refrigeration

The M127 industrial-standard screw compressor's main field of operation is industrial refrigeration, able to handle a range of natural and alternative refrigerants. Suitable for central plant, multiple and stand alone or chiller packages providing finite control following closely product loading with increased performance.

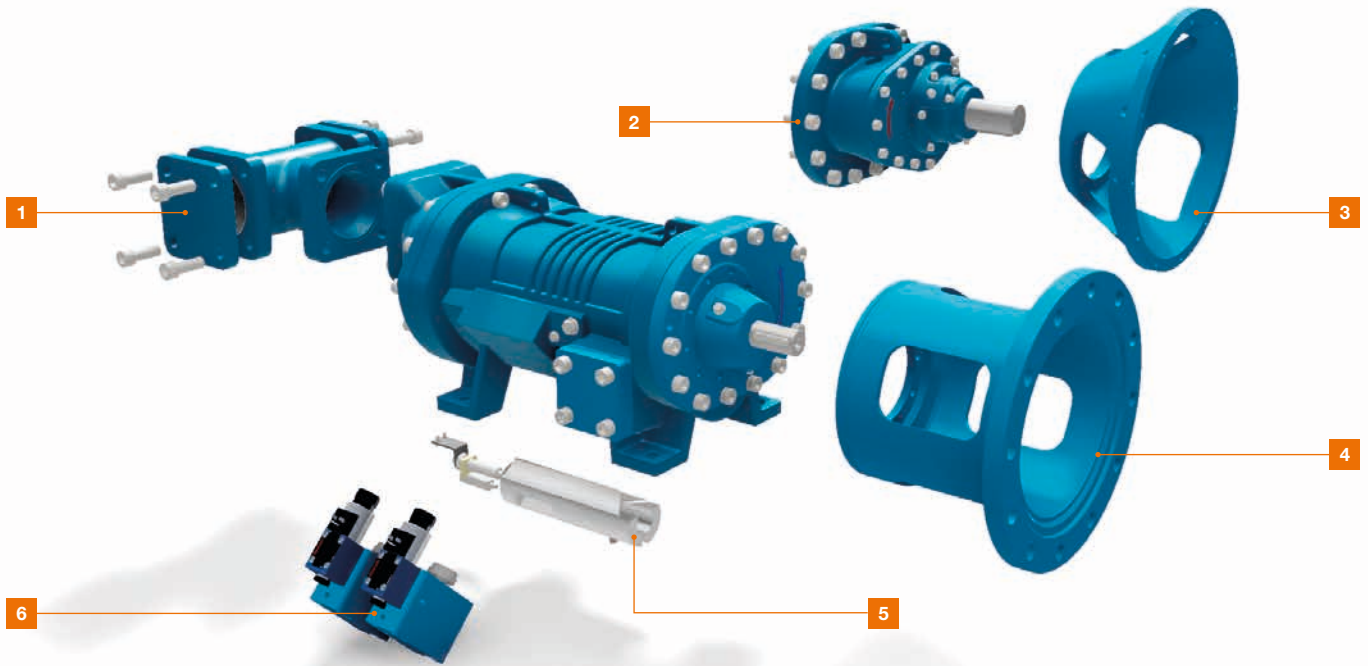
Notable features:

- Internal capacity control mechanism
- Non-pumped lubrication
- Operating at variable speeds
- Smaller footprint



Full aftermarket support

Howden's compressor products are supported throughout their lifetime with original spare parts and aftermarket services provided via our global compressor service network. Our technical experts can offer you advice and support with all aspects of compressor maintenance from spares and repairs through to full service re-build.



Options

The M127 is available with a range of options which can be selected to suit particular or specific applications. Offering Howden certified accessories together with the compressor enables the packager to reduce the supply chain network.

1. Suction Strainer

The suction strainer ensures that any particles of dirt or corrosion is captured before the gas enters the compressor.

2. Gear Box

All M127 variants are designed to be driven from the discharge end of the compressor. This allows it to be directly coupled to engine drives of up to 150kW (200HP) without any reversal and with the correct direction of rotation.

3. SAE-Flange

The SAE-Flange is made from high grade grey iron and designed to be easily mounted or dismantled from the machine with minimal disruption.

4. D-Flange

To simplify mounting and ensure correct alignment between the compressor and the prime mover, the machine is designed to be coupled directly to the motor, using either a D-Flange or a SAE-Flange.

5. Vi Control

When required the machine can be equipped with variable Vi control to optimise performance at varying pressure ratios.

6. Poppet Valve

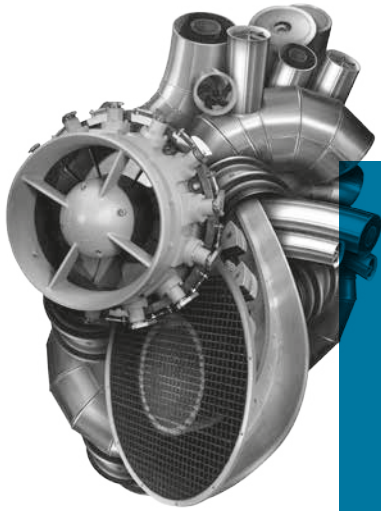
Poppet valve enabled variants are used to control the capacity of the machine when operating conditions do not allow the use of variable frequency or speed drives.

Industrial-standard build compressors backed-up by the highest quality product manufacture and testing

We are committed to manufacturing the highest quality compressors in the industry and employ state-of-the-art machine tools to attain the highest possible accuracy and tolerances achieving Howden's renowned industrial-standard build quality. Howden recognises the importance of a controlled manufacturing environment and are accredited to ISO 9001:2000. Ongoing internal and external audits of quality control systems are applied to ensure these standards are maintained.

Comprehensive in-house testing ensures that the test performance data is as accurate as possible. The M127 compressor is subjected to dynamic testing in order to proof the functionality of all the components, as well as three major types of static tests: rotor pairing & dynamic balancing, leakage and hydrostatic.





At the heart of your operations

Howden people live to improve our products and services and for over 160 years our world has revolved around our customers. This dedication means our air and gas handling equipment adds maximum value to your operations. We have innovation in our hearts and every day we focus on providing you with the best solutions for your vital operations.



Howden Compressors Ltd

Howden's global centre of excellence for bare shaft screw compressor design, manufacture, sales and support.

133 Barfillan Drive
Glasgow G52 1BE
United Kingdom

Tel: +44 (0) 141 885 7500
Fax: +44 (0) 141 882 8648
Email: hcl.sales@howden.com
hcl.aftersales@howden.com

Revolving Around You™