



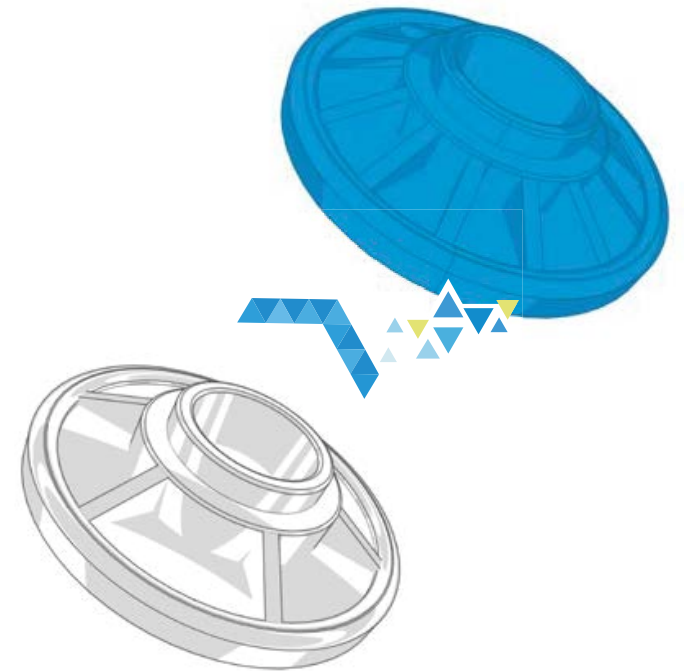
**VICTREX™**  
**POLYMER SOLUTIONS**  
**FOR THE COMPRESSOR**  
**INDUSTRY**



# DRIVE FUTURE PERFORMANCE IN THE REFRIGERANT COMPRESSOR INDUSTRY

The compressor industry today requires energy efficient, quiet and cost-effective compact compressors to meet the ever increasing demands from regulatory and environmental bodies. This is pushing industry-leading companies to innovate higher performance compressors to meet customer needs. Without alternative material technology it will be very challenging to bring new innovations. Victrex has more than 40 years of experience in delivering innovative polymeric solutions for household and industrial applications.

**Lightweight VICTREX™ polymer components delivering an unmatched combination of efficiency, noise reduction, reliability and more effective use of space.**



# COMPRESSOR SOLUTIONS FOR OPTIMAL PERFORMANCE

## Quiet compressors

VICTREX™ polymer components can improve efficiency and noise, vibration, and harshness (NVH) in compressors.

## Energy efficient

When compared to metals, VICTREX™ polymers enable a weight reduction on moving components. Discharge valves made from VICTREX™ polymers are 39% lighter than metal components and have been proven to increase CoP by 2.9%.

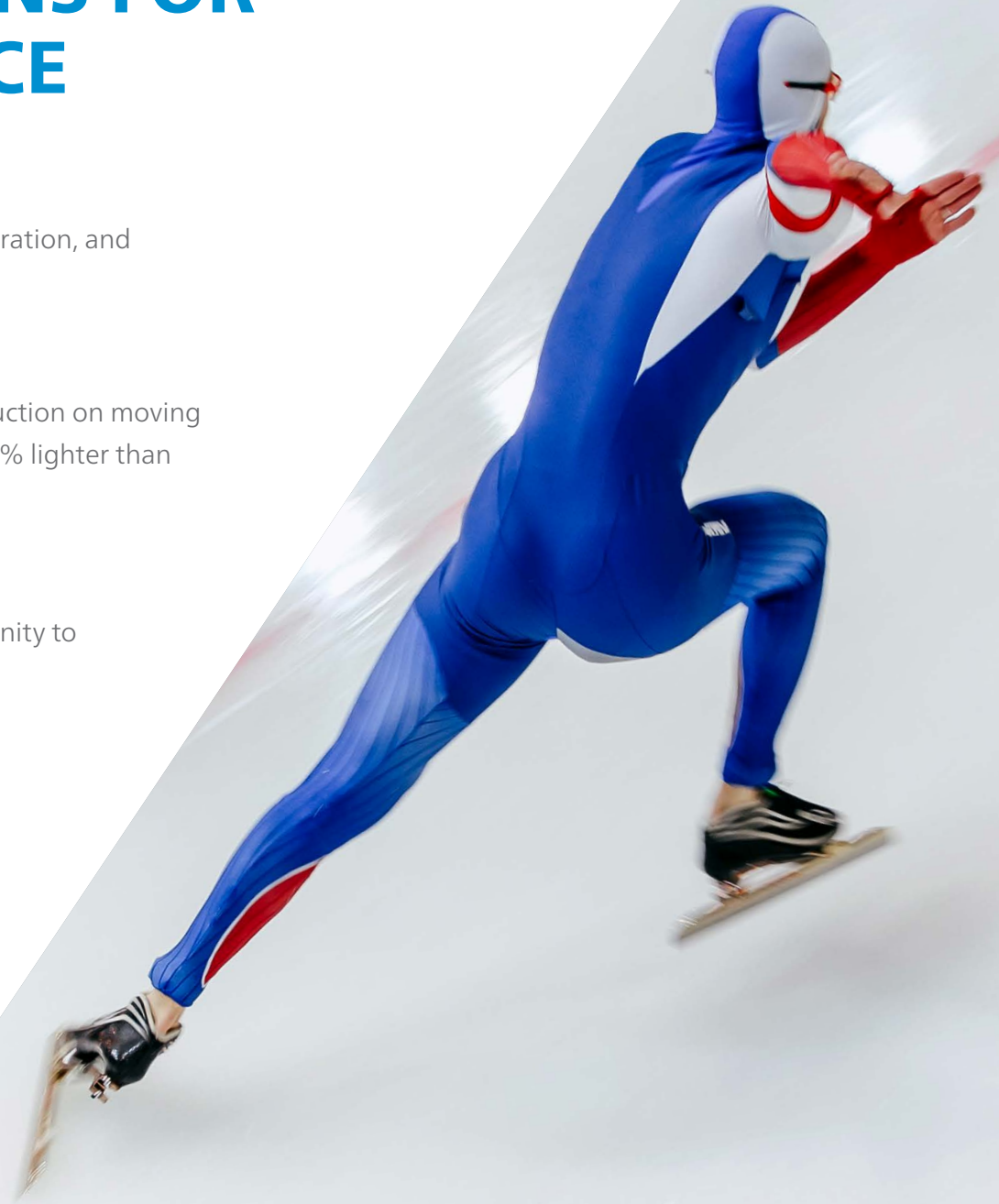
## Tribological performance in wear applications

VICTREX™ polymers offers oil-free compressor designers the opportunity to achieve:

- ▶ superior heat resistance
- ▶ thermal conductivity
- ▶ low COF and wear properties

## Chemical resistance in environmentally friendly compressors

VICTREX™ polymers have superior chemical resistance when compared to metals. This is important for designing equipment and facilities to accommodate low global warming potential (GWP) refrigerants, such as ammonia, which can be corrosive to compressors with copper alloy components.



## VICTREX™ POLYMER SOLUTIONS CAN IMPROVE EFFICIENCY IN COMPRESSOR COMPONENTS

▲ DISCHARGE VALVE



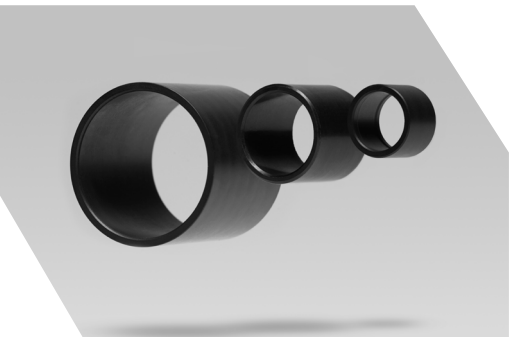
▲ CENTRIFUGAL COMPRESSOR IMPELLERS



▲ SINGLE SCREW COMPRESSOR STAR GEAR



▲ BUSHINGS



▲ TIP SEAL

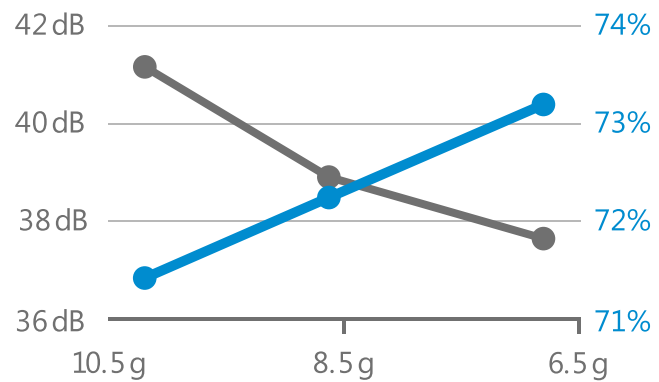


▲ SCROLL



VICTREX™ polymers are proven in a wide range of compressor types such as linear, reciprocating, scroll, and screw and centrifugal compressors.

# LIGHTWEIGHT, QUIET SOLUTIONS



**VICTREX™ polymer discharge valves improve efficiency and noise, vibration, and harshness (NVH) in compressors.**

- Noise (dB)
- Efficiency (%)

\*Compared to metal. Data available on request





# FEATURED SOLUTION: LINEAR COMPRESSORS

Replacing metal moving components with VICTREX™ high performance polymers enable potential efficiency improvements, noise reductions and longer service life.

UP TO  
**2%**

ENERGY EFFICIENT  
IMPROVEMENT

UP TO  
**50%**

NOISE REDUCTION

UP TO  
**40%**

WEIGHT REDUCTION

APPROX  
**24 million**

LINEAR COMPRESSORS  
IN SERVICE WITH  
VICTREX™ PEEK  
VALVES TODAY



Application	VICTREX PEEK Advantage	Energy efficient	Longer life	Cost saving	Quieter
Suction and discharge valves	<ul style="list-style-type: none"> <li>• Weight reduction</li> <li>• Thermally insulative versus metal</li> <li>• Dynamic fatigue</li> <li>• Parts consolidation</li> <li>• Maintain sealing capability</li> </ul>	●	●	●	●
Bearing and piston rings	<ul style="list-style-type: none"> <li>• Friction and wear</li> <li>• Weight reduction</li> <li>• Chemical resistance</li> </ul>	●	●	●	●
Tip seal	<ul style="list-style-type: none"> <li>• Injection mould to tolerance</li> <li>• Superior tribological properties</li> <li>• Allows larger stack up tolerance</li> </ul>	●	●	●	●
Scroll	<ul style="list-style-type: none"> <li>• Weight reduction</li> <li>• Superior tribological properties</li> <li>• Damping property versus metal</li> </ul>	●	●		●
Thrust washer bearing	<ul style="list-style-type: none"> <li>• Superior tribological properties</li> <li>• Chemical resistance</li> </ul>		●		●
Cams	<ul style="list-style-type: none"> <li>• Impact strength</li> <li>• Wear resistance</li> <li>• Injection moldability</li> </ul>		●		
Vanes	<ul style="list-style-type: none"> <li>• Low CLTE</li> <li>• Thermally insulative versus metal</li> <li>• Friction and wear</li> </ul>	●	●		
Star gear	<ul style="list-style-type: none"> <li>• Superior tribological properties</li> </ul>		●		
Impeller	<ul style="list-style-type: none"> <li>• Weight reduction</li> <li>• Damping property versus metal</li> <li>• Parts consolidation</li> <li>• Superior tribological properties</li> </ul>	●	●	●	●



We understand the issues that corrosive low-GWP refrigerants, such as ammonia (NH<sub>3</sub>), can cause to the performance of compressors with metal components.

We are seeing a trend for the redesign of metal components, such as thrust washers, bushings & bearings with **VICTREX™ PEEK** high performance polymers to meet the new operating conditions and safety standards.



#### CHEMICAL RESISTANCE

Withstands wide range of refrigerants, including corrosive low GWP refrigerants such as ammonia (NH<sub>3</sub>), without impairing performance



#### LOW FLAMMABILITY

Withstands continuous use temperature up to 260°C (500°F) and has low flammability (UL 94 rating: V-0)



#### LOW FRICTION & WEAR

Means no need for additional lubricants to keep your compressors running optimally

#### Looking to make a change from metals to adapt to low-GWP refrigerants?

Ask us to assist you with your cost-benefits analysis to help you justify the switch to VICTREX PEEK™ polymers and start realizing the benefits and savings. To discover more, visit us at [www.victrex.com/compressor-solutions](http://www.victrex.com/compressor-solutions)



Rotor shaft bushing for a compressor system made with VICTREX™ PEEK





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#### About Victrex

Victrex is an innovative world leader in high performance polymer solutions, focused on the strategic markets of automotive, aerospace, energy (including manufacturing & engineering), electronics and medical. Every day, millions of people use products and applications, which contain our materials – from smart phones, aeroplanes and cars to oil and gas operations and medical devices. With over 40 years' experience, we develop world leading solutions in PEEK and PAEK-based polymers, semi-finished and finished parts which shape future performance for our customers and our markets, and drive value for our shareholders. Find out more at [www.victrex.com](http://www.victrex.com)

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