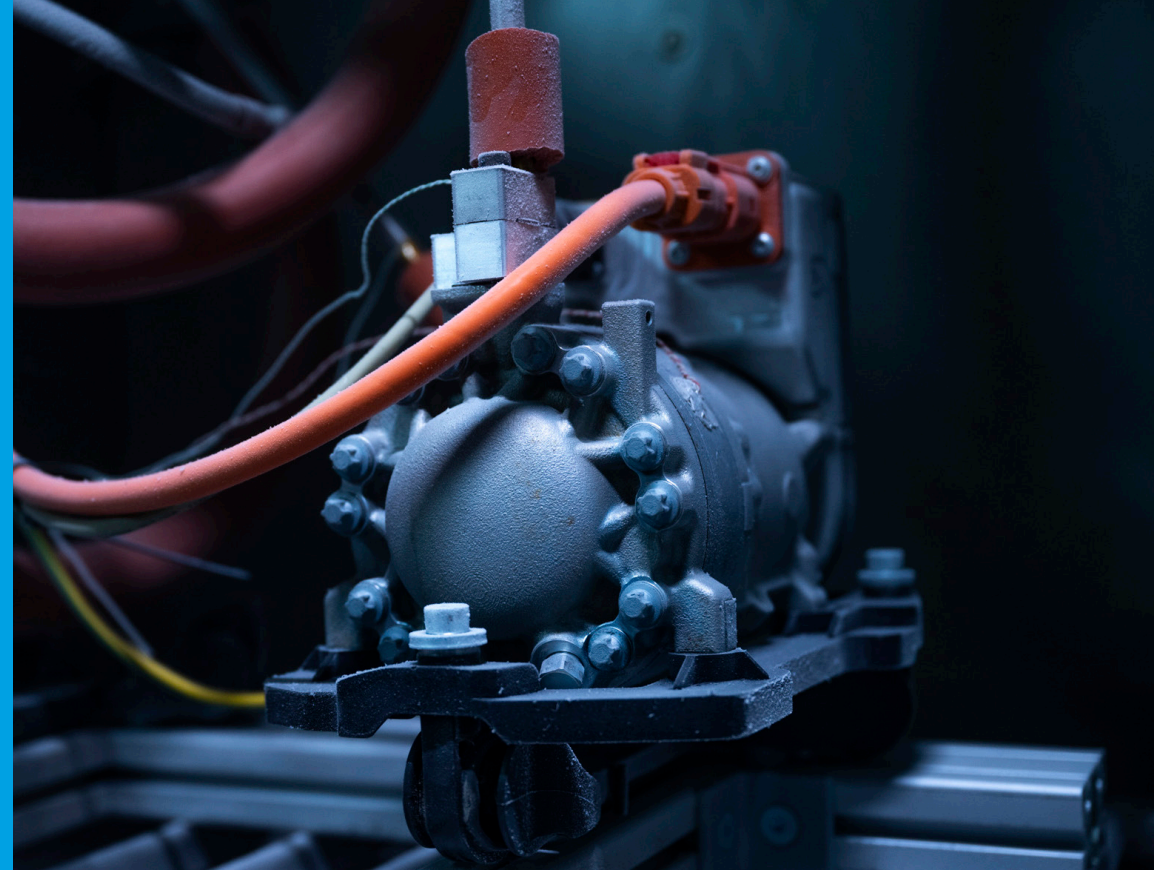


Automotive Technology
Presta Dynamic Components

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Presta Dynamic Components

Free yourself from PFAS-based refrigerants

The electrical A/C compressor designed for R744.

engineering.tomorrow.together.





A decisive step to conquer a new market as part of our strategy.

The result: Next generation A/C compressors with groundbreaking technology makes thermal management more sustainable and efficient.

Others have a legacy, we have the game changer.

At thyssenkrupp Presta Dynamic Components, innovation is part of our DNA. As the global market leader for assembled camshafts, we have built our reputation on engineering excellence, precision and a relentless drive to shape the future of mobility.

As the world transitions toward electrification, we are not just adapting, we are actively leading the change. By expanding our capabilities into electric drivetrain components, we continue to push boundaries and unlock new possibilities in modern mobility.

We looked for new ways to use our rotation competency. We found an answer to your most pressing concern.

In response to the rapidly evolving automotive landscape, we embarked on a journey of diversification.

In 2018, we took our first step into thermal management with a bold question: What solution can we create that truly reflects our strengths and defines the future?

Our answer is an electrical CO₂ (R744) refrigerant compressor designed to break through boundaries of traditional automotive applications. Built on deep engineering expertise and a passion for perfection, this innovation brings together efficiency, reliability, and forward-thinking design. It meets the demands of today and anticipates the needs of tomorrow.



Driven by passionate people, the electrical A/C compressor is creating value through a shared vision and innovative thinking.



A compressor redefining what's possible.



Limited space doesn't mean limited performance.
Compact compressor design



A natural star is born.
Usage of the refrigerant R744 (CO₂)



Disrupting the market with a radical reinvention.
Innovative design principle compared to state-of-the-art compressors



You can rely on it - for more than 15,000 hours!
Long term durability with extensive tests approved



We reshape peak performance in a small package.
High cooling power - 12 kW+



No matter where you are, our compressor feels like home.
Designed for high efficiency and quiet operation under extreme weather conditions

“

Based on our internal tests, R744 demonstrated significant efficiency advantages compared to R290 in heat pump applications, combined with the safety benefit of non-flammability.

Thomas Binder
Senior Vice President Product Line eA/C Compressor

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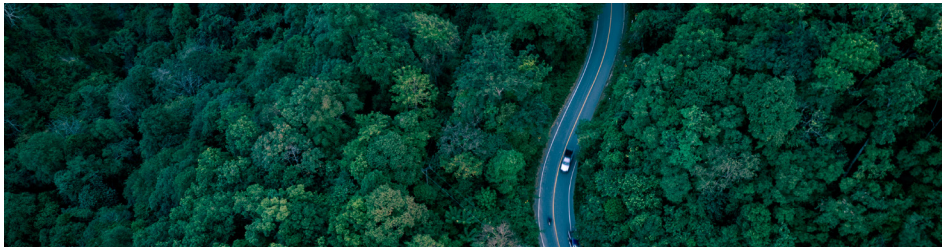
R744 - More than just a low GWP number.

At thyssenkrupp Presta Dynamic Components, protecting environment and people guides our decisions. Choosing the right refrigerant means balancing sustainability, safety, performance and cost.

When looking beyond operation and evaluating the full lifecycle, R744 clearly stands out as the smarter and more responsible refrigerant for future thermal management systems.

Category	R290 (Propane)	R744 (CO ₂)
Climate Impact (Production)	Based on fossil refining processes	Very low impact – sourced as an industrial by-product
Resource Use & Emissions	Relies on fossil resources with higher production emissions	Uses recovered CO ₂ with minimal emissions
Safety Profile	Flammable – requires additional safety measures	Non-flammable – inherently safer and simpler

Based on lifecycle assessment principles (ISO 14040)



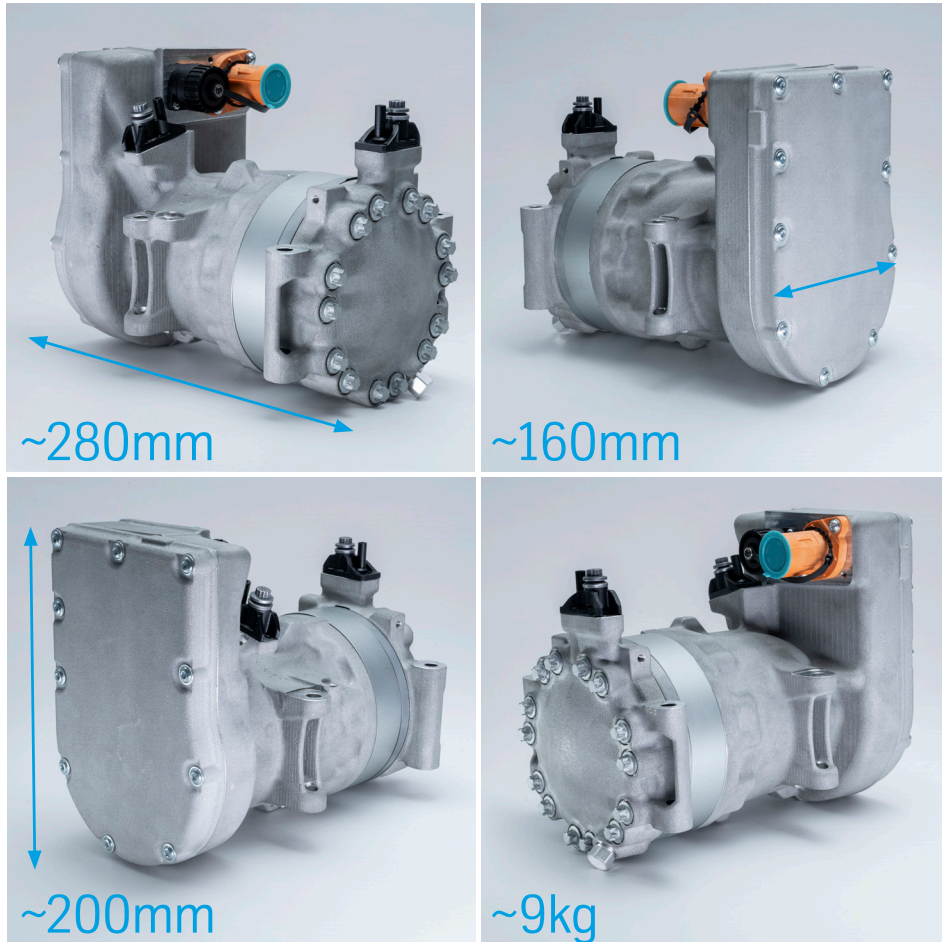
"In many applications, CO₂ as a refrigerant is the technically and economically superior choice for the future."

Martin van der Schaar
President
thyssenkrupp Presta Dynamic Components



We understand you face a lot of pressure. This kind you'll like.

Discover our proven standard solution, designed to perform – ready to deliver and flexible to meet your individual requirements.



Adapt to the likely new standard already now.

Unlock the full potential of R744 with our innovative compression technology, designed to deliver superior efficiency and performance.

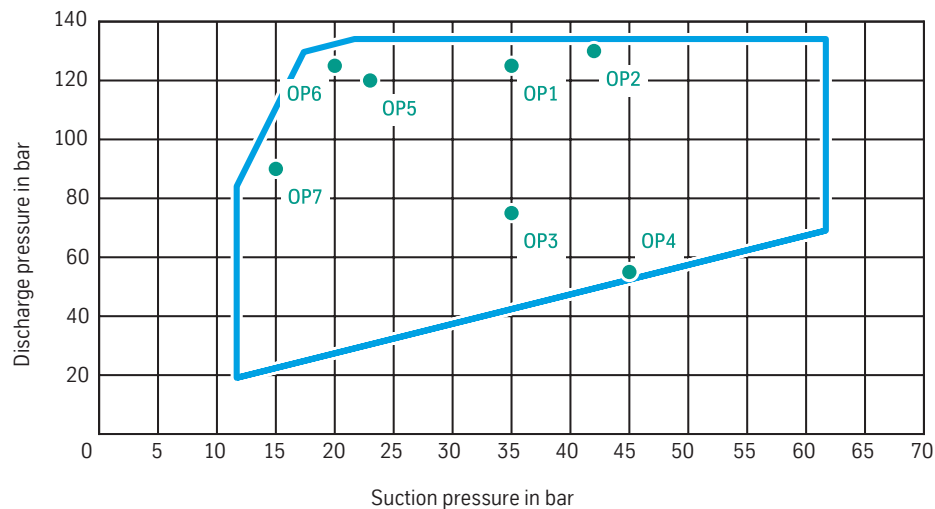
Experience a new level of system optimization with a solution built for the next generation of cooling applications.

Parameter	Value range
Refrigerant	R744 (CO ₂)
Voltage nominal (DC)	800 V
Cooling power	~12 kW
IP code	IP69K
Control interface	LIN
Turning speed	500-8.000 U/min
Wet vapor	≥70 %
Interface cooling circuit	Visconnect (LP+HP)
Min. suction pressure	10 bar
Max. suction pressure	60 bar
Max. high pressure	130 bar
Pressure relieve valve	Yes (HP-side; 160 bar)
Pressure ratio stationary operation	≤8
Oil type	Fuchs Reniso ACC HV

We pioneer the next generation of A/C compressors by delivering extraordinary test results.

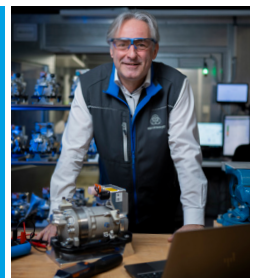
Performance map - electrical A/C Compressor

Operating point	Suction pressure [bar]	Discharge pressure [bar]	Inlet temperature [K]	Superheating / Vapor quality [%]	Rotational speed [1/min]	Total mass flow [kg/h]
OP1 (AC)	35	125	25	25 K	8000	320.0
OP2 (AC)	42	130	25	18 K	8000	435.0
OP3 (AC)	35	75	20	20 K	2000	90.0
OP4 (AC)	45	55	15	5 K	500	40.0
OP5 (HP)	23	120	-14.8	90 %	4500	110.0
OP6 (HP)	20	125	-19.5	90 %	8000	165.0
OP7 (HP)	15	90	-28.5	90 %	8000	120.0



Your next breakthrough in thermal management starts with a conversation. Let's get in contact.

thyssenkrupp Presta Dynamic Components
Product Line eA/C Compressor



Thomas Binder
Senior Vice President
eA/C Compressor

thomas.binder@thyssenkrupp-automotive.com