FISCHER COMPRESSOR AG

OUR SUSTAINABLE AND ENERGY-EFFICIENT FUTURE



ABOUT US

TECHNOLOGY LEADER

FISCHER Compressor AG (FCAG), based in Herzogenbuchsee, is the technology leader in the field of gas-bearing turbo compressors and is part of the FISCHER Spindle Group AG. Based on its patented spiral groove bearing technology, the company has a high-tech product portfolio and plays a central role as a partner to leading global companies. Refrigeration and air conditioning technology are part of our everyday lives, which is why FISCHER contributes to achieving sustainability goals with its innovative compressor technology. Precise, fast and powerful are the guiding principles of the entire group. These determine our actions and sustainable thinking. In Switzerland, we are using our specialists knowledge and great passion to drive forward the expansion of the global R&D center and production technology. As a system supplier with its own production, assembly and sales, FCAG covers all expertise along the value chain and thus fulfills its responsibility as a technology leader.



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NATURAL REFRIGERANTS

MAXIMUM EFFICIENCY WITH OIL-FREE HIGH-SPEED COMPRESSION

As environmental regulations tighten and sustainability requirements continue to increase, natural refrigerants are becoming a key technology for next-generation HVAC&R systems. Oil-free spiral groove bearings are ideally suited for this transition, delivering outstanding efficiency, reliability, and long-term stability without lubricant contamination of the refrigerant circuit. Their contact-free design makes them particularly well suited for applications using R290 (Propane), R1270 (Propene), R729 (Air), and R728 (Nitrogen), enabling highly efficient and sustainable compressor solutions. Additional refrigerant options and customized solutions are available upon request.

R290
PROPANE

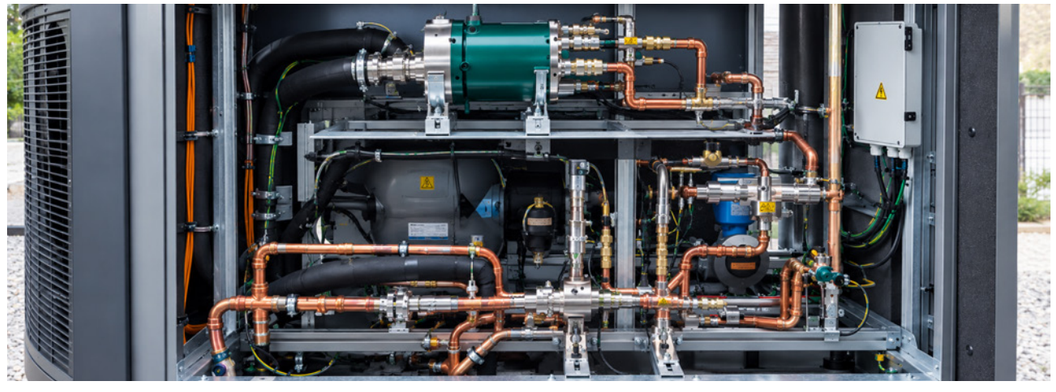
R1270
PROPENE

R729
AIR

R728
NITROGEN

HEAT PUMP SYSTEM

ENABLING FUTURE-PROOF HEATING WITH R290 AND R1270



FISCHER's oil-free compressor technology simplifies heat pump system design by eliminating the need for complex oil management components. Without oil separators, pumps, filters, and return circuits, OEMs benefit from reduced system complexity, lower maintenance costs, enhanced reliability, and improved heat exchanger performance.

REVERSED BRAYTON CYCLE

AIR-BASED COOLING FOR TEMPERATURES DOWN TO -160°C

The reversed Brayton cycle uses air as a natural refrigerant to provide efficient heating and cooling. Air is compressed, cooled, expanded, and recirculated within a closed cycle. Combined with FISCHER's oil-free turbo compressor technology, this enables reliable, sustainable, and highly efficient operation across a wide temperature range, including cryogenic applications down to -160°C.

REACHING
-160°C

ECO FRIENDLY R729 NATURAL REFRIGERANT

- **ZERO GWP**
- **NOT FLAMMABLE**
- **NATURAL REFRIGERANT**
- **CLEAN & SAFE PROCESS GAS**



COMPRESSOR > **HEAT EXCHANGER** > **TURBINE** > **PROCESS GAS DOWN TO -160°C**



SEMICONDUCTOR PROCESS COOLING



BLOOD FREEZING



FREEZE DRYING

MARKETS

SOLUTIONS FOR DEMANDING INDUSTRIES



HEATING & COOLING



SEMICONDUCTOR / ULTRACOOL



MEDICINE & PHARMA



PACKAGING & AUTOMATION



WASTE WATER TREATMENT



FOOD & BEVERAGE



CLEAN ROOM



AIR SUPPLY FOR FISH FARMS

ADVANTAGES

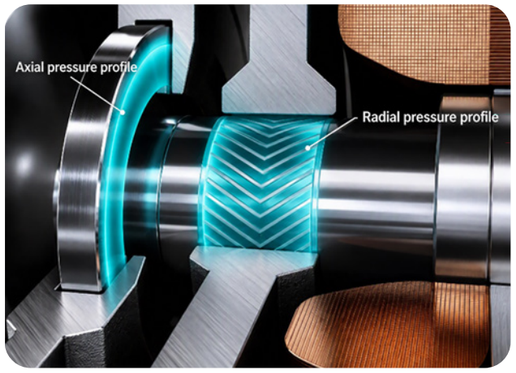
WE OFFER TAILOR-MADE SOLUTIONS

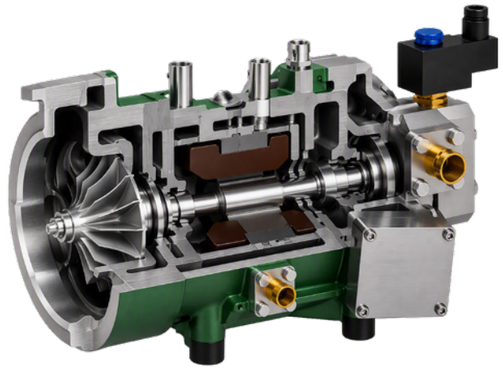
- **NO STRUCTURE-BORNE NOISE**
- **MAINTENANCE-FREE**
- **OIL-FREE OPERATION**
- **NO VIBRATION AND PULSATION**
- **HIGH EFFICIENCY**
- **LOW TCO**
- **COMPACT DESIGN AND LOW WEIGHT**
- **LONG LIFETIME**
- **NO PERFORMANCE DEGRADATION**
- **STEPLESSLY ADJUSTABLE** (Speed, Pressure Ratio and Power Modulation)

SPIRAL GROOVE BEARING

PATENTED BEARING & HOUSING COMBINATION

For our compressors we use spiral groove bearings, which ensure crucial advantages for the operation of rotary systems with high speeds. Even at low speeds, an gas film builds up between the shaft and the bearing - the shaft rotates stably and without contact. This enables virtually wear-free, efficient as well as long-lasting operation of the compressor.





LIFECYCLE SOLUTIONS

REDUCING MAINTENANCE, MAXIMIZING UPTIME AND SYSTEM AVAILABILITY.

FISCHER Performance Engineering

- System Analysis
- Development Support
- Efficiency Optimization
- Simulation & Design Review

Engineer

FISCHER Care+

- Warranty Extension
- Health Checks
- Condition Monitoring
- Preventive Maintenance

Protect

FISCHER Service

- Technical Support
- Spare Parts
- Repairs
- Field Service

Support

FISCHER Academy

- Product Training
- Service Training
- Workshops
- Refrigerants Training

Educate



«AS TECHNOLOGY LEADER WE KEEP OUR PROMISE –

THAT MOTIVATES US !»

TEAM MEETING,
FISCHER COMPRESSOR AG, Switzerland

PRODUCTS

CUTTING-EDGE TECHNOLOGY

AIR & NITROGEN

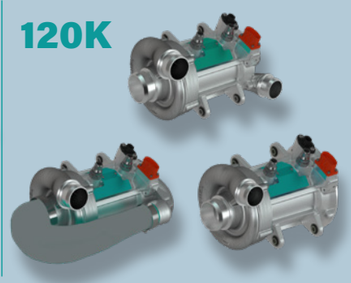
ECO FRIENDLY R729 NATURAL REFRIGERANT

ECO FRIENDLY R728 NATURAL REFRIGERANT

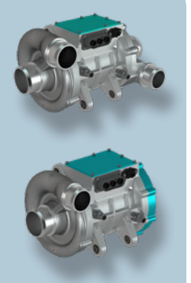
150K



120K



90K

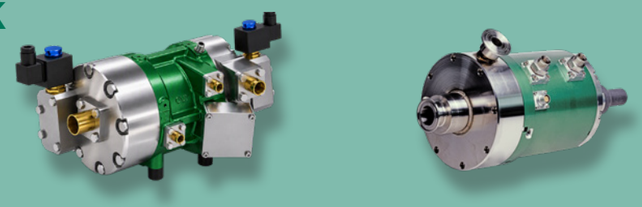


PROPANE & PROPENE

ECO FRIENDLY R290 NATURAL REFRIGERANT

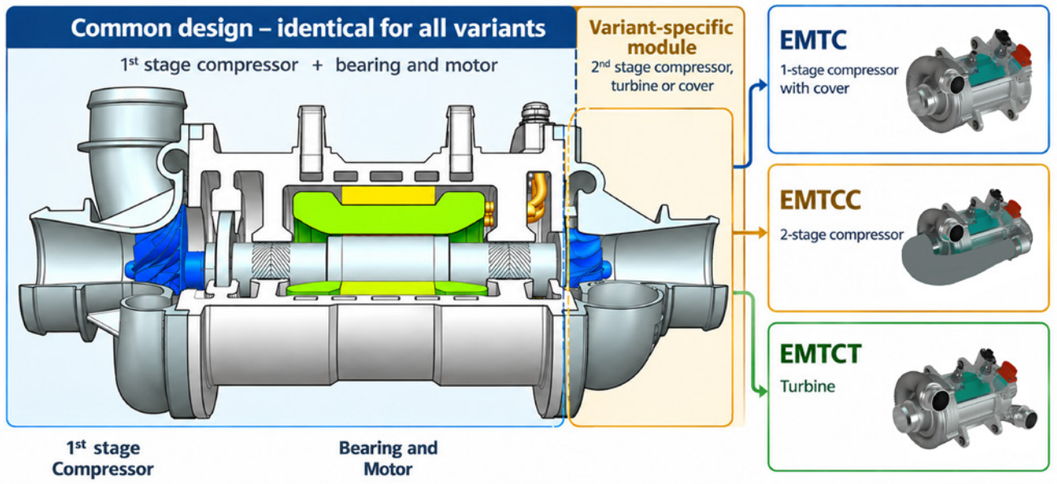
ECO FRIENDLY R1270 NATURAL REFRIGERANT

120K



MODULAR PLATFORM CONCEPT

PRECISION. SPEED. POWER.



EMTC(C)-120K-RC2-R290

FLEXIBLE AND INNOVATIVE

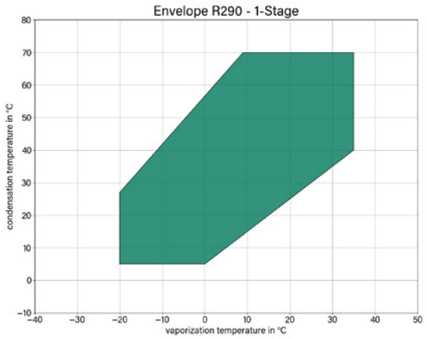
With Swiss precision engineering, we rely on the innovative spiral groove bearing patented by FISCHER. Compared to conventional compressors, we create added value for our customers in terms of efficiency, extended lifetime and sustainability.
Due to the oil-free bearings, our compressors are maintenance-free and therefore particularly suitable for heating and cooling applications. We enable the use of natural refrigerants.

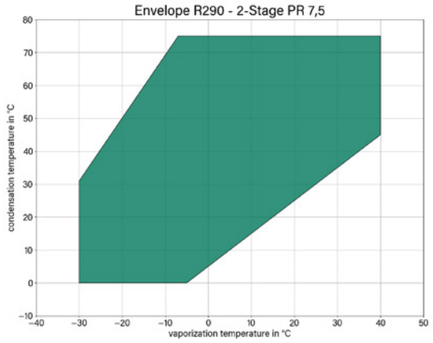


The new generation of refrigerant compressors offers our customers the following advantages:

- Use of refrigerants with low global warming potential (GWP)
- High efficiency and COP
- Proven series technology from the fuel cell air compressors
- Oil-free (gas bearing using process gas)
- Greater robustness compared to conventional technologies
- Increased service life
- Higher power density
- Stepless controllability

Structure version	EMTC / EMTCC
Medium	R290 / R1270
Bearing	Dynamic gas bearing (spiral groove bearing)
Bearing lubrication	Self-lubricating (no oil)
Motor	Electric synchronous motor
Continuous motor power	25 kW
IP-Class	IP67/IP40
Thermal Capacity	1. stage: ~ 50 - 100 kW 2. stage: ~ 30 - 60 kW
High-voltage supply	400 VAC
Speed range	20'000 - 120'000 U/min
Acceleration (to full speed)	< 10.0 s
Inlet gas temperature	-30 to 40°C
Pressure ratio	1-stage: 4.25 2-stage: 7.50
Cooling mode	Compressor: Cooling via Propane Inverter: Air cooling
Weight	Compressor: 35 kg Inverter: 17 kg

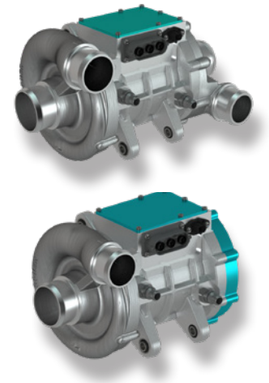




EMTC(T)-90K GEN5

THE STEP INTO THE FUTURE

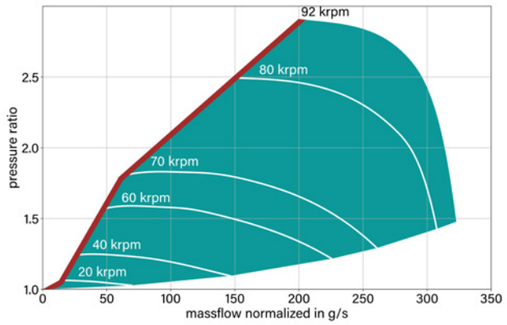
The new Generation 5 of our 90k platform represents the next step in clean, efficient and reliable air supply for demanding applications. Designed for systems where air quality, efficiency and reliability are essential, Generation 5 delivers high-performance air supply in a compact and robust solution. The result of this continuous development can be seen in:



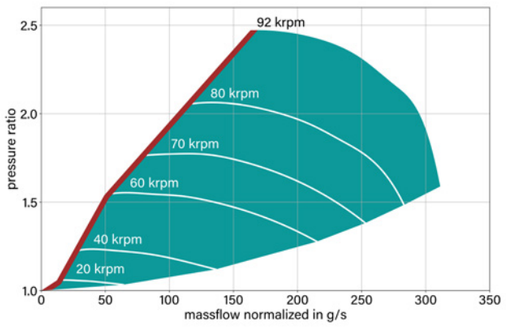
- Series tool components designed for large quantities
- Consequent design-to-cost approach
- Higher robustness
- Increased lifetime
- Significant increase in performance
- Improvement of efficiency

Structure Version	EMTC(T)
Medium	Filtered Air
Bearing	Aerodynamic Spiral Groove Bearing
Air Supply Bearing	No bleed air
Motor	Synchronous Electric Motor
Continuous Motor Power	40 kW
IP Class	IP6k9k/IP67
High Voltage Supply (Full Power)	450-750 VDC 400 VAC
Speed Range	20'000-92'000 rpm
Acceleration (t90 Time)	3.5 s
Inlet Air Temperature	Compressor: -40 to +50°C Turbine: -140 to +120°C
Inlet Air Pressure	0.60 to 1.50 bara (at max. speed)
Cooling Mode	Liquid Cooling (Water/Glycol 50/50%)
Coolant Temperature Range	-30 to 70°C
Coolant Volume Flow	8-10 l/min
Compressor Weight Compressor	<18 kg
Dimension	ø260 mm, Length 392 mm
Inverter	SiC or IGBT Technology
Communication	CAN 2.0 B or Modbus

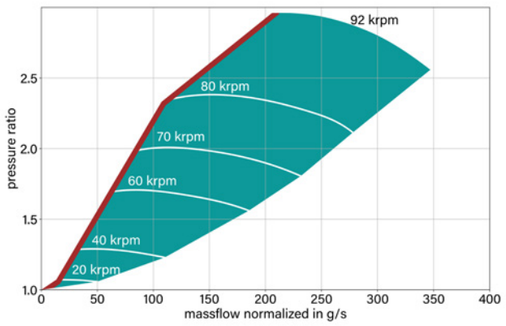
EMTC



EMTC



EMTCT



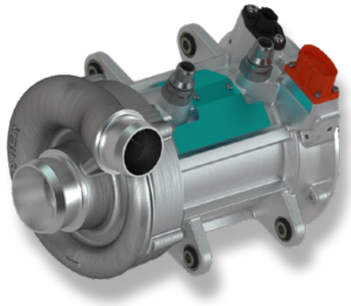
EMTC(C/T)-120K-GEN4

FLEXIBLE AND INNOVATIVE

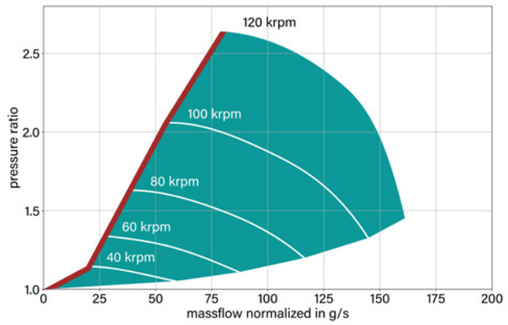
The Generation 4 of our 120K platform represents the next step in reliable and efficient oil-free air compression. Designed for clean air supply systems and air-based cooling applications, the compressor combines outstanding efficiency, robustness, and long service life. Built on FISCHER's patented spiral groove bearing technology, the platform enables maintenance-free operation without oil contamination and supports the use of air as a natural refrigerant.

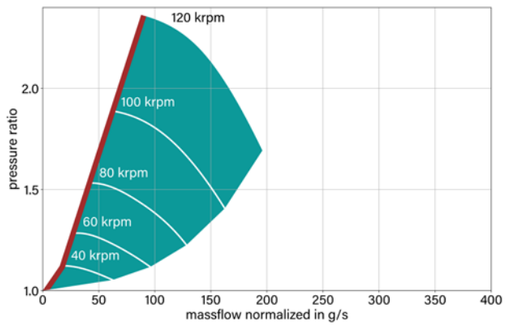
- Series-production-ready components for high-volume manufacturing
- Consistent design-to-cost approach
- Increased robustness, extended service life
- Enhanced performance & improved efficiency

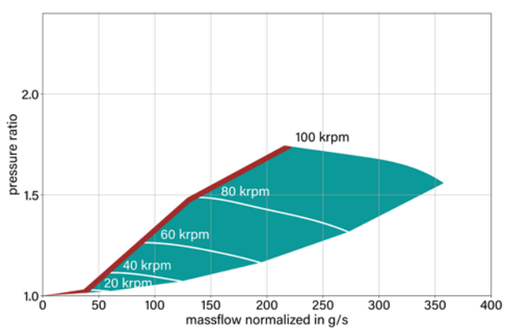
Structure Version	EMTC(C/T)
Medium	Filtered Air
Bearing	Aerodynamic Spiral Groove Bearing
Air Supply Bearing	No bleed air
Motor	Synchronous Electric Motor
Continuous Motor Power	25 kW
IP Class	IP6k9k/IP67
High Voltage Supply (Full Power)	400-750 VDC 400 VAC
Speed Range	20'000-120'000 rpm
Acceleration (t90 Time)	2.0 s
Inlet Air Temperature	Compressor: -40 to +50°C Turbine: -140 to +120°C
Inlet Air Pressure	0.60 to 1.50 bara (at max. speed)
Cooling Mode	Liquid Cooling (Water/Glycol 50/50%)
Coolant Temperature Range	-30 to 70°C
Coolant Volume Flow	6-8 l/min
Compressor Weight	<11 kg
Dimension	ø213 mm, Length 370 mm
Inverter	SiC or IGBT Technology
Communication	CAN 2.0 B or Modbus

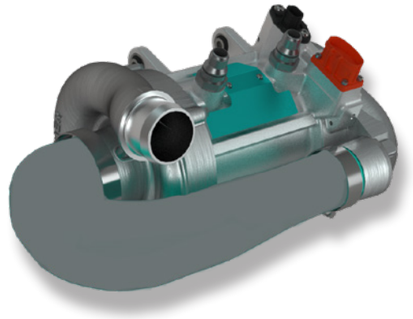


EMTC

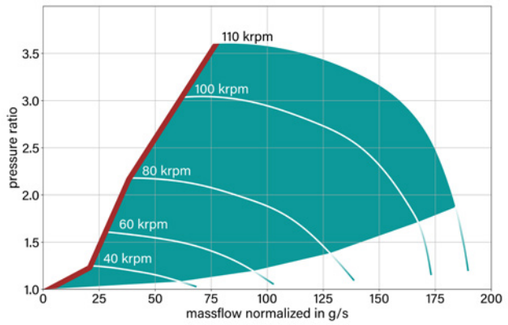


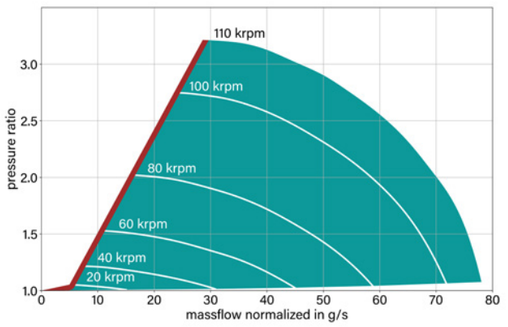


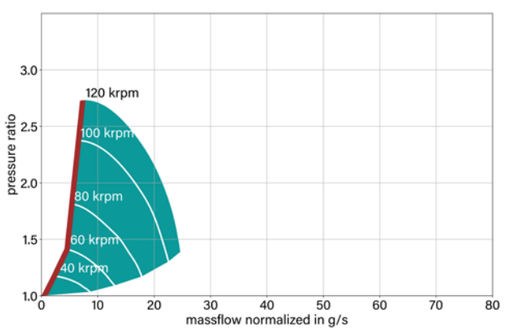


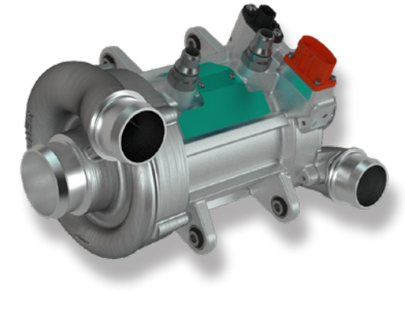


EMTCC

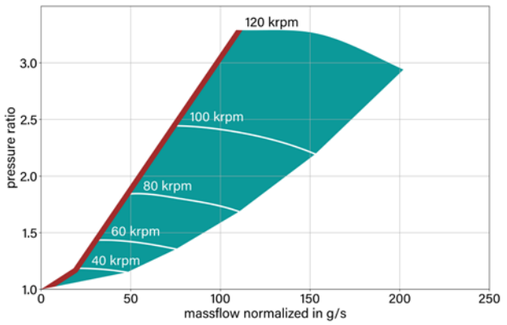


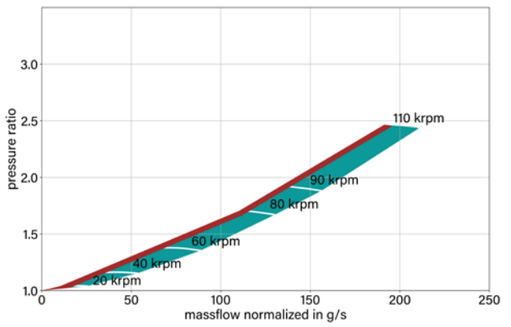


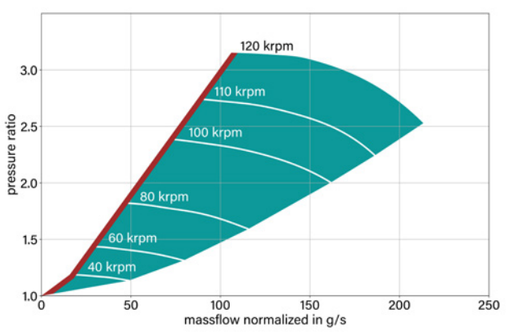




EMTCT









Precision. Speed. Power.

www.fischer-compressor.com

FISCHER reserves the right to change specifications and design without notice. The data change depending on the configuration.

2026-10-V1-EN