



DAS HERZ DER FRISCHE

WATER COOLED  
**CO<sub>2</sub> GAS COOLERS**

DP-400-1 EN



**GK SERIES**



COMMERCIAL  
REFRIGERATION



INDUSTRIAL  
REFRIGERATION



HEAT  
PUMPS

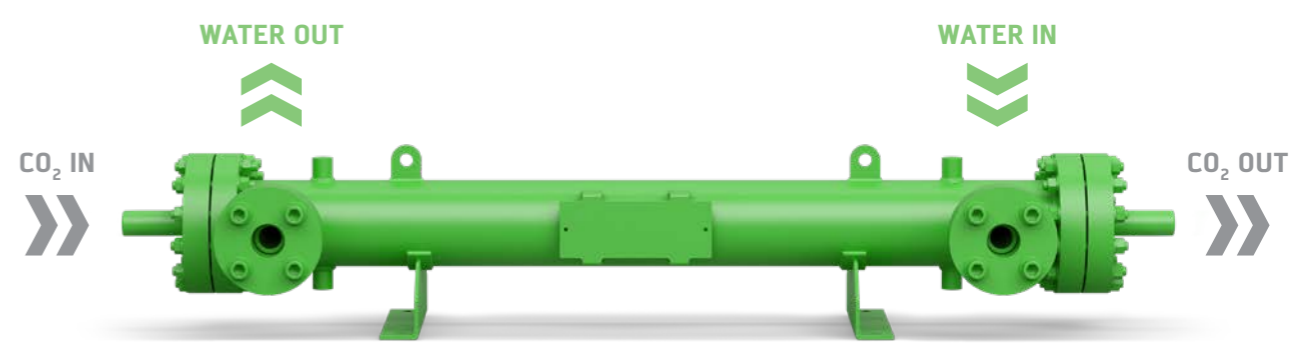
# BITZER. EXPERTISE AND INNOVATION.

- AIR CONDITIONING
- HEAT PUMPS
- REFRIGERATION
- PROCESS COOLING
- TRANSPORT

As an independent global leader in refrigeration, air conditioning and heat pump technology for comfort air conditioning, process technology and mobile applications, we use our extensive experience to provide innovative products and intelligent solutions which create additional value for our partners and the environment all over the world.

## HIGH PERFORMANCE. FUTURE-PROOF.

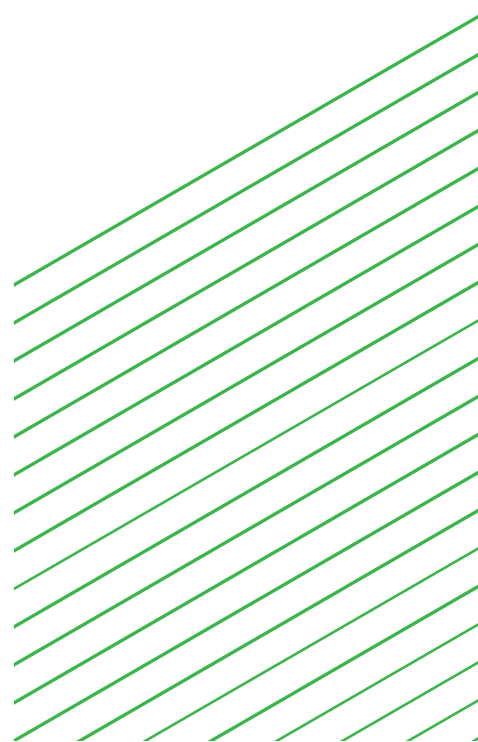
GK water gas cooler are a family of heat exchangers designed for CO<sub>2</sub> applications and can be used as gas coolers, heat recovery or condensers. The primary medium (CO<sub>2</sub>) flows on the tube side, thanks to the high design pressure, while the secondary medium (water or anti-freeze mixtures) flows on the shell side. The countercurrent flow design between the primary and the secondary medium ensures that reduced thermal approaches between the two fluids are possible, thus enhancing the performance of these heat exchangers in both transcritical (gas cooler or heat recovery) or subcritical (condenser) modes.



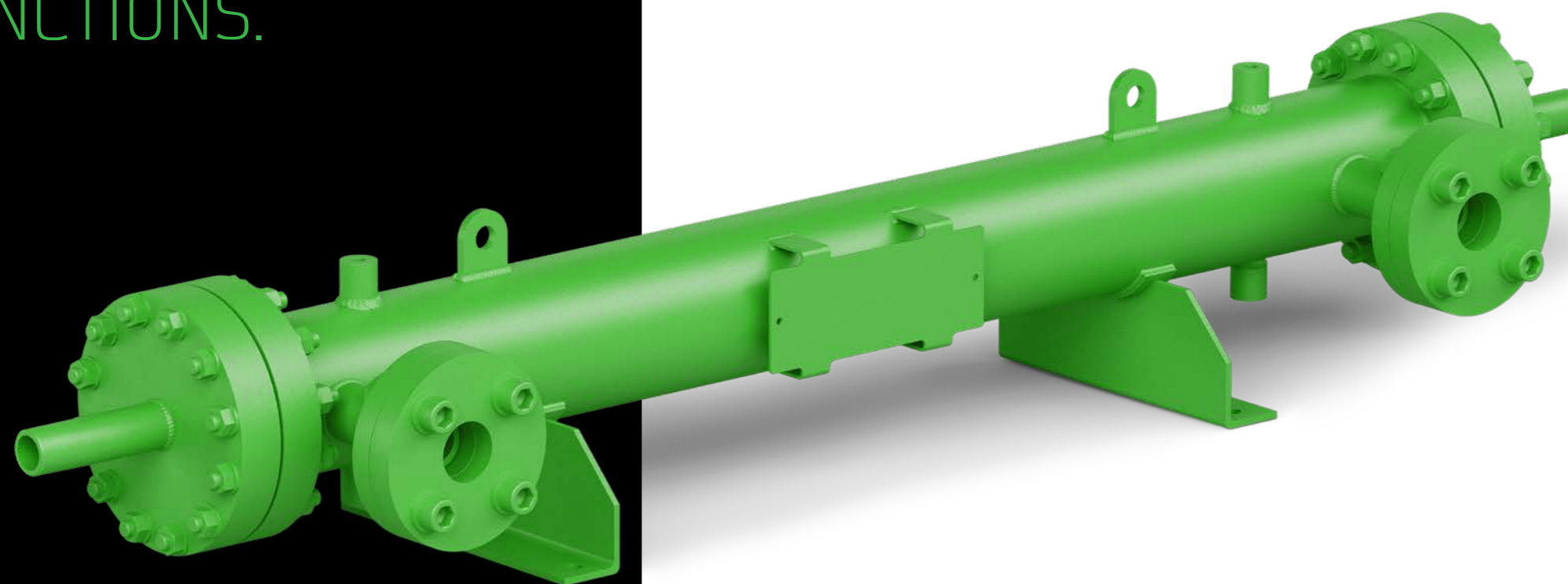
### CAPACITY AND APPLICATION RANGES

GK water gas coolers can operate in a particularly wide range of capacities (from 30 to 1200 kW as gas coolers), thus fulfilling the needs of specific CO<sub>2</sub> systems or of complete families of racks, chillers or heat pumps.

The high design pressure standards on the CO<sub>2</sub> and water side allow – on the other hand – perfect integration in virtually all cooling and heating systems, also taking into account the need to work in climates where the operating pressure of the refrigerant is high or the need to produce hot water.



# ONE HEAT EXCHANGER: THREE FUNCTIONS.



**+ MAIN WATER GAS COOLER**  
IN A TRANSCRITICAL APPLICATION

**+ HEAT RECOVERY EXCHANGER**  
FOR THE PRODUCTION OF HOT WATER  
IN COMBINATION WITH AN AIR GAS COOLER

**+ CONDENSER**  
IN SUBCRITICAL OPERATION

## A FAMILY OF FLEXIBLE SOLUTIONS

Every CO<sub>2</sub> cooling and heating system has its own operational characteristics. For this reason, the GK series of water gas coolers, beside a number of standard models, can offer a close-to-infinite range of tailor-made solutions thanks to the combination of:

- // 7 different shell diameters
- // 14 different standard lengths and countless on-demand lengths
- // Many options of baffle arrangement on the secondary medium side

Thanks to this design flexibility, almost any requirement in terms of efficiency, pressure drop or overall dimensions can be fulfilled.

## NO NEED FOR MANY HEAT EXCHANGERS IN PARALLEL

Unlike plate heat exchangers, GK water gas coolers can reach an extremely wide range of capacities, ensuring the possibility to go beyond 1000 kW with only one cooler, thus avoiding the system complication of having two or three coolers installed in parallel:

- // No need for connecting piping and additional components
- // Simplified maintenance operations

## THE ROBUST ANSWER TO DEMANDING APPLICATIONS

Afraid of leakages caused during the life of the gas cooler by the challenging pressure and thermal fatigue conditions of CO<sub>2</sub> trans-critical systems? Due to the robust component sizing and to the heavy-duty construction, GK water gas coolers represent a warranty against mechanical risks, offering stress resistance incomparable with other heat exchanger types available in the industry.

### DESIGN DATA

	TUBE SIDE	SHELL SIDE
Approved fluids	CO <sub>2</sub> (R744)	Water, ethylene glycol, propylene glycol
Design pressure (bar)	-1/140	-1/16
Design temperature (°C)	-10/150	-10/150

### AVAILABLE PRESSURE VESSEL APPROVALS

- // CE (PED 2014/68/EU)
- // Marine approvals (DNV, LR, etc.) on request

### STANDARD MATERIALS OF MAIN COMPONENTS

	MATERIAL
Tubes	CuFe2P
Tube sheets	Carbon steel P265GH
Refrigerant end covers	Carbon steel P265GH
Refrigerant connections	Carbon steel / Stainless steel
Shell	Carbon steel P265GH
Baffles	Plastic polymer
Water connections	Carbon steel



CLOSER TO YOU.  
BITZER WORLDWIDE.



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