



DAS HERZ DER FRISCHE

WATER COOLED
CO₂ GAS COOLERS

DP-400-1 EN



GK SERIES



COMMERCIAL
REFRIGERATION



INDUSTRIAL
REFRIGERATION



HEAT
PUMPS

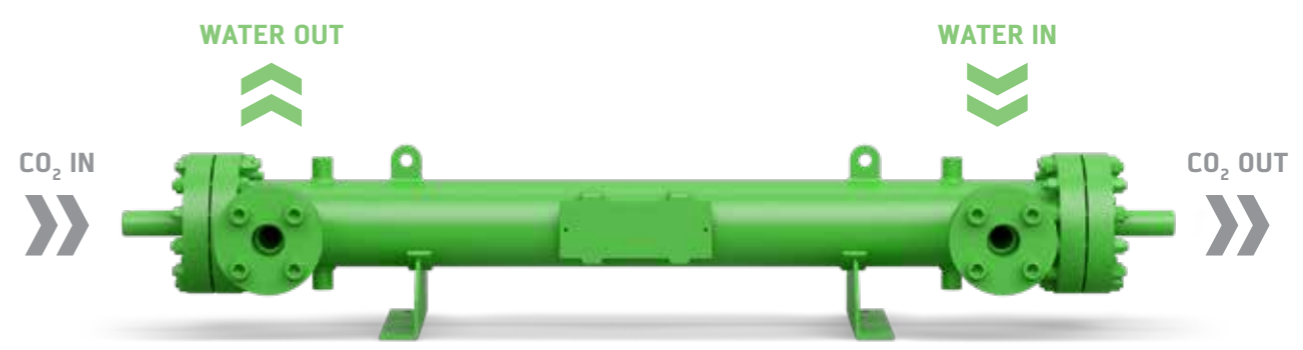
BITZER. EXPERTISE AND INNOVATION.

- 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.

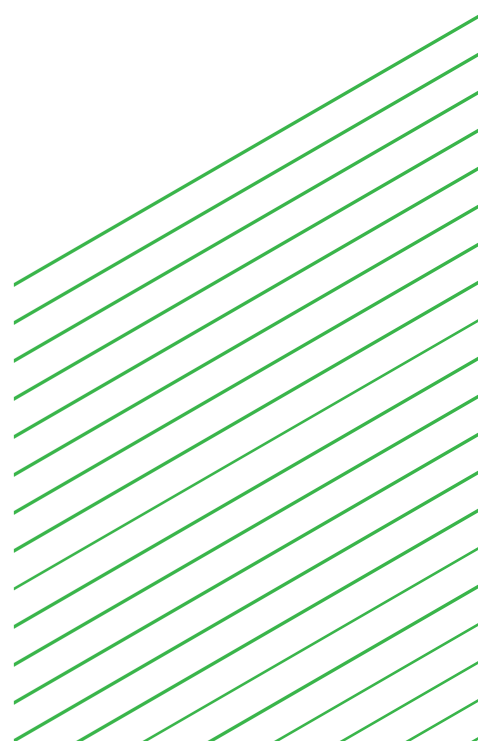
GK water gas cooler are a family of heat exchangers designed for CO₂ applications and can be used as gas coolers, heat recovery or condensers. The primary medium (CO₂) flows on the tube side, thanks to the high design pressure, while the secondary medium (water or anti-freeze mixtures) flows on the shell 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.



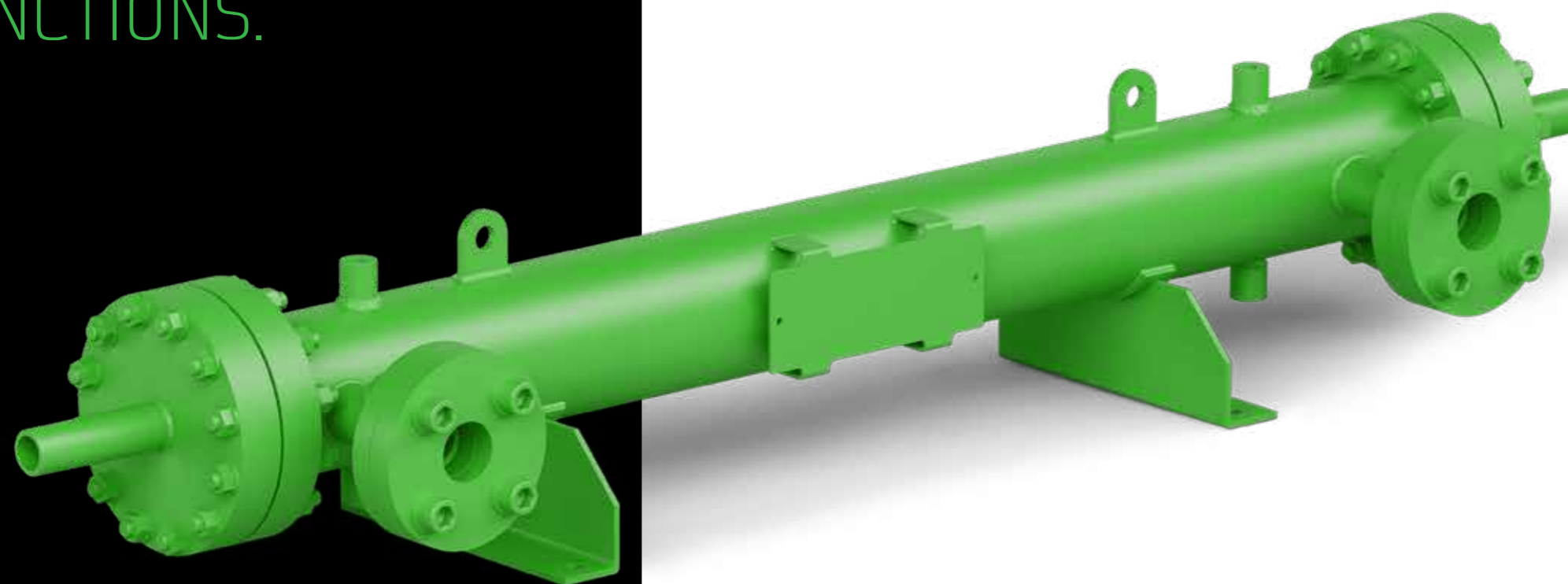
CAPACITY AND APPLICATION RANGES

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 CO₂ systems or of complete families of racks, chillers or heat pumps.

The high design pressure standards on the CO₂ 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 CO₂ 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 CO₂ 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 ₂ (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

MODEL	SHELL DIAMETER	TOTAL LENGTH	MODEL IDENTIFICATION NUMBER												STANDARD REFRIGERANT CONNECTIONS		STANDARD BRINE CONNECTION
			05		06		07		08		09		10		IN	OUT	
			rV dm ³	bV dm ³	rV dm ³	bV dm ³	rV dm ³	bV dm ³	rV dm ³	bV dm ³	rV dm ³	bV dm ³	rV dm ³	bV dm ³			
GK1106K	114.3	844			1.0	4.3	1.4	3.8	1.8	3.4					48.3	33.7	DN32
GK1109K	114.3	1148			1.3	6.6	1.9	5.9	2.5	5.2					48.3	33.7	DN32
GK1112K	114.3	1453			1.6	9.0	2.4	7.9	3.1	7.0					48.3	33.7	DN32
GK1115K	114.3	1758			1.9	11.3	2.9	10.0	3.8	8.8					48.3	33.7	DN32
GK1118K	114.3	2063			2.1	13.6	3.4	12.1	4.5	10.7					48.3	33.7	DN32
GK1121K	114.3	2368			2.4	16.0	3.9	14.1	5.2	12.5					48.3	33.7	DN32
GK1124K	114.3	2672			2.7	18.3	4.4	16.2	5.9	14.3					48.3	33.7	DN32
GK1127K	114.3	2977			3.0	20.6	4.9	18.2	6.5	16.1					48.3	33.7	DN32
GK1130K	114.3	3282			3.3	22.9	5.4	20.3	7.2	17.9					48.3	33.7	DN32
GK1133K	114.3	3587			3.6	25.3	5.9	22.3	7.9	19.7					48.3	33.7	DN32
GK1136K	114.3	3892			3.9	27.6	6.4	24.4	8.6	21.5					48.3	33.7	DN32
GK1139K	114.3	4196			4.2	29.9	6.9	26.4	9.3	23.4					48.3	33.7	DN32
GK1142K	114.3	4501			4.5	32.2	7.4	28.5	9.9	25.2					48.3	33.7	DN32
GK1145K	114.3	4806			4.7	34.6	7.9	30.6	10.6	27.0					48.3	33.7	DN32
GK1406K	141.3	864			2.2	6.3	2.7	5.8	3.1	5.3					48.3	33.7	DN50
GK1409K	141.3	1168			2.9	9.7	3.5	8.9	4.2	8.2					48.3	33.7	DN50
GK1412K	141.3	1473			3.5	13.1	4.4	12.0	5.3	11.0					48.3	33.7	DN50
GK1415K	141.3	1778			4.2	16.5	5.3	15.1	6.4	13.8					48.3	33.7	DN50
GK1418K	141.3	2083			4.8	19.9	6.2	18.2	7.5	16.6					48.3	33.7	DN50
GK1421K	141.3	2388			5.5	23.3	7.1	21.3	8.6	19.4					48.3	33.7	DN50
GK1424K	141.3	2692			6.1	26.7	8.0	24.4	9.6	22.3					48.3	33.7	DN50
GK1427K	141.3	2997			6.8	30.1	8.9	27.4	10.7	25.1					48.3	33.7	DN50
GK1430K	141.3	3302			7.5	33.5	9.8	30.5	11.8	27.9					48.3	33.7	DN50
GK1433K	141.3	3607			8.1	36.9	10.7	33.6	12.9	30.7					48.3	33.7	DN50
GK1436K	141.3	3912			8.8	40.3	11.5	36.7	14.0	33.5					48.3	33.7	DN50
GK1439K	141.3	4216			9.4	43.7	12.4	39.8	15.1	36.3					48.3	33.7	DN50
GK1442K	141.3	4521			10.1	47.1	13.3	42.9	16.2	39.2					48.3	33.7	DN50
GK1445K	141.3	4826			10.7	50.5	14.2	46.0	17.3	42.0					48.3	33.7	DN50
GK1606K	168.3	904			3.1	9.5	3.7	8.7	4.3	8.1	4.9	7.4			60.3	42.4	DN80
GK1609K	168.3	1208			3.9	14.6	4.8	13.4	5.7	12.4	6.5	11.4			60.3	42.4	DN80
GK1612K	168.3	1513			4.6	19.7	5.9	18.1	7.1	16.7	8.2	15.3			60.3	42.4	DN80
GK1615K	168.3	1818			5.4	24.8	7.1	22.8	8.6	20.9	9.9	19.2			60.3	42.4	DN80
GK1618K	168.3	2123			6.2	29.9	8.2	27.5	10.0	25.2	11.6	23.2			60.3	42.4	DN80
GK1621K	168.3	2428			7.0	35.0	9.3	32.2	11.4	29.5	13.3	27.1			60.3	42.4	DN80
GK1624K	168.3	2732			7.8	40.1	10.4	36.9	12.8	33.8	15.0	31.0			60.3	42.4	DN80
GK1627K	168.3	3037			8.6	45.2	11.5	41.5	14.2	38.1	16.7	35.0			60.3	42.4	DN80
GK1630K	168.3	3342			9.4	50.3	12.7	46.2	15.6	42.4	18.4	38.9			60.3	42.4	DN80
GK1633K	168.3	3647			10.2	55.5	13.8	50.9	17.1	46.7	20.1	42.8			60.3	42.4	DN80
GK1636K	168.3	3952			11.0	60.6	14.9	55.6	18.5	51.0	21.8	46.8			60.3	42.4	DN80
GK1639K	168.3	4256			11.8	65.7	16.0	60.3	19.9	55.3	23.5	50.7			60.3	42.4	DN80
GK1642K	168.3	4561			12.6	70.8	17.1	65.0	21.3	59.6	25.2	54.6			60.3	42.4	DN80
GK1645K	168.3	4866			13.4	75.9	18.2	69.7	22.7	63.9	26.9	58.6			60.3	42.4	DN80
GK1906K	193.7	924			4.8	12.1	5.4	11.3	6.1	10.6	6.7	9.9			60.3	42.4	DN80
GK1909K	193.7	1228			6.0	18.6	7.1	17.4	8.0	16.3	8.9	15.2			60.3	42.4	DN80
GK1912K	193.7	1533			7.3	25.2	8.7	23.6	10.0	22.0	11.2	20.6			60.3	42.4	DN80
GK1915K	193.7	1838			8.6	31.8	10.3	29.7	11.9	27.7	13.4	25.9			60.3	42.4	DN80
GK1918K	193.7	2143			9.9	38.4	12.0	35.8	13.9	33.4	15.7	31.2			60.3	42.4	DN80
GK1921K	193.7	2448			11.2	45.0	13.6	41.9	15.8	39.1	17.9	36.5			60.3	42.4	DN80
GK1924K	193.7	2752			12.4	51.5	15.2	48.1	17.8	44.8	20.2	41.8			60.3	42.4	DN80
GK1927K	193.7	3057			13.7	58.1	16.8	54.2	19.7	50.5	22.4	47.1			60.3	42.4	DN80
GK1930K	193.7	3362			15.0	64.7	18.5	60.3	21.7	56.2	24.7	52.4			60.3	42.4	DN80
GK1933K	193.7	3667			16.3	71.3	20.1	66.5	23.6	61.9	26.9	57.7			60.3	42.4	DN80
GK1936K	193.7	3972			17.6	77.9	21.7	72.6	25.6	67.6	29.2	63.1			60.3	42.4	DN80
GK1939K	193.7	4276			18.8	84.4	23.3	78.7	27.5	73.3	31.4	68.4			60.3	42.4	DN80
GK1942K	193.7	4581			20.1	91.0	25.0	84.8	29.5	79.0	33.7	73.7			60.3	42.4	DN80
GK1945K	193.7	4886			21.4	97.6	26.6	91.0	31.4	84.8	35.9	79.0			60.3	42.4	DN80
GK2106K	219.1	944			6.2	16.1	7.0	15.2	7.8	14.4	8.6	13.6	9.3	12.8	76.1	60.3	DN100
GK2109K	219.1	1248			7.7	24.8	9.0	23.3	10.1	22.0	11.2	20.7	12.3	19.5	76.1	60.3	DN100
GK2112K	219.1	1553			9.2	33.5	10.9	31.5	12.4	29.6	13.9	27.9	15.3	26.2	76.1	60.3	DN100
GK2115K	219.1	1858			10.7	42.2	12.8	39.7	14.7	37.3	16.6	35.0	18.3	32.9	76.1	60.3	DN100
GK2118K	219.1	2163			12.2	50.9	14.7	47.9	17.1	45.0	19.3	42.2	21.3	39.7	76.1	60.3	DN100
GK2121K	219.1	2468			13.7	59.6	16.6	56.0	19.4	52.6	21.9	49.4	24.4	46.4	76.1	60.3	DN100
GK2124K	219.1	2772			15.2	68.3	18.5	64.2	21.7	60.2	24.6	56.5	27.4	53.1	76.1	60.3	DN100
GK2127K	219.1	3077			16.7	77.0	20.4	72.3	24.0	67.9	27.3	63.7	30.4	59.8	76.1	60.3	DN100
GK2130K	219.1	3382			18.2	85.7	22.4	80.5	26.3	75.5	30.0	70.9	33.4	66.5	76.1	60.3	DN100
GK2133K	219.1	3687			19.7	94.5	24.3	88.7	28.6	83.2	32.6	78.1	36.4	73.2	76.1	60.3	DN100
GK2136K	219.1	3992			21.2	103.2	26.2	96.8	30.9	90.9	35.3	85.2	39.5	79.9	76.1	60.3	DN100
GK2139K	219.1	4296			22.7	111.8	28.1	105.0	33.2	98.5	38.0	92.4	42.5	86.6	76.1	60.3	DN100
GK2142K	219.1	4601			24.2	120.6	30.0	113.1	35.5	106.1	40.7	99.5	45.5	93.4	76.1	60.3	DN100
GK2145K	219.1	4906			25.7	129.3	31.9	121.3	37.8	113.8	43.3	106.7	48.5	100.1	76.1	60.3	DN100
GK2706K	273	984	10.8	24.0	11.8	23.0	12.8	22.0	13.7	21.0	14.6	20.1	15.4	19.3	76.1	60.3	DN125
GK2709K	273	1288	13.2	37.6	14.7	35.9	16.2	34.3	17.5	32.8	18.8	31.3	20.1	29.9	76.1	60.3	DN125
GK2712K	273	1593	15.6	51.3	17.6	49.0	19.5	46.7	21.4	44.6	23.1	42.5	24.8	40.6	76.1	60.3	DN125
GK2715K	273	1898	18.0	65.0	20.5	62.0	22.9	59.1	25.2	56.4	27.4	53.8	29.5	51.3	76.1	60.3	DN125
GK2718K	273	2203	20.3	78.7	23.4	75.0	26.3	71.5	29.1	68.2	31.7	65.0	34.2	62.0	76.1	60.3	DN125
GK2721K	273	2508	22.7	92.4	26.3	88.1	29.7	83.9	32.9	80.0	36.0	76.2	38.9	72.6	76.1	60.3	DN125
GK2724K	273	2812	25.1	106.1	29.2	101.1	33.0	96.3	36.7	91.7	40.2	87.4	43.6	83.3	76.1	60.3	DN125
GK2727K	273	3117	27.5	119.8	32.1	114.1	36.4	108.7	40.6	103.5	44.5	98.6	48.3	94.0	76.1	60.3	DN125
GK2730K	273	3422	29.9	133.5	35.0	127.1	39.8	121.1	44.4	115.3	48.8	109.8	52.9	104.6	76.1	60.3	DN125
GK2733K	273	3727	32.3	147.2	37.9	140.2	43.2	133.5	48.3	127.1	53.1	121.0	57.6	115.3	76.1	60.3	DN125
GK2736K	273	4032															

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