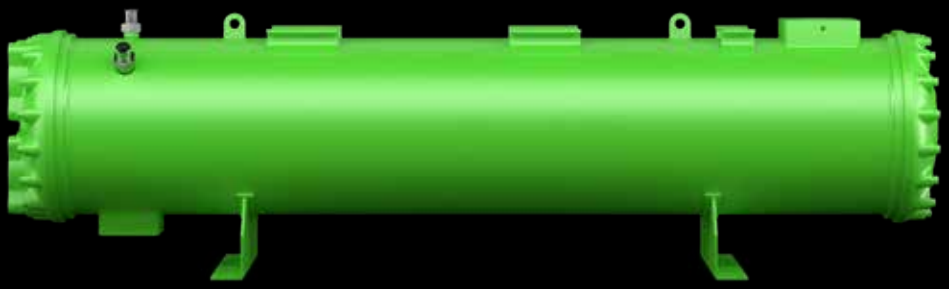
DAS HERZ DER FRISCHE

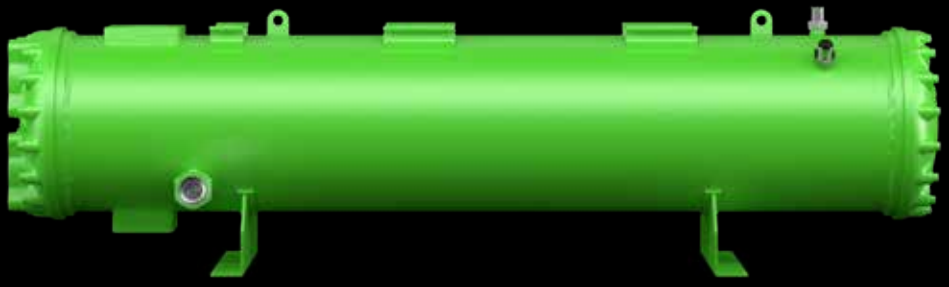
WATER COOLED

CONDENSERS

DP-230-1 EN



KE SERIES



KF SERIES

COMMERCIAL REFRIGERATION

AIR CONDITIONING

PROCESS COOLING

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.

Learn more at bitzer.de

THE PERFECT DESIGN FOR EVERY NEED.

BITZER KE and KF condensers are setting a new standard in the industry, offering the best tailor-made solution for every need requiring fresh water or brine as secondary fluid. No matter if the condenser has to operate in a large-capacity, high temperature heat pump, in a refrigeration rack or in a process cooling chiller, these two condenser families ensure the optimal balance between performance and pressure drop.

MAXIMUM FLEXIBILITY

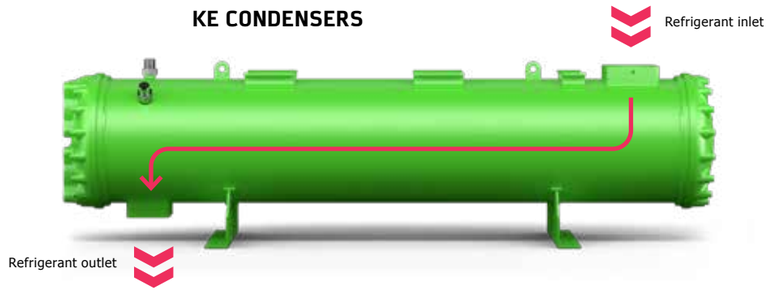
KE condensers in two- or four-pass design, with a combination of 390 standard models and countless customised options, provide an energy-efficient condensation solution in the capacity range between 8 and 2600 kW. Eleven shell diameters and 10 standard tube lengths allow KE condensers to be integrated into any system, even where space is at a premium.

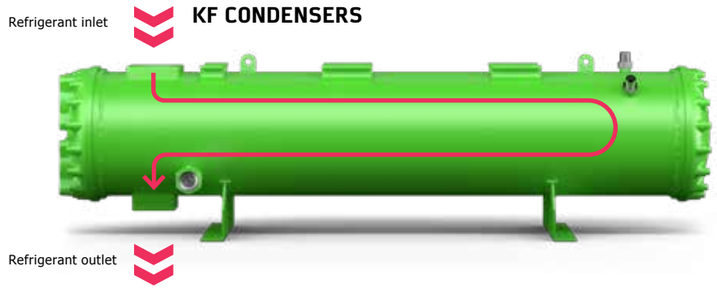
FOCUS ON EFFICIENCY: KF AND KE SINGLE-PASS CONDENSERS

In order to meet and exceed the minimum efficiency requirements of international standards such as EcoDesign, BITZER condensers are designed in two different ways to achieve a true minimum thermal approach between the water outlet temperature and the refrigerant condensing temperature:

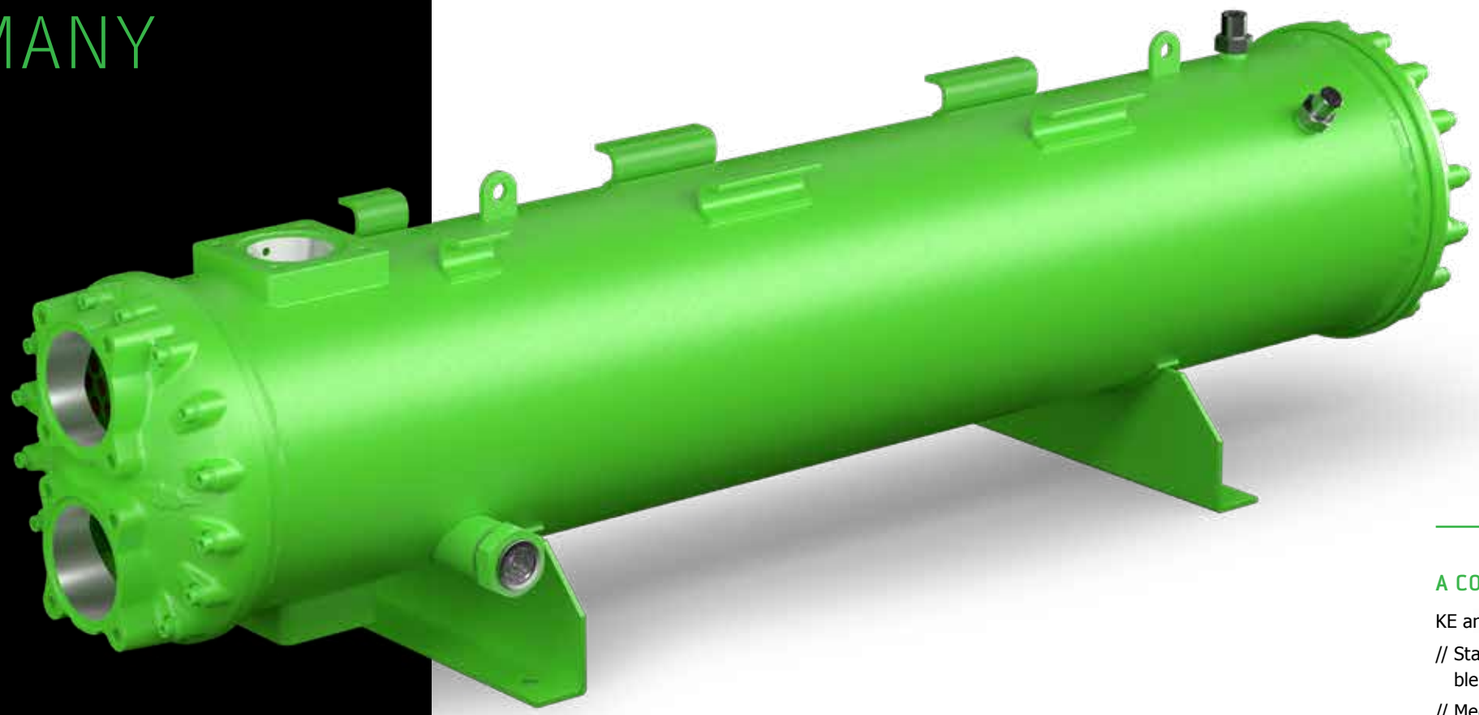
// KF condensers, ensuring high efficiency but compact in length thanks to the special two-pass design on the refrigerant side. Nominal capacity ranges from 200 to 2600 kW.

// KE condensers in single-pass water-side configuration, combining low temperature approach with reduced pressure drop.





TWO CONDENSER SERIES: MANY VERSIONS



ONE SOLUTION FOR ALL REFRIGERANTS

VERSIONS FOR HFC, HFO, HFC+HFO BLENDS, HYDROCARBONS AND R717

FIT FOR HIGH PRESSURE WATER SYSTEMS

16 BAR DESIGN PRESSURE AS A STANDARD ON THE WATER SIDE

FOR MEDIUM AND LOW PRESSURE REFRIGERANTS

TWO REFRIGERANT-SIDE DESIGN PRESSURE VERSIONS

HIGH TEMPERATURE HEAT PUMP READY

TWO DESIGN TEMPERATURE VERSIONS

DP-230-1 EN

A CONDENSER AND ITS VARIABILITY

KE and KF condensers are available in different versions:

// Standard medium pressure version for HFC, HFO, HFC+HFO blends and production of water up to 90°C

// Medium pressure version for hydrocarbons (“P” version)

// Medium pressure version for R717 (“A” version)

// High pressure version (48 bar design pressure on refrigerant side: “HP” version)

// High temperature version for heat pump applications (HFO and hydrocarbons) for production of pressurised water up to 130°C

// Desuperheater version

// Total heat recovery version

// Two refrigerant circuit version

// Version with the entire water side made of AISI316L stainless steel

CUSTOMISATION

Beside the combinations of standard models and tube lengths with the different pass configurations, it is possible to customise the condenser to meet specific customer requirements:

// Different materials for the main components

// One or more sight glasses

// Welded supports or universal brackets

// Different refrigerant connections

// Different solutions for the water connections (female threaded, flanged, welding pipe, flexible joint)

// No standard tube lengths

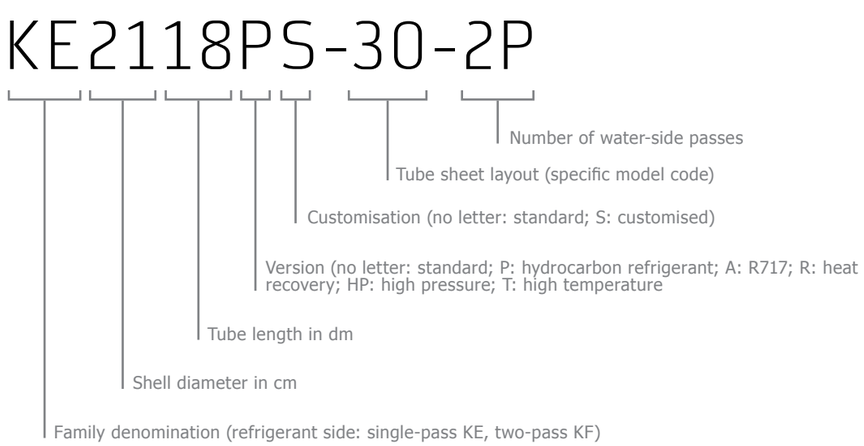
TECHNICAL DATA

Size	Shell Diameter mm	TUBE LENGTH 05 Model	05 Length mm	07 Model	07 Length mm	10 Model	10 Length mm	13 Model	13 Length mm	15 Model	15 Length mm	18 Model	18 Length mm	21 Model	21 Length mm	30 Model	30 Length mm	36 Model	36 Length mm	42 Model	42 Length mm	Water connections Single-pass	Two-pass	Four-pass
KE11..-10	114.3	KE1105-10	589	KE1107-10	839	KE1110-10	1119	KE1113-10	1369	KE1115-10	1593												1 1/4" // DN32	1" // DN25
KE11..-20	114.3	KE1105-20	589	KE1107-20	839	KE1110-20	1119	KE1113-20	1369	KE1115-20	1593												1 1/4" // DN32	1" // DN25
KE11..-30	114.3	KE1105-30	589	KE1107-30	839	KE1110-30	1119	KE1113-30	1369	KE1115-30	1593												1 1/4" // DN32	1" // DN25
KE13..-10	139.7	KE1305-10	589	KE1307-10	839	KE1310-10	1119	KE1313-10	1369	KE1315-10	1593	KE1318-10	1898										1 1/2" // DN40	1" // DN25
KE16..-10	168.3			KE1607-10	849	KE1610-10	1129	KE1613-10	1379	KE1615-10	1603	KE1618-10	1908	KE1621-10	2213							3" // DN80	2" // DN50	1 1/2" // DN40
KE16..-20	168.3			KE1607-20	849	KE1610-20	1129	KE1613-20	1379	KE1615-20	1603	KE1618-20	1908	KE1621-20	2213							3" // DN80	2" // DN50	1 1/2" // DN40
KE16..-30	168.3			KE1607-30	849	KE1610-30	1129	KE1613-30	1379	KE1615-30	1603	KE1618-30	1908	KE1621-30	2213							3" // DN80	2" // DN50	1 1/2" // DN40
KE21..-10	219.1					KE2110-10	1154	KE2113-10	1404	KE2115-10	1628	KE2118-10	1933	KE2121-10	2238							4" // DN100	2 1/2" // DN65	2" // DN50
KE21..-20	219.1					KE2110-20	1154	KE2113-20	1404	KE2115-20	1628	KE2118-20	1933	KE2121-20	2238							4" // DN100	2 1/2" // DN65	2" // DN50
KE21..-30	219.1					KE2110-30	1154	KE2113-30	1404	KE2115-30	1628	KE2118-30	1933	KE2121-30	2238							4" // DN100	2 1/2" // DN65	2" // DN50
KE21..-40	219.1					KE2110-40	1154	KE2113-40	1404	KE2115-40	1628	KE2118-40	1933	KE2121-40	2238							4" // DN100	2 1/2" // DN65	2" // DN50
KE27..-10	273							KE2713-10	1424	KE2715-10	1648	KE2718-10	1953	KE2721-10	2258							5" // DN125	4" // DN100	2 1/2" // DN65
KE27..-20	273							KE2713-20	1424	KE2715-20	1648	KE2718-20	1953	KE2721-20	2258							5" // DN125	4" // DN100	2 1/2" // DN65
KE27..-30	273							KE2713-30	1424	KE2715-30	1648	KE2718-30	1953	KE2721-30	2258							5" // DN125	4" // DN100	2 1/2" // DN65
KE27..-40	273							KE2713-40	1424	KE2715-40	1648	KE2718-40	1953	KE2721-40	2258							5" // DN125	4" // DN100	2 1/2" // DN65
KE32..-10	323.9									KE3215-10	1668	KE3218-10	1973	KE3221-10	2278	KE3230-10	3192	KE3236-10	3802	KE3242-10	4412	6" // DN150	4" // DN100	3" // DN80
KE32..-20	323.9									KE3215-20	1668	KE3218-20	1973	KE3221-20	2278	KE3230-20	3192	KE3236-20	3802	KE3242-20	4412	6" // DN150	4" // DN100	3" // DN80
KE32..-30	323.9									KE3215-30	1668	KE3218-30	1973	KE3221-30	2278	KE3230-30	3192	KE3236-30	3802	KE3242-30	4412	6" // DN150	4" // DN100	3" // DN80
KE32..-40	323.9									KE3215-40	1668	KE3218-40	1973	KE3221-40	2278	KE3230-40	3192	KE3236-40	3802	KE3242-40	4412	6" // DN150	4" // DN100	3" // DN80
KE40..-10	406.4									KE4015-10	1688	KE4018-10	1993	KE4021-10	2298	KE4030-10	3212	KE4036-10	3822	KE4042-10	4432	8" // DN200	6" // DN150	4" // DN100
KE40..-20	406.4									KE4015-20	1688	KE4018-20	1993	KE4021-20	2298	KE4030-20	3212	KE4036-20	3822	KE4042-20	4432	8" // DN200	6" // DN150	4" // DN100
KE40..-30	406.4									KE4015-30	1688	KE4018-30	1993	KE4021-30	2298	KE4030-30	3212	KE4036-30	3822	KE4042-30	4432	8" // DN200	6" // DN150	4" // DN100
KE40..-40	406.4									KE4015-40	1688	KE4018-40	1993	KE4021-40	2298	KE4030-40	3212	KE4036-40	3822	KE4042-40	4432	8" // DN200	6" // DN150	4" // DN100
KE45..-10	457									KE4515-10	1708	KE4518-10	2013	KE4521-10	2318	KE4530-10	3232	KE4536-10	3842	KE4542-10	4452	10" // DN250	6" // DN150	5" // DN125
KE45..-20	457									KE4515-20	1708	KE4518-20	2013	KE4521-20	2318	KE4530-20	3232	KE4536-20	3842	KE4542-20	4452	10" // DN250	6" // DN150	5" // DN125
KE45..-30	457									KE4515-30	1708	KE4518-30	2013	KE4521-30	2318	KE4530-30	3232	KE4536-30	3842	KE4542-30	4452	10" // DN250	6" // DN150	5" // DN125
KE50..-10	508									KE5015-10	1708	KE5018-10	2013	KE5021-10	2318	KE5030-10	3232	KE5036-10	3842	KE5042-10	4452	10" // DN250	6" // DN150	5" // DN125
KE50..-20	508									KE5015-20	1708	KE5018-20	2013	KE5021-20	2318	KE5030-20	3232	KE5036-20	3842	KE5042-20	4452	10" // DN250	6" // DN150	5" // DN125
KE50..-30	508									KE5015-30	1708	KE5018-30	2013	KE5021-30	2318	KE5030-30	3232	KE5036-30	3842	KE5042-30	4452	10" // DN250	6" // DN150	5" // DN125
KE50..-40	508									KE5015-40	1708	KE5018-40	2013	KE5021-40	2318	KE5030-40	3232	KE5036-40	3842	KE5042-40	4452	10" // DN250	6" // DN150	5" // DN125
KE55..-10	559											KE5518-10	2042	KE5521-10	2347	KE5530-10	3261	KE5536-10	3871	KE5542-10	4481	12" // DN300	8" // DN200	6" // DN150
KE55..-20	559											KE5518-20	2042	KE5521-20	2347	KE5530-20	3261	KE5536-20	3871	KE5542-20	4481	12" // DN300	8" // DN200	6" // DN150
KE55..-30	559											KE5518-30	2042	KE5521-30	2347	KE5530-30	3261	KE5536-30	3871	KE5542-30	4481	12" // DN300	8" // DN200	6" // DN150
KE55..-40	559											KE5518-40	2042	KE5521-40	2347	KE5530-40	3261	KE5536-40	3871	KE5542-40	4481	12" // DN300	8" // DN200	6" // DN150
KE61..-10	610													KE6121-10	2357	KE6130-10	3271	KE6136-10	3881	KE6142-10	4491	12" // DN300	8" // DN200	6" // DN150
KE61..-20	610													KE6121-20	2357	KE6130-20	3271	KE6136-20	3881	KE6142-20	4491	12" // DN300	8" // DN200	6" // DN150
KE61..-30	610													KE6121-30	2357	KE6130-30	3271	KE6136-30	3881	KE6142-30	4491	12" // DN300	8" // DN200	6" // DN150
KE61..-40	610													KE6121-40	2357	KE6130-40	3271	KE6136-40	3881	KE6142-40	4491	12" // DN300	8" // DN200	6" // DN150

Length data are to be considered approximated.
Other tube lengths available on request.
Water connections refer to standard execution.

KF condensers' data available on request.

EXPLANATION OF TYPE DESIGNATION



DESIGN DATA

	SHELL (REFRIGERANT) SIDE		TUBE (SECONDARY FLUID) SIDE	
	PS (BAR)	TS (°C)	PS (BAR)	TS (°C)
Standard version	-1 / 33	-10 / 120	-1 / 16	-10 / 95
HP version	-1 / 48	-10 / 120	-1 / 16	-10 / 95
T version	-1 / 30	-10 / 160	-1 / 16	-10 / 140
Approved fluids	HFC, HFO, HFC-HFO blends, HC*, R717**		Fresh water, water + ethylene or propylene glycol, other heat transfer fluids compatible with the condenser materials	

PS: minimum / maximum allowable pressure
TS: minimum / maximum allowable temperature
HP version: high pressure version
T version: high temperature version
* Use of HC refrigerants requires “P” version
* Use of R717 requires “A” version

AVAILABLE PRESSURE VESSEL APPROVALS

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

STANDARD MATERIALS OF MAIN COMPONENTS

	STANDARD VERSION	AVAILABLE ALTERNATIVE
Tubes	Copper	AISI316L stainless steel*
Tube sheets	P265GH carbon steel	AISI316L stainless steel*
Shell	P265GH carbon steel	AISI316L stainless steel
Refrigerant connections	P235GH carbon steel	AISI316L stainless steel
Water end covers	Cast iron / P265GH carbon steel	AISI316L stainless steel
Water connections	P265GH carbon steel	AISI316L stainless steel

* Standard materials for “A” version

THE BEST FOR EVERY NEED

In air conditioning and process cooling chillers, reliability and long-term maintenance of extreme efficiency levels, translated into close thermal approach in the condensers, are the order of the day. With KF two-pass solutions on both the refrigerant and water sides and with KE single-pass configurations, the best performance is always achieved with the right water-side pressure drop, helping to reduce operational costs.

As the role of heat pumps in district heating and industrial applications has grown, so has the focus on the specific contribution of the condenser. Ensuring close thermal approaches between the condensing temperature and the produced water temperature is a key factor, as it is increasingly important to achieve high temperatures with both HFO and hydrocarbon refrigerants.

KE and KF condensers provide a global platform also for the refrigerant R717. The robust and easy-to-clean construction, using high grade AISI316L stainless steel for tubes and tube sheets, makes these condensers the optimal solution even in the presence of relatively aggressive water.

NOTES

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