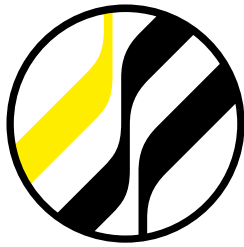


Kelvion



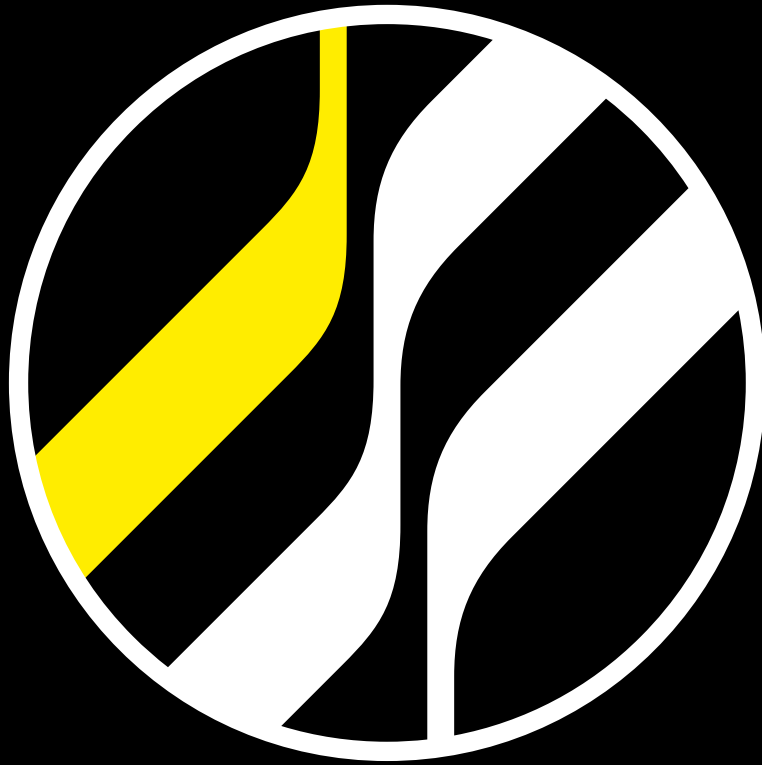
Commercial Air Coolers

Kelvion KSC / MSC

SUPERIOR COOLING FOR COMMERCIAL APPLICATIONS



Kelvion



EXPERTS IN HEAT EXCHANGE – SINCE 1920

Welcome to Kelvion! Where Heat Exchange is our Business. We are one of the leading global manufacturers of heat exchangers and have been providing solutions for almost every industrial application imaginable since the 1920s, specializing in customized solutions suitable for extreme environmental conditions - as of 2015 under the name of Kelvion.

With one of the most extensive selections of heat exchangers in the world, we are a well-known partner in many industries, including transportation, energy, oil and gas, the heavy industry, chemical and marine as well as sugar, food and beverage and the HVAC and refrigeration technology sector. Our products include Compact Fin Heat Exchangers, Plate Heat Exchangers, Single Tube Heat Exchangers, Transformer Cooling Systems, Cooling Towers and Shell & Tube Heat Exchangers.

Our many years of experience and in-depth expertise have made us specialists in this field. Our heat exchangers are designed specifically to meet the needs of the respective machine or equipment system, ensuring outstanding energy efficiency and reliability in any market segment. This gives our customers a cutting-edge over their competitors while also reducing operating costs over the long term.

As your heat exchange partner, we understand that outstanding and reliable after-sales services are critical for you, our customer, and we work alongside with you in close partnership supporting you throughout the full life cycle of your plant and equipment to ensure lasting business success.

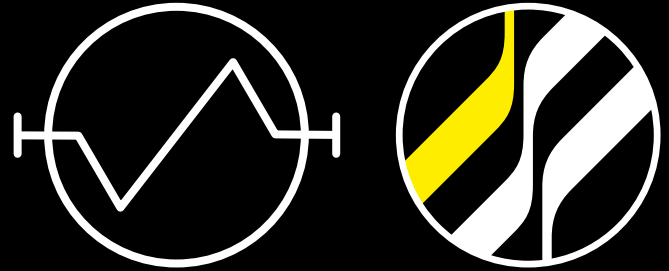
Kelvion – Experts in Heat Exchange.

KELVION – A TRIBUTE TO LORD KELVIN (1824 - 1907)

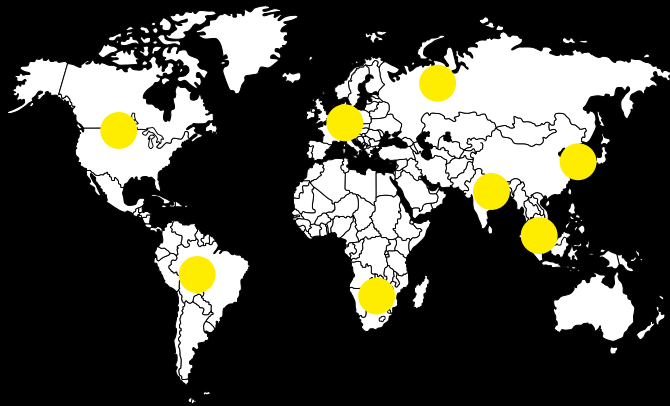


Lord Kelvin formulated the laws of thermodynamics and absolute units of temperature are stated in kelvin, in his honor.

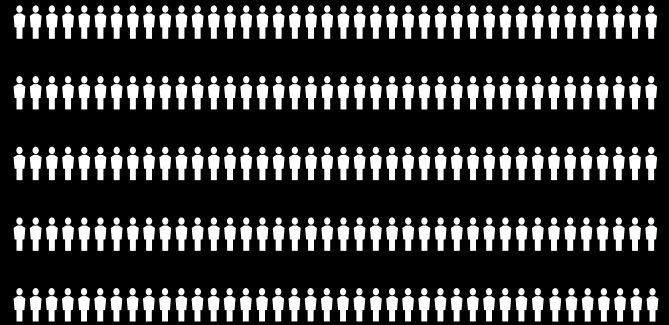
OUR LOGO – INSPIRED FROM THE SCHEMATIC FOR HEAT EXCHANGER









67 BRANCHES AND SALES PARTNERS WORLDWIDE



5,000 EMPLOYEES WORLDWIDE



YOUR MARKETS ARE OUR MARKETS

 Chemicals	 Data Center	 Food & Beverage	 HVAC
 Refrigeration	 Marine	 Oil & Gas	 Power
 Transportation	 ... and more		

KELVION HAS A LONG HISTORY

- 2015** With the new name, the former GEA Heat Exchangers is writing its own history as Kelvion.
- 2014** GEA sells the Heat Exchangers Segment to Triton.
- 2010** Reorganization of GEA's 9 Divisions into technologically distinct Segments. The largest segment is the Heat Exchangers Segment.
- 1999** In April 1999, GEA was acquired by mg technologies AG
- 1920** Foundation of GEA in Bochum by Otto Happel sen. (Born 1882)

SUPERIOR COOLING FOR COMMERCIAL APPLICATIONS

CAPACITY RANGE (for SC2)

0.8 kW



50 kW

TEMPERATURE RANGE (t_L)

-40°C



+65°C

TYPE DESIGNATION CODE

1 2 3 4 5 6 7 8 9

K S C - 30 2 - 4 R N -

- | | | | |
|---|-----------------------|---|------------------------|
| 1 | Size of product | 6 | Number of rows deep |
| 2 | Case style of product | 7 | Fin spacing |
| 3 | Coil block system | 8 | Defrost system |
| 4 | Fan diameter | 9 | Additional information |
| 5 | Number of fans | | |

Refrigerant & max.
operating pressure (Box 9)

FX28	A2L 28 bar
HX32	HFKW 32 bar
GL16	Glykol 16 bar
CX45	CO ₂ 45 bar
CX90	CO ₂ 90 bar



Coffee

Desserts

Grocery

Dairy

1

2

3

4



Kelvion KSC / MSC

BASIC VERSION

CASING

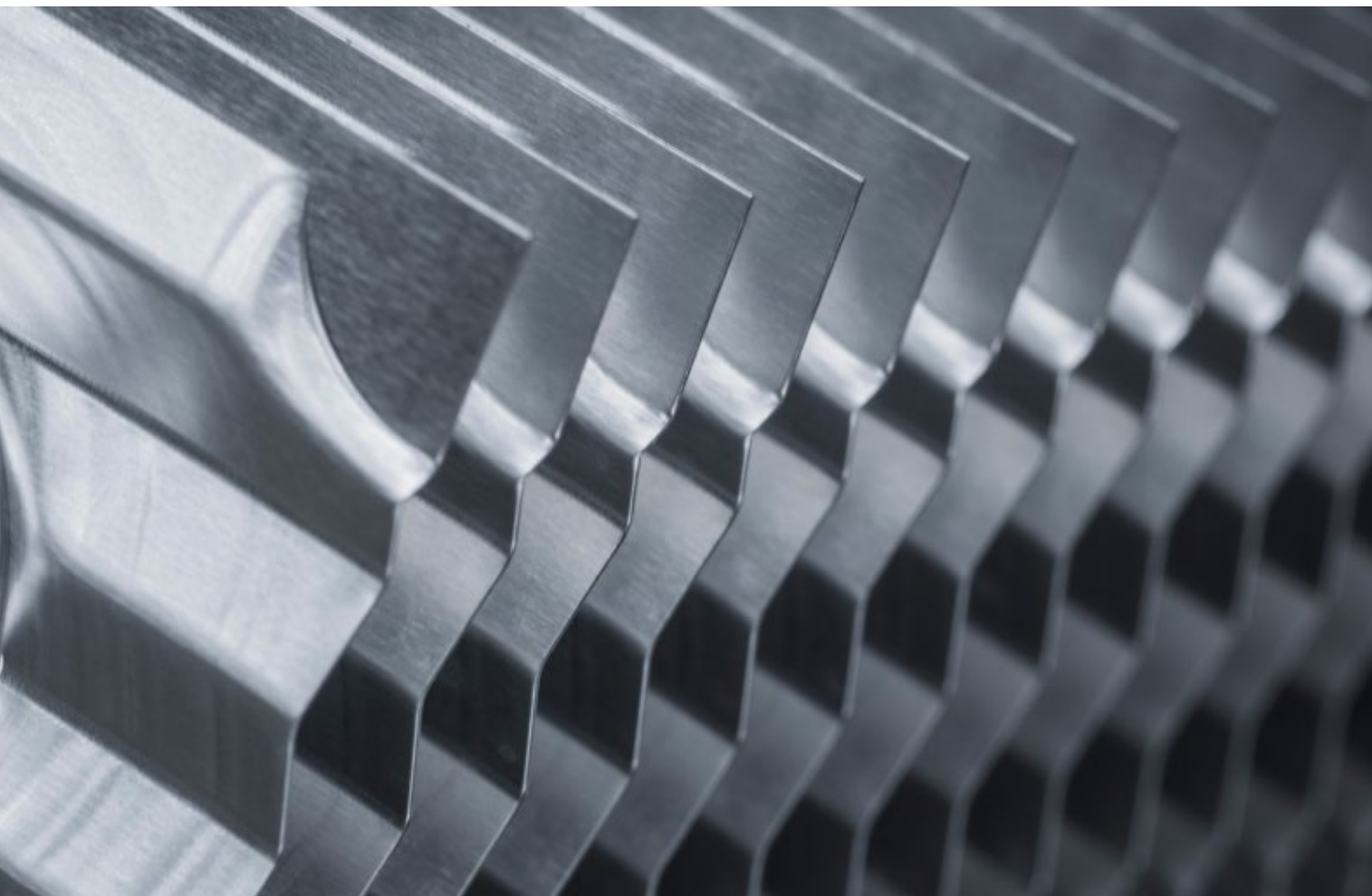
- ▶ Aluminum / Galvanized steel
- ▶ Best quality powder coated edges thanks to high-grade powder coating, RAL 9010 pure white
- ▶ Food-safe
- ▶ Easy to clean due to smooth surface and round corners
- ▶ Hinged and removable drip tray (standard construction)
- ▶ Hinged and removable side plates (standard construction)
- ▶ Hinged and removable inner drip tray (standard construction)
- ▶ 3° inclined drip tray for safe condensate drain

ELECTRIC DEFROST

- ▶ Tubular heater: Stainless steel
- ▶ Connections: steam-proof
- ▶ Mains voltage: 1/N/PE 230V 50/60Hz
- ▶ Readily wired for connection box
- ▶ Optimized tubular heater configurations ensure fast and even defrosting
- ▶ Aluminum tube sleeves: Ensure excellent heat transfer to the fins and thus effective defrosting cycles with optimized service life

HEAT EXCHANGER

- ▶ Tube: Copper, inner finned, \varnothing 12 mm
- ▶ Fins: Aluminum HFE® fins
- ▶ End plates: Aluminum
- ▶ Staggered tube system
- ▶ Fin spacing:
R = 4.0 mm
B = 7.0 mm
- ▶ Fins flared to form-fit the core tube
- ▶ Internal cleanliness according to DIN 14277
- ▶ Connection Inlet: Single injection via copper pipe for solder connection, sealed;
Venturi distributor with multiple injection
- ▶ Connection Outlet:
Copper pipe for solder connection with schrader valve UNF 7/16", sealed
- ▶ Delivery with approx. 5 PSI overpressure



FAN UNIT

	KSC 23	KSC 30	KSC 40	MSC 40	MSC 50
Fan blade diameter	230	300	400	400	500
Technology	EC - ESM 2 speed	EC - ESM 4 speed	EC 0-10V	EC 0-10V	EC 0-10V
Motor operating temp. (50/60 Hz)	-30°C to +50°C	-40°C to +40°C	-40°C to +40°C	-40°C to +65°C	-40°C to +40°C
Supply voltage	1/N/PE 230V 50/60Hz				
Motor protection	Built-in thermal contact (inaccessible)		integrated active temperature management		
Protection class	IP55	IP54	IP54	IP54	IP54
Insulation class	B 130°C	B 130°C	F 155°	B 130°C	F 155°
Motor control	Speed change according to the circuit diagram by bridging the connection terminals			0-10 V full adjustable	
Pre-wired to central box	Yes (standard)	Yes (standard)	Yes (standard)	On request	On request

Do not start the fans below -25°C. Do not switch off the mains voltage so that the motor heater can prevent the rotor from freezing.

MOTOR LABEL DATA

	KSC 23	KSC 30	KSC 40	MSC 40	MSC 50
rpm	1,600	1,600	1,370	1,520	1,340
W	32	85	170	320	620
A	0.3	0.7	1.65	2.15	3.1

DIMENSIONS, WEIGHTS, ELECTRIC DEFROST

Kelvion KSC / MSC

Type	Dimensions											Electrical defrost 230 V-1 / 400 V-3-Y			Empty Weight (net)		Empty Weight (gross)		Drain
	H	B	T	L	E ₁	E ₂	E ₃	E ₄	F	A	W _{min}	Coil	Tray	Total	N	E	N	E	Ø
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kW	kW	kW	kg	kg	kg	kg	G
KSC-231-2	339	760	403	360	480	-	-	-	140	62	200	0,5	0,5	1,0	9	11	13	15	G 3/4
KSC-231-3	339	760	403	360	480	-	-	-	140	62	200	0,5	0,5	1,0	11	12	14	16	G 3/4
KSC-232-3	339	1.210	403	360	930	-	-	-	140	62	200	0,9	0,9	1,7	17	20	22	24	G 3/4
KSC-233-3	339	1.660	403	360	1380	450	-	-	140	62	200	1,1	1,1	2,3	24	27	68	71	G 3/4
KSC-234-3	339	2.110	403	360	1830	900	-	-	140	62	200	1,5	1,5	3,0	31	35	83	87	G 3/4
KSC-301-3	418	810	453	430	530	-	-	-	140	42	200	1,1	0,5	1,6	14	17	19	22	G 3/4
KSC-301-4	418	810	453	430	530	-	-	-	140	42	200	1,1	0,5	1,6	16	18	21	23	G 3/4
KSC-301-6	418	810	453	430	530	-	-	-	140	42	200	1,6	0,5	2,1	19	22	24	27	G 3/4
KSC-301-S	418	960	453	430	680	-	-	-	140	42	200	1,8	0,6	2,5	23	25	29	31	G 3/4
KSC-302-3	418	1.310	453	430	1030	-	-	-	140	42	200	1,8	0,9	2,8	25	28	33	36	G 3/4
KSC-302-4	418	1.310	453	430	1030	-	-	-	140	42	200	1,8	0,9	2,8	28	31	36	39	G 3/4
KSC-302-6	418	1.310	453	430	1030	-	-	-	140	42	200	2,8	0,9	3,7	35	38	43	46	G 3/4
KSC-302-S	418	1.610	453	430	1330	-	-	-	140	42	200	3,4	1,1	4,6	40	44	78	82	G 3/4
KSC-303-4	418	1.810	453	430	1530	500	-	-	140	42	200	2,6	1,3	3,9	40	43	79	82	G 1 1/4
KSC-303-6	418	1.810	453	430	1530	500	-	-	140	42	200	3,9	1,3	5,2	50	54	89	93	G 1 1/4
KSC-303-S	418	2.260	453	430	1980	650	-	-	140	42	200	4,8	1,6	6,4	58	63	104	109	G 1 1/4
KSC-304-4	418	2.310	453	430	2030	1.000	-	-	140	42	200	3,4	1,7	5,1	51	55	97	101	G 1 1/4
KSC-304-6	418	2.310	453	430	2030	1.000	-	-	140	42	200	5,1	1,7	6,7	64	69	110	115	G 1 1/4
KSC-401-6	576	1.230	561	510	830	-	-	-	200	71	400	3,8	0,9	4,7	54	59	85	90	G 3/4
KSC-401-7	576	1.230	561	510	830	-	-	-	200	71	400	3,8	0,9	4,7	58	62	89	93	G 3/4
KSC-402-4	576	2.030	561	510	1630	-	-	-	200	71	400	4,1	1,4	5,5	80	85	124	129	G 1 1/4
KSC-402-5	576	2.030	561	510	1630	-	-	-	200	71	400	5,4	1,4	6,9	87	93	131	137	G 1 1/4
KSC-402-6	576	2.030	561	510	1630	-	-	-	200	71	400	6,8	1,4	8,2	94	102	138	146	G 1 1/4
KSC-402-7	576	2.030	561	510	1630	-	-	-	200	71	400	7,2	1,4	8,6	101	109	145	153	G 1 1/4
KSC-403-4	576	2.830	561	510	2430	800	-	-	200	71	400	5,9	2,0	7,9	113	120	196	203	G 1 1/4
KSC-403-5	576	2.830	561	510	2430	800	-	-	200	71	400	7,8	2,0	9,8	123	132	206	215	G 1 1/4
KSC-403-6	576	2.830	561	510	2430	800	-	-	200	71	400	10,0	2,0	12,0	134	145	217	228	G 1 1/4
KSC-404-5	576	3.630	561	510	3230	1.600	-	-	200	71	400	10,4	2,6	13,0	161	175	260	274	G 1 1/4
KSC-404-6	576	3.630	561	510	3230	1.600	-	-	200	71	400	13,0	2,6	15,6	177	192	276	291	G 1 1/4
KSC-404-7	576	3.630	561	510	3230	1.600	-	-	200	71	400	13,0	2,6	15,6	194	210	293	309	G 1 1/4
MSC-401-5	576	1.330	590	510	930	-	-	-	200	99	400	3,4	0,9	4,4	54	58	86	90	G 3/4
MSC-401-6	576	1.330	590	510	930	-	-	-	200	99	400	4,3	0,9	5,2	59	65	91	97	G 3/4
MSC-401-7	576	1.330	590	510	930	-	-	-	200	99	400	4,4	0,9	5,3	62	68	94	100	G 3/4
MSC-402-4	576	2.230	590	510	1830	900	-	-	200	99	400	4,5	1,6	6,1	85	90	155	160	G 1 1/4
MSC-402-6	576	2.230	590	510	1830	900	-	-	200	99	400	8,0	1,6	9,5	101	110	171	180	G 1 1/4
MSC-402-7	576	2.230	590	510	1830	900	-	-	200	99	400	8,0	1,6	9,5	109	118	179	188	G 1 1/4
MSC-403-6	576	3.130	590	510	2730	900	1.800	-	200	99	400	10,8	2,2	13,0	145	157	234	246	G 1 1/4
MSC-404-5	576	4.030	590	510	3630	900	1.800	2.700	200	99	400	11,5	2,9	14,4	173	188	280	295	G 1 1/4
MSC-501-4	728	1.430	590	510	1030	-	-	-	200	99	500	4,4	1,0	5,4	64	70	98	104	G 3/4
MSC-501-5	728	1.430	590	510	1030	-	-	-	200	99	500	4,4	1,0	5,4	70	76	104	110	G 3/4
MSC-501-6	728	1.430	590	510	1030	-	-	-	200	99	500	5,3	1,0	6,3	76	82	110	116	G 3/4
MSC-502-4	728	2.430	590	510	2030	1.000	-	-	200	99	500	8,4	1,7	10,1	111	120	187	196	G 1 1/4
MSC-502-6	728	2.430	590	510	2030	1.000	-	-	200	99	500	10,1	1,7	11,8	136	146	212	222	G 1 1/4
MSC-503-4	728	3.430	590	510	3030	1.000	2.000	-	200	99	500	11,5	2,5	14,0	159	172	256	269	G 1 1/4
MSC-503-5	728	3.430	590	510	3030	1.000	2.000	-	200	99	500	11,5	2,5	14,0	178	190	275	287	G 1 1/4
MSC-503-6	728	3.430	590	510	3030	1.000	2.000	-	200	99	500	13,8	2,5	16,3	197	212	294	309	G 1 1/4
MSC-504-4	728	4.430	590	510	4030	1.000	2.000	3.000	200	99	500	15,9	3,2	19,1	212	231	329	348	G 1 1/4
MSC-504-5	728	4.430	590	510	4030	1.000	2.000	3.000	200	99	500	15,9	3,2	19,1	236	255	353	372	G 1 1/4

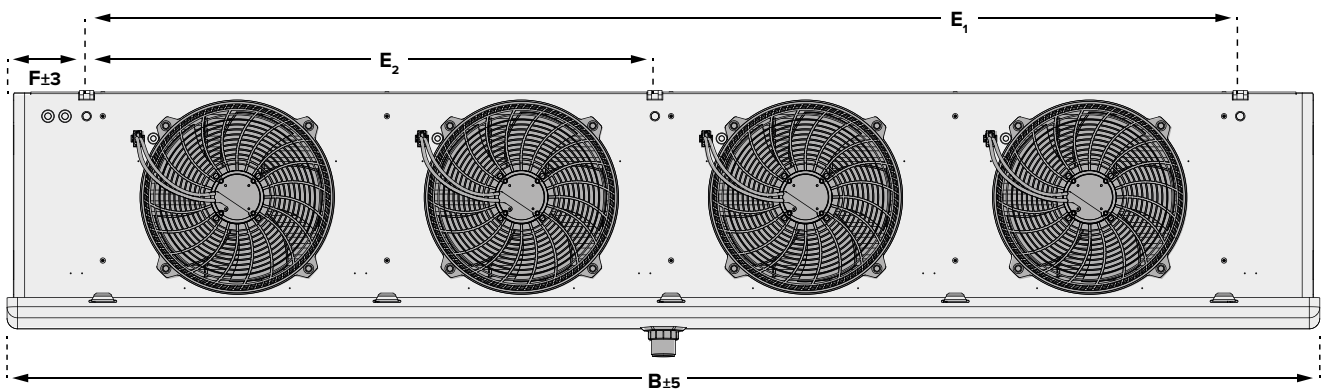
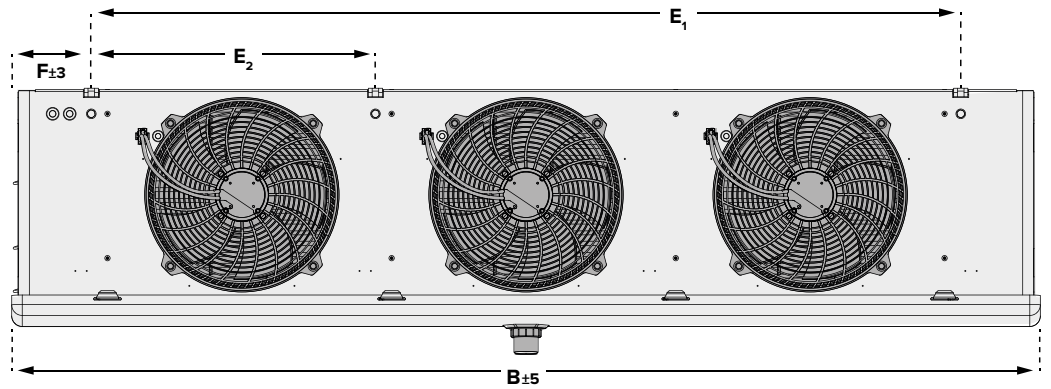
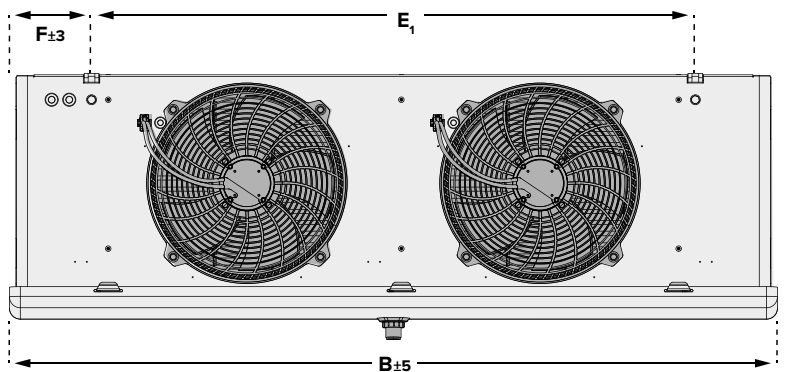
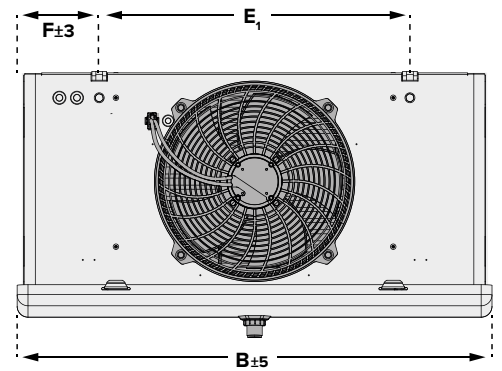
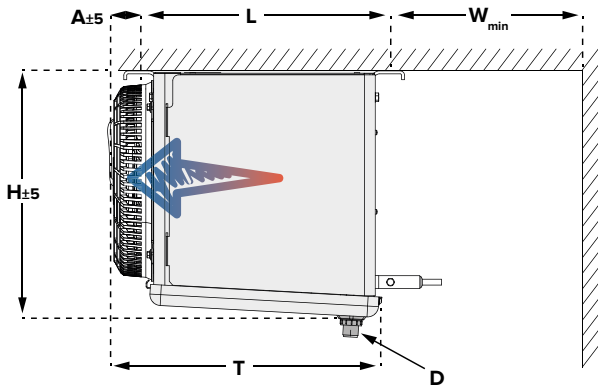
The dimensions are only valid for the standard model design!
Note the differences in dimension among versions and accessories.

Empty Weight
N = without electric defrost
E = with electric defrost

Subject to changes

DIMENSIONAL DRAWINGS

Kelvion KSC / MSC



Kelvion KSC / MSC

VARIANTS

CASING - VARIANTS

DOUBLE-WALLED, INSULATED DRIP TRAY

Prevents condensed water from forming on the bottom side of the pan, and it reduces the transfer of defrost heat into the cold rooms.

The following dimensions are changed:

Width B: +60 mm

Height H: +30 mm

Depth T: +60 mm

FANS HINGED

For easy inspection and cleaning

MOTOR VARIANTEN

EC FAN, FIXED SPEED

EC FAN, 0-10V ADJUSTABLE

AC FAN

KSC30 only

PROTECTION AGAINST CORROSION

CORROSION PROTECTION 1

Tubing: Copper

Fins: Aluminum, epoxy-resin-coated

End plates: Aluminum protective coating

Casing: Aluminum/zinc coated steel, protective coating on both sides

CORROSION PROTECTION 4

Tubing: Copper

Fins: Aluminum, epoxy-resin-coated

End plates: Aluminum

Casing: Aluminum/zinc coated steel, protective coating on one side

CORROSION PROTECTION 2

Tubing: Stainless steel (V2A)

Fins: Aluminum, epoxy-resin-coated

End plates: Stainless steel

Casing: Al/zinc coated steel, prot. coating on both sides

CORROSION PROTECTION 3

Tubing: Stainless steel (V2A)

Fins: Aluminum

End plates: Aluminum

Casing: Al/zinc coated steel, prot. coating on one side



DEFROST - VARIANTS

HOT-GAS COIL IN THE DRIP TRAY (CU)

Hot-gas connection on both sides; copper

HOT GAS IN HEAT EXCHANGER

Hot gas circuit for coil, without non-return valve

CO₂ - VARIANTS

CO₂ - DIRECT EXPANSION 45 BAR

up to 45 bar operating pressure

CO₂ - DIRECT EXPANSION 90 BAR

up to 90 bar operating pressure

DISTRIBUTOR - VARIANT

CAL-DISTRIBUTOR

Multiple injection via CAL

WATER / BRINE

SMALL AND LARGE NUMBER OF DISTRIBUTIONS

up to 16 bar operating pressure

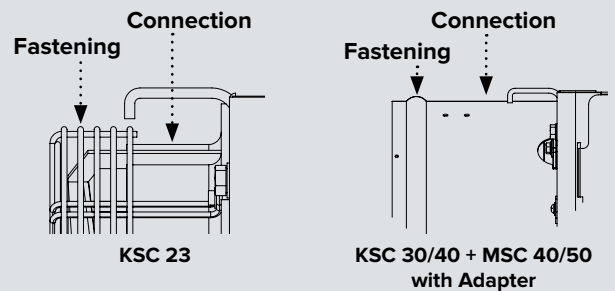
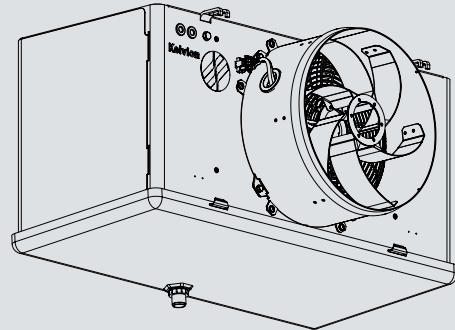
ACCESSORIES

ADAPTER / ETOILE

The Etoile optimizes the air outlet and serves as an adapter for Shut-Up® or air hoses. The optimized air flow improves the throwing distance by approx. 200% and extends the Lifetime of Shut-Up® and air hoses.

Selection table & Dimensions:

Type	Kelvion KSC/MSK			Shut-Up®
	Fan blade Ø mm	Connections Ø mm	Fixture Ø mm	L Adapter Ø mm
KSC 23	230			
KSC 30	300	348	358	170
KSC 30 070.5	300	348	358	230
KSC 40	400	432	443	272
MSC 40	400	432	443	272
MSC 50	500	532	543	292



NOTE:

Due to the additional external pressure, the air quantity and Air Cooler capacity change: With using Shut-Up®: Air volume reduces by 10% (-5% cooling capacity) 1 Shut-Up® per fan unit required. Delivery not mounted. For KSC 23, you do not need an additional to install a Shut-Up®.

SHUT-UP® (+ADAPTER)

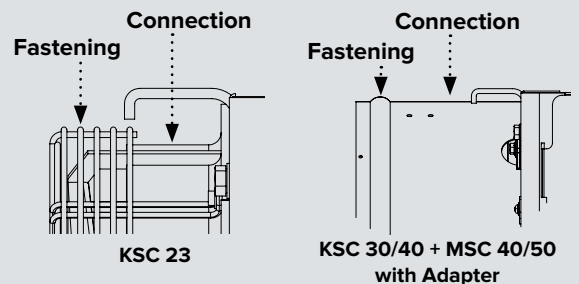
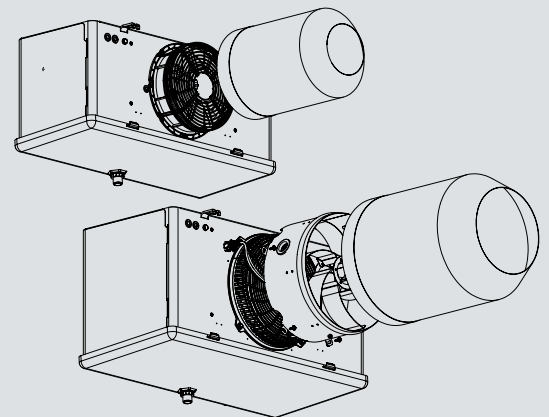
The Shut-Up® optimises the defrosting procedure, especially in deep-freeze applications. Shut-Up® is suspended over the fan unit, closing the Air Cooler. Hot air cannot escape.

Construction:

High-tech microfiber, tearproof, UV-resistant, form- and temperature resistant, rot-proof, food-safe, washable at 30°C, chemical purification P

Selection table & Dimensions:

Type	Kelvion KSC/MSK			Shut-Up®
	Fan blade Ø mm	Connections Ø mm	Fixture Ø mm	L Adapter Ø mm
KSC 23	230	253	258	409
KSC 30	300	348	358	627
KSC 30 070.5	300	348	358	687
KSC 40	400	432	443	819
MSC 40	400	432	443	819
MSC 50	500	532	543	840



NOTE:

Due to the additional external pressure, the air quantity and Air Cooler capacity change: With using Shut-Up®: Air volume reduces by 10% (-5% cooling capacity) 1 Shut-Up® per fan unit required. Delivery not mounted. For KSC 23, you do not need an additional to install a Shut-Up®.

FINNED-TUBE HEATERS KSHR/SHR Z

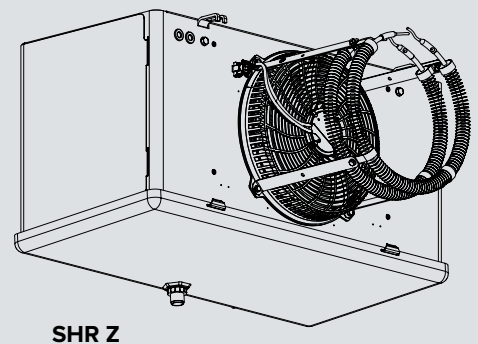
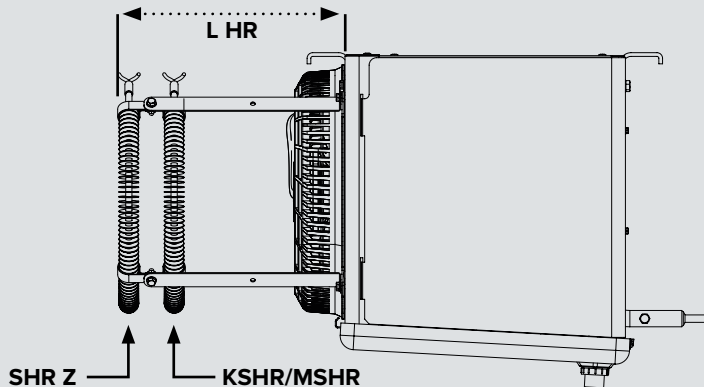
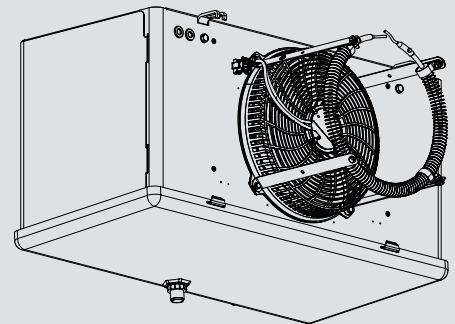
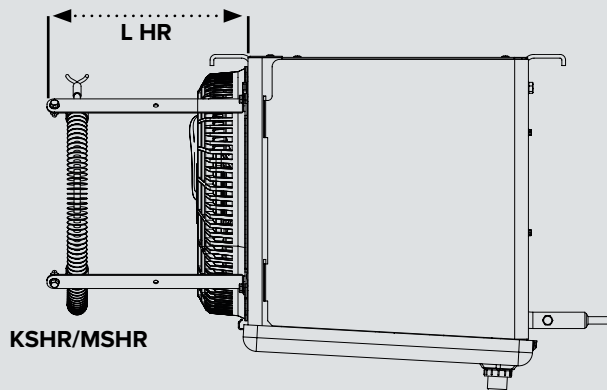
For air coolers with draw-through fans. For conditioning of room air.

- ▶ KSHR = Standard design
- ▶ SHR Z = Additional heater
- ▶ KSHR + SHR Z = Greater heating capacity

Selection table, Technical data & Dimensions:

Type	Description	Current				Capacity				Dimension
		L1 A	L2 A	L3 A	Total A	L1 kW	L2 kW	L3 kW	Total kW	L HR mm
KSC 23	KSHR 23	4,3	-	-	4,3	0,98	-	-	0,98	289
KSC 23	KSHR 23 + SHR 23 Z	4,3	4,3	-	8,5	0,98	0,98	-	1,96	325
KSC 30	KSHR 30	7,6	-	-	7,6	1,74	-	-	2,46	271
KSC 30	KSHR 30 + SHR 30 Z	7,6	7,6	-	15,1	1,74	1,74	-	3,48	306
KSC 40	KSHR 40	10,7	-	-	10,7	2,46	-	-	2,46	277
KSC 40	KSHR 40 + SHR 40 Z	10,7	10,7	-	21,4	2,46	2,46	-	4,92	312
MSC 40	MSHR 40	10,7	-	-	10,7	2,46	-	-	2,46	277
MSC 40	MSHR 40 + SHR 40 Z	10,7	10,7	-	21,4	2,46	2,46	-	4,92	312
MSC 50	MSHR 50	13,8	-	-	13,8	3,18	-	-	2,46	277
MSC 50	MSHR 50 + SHR 50 Z	13,8	13,8	-	27,7	3,18	3,18	-	6,36	312

Dimensions:



NOTE:

This unit is operated only when the air-cooler fans are in use, to prevent overheating of the ceiling of the cold room.
Be sure to observe the relevant safety instructions. 1 KSHR/Z per fan unit required.

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