Kelvion

Kelvion TEC Commercial air cooler

THE IDEAL COOLER AT A COMPETITIVE PRICE

Kelvion

EXPERTS IN HEAT EXCHANGE – SINCE 1920

Welcome to Kelvion. Heat exchange is our business. Worldwide. As a market leader in the technology sector, we have been producing heat exchangers for virtually every conceivable industrial application since the 1920s, including tailor-made solutions suited for the most complex environmental conditions – as of 2015 under the name of Kelvion.

With one of the most comprehensive ranges of heat exchangers in the world, which includes compact finned-tube heat exchangers, plate heat exchangers, single tube heat exchangers, shell and tube heat exchangers, transformer cooling systems and wet cooling towers, we are a sought after partner in a wide variety of industries, such as: the energy industry, the oil and gas industry, the chemical industry, the shipbuilding sector, the food and beverage industry, the heavy industry, the sugar industry, the transport sector, as well as building and refrigeration technology.

Many years of experience and in-depth expert knowledge make us specialists in this field.
Our heat exchangers are designed for the requirements of the respective process, thereby ensuring optimum energy efficiency and reliability for all market segments. This provides our customers with a technological advantage that reduces operating costs and has a lasting effect.

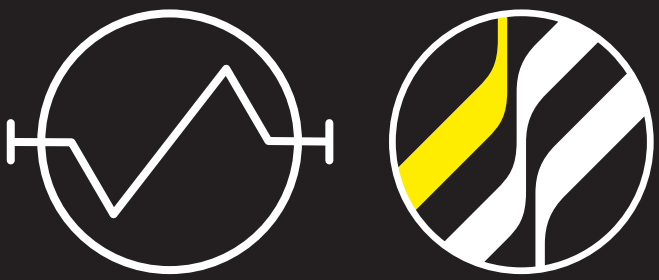
A reliable after-sales service is essential with regard to customer loyalty and retention. We have a worldwide service network at our disposal. Our engineers are thereby able to carry out maintenance work and complete repairs on-site at a customer's premises. This prevents unnecessary downtime – because we are highly committed to earning your trust.

Kelvion – Experts in Heat Exchange.

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

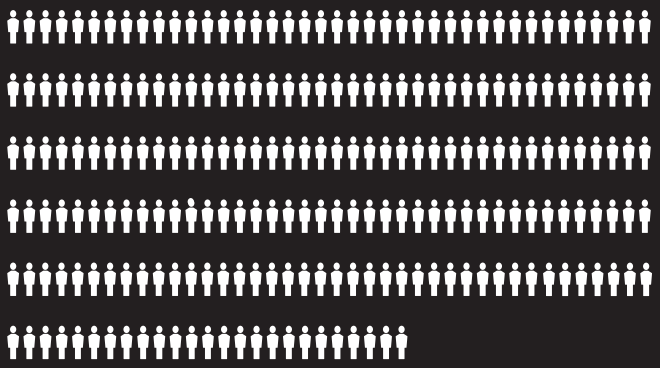
Lord Kelvin formulated the laws of thermodynamics and absolute units of temperature are stated in kelvin, in his honor.

OUR LOGO – INSPIRED FROM THE SCHEMATIC FOR HEAT EXCHANGER



67 BRANCHES AND SALES PARTNERS WORLDWIDE

4,500 EMPLOYEES WORLDWIDE



YOUR MARKETS ARE OUR MARKETS

- Chemicals
- Food & Beverages
- Heavy Industry
- HVAC
- Refrigeration
- Marine
- Oil & Gas
- Power
- Sugar
- Transportation

KELVION HAS A LONG HISTORY

2015 With the new name, the former GEA Heat Exchangers is writing its own history as Kelvion.

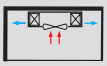
2014 GEA sells the Heat Exchangers Segment to Triton.

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)

COMMERCIAL AIR COOLER RANGE

MODEL		NO.FANS	CONFIGURATION	EUROVENT	SUPPLY	EC FANS	ELECTRIC DEFROST	HEAVY ELECTRIC DEFROST	HOT GAS A/B/C/D DEFROST	CO2	FIN MATE-RIAL	CAPACITY
TEC		1 - 3		✔	1 ph	✔	✔ kit	X	X	✔	AL, AV	0.5 - 3.4kW (CO^2) 0.34- 3.8kW
KEC		1 - 3		✔	1 ph	✔	✔	X	✔	✔	AL, AV	1.2 - 10.7kW (CO^2) 1 - 9.9kW
KMe		1 - 4		✔	1 & 3ph	O	✔	✔	✔	✔	AL, AV	5.8 - 28kW (CO^2) 5.9 - 48.1kW
KDC		1 - 6		✔	1 ph	✔	✔	X	X	✔	AL, AV	1.4 - 23kW (CO^2) 1.7 - 23kW

✔ **YES** X **NO** O **OPTION**

TEC SPECIFICATION

CASEWORK: The casework is formed from galvanized steel and finished with oven cured white epoxy powder paint (RAL 9010). Comprising of a back plate with formed sides to which the coil is fitted. The front panel is a combined fan plate and drain tray which can be lowered on a hinge bracket to gain access to the electrical box and coil connections. The coil connections are handed on the left hand side when looking into the air off face of the cooler and are the only handing available

FANS AND CONTROLS: The TEC Cooler from Kelvion has been designed utilising EC fan set technology as standard. This has resulted in a market leading, highly efficient cooler that is both versatile and robust.

- 1-3 fans as standard
- Axial (Propeller) Fan set
- 230mm diameter
- 50 & 60 Hz as standard
- Metal wire guard and wall ring
- Nominal speed 1920rpm
- Nominal Power 25W
- Motor Rating IP55

COIL: The coil technology used in the TEC cooler is optimised specifically for DX refrigeration applications. Inner grooved tubes are used to optimise performance by enhancing the internal heat transfer coefficients. The tube is then mechanically expanded to provide a tight Interference fit between the fin and tube.

- Manufactured from 3/8" Inner Grooved Copper Tube
- Tube Pitch Across Airflow = 25.4mm
- Tube Pitch In Direction of Airflow = 22mm
- Fin Spacing(s): 5 FPI (5.1mm) and 7 FPI (3.6mm)

CO2 OPTION: Kelvion has worked closely with various stakeholders in the refrigeration sector to enhance its standard product specifically for CO_2 refrigeration applications. This has resulted in the next generation of unit coolers with a maximum operating pressure of 75 Bar as standard. Advanced technology available from Kelvion enables companies to cut refrigeration operating costs significantly, offsetting some of the impact of high energy prices. Reliable refrigeration is a must-have across the food chain from farm to supermarket, and with costs rising all round, users are showing keen interest in the savings potential in the next generation of unit coolers.

TEC AIR COOLER

APPLICATION & BENEFITS

- Our smallest Evaporator: consists of nine small ‘blow through’ unit coolers, with a wide operating range of + 10 °C to -40°C.
- The popular TEC range: suitable for high, medium and low temperature applications in the commercial refrigeration sector.
- Fans are the highest quality and efficiency: The TEC Cooler from Kelvion has been designed optimising EC fan set technology as standard. This has resulted in a market leading, highly efficient cooler that is both versatile and robust.
- Enhanced standard TEC range for CO_2 refrigeration applications. The next generation of unit coolers with a maximum operating pressure of 75 Bar as standard enables companies to cut refrigeration operating costs significantly, offsetting some of the impact of high energy prices.
- Casework: The highly efficient performance of the cooler is accompanied by a pleasing aesthetic design whilst maintaining a service focused functionality
- Eurovent certify-all: independent certification for thermal performance, power consumption, sound data and unit air volumes for standard products under scheme limits.

CAPACITY RANGE

HFO/HFK **0.52 kW - 3.4 kW**

t_{L1}=0°C | t_0=-8°C | DT=8K [SC2] | R404A

0.34 kW - 3.8kW

t_{L1}=0°C | t_0=8°C | DT=8K [SC2]

HEAT EXCHANGE

- **Fin Type:** E
- **Tube Diameter: [mm]**
  9.5
- **Standard Fin spacing: [mm]**
  5.1 | 3.6

VARIANTS & ACCESSORIES

- **Drain Tray Heater Guard**
- **Defrost kits wall or ceiling mounted**
- **Model options: TECX**

DEFROST

DEFROST	FAN	COIL	DRIP TRAY
Standard Electric	✓	✓	✓
Heavy Electric		X	
Hot gas		X	

FAN

- **EC Standard**

- **Ø 230 mm**
- **IP55**
- **1 phase**

MATERIALS

MATERIAL	TUBE	FINS	CASING	END PLATE
Copper (Cu)	☑	✓		
Aluminium (Al)		☑		☑
Aluminium Epoxy (Av)		✓		
Galvanised Steel			☑	

☑ Standard | ✓ Available as a variant

REFRIGERANT DATA

REFRIGERATION	R404A	R134A	R507A	R407A/F	R407C
Capacity factor (dew point, DT1)	1.00	0.91	0.97	1.24*	1.26*
Refrigerant charge density (kg/dm^3)	0.312	0.338	0.313	0.332	0.332

* Capacity factors for refrigerants with high glide apply only at the nominal rating condition.
Refrigerant charge densities are based on 25% of the internal volume being liquid.

DESIGNATION

The model number indicates the casework model size and other relevant information, for example: -

PART NUMBER	TEC	4	-	5	60	AL

Range	**TEC,** TECX
Model	1, 2, 3, 3.5, **4**, 5, 6, 7, 8
Fin Spacing	**5 FPI** (5.1mm), 7 FPI (3.6mm)
Supply frequency	Blank = 50Hz, **60** = 60Hz
Fin material	**AL** = Aluminium

SELECTION DATA

FIN SPACING	MODEL	CAPACITY 8K DT1 R404A *	MOTOR DETAILS 230V - 1PH - 50Hz					FAN DATA			CONNECTION		INTER-NAL VOLUME	SURFACE AREA	REF CHARGE	WEIGHT
			NO. OF FANS	POWER INPUT	FLC PER FAN	SC PER FAN	SPEED	AIR VOLUME	AIR THROW ***	NOISE LEVEL @ 3M **	INLET	OUTLET				
		kW		W	Amps	Amps	RPM	m^3/s	m	dB(A)			dm^3	m^2	kg	kg
7 FPI (3.6mm)	TEC1-7	0.57	1	21	0.2	0.9	1440	0.15	4.5	51	3/8"	1/2"	0.4	1.5	0.1	7
	TEC2-7	0.89	1	21	0.2	0.9	1440	0.15	4.5	50	3/8"	1/2"	0.8	2.9	0.3	8
	TEC3-7	1.04	1	21	0.2	0.9	1440	0.15	5.0	50	3/8"	1/2"	1.1	4.1	0.5	12
	TEC3.5-7	1.25	1	21	0.2	0.9	1440	0.16	5.0	50	3/8"	1/2"	1.4	5.4	0.4	10
	TEC4-7	1.72	2	42	0.2	0.9	1440	0.26	5.0	53	3/8"	1/2"	1.4	5.4	0.5	14
	TEC5-7	2.04	2	42	0.2	0.9	1440	0.30	5.5	52	3/8"	1/2"	1.8	7.3	0.6	16
	TEC6-7	2.29	2	42	0.2	0.9	1440	0.32	5.5	51	1/2"	5/8"	2.3	9.7	0.8	19
	TEC7-7	3.02	3	63	0.2	0.9	1440	0.45	6.0	54	1/2"	7/8"	2.4	10.3	0.8	24
	TEC8-7	3.40	3	63	0.2	0.9	1440	0.48	6.0	53	1/2"	7/8"	3.2	13.8	1.1	27
5 FPI (5.1mm)	TEC1-5	0.52	1	21	0.2	0.9	1440	0.16	4.5	51	3/8"	1/2"	0.4	1.1	0.1	7
	TEC2-5	0.84	1	21	0.2	0.9	1440	0.15	4.5	50	3/8"	1/2"	0.8	2.1	0.3	8
	TEC3-5	1.00	1	21	0.2	0.9	1440	0.16	5.0	50	3/8"	1/2"	1.1	3.0	0.5	12
	TEC3.5-5	1.15	1	21	0.2	0.9	1440	0.17	5.0	50	3/8"	1/2"	1.4	4.0	0.4	10
	TEC4-5	1.61	2	42	0.2	0.9	1440	0.28	5.0	53	3/8"	1/2"	1.4	4.0	0.5	14
	TEC5-5	1.89	2	42	0.2	0.9	1440	0.31	5.5	52	3/8"	1/2"	1.8	5.4	0.6	16
	TEC6-5	2.14	2	42	0.2	0.9	1440	0.34	5.5	51	1/2"	5/8"	2.3	7.1	0.8	19
	TEC7-5	2.76	3	63	0.2	0.9	1440	0.47	6.0	54	1/2"	7/8"	2.4	7.6	0.8	24
	TEC8-5	3.18	3	63	0.2	0.9	1440	0.50	6.0	53	1/2"	7/8"	3.2	10.1	1.1	27

NOTES: Rating conditions: The duties shown in this brochure are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown, please contact your supplier.

- * DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.
- ** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.
- *** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered an absolute value because many factors have a substantial effect on the distance achieved.

TEC CO2

FIN SPACING	MODEL	CAPACITY 8K DT1 *	MOTOR DETAILS 230V - 1PH - 50Hz					FAN DATA			CONNECTION		INTER-NAL VOLUME	SURFACE AREA	REF CHARGE	WEIGHT
			NO. OF FANS	POWER INPUT	FLC PER FAN	SC PER FAN	SPEED	AIR VOLUME	AIR THROW ***	NOISE LEVEL @ 3M **	INLET	OUTLET				
		kW		W	Amps	Amps	RPM	m^3/s	m	dB(A)			dm^3	m^2	kg	kg
5 FPI (5.1mm)	TECX1-7	0.34	1	21	0.2	0.9	1440	0.16	0.9	51	3/8"	5/8"	0.4	1.1	0.4	8
	TECX2-7	0.66	1	21	0.2	0.9	1440	0.14	0.9	50	3/8"	5/8"	0.8	2.1	0.4	9
	TECX3-7	0.84	1	21	0.2	0.9	1440	0.16	0.9	50	3/8"	5/8"	1.1	3.0	0.8	11
	TECX3.5-7	1.00	1	21	0.2	0.9	1440	0.17	0.9	50	3/8"	5/8"	1.4	4.0	0.8	14
	TECX4-7	1.37	2	42	0.2	0.9	1440	0.28	0.9	53	3/8"	5/8"	1.4	4.0	0.8	15
	TECX5-7	1.81	2	42	0.2	0.9	1440	0.31	0.9	52	3/8"	5/8"	1.8	5.4	0.8	19
	TECX6-7	2.22	2	42	0.2	0.9	1440	0.34	0.9	51	3/8"	5/8"	2.3	7.1	1.4	21
	TECX7-7	2.86	3	63	0.2	0.9	1440	0.47	0.9	54	3/8"	5/8"	2.4	7.6	1.4	27
	TECX8-7	3.30	3	63	0.2	0.9	1440	0.50	0.9	53	3/8"	5/8"	3.2	10.1	1.8	31

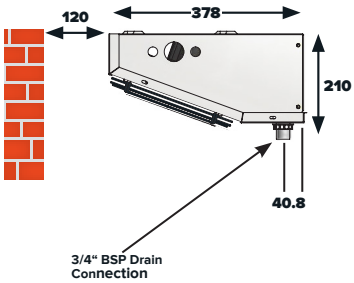
NOTES: Rating conditions: The duties shown in this brochure are at EN 328 Standard Condition 2 (-8°C saturated suction temperature, 0°C air entering). For data on refrigerants not shown, please contact your supplier.

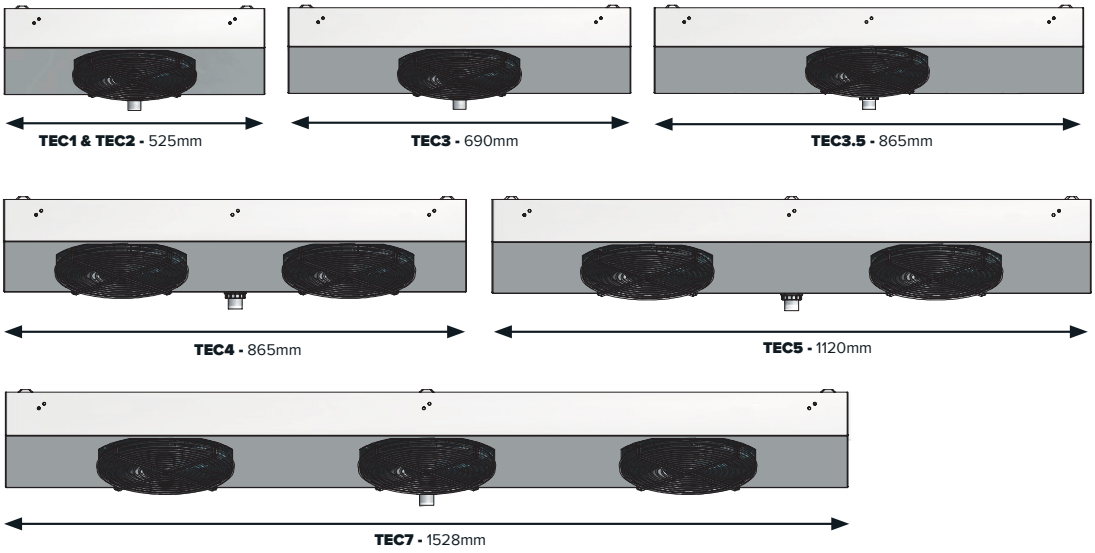
- * DT1 is the difference between the entering air temperature and the saturated suction temperature at the outlet of the cooler.
- ** Noise levels are based on free field conditions at a distance of 3m. Actual noise levels will depend upon cold store construction, store loading and the number of coolers installed.
- *** Terminal air velocity 0.25m/s, free air conditions at 10°C. Air throw cannot be considered an absolute value because many factors have a substantial effect on the distance achieved.

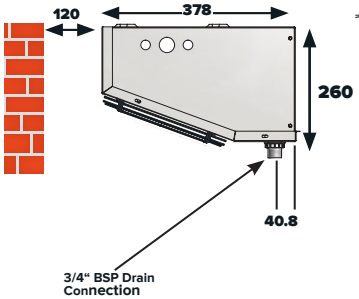
DIMENSIONS

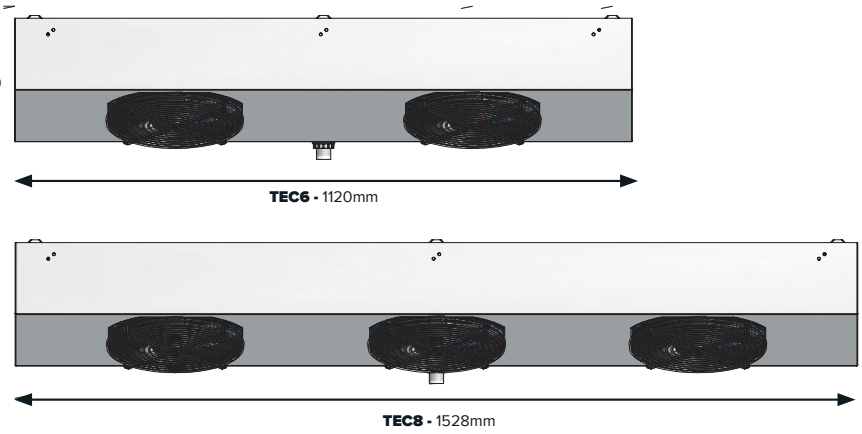
CEILING MOUNT OPERATION

MODEL HEIGHT | **MODEL WIDTH**









WALL MOUNT OPERATION

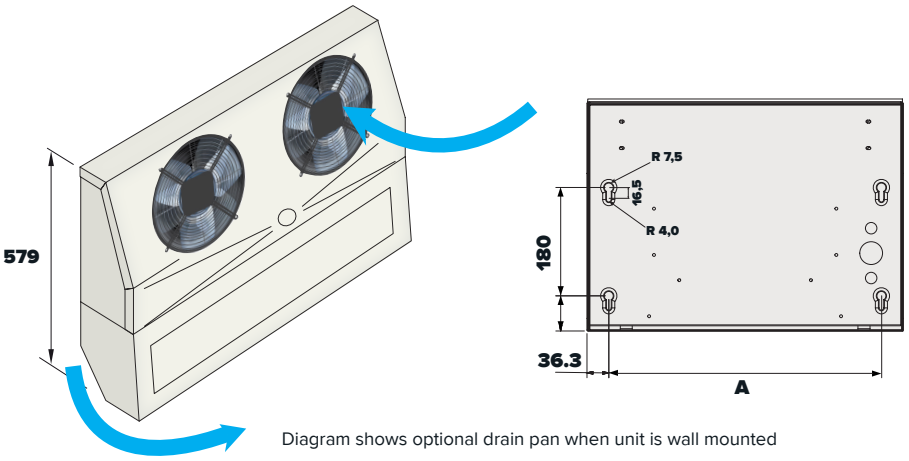


Diagram shows optional drain pan when unit is wall mounted

MODEL	NO. OF FANS	A	DEFROST	
			CEILING W	WALL W
TEC1	1	453 (x4)	275	2 x 250
TEC2	1	453 (x4)	550	2 x 250
TEC3	1	618 (x4)	700	2 x 325
TEC3.5	1	793 (x4)	900	2 x 425
TEC4	2	793 (x4)	900	2 x 425
TEC5	2	524 (x6)	1000	2 x 575
TEC6	2	524 (x6)	1000	2 x 675
TEC7	3	728 (x6)	1400	4 x 470
TEC8	3	728 (x6)	1400	4 x 470

SELECTION AND PRICING

This can be performed on the Selection software which can be downloaded from our website **www.kelvion.com**

www.kelvion.com