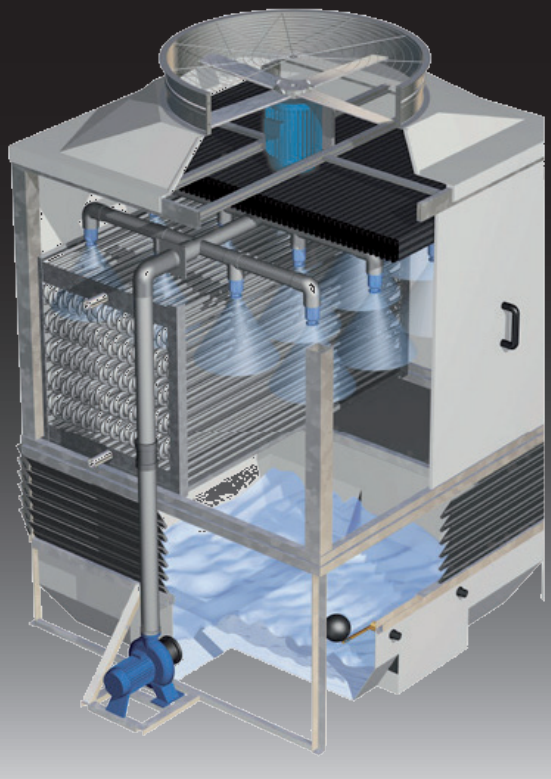


MCE

Evaporative condensers

TORRAVAL cooling



EVAPORATIVE CONDENSERS
MCE SERIES









Evaporative condensers MCE Series

The MCE series evaporative condensers can be employed in air conditioning and industrial refrigeration installations, representing in their operation an alternative to the classical water-cooled condenser with evaporative cooling tower or systems with aircooled finned coils. The refrigerant gas to be condensed is fed to the upper header of a coil of smooth-surface tubes which, continuously wetted by water appropriately sprayed and in contact with an adequate countercurrent airflow, permits the progressive condensation of the gas. The gas, thus cooled and condensed to the liquid state, can be returned via the lower header to the installation. Hence the evaporative condenser, in the context of water- cooled condensing systems combines the “open circuit cooling tower condenser” system in a single and compact unit exploiting, inside the unit, the forced evaporation of a small quantity of the recirculating spray water to achieve the heat load rejection which is necessary to condensate the refrigerant gas.

Construction features

Fitted with one or more axial fans according to the model, the MCE series is built with a strong supporting structure in hot-dip galvanised steel and side walls made of fibreglass sandwich panels. The internal heat exchanger is composed of smooth-tube coils, fabricated in compliance with PED directive 2014/ 68/UE. The standard configuration is completed by the water collecting basin and the fan stacks made entirely of fibreglass (FRP). The range includes several models suitable for installations with requested refrigeration capacities between approx. 80 and 3800 kW.

For all models several option items are available, such as:

- Different solutions to reduce sound emissions
- Totally removable side walls for an easy and total access to the internal parts, to simplify inspection, cleaning or maintenance operations
- Special dimensions for shipment by sea containers.

Fields of application

The evaporative condenser serving refrigeration plants can be employed in the following sectors:

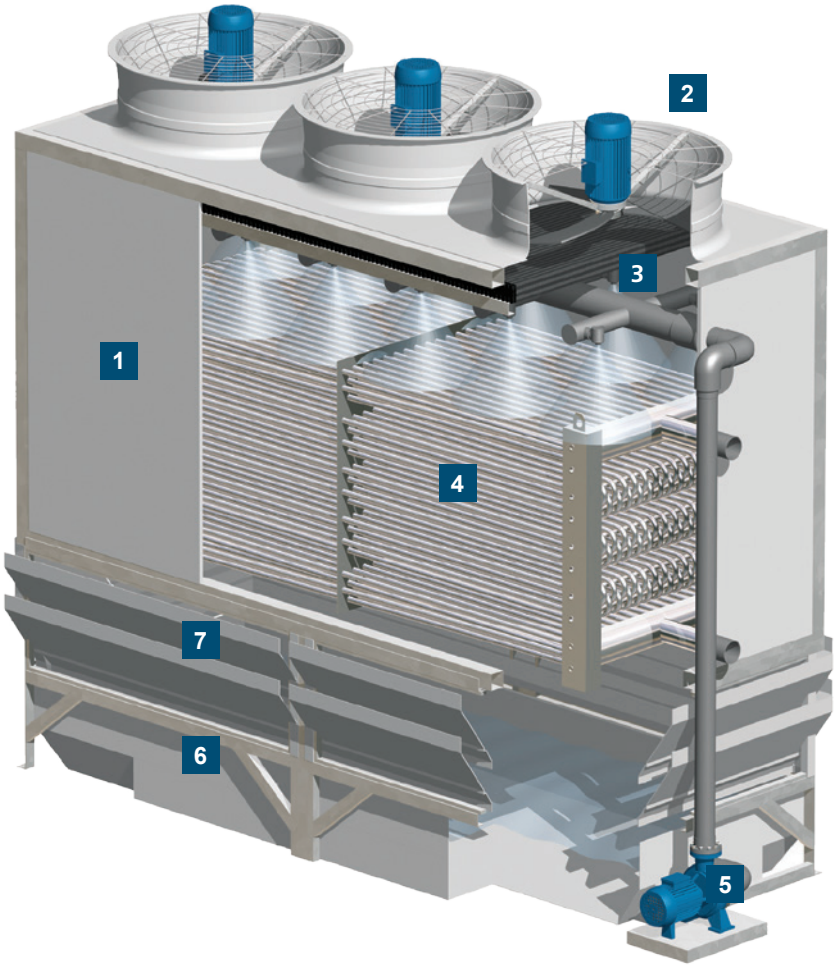
- Civil and industrial air conditioning installations
- Industrial logistics
- Refrigerated warehouses (e.g. storage of food products)
- Industrial refrigeration.







CONSTRUCTION FEATURES



1 Structure and main casing

Construction Materials:
Steel supporting structure, hot-dip galvanised after fabrication, sandwich panelling in 22 mm thick fibreglass.

Characteristics:
- Optimum mechanical resistance
- Good sound-absorption properties
- Corrosion-resistant
- Easy internal inspection (with optional totally removable side walls)

2 Multi-blade axial fan

Construction Materials:
Hot-dip galvanised steel (support), plastic (fan blades), stainless steel (protective grid).

Characteristics:
- High performance, low absorbed electric power, fan directly driven by the motor
- Electrical wiring connections to fan motor/s.

3 Water distribution system

Construction Materials:
Normalised PN 10 PVC pipes, polypropylene tangential nozzles.

Characteristics:
- Corrosion-resistant
- Uniform and complete spraying of the coil, full-cone spray
- Exclusive Torraval-design nozzles: the water flow is induced in the diffuser cone solely by the tangential connection to the main body of the nozzle, hence there are no internal parts which could cause obstructions.

4 Heat exchange coil (in compliance with PED directive 2014/68/UE)

Construction Materials:
Hot-dip galvanised steel (special paintworks on request).

Characteristics:
- Large heat exchange surface
- Easy maintenance (thanks to the optional totally removable side walls).

5 Centrifugal water recirculating pump and piping of the spray water circuit

6 Basin with sloping bottom and top of the tower

Construction Materials:
Glass-mat reinforced orthophthalic polyester resin in several layers.

Characteristics:
- External surface protection by means of a gelcoat resistant to UV-radiation, to cold and hot water, to abrasion from the elements/weather conditions and to chemicals
- Internal water-proofing/impermeability obtained by means of an isophthalic, paraffin-containing, impermeable and hydrorepellent gel-coat (for the basin)
- Lightweight structure
- Corrosion-resistant.

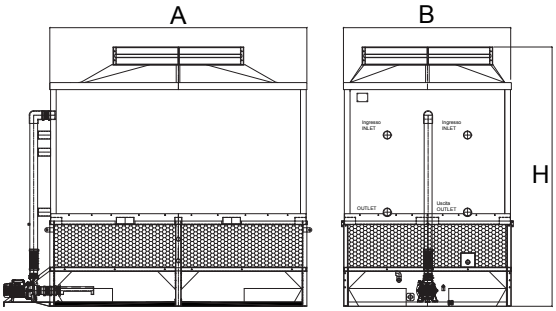
7 Anti-splash louvers on the air inlet openings

Construction Materials:
PVC or fibreglass.

Characteristics:
- Corrosion-resistant
- Easy dismounting even after many years in service.

TECHNICAL CHARACTERISTICS

Model		Dimensional data and coil type				Fans				Pump
MCE	-	045	R	3	-	2	C	N	-	K1
Product line		Code dimension (m²)	Coil type	Code - No. Rows		No.	Axial AC	Noise		-
		020 - (1,9) **030** - (2,9) **035** - (3,5) **045** - (4,5) **055** - (5,5) **070** - (6,9) **085** - (8,4) **110** - (10,7) **130** - (12,9) **160** - (16,2) **210** - (20,8) **170** - (16,8) **220** - (21,4) **260** - (25,7)	**R** Standard **Q** Multiple Fluid	**1** - 6 Rows **2** - 8 Rows **3** - 10 Rows **4** - 12 Rows		**1** **2** **3** **4**	**A** For models from **085** to **260** **C** For models from **020** to **070**	**N** Standard **S** Silent **L** Low noise		**K0** No pump **K1** 1 pump **K2** 2 pumps



Model	Dimensions (m)			Weight (kg)		Total fans power (kW)	Total power for spray pumps (kW)	Power for electric heater in the basin (*) (kW)
	A	B	H	Empty	Operation			
MCE-020R1-2CN-K1	1,89	1,05	3,18	980	1960	2,6	1,1	2
MCE-020R2-2CN-K1	1,89	1,05	3,18	1110	2130	2,6	1,1	2
MCE-020R3-2CN-K1	1,89	1,05	3,18	1210	2280	2,8	1,1	2
MCE-020R4-2CN-K1	1,89	1,05	3,43	1310	2430	3,3	1,1	2
MCE-030R1-2CN-K1	2,79	1,05	3,18	1240	2670	4,9	1,5	3
MCE-030R2-2CN-K1	2,79	1,05	3,18	1350	2860	5,2	1,5	3
MCE-030R3-2CN-K1	2,79	1,05	3,18	1570	3150	5,5	1,5	3
MCE-030R4-2CN-K1	2,79	1,05	3,43	1730	3380	6,8	1,5	3
MCE-035R2-2CN-K1	2,87	1,26	3,24	1620	3480	6,9	2,2	3
MCE-035R3-2CN-K1	2,87	1,26	3,24	1860	3810	6,9	2,2	3
MCE-035R4-2CN-K1	2,87	1,26	3,49	2040	4080	8,7	2,2	3
MCE-045R2-2CN-K1	3,69	1,26	3,24	2010	4380	8,7	2,2	4,5
MCE-045R3-2CN-K1	3,69	1,26	3,24	2220	4710	8,8	2,2	4,5
MCE-045R4-2CN-K1	3,69	1,26	3,49	2520	5130	8,8	2,2	4,5
MCE-055R2-3CN-K1	3,69	1,53	3,46	2370	5280	10,4	4	7,5
MCE-055R3-3CN-K1	3,69	1,53	3,46	2670	5730	10,4	4	7,5
MCE-055R4-3CN-K1	3,69	1,53	3,71	2850	6060	13,0	4	7,5
MCE-070R2-3CN-K1	4,59	1,53	3,61	2820	6450	13,0	5,5	7,5
MCE-070R3-3CN-K1	4,59	1,53	3,61	3180	6990	13,2	5,5	7,5
MCE-070R4-3CN-K1	4,59	1,53	3,88	3540	7530	13,2	5,5	7,5
MCE-085R2-1AN-K1	3,62	2,36	3,65	3690	8190	15	5,5	7,5
MCE-085R3-1AN-K1	3,62	2,36	3,65	4080	8790	15	5,5	7,5
MCE-085R4-1AN-K1	3,62	2,36	4,14	4620	9570	15	5,5	7,5
MCE-110R2-2AN-K1	4,59	2,36	3,80	4590	10290	15	5,5	2x4,5
MCE-110R3-2AN-K1	4,59	2,36	3,80	5220	11220	22	5,5	2x4,5
MCE-110R4-2AN-K1	4,59	2,36	4,03	5730	12000	22	5,5	2x4,5
MCE-130R2-2AN-K1	5,52	2,36	3,80	5430	12270	22	5,5	2x7,5
MCE-130R3-2AN-K1	5,52	2,36	3,80	6090	13290	22	5,5	2x7,5
MCE-130R4-2AN-K1	5,52	2,36	4,03	6840	14400	22	5,5	2x7,5
MCE-160R2-2AN-K1	5,49	2,98	4,34	7050	15660	22	9,2	2x7,5
MCE-160R3-2AN-K1	5,49	2,98	4,34	8160	17220	30	9,2	2x7,5
MCE-160R4-2AN-K1	5,49	2,98	4,60	9120	18630	30	9,2	2x7,5
MCE-170R2-2AN-K2	7,32	2,36	3,65	7380	16350	30	11	2x7,5
MCE-170R3-2AN-K2	7,32	2,36	3,65	8160	17580	30	11	2x7,5
MCE-170R4-2AN-K2	7,32	2,36	4,14	9240	19140	30	11	2x7,5
MCE-210R2-2AN-K2	5,79	3,60	4,53	11240	15560	30	15	2x7,5
MCE-210R3-2AN-K2	5,79	3,60	4,53	12040	16930	30	15	2x7,5
MCE-220R2-4AN-K2	9,26	2,36	3,80	9180	20580	30	11	4x4,5
MCE-220R3-4AN-K2	9,26	2,36	3,80	10440	22410	44	11	4x4,5
MCE-220R4-4AN-K2	9,26	2,36	4,03	11460	24000	44	11	4x4,5
MCE-260R2-4AN-K2	11,12	2,36	3,80	10860	24570	44	11	4x7,5
MCE-260R3-4AN-K2	11,12	2,36	3,80	12180	26580	44	11	4x7,5
MCE-260R4-4AN-K2	11,12	2,36	4,03	13680	28800	44	11	4x7,5

(*) Optional

Technical data not binding

bsi ISO 9001 Quality Management Systems CERTIFIED ISO 14001 Environmental Management CERTIFIED ISO 45001 Occupational Health and Safety Management CERTIFIED

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