KMU LOFT
Cleanwater

KLC Evaporator

KLC-MASTER Line NC/FC

Vacuum distillation with
modular design

Process water treatment by extraction of best quality distillate

The KLC-MASTER Line is the new generation of KLC evaporators for high-quality treatment of industrial process water. Powerful and efficient components are installed in the smallest possible space, which decisively improve distillate quality and significantly reduce energy consumption. The new modular design allows the KLC-MASTER Line to be customized to meet the requirements of a wide range of process water types. With additional configurations, even the most difficult process waters can be treated. At the same time, the concentration factor is increased and best distillate quality is achieved. This modular, customer-specific design maximizes availability and reduces life cycle cost. By reusing the distillate, it is possible to achieve a closed circuit water management that conserves resources and achieves the highest environmental standards. With this innovative design a Zero Liquid Discharge Production is possible.

Special features

- Low energy consumption due to maximum heat recovery
- High availability of the plant through effectiveand automatic cleaning system
- Well suited to treat a wide range of process waters
- Proven optimum values for distillate quality by optimized design
- Compact design and optimum accessibility
- Fully automated effective cleaning system
- Significant reduction of operating and lifecycle costs
- Modular design for customized assembly of additional kits
- Latest control system, intuitive operation and easy handling of the machine visualization

Functional principle

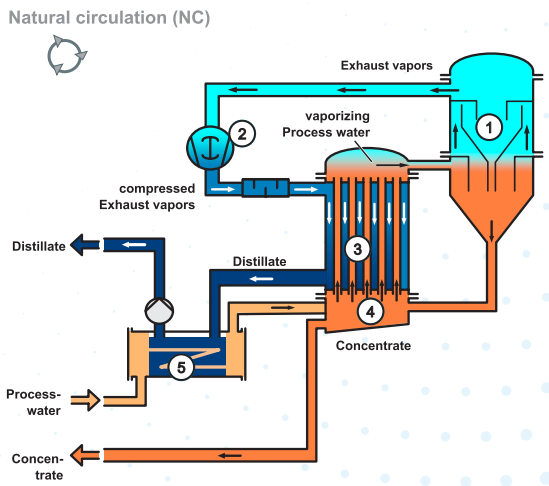
The KLC-MASTER Line is available in the options natural circulation (NC) and forced circulation (FC). With the evaporation principle NC, the media circulate purely thermodynamically by temperature and density differences. With the evaporation principle FC additionally with a pump.

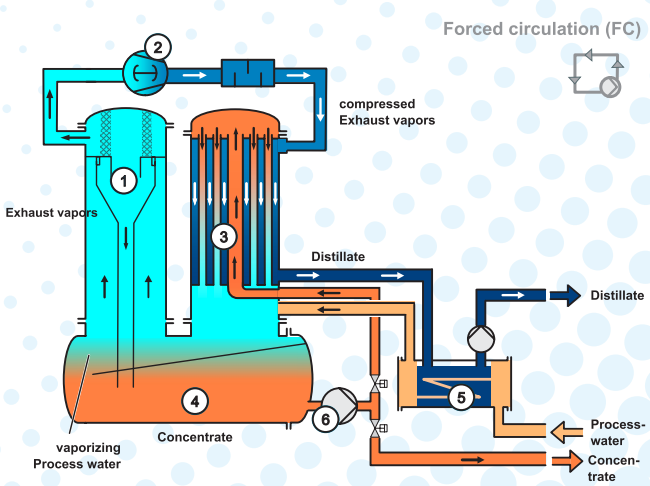
Natural Circulation (NC)

- Very well suited for emulsion/oil containing process waters
- Higher concentration of the concentrate by adjustable natural forced evaporation

Forced Circulation (FC)

- Very well suited for heavily foaming and salt containing process waters
- Foam and deposition prevention due to integrated recirculation pump
- Available in different materials





(1) Cyclone separator (2) Rotaryblower (3) Main heat exchanger (4) Sump (5) Combined distillate tank (6) Feed pump (only FC)

Technical data metric

KLC-MASTER Line	Capacity[1] [l/h]	Capacity per year[2,4] [m³] (7000 h/a)	Installed power [kW]		Energy consumption[3,4] [kWh/m³] starting from	Weight empty [kg]		Dimensions L x W x H [mm]
			NC	FC		NC	FC	
100 NC/FC	120	840	16	19	60	1,600	1,750	2,407 x 1,350 x 2,355
150 NC/FC	180	1,260	20	23	60	1,600	1,750	2,407 x 1,350 x 2,355
200 NC/FC	230	1,610	27	30	60	1,700	1,850	2,407 x 1,350 x 2,355
250 NC/FC	288	2,013	38	42	50	3,000	3,100	2,753 x 1,430 x 2,500
300 NC/FC	345	2,415	38	42	50	3,000	3,100	2,753 x 1,430 x 2,500
350 NC/FC	403	2,818	45	49	50	3,200	3,300	2,753 x 1,430 x 2,500
400 NC/FC	460	3,220	45	49	50	3,200	3,300	2,753 x 1,430 x 2,500
550 NC/FC	633	4,428	68	75	40	4,200	4,400	3,564 x 1,950 x 3,320
750 NC/FC	863	6,038	68	75	40	4,200	4,400	3,564 x 1,950 x 3,320
1000 NC/FC	1,100	7,700	103	114	35	7,600	8,000	4,202 x 2,430 x 3,550
1400 NC/FC	1,540	10,780	103	114	35	7,600	8,000	4,202 x 2,430 x 3,550
1800 NC/FC	1,980	13,860	123	134	35	8,000	8,400	4,202 x 2,430 x 3,550

[1] City water hardness <10° dH, inlet temperature >15°C (59°F)
[2] with 7000 operation hours per year with city water (6 days/ 50 weeks)
[3] Values refer to a machine at operating temperature
[4] Data for particular process waters are determined in customer specific calculations

Additional configurations

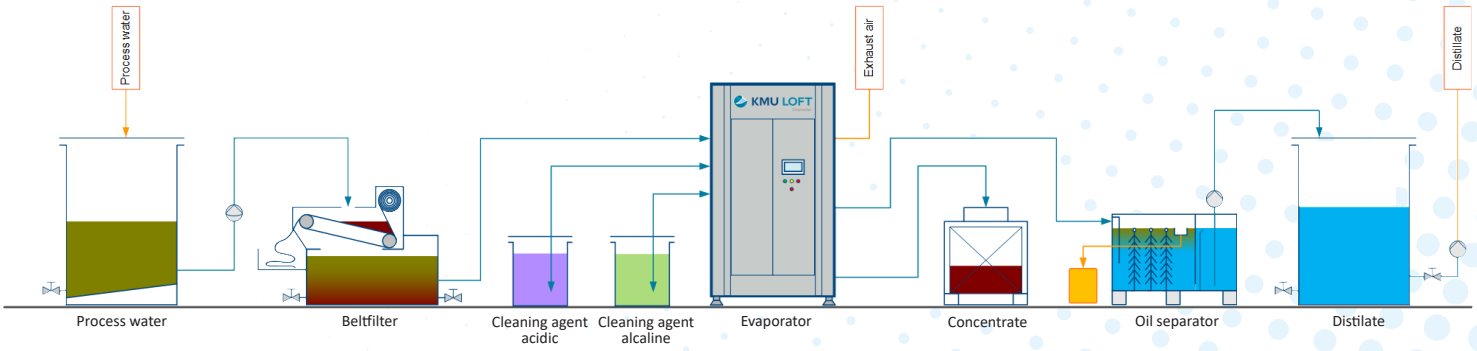
- KLC- Q-KIT (Quality) : Integrated oil separation, increased distillate quality
- KLC- V-KIT (Vapour) : Reduction of exhaust amount and odour nuisance
- KLC- E-KIT (Energy) : Energy saving through increased heat recovery

Excellent quality of the distillate

Reduction compared to input value:

- Conductivity [µS/cm] up to 99%
- Chemical oxygen demand COD [mg/lO2] up to 99%
- Hydrocarbons HC [mg/l] up to 98%

Example process flow diagram



Especially suitable for the following process waters:

- Process water from manufacturing and production processes from a wide variety of industrial sectors
- Wash water and cleaning water
- Rinse water and active baths
- Moderately radioactive water
- Water containing separating agents and glycol
- Landfill leachate, mine water
- Water containing reusable materials, recycling

More information about KLC-MASTER Line

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