



# TAEvoTECH



Air cooled industrial chillers with Scroll compressors - R410A  
Nominal cooling capacity 1.7 – 53.6 Tons



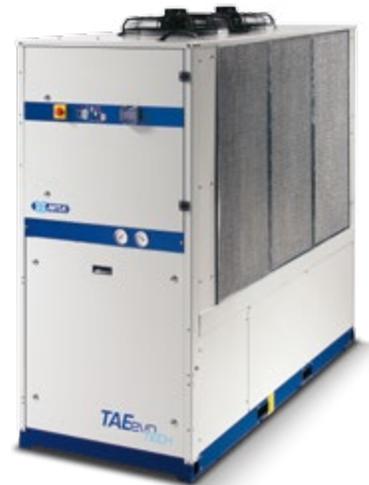
*Cooling your industry,  
optimising your process.*





# TAE<sub>ev</sub>in TECH

TAEvo Tech is an air cooled liquid chiller, designed for industrial use and for installation in an external environment. A broad range of options available in product configuration and accessories in kit form, complete the already generous standard equipment and allow this machine to meet the majority of requirements of industrial applications. TAEvo Tech is therefore the solution for all applications that require high performance, reliability, continuity of operation and reduced management costs.



## Higher energy efficiency

Thanks especially to the energy efficient scroll compressors, the oversized evaporator and the refrigerant R410A, TAEvo Tech achieves leading energy efficiency levels. This is mated to low maintenance needs, ensuring TAEvo Tech is a highly economical long-term proposition.

## Respect for the Environment

The eco-friendly refrigerant R410A (ODP=0) with outstanding heat conductivity, coupled with the low absorbed power level of the scroll compressors, reduce the environmental impact, minimizing the energy waste. Recyclable and high quality materials ensure respect for the environment, and reduces the carbon footprint.

## IC208CX microprocessor control

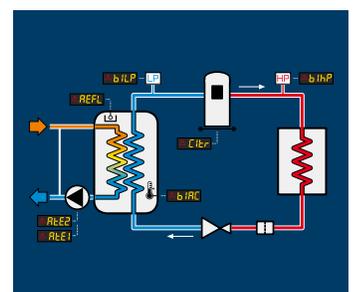
TAEvo Tech features a new advanced microprocessor control technology, with all models fitted with a unique IC208CX digital control. A comprehensive digital display keeps the user fully informed concerning the correct operation of the unit, warnings and alarms.

## User friendly

The operation principle of the unit is displayed in a simple and intuitive synoptic sticker with new design. The meaning of the codes of the main alarms shown on the display of the controller are therefore easy to understand, even without the help of the instruction manual, thus facilitating the maintenance activities.



# R410A



# MAXIMUM RELIABILITY, SYSTEM SIMPLIFICATION, ENERGY EFFICIENCY, EXTENSIVE RANGE OF ACCESSORIES AND KITS: THESE ARE SOME OF THE ADVANTAGES OF MTA CHILLERS

## Standard features

- Refrigerant R410A;
- Hermetic Scroll compressors;
- High-efficiency finned coil evaporator with copper tubes and aluminum fins, installed inside the water storage tank;
- Axial fans with galvanized steel (mod. 015-020) or die-cast aluminum/plastic crescent-shaped blades (mod. 031-802);
- Air-cooled condensers (copper tubes/aluminium fins) fitted on one side of the chiller (mod. 015-602). Air filter standard from mod. 031;
- Storage tank (design pressure 87 psig) complete with P3 pump, filling/drain valve, pressure gauge;
- Internal hydraulic bypass between the inlet and outlet connections;
- Electronic level sensor with water conductivity function;
- High and low refrigerant pressure switches;
- Refrigerant pressure gauges (mod. 031-802);
- Parametric microprocessor control IC208CX;
- Protection rating: IP54 (mod. 031-802) or IP44 (mod. 015-020);
- Dynamic set point function;
- Phase monitor against phase loss and phase reversal;
- Compressor crankcase heater.

## Main benefits

- Refrigerant R410A is an environmentally friendly fluid (zero ozone depletion potential) and provides high performances thanks its outstanding heat conductivity;
- The innovative evaporator-in-tank configuration has been designed specifically for industrial process cooling. It allows a reliable operation also with high flow rates (with low pressure drops) and is furthermore compatible with the presence of contaminated process fluids;
- Large cold water tank keeps outlet water temperature constant even under varying load conditions;
- Scroll compressors ensure high efficiency, excellent performance and elevated energy savings;
- Plug-in solution with integrated pump and tank, perfectly suited to the needs of the industrial User;
- Protection class IP44 (mod. 015-020) and IP54 (mod. 031-802) makes TAEevo Tech suitable for outdoor installation;
- Extended operating limits: TAEevo Tech standardly accepts water inlet temperatures up to 95 °F, and delivers outlet temperatures down to 14 °F. TAEevo Tech operates with ambient temperatures up to 114.8 °F and with minimum ambient temperature down to 23 °F;
- Extensive range of accessories and kits, allow each unit to match the specific customer requirements;
- Cooling circuit suitable both for atmospheric and pressurized hydraulic circuits (up to 87 psig);
- Comprehensive safety equipment, including phase monitor pressure switches, antifreeze sensors, level sensors, crankcase heaters and an internal hydraulic bypass circuit;
- The dynamic set point function is an ambient tracking system available as standard. The microprocessor automatically adapts the set point of the outlet water temperature to a set differential from the ambient temperature.



## The perfect solution, whatever your application

**Plastics & rubber:** presses, injection moulding, extrusion (sheet & profile), blow moulding, thermoforming, PET.

**Lasers, with a specific Laser chiller:** cutting, welding, profiling, optics, medical, engraving.

**Food & drinks:** confectionary, bakeries, distilleries, breweries, wineries, dairies, bottling, carbonation, meat & fish processing, vegetable & salad processing, storage.

**Chemical & pharmaceutical:** jacketed vessels, polyurethane foam mixers, natural gas, industrial cleaning, laboratories, healthcare, solvents, paints.

**Metal working:** processing & transformation of precious metals, aluminium working & processing.

**Mechanical & Engineering:** machine tools, welding machines, rolling mills, presses, extruders, cutting, profiling, polishing, electric spark machinery, hydraulic control unit oil cooling, pneumatic transport, heat treatment.

**Paper & related applications:** printers, cardboard, labels, plastic film.

**Other applications:** ceramics, textiles, wood, rental, air compressor cooling, other applications.



Automotive



Food & Beverage



Chemical & Pharmaceutical



Plastics



Laser



Machine Tools



Wineries



Rental

# Personalize TAEvo Tech to your individual needs

## Main options and kits

The high quality of the standard unit, the wide range of options and kits suitable to develop customized solutions, make TAEvo Tech chillers the ideal choice for every type of industrial cooling application.

- Pump options: P3 (45 psig), P5 (72 psig); SP (this version without pump includes the electrical devices necessary to supply an external P3 pump);
- Condenser option: version with painted fins against corrosion;
- Manual filling tank kit: suitable for hydraulic circuits at atmospheric pressure (mod. 015-802);
- Automatic filling kit: suitable for pressurized hydraulic circuits (up to 87 psig);
- Glycol filling kit: suitable for pressurized hydraulic circuits;
- Automatic glycol pumping group;
- Automatic hydraulic bypass option factory fitted (mod. 031-602);
- Simple remote ON/OFF kit (max 500 ft);
- Remote control kit: VICX620 display LED, VGI890 display LCD semi graphic (max 500 ft);
- Supervisor kits: RS485 ModBus, xWEB300D;
- Automatic hydraulic bypass kit external (mod. 015-602).

## Versions

- Non Ferrous Version (mod. 015-351): stainless steel water tank, copper/brass exchanger, stainless steel pump;
- Dual frequency version (mod. 015-161): 400V/3/50 Hz – 460V/3/60 Hz power supply;
- 50 Hz version (mod. 015-802): 400/3/50 Hz power supply; comply with CE directives; certified by Eurovent.

## Special Executions

- Centrifugal fans (mod. 031-161);
- High efficiency EC brushless axial fans with high head pressure (max 150 Pa) and inverter control (mod. 201-802);
- Centrifugal fans kit (mod. 031-161);
- Version for low environmental temperature 4 °F (mod. 031-802): electrical panel heating, electronic fan speed control;
- TAEvo Tech HE High Efficiency (Mod. 031-802): high efficiency version class A Eurovent;
- Double pump P3+P3 or P5+P5 in standby;
- Close temperature control (hysteresis  $\pm 0.9$  °F);
- Axial fans electronic fan speed control by phase cut (mod. 031-802);
- Anti-freezing heaters (on tank and pumps) option;
- Soft starter option: factory fitted (mod. 381-802);
- Axial fans electronic fan speed control kit (mod. 031-802);
- Electronic expansion valve (mod 081-802).



Internal pump



xWEB300D



Centrifugal fans

# Characteristics of a unique chiller

## UL Certification

Models TAEvo Tech 015-802 are supplied with UL certification of the electrical panel suitable for American-Canadian markets. The models feature an electrical panel certified in compliance with UL508A, compressors and fans UL compliant.

## TAEvo Tech dual-frequency (Mod. 015-161)

Dual-frequency units (mod. 015-161) can be supplied indifferently in 400V/3ph/50 Hz - 460V/3ph/60 Hz. This version is available with the following options: P3 pump or SP without pump. This configuration is supplied with axial fans (ON/OFF control). (NON-UL)

## TAEvo Tech HE High efficiency (Special Executions)

Models TAEvo Tech 031-802 are also available in high efficiency version with class A Eurovent (EN14511). The main features for the HE version are: oversized condensing coils, scroll compressors and high efficiency EC brushless axial fans inverter controlled. (NON-UL)

## TAEvo Tech 50 Hz version (Mod. 015-802)

The most popular solution, featuring advanced technical solutions as scroll compressors, a new electronic control, that allow quick and easy installation and high versatility in a multitude of applications. As per the rest of the range, the internal tank and pump offer a fully packaged all-in-one solution.

## Atmospheric pressure fill kit

This kit is simply installed onto the back of the chiller itself, and features a generous tank with an easy to read water level indication encased within a tough painted steel cabinet. A tap offers easy chiller water tank filling (atmospheric hydraulic circuits).



# Built to perform

## High-efficiency evaporator

High-efficiency finned coil exchanger features copper pipes and aluminum fins, shoulders and cabinet made of galvanized steel. The evaporator is installed inside the water storage tank ensuring reduced ambient heat gain and a steady temperature of the process fluid. The process fluid flows in contact with the finned surface, cooled by the refrigerant which evaporates inside the tubes. This particular technical solution allows TAEvo Tech to operate with high flow rates and reduced pressure drops, ensuring a high level of reliability in heavy industrial applications and also with liquids containing impurities. The heat exchanger is protected from the risk of freezing by a temperature sensor and a control level, by means of which the controller is able to turn the compressors off in case of fault.

## Pumps

Centrifugal pumps with seals made of silicon carbide (SiC/SiC/EPDM), available in two different configurations:

**Pump P3** - nominal head pressure 43 psig, stainless steel water side mod. 015-251; cast iron mod. 301-802.

**Pump P5** - nominal head pressure 12 psig, in stainless steel water side mod. 015-161; cast iron mod. 201-802.

For models 201-802 it is also available the configuration with double pump P3+P3 or P5+P5 in standby, with automatic switching (special).

## Scroll compressors

Compressors with orbiting scrolls, with 2-pole electric motor, mounted on rubber antivibration dampers and complete with protection against overheating, excessive currents and against high temperature of the exhaust gases. Thanks to the axial/radial compliance, the low weight of the rotating components and the absence of suction and discharge valves, they offer a series of benefits as a reduced energy consumptions, low vibrations, less moving parts and high resistance to liquid refrigerant returns.



## Pressurised fill kit

This kit, is suitable for pressurised hydraulic circuits (up to 87 psig). The pressurised fill kit features all components required for safe and easy operation, including a pressure reducer, water inlet valve, pressure gauge, automatic relief valve, safety valve and expansion tank.



## Remote control options

The following kits allow the remote control of the unit:

- Simple remote control module (ON/OFF, unit status) for installation at up to 500 ft from unit;
- Advanced remote control kits VICX620 and VISOGRAPH VGI890, both with LED display (full control), for installation at up to 500 ft.



## Supervisor options

TAEvo Tech can be linked to various external Supervisor systems:

- RS485 serial connection to an external Supervisor system (MODBUS and other leading systems);
- xWEB300D Supervisor kit, operating via Internet;
- xWEB300D + GPRS modem for remote GSM connection directly to a smartphone.



## EC brushless axial fans (Special Executions)

The innovative EC axial fans with high head pressure (max 150 Pa) are operated by a synchronous electric motor with permanent magnets and Integrated inverter speed control. Thanks to the brushless technology these fans feature a reduction in electrical consumption and an increase of reliability and energy efficiency.



## Maximum control

The large tank and evaporator ensure steady water temperatures, even during sudden load variations. This is further enhanced by passing the water through the evaporator before entering the tank, offering a ready chilled water supply. HP, LP and water manometers (from mod. 031) give a quick overview of status.



### Electric panel

The control section is electrically isolated from the power section through a transformer. The power section is fitted with an interlocked door main switch to prevent access while power supply is on. Electrical equipment and electrical panel protection degree IP54 compliant with UL508A. The chiller is tested for electromagnetic compatibility in accordance with applicable EMC standards. A phase monitor standard provides protection against phase loss and phase reversal.

### Condensing section

The air-cooled condenser (copper tubes/aluminum fins) is fitted on one side only, reducing space requirements. It has an high working efficiency at high ambient temperatures (115 °F). A condenser alluminium cleanable air filter is standard from model 031.

### Structure

Heavy duty structure with galvanized carbon steel panels protected by an epoxy polyester power coating RAL 7035 (base RAL 5013). Thanks to the configuration of the base, the handling of the unit is easy and secure with a forklift (mod. 015-351) or by lifting bars (mod. 402-802).

### Multiple components

Units with 2 compressors (mod. 201-351) ensure a precise step control of the cooling capacity. Models 402-802 are equipped with 4 compressors within 2 circuits, they guarantee maximum efficiency both at full and partial load, featuring compressor rotation and unloading function.

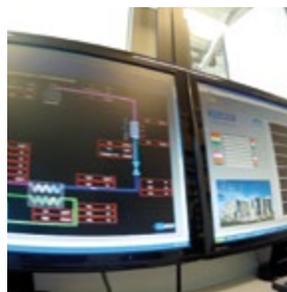
### Fail-safe operation

TAEvo Tech always operates in all conditions, thanks to an internal trace water by-pass, phase monitor, generous water temperature limits, a 115 °F ambient temperature limit, antifreeze protection and an internal water level sensor. The advanced microprocessor ensures fail-safe operation at all times.



### Factory test

All models are individually tested in order to check correct operation, and also undergo refrigerant charge and leakage controls, and microprocessor and safety device setting verifications. Leading brand components are used throughout, ensuring long term reliability.



## Technical data

TAEvo Tech		015	020	031	051
Nominal cooling capacity (1)	Tons	1,72	1,96	3,08	4,42
Total absorbed power (1)	kW	2,54	2,90	4,42	6,26
EER (7)	-	8,14	8,10	8,36	8,47
<b>Compressor</b>					
Cooling circuits	N°	1	1	1	1
Compressors for each circuit	N°	1	1	1	1
Capacity control	%	0-100	0-100	0-100	0-100
<b>Electrical power supply (2)</b>					
Power	V/Ph/Hz				
Auxiliary	V/Ph/Hz				
<b>Condensers</b>					
Condenser number	N°	1	1	1	1
Ranks number	N°	2	3	2	3
Total frontal surface	ft²	3.33	3.33	6.78	6.78
<b>Axial fans</b>					
Fans number	N°	1	1	1	1
Total airflow	cfm	2795	2470	4530	3590
Nominal power (each)	kW	0.45	0.45	0.76	0.76
<b>Hydraulic group</b>					
Water flow rate P3 (3)	gal/min	2.1/21.2	2.1/21.2	4.1/21.2	5.8/21.2
Available pump head pressure P3 (4)	p.s.i.	44.9/25.2	44.9/25.2	44.0/28.5	43.2/29.7
Nominal power P3	kW	0.75	0.75	0.75	0.75
Water flow rate P5 (3)	gal/min	2.1/26.4	2.1/26.4	4.1/26.4	5.8/26.4
Available pump head pressure P5 (4)	p.s.i.	85.6/44.8	85.6/44.8	84.1/50.5	82.5/49.2
Nominal power P5	kW	1.50	1.50	1.50	1.50
Tank volume	gal	15.9	15.9	30.4	30.4
Max pressure	psi	87	87	87	87
Water connections	NPT	3/4"	3/4"	1"	1"
<b>Sound levels (5)</b>					
Sound power	dB [A]	82.5	81.9	82.6	83.7
Sound pressure	dB [A]	54.5	53.9	54.6	55.7
<b>Dimensions and installed weight (6)</b>					
Width	inch	22.0	22.0	26.0	26.0
Length	inch	49.8	49.8	51.6	51.6
Height	inch	31.4	31.4	55.1	55.1
Weight without pump	lbs	423	434	686	736
Weight with P3	lbs	452	463	714	765
Weight with P5	lbs	459	470	721	772

(1) Evaporator water inlet/outlet temperature 55/45 °F, external air temperature 95 °F.

(2) Protection class IP 44 (mod. 015-020); IP 54 (mod. 031-802).

(3) Minimum and maximum water flow pump.

(4) Available head pressure at outlet unit at the minimum and maximum water flow rate.

(5) Sound power: determined on the basis of measurements taken in accordance with the standard ISO 3744. Sound pressure at 32.8 ft: average value obtained in free field on a reflective surface at a distance of 32.8 ft from the side of the condenser coils and at a height of 5.2 ft from the unit support base. Values with tolerance +/- 2 dB. The sound levels refer to operation of the unit under full load in nominal conditions.

(6) The weights of the units are referred to the configuration with axial fans.

(7)  $EER \left[ \frac{Btu/h}{W} \right]$

For the performance of the dual-frequency version in 50 Hz see data table of the TAEvo Tech standard version in 50 Hz.

The capacity correction factors in the following table should be used as a guide only, for accurate selection at conditions differing from the above the selection software should be utilised.

Evaporator $\Delta T \approx 10$ °F (*)	°F	7	9	10	12	14	16	18
Correction factor	K2	0.993	1	1.003	1.009	1.015	1.021	1.025
Ethylene glycol solutions	%	0	10	20	30	40	50	
Correction factor - Cooling capacity	K4	1	0.99	0.98	0.97	0.96	0.93	

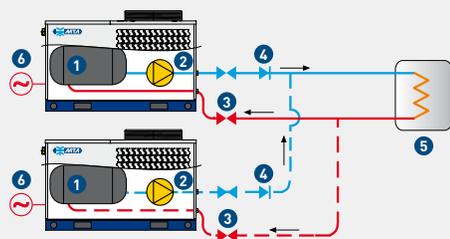
(\*) Evaporator outlet water temperature being equal.

081	101	121	161	201	251	301	351	381	401	402	502	602	702	802
7,41	9,11	11,32	13,25	14,73	16,79	19,52	22,53	27,19	30,58	28,10	32,49	36,16	45,92	53,55
10,45	12,12	14,53	17,57	20,54	24,20	26,88	32,56	34,66	39,33	43,90	50,59	56,63	61,12	69,91
8,51	9,02	9,35	9,05	8,61	8,33	8,71	8,30	9,41	9,33	7,68	7,71	7,66	9,02	9,19
1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
0-100	0-100	0-100	0-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-25-50-75-100				
460V/3Ph/60Hz 24/1/60; 230/1/60														
1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
4	4	5	5	4	5	5	5	4	5	3	4	5	3	4
11.8	11.8	11.8	11.8	23.2	23.2	23.2	23.2	32.2	32.2	45.2	45.2	45.2	62.4	62.4
1	2	2	2	2	2	3	3	2	2	2	2	2	3	3
5825	9945	9415	9415	11535	11415	15625	15625	25662	24367	25895	25070	24285	43967	42378
1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	2.5	2.5	2.5	2.5	2.5	2.5	2.5
11.1/42.3	13.3/42.3	16.4/83.2	20.1/83.2	21.8/83.2	25.5/83.2	29.2/105.7	33.9/105.7	39.5/220.1	43.9/220.1	42.3/211.3	49.7/211.3	56.4/211.3	69.2/220.1	81.3/220.1
42.6/22.2	42.0/25.8	42.4/24.1	42.1/25.0	42.2/29.4	41.9/29.4	59.5/23.2	58.1/22.4	54.4/31.9	54.3/31.9	48.7/17.7	48.9/17.7	48.9/17.7	62.9/40.8	61.8/40.8
0.90	0.90	1.85	1.85	1.85	1.85	2.20	2.20	4.0	4.0	4.0	4.0	4.0	5.5	5.5
11.1/66.1	13.3/66.1	16.4/66.1	20.1/66.1	21.8/132.1	25.5/132.1	29.2/132.1	33.9/132.1	39.5/220.1	43.9/220.1	42.3/211.3	49.7/211.3	56.4/211.3	69.2/378.6	81.3/378.6
86.8/50.0	86.1/56.8	84.9/56.8	83.3/57.5	72.9/20.4	72.2/20.4	71.4/20.6	70.2/19.4	84.0/56.2	83.8/56.2	79.4/39.5	78.8/39.5	78.3/39.5	70.2/43.5	70.0/43.5
3.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	7.5	7.5	7.50	7.50	7.50	11.0	11.0
37.0	67.4	67.4	67.4	92.5	92.5	92.5	92.5	108.0	108.0	132.1	132.1	132.1	179.0	179.0
87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	3"	3"
83.9	85.0	84.2	85.1	87.2	87.1	88.6	88.3	91.0	93.2	92.5	92.6	92.3	92.4	93.6
55.9	57.0	56.2	57.1	59.2	59.1	60.6	60.3	63.0	65.2	64.5	64.6	64.3	64.4	65.6
29.9	29.9	29.9	29.9	34.1	34.1	34.1	34.1	45.3	45.3	49.4	49.4	49.4	49.2	49.2
73.4	73.4	73.4	73.4	88.8	88.8	88.8	88.8	109.8	109.8	129.7	129.7	129.7	139.2	139.2
57.0	57.0	57.0	57.0	81.3	81.3	81.3	81.3	82.3	82.3	85.0	85.0	85.0	84.7	84.7
1032	1382	1398	1433	2042	2225	2260	2284	3003	3191	3646	3754	3834	4879	4923
1065	1415	1446	1482	2090	2273	2346	2370	3104	3291	3750	3858	3937	4998	5043
1088	1439	1455	1490	2161	2344	2379	2403	3140	3328	3821	3929	4008	5048	5092

### Typical configuration for users suitable for closed circuits

The below diagram shows a typical closed circuit lay-out. Pressurised closed circuit applications (5) always require an expansion vessel. TAEevo Tech units in standard (evaporator in tank) configurations are ideal for such applications, and offer a pressurised automatic fill kit including the expansion tank (as option). Pressurised closed circuit applications (5) can also feature TAEevo Tech units equipped with prismatic tank and plate type evaporator, with these featuring a pump and a tank kit (verify the height difference between the chiller and the user).

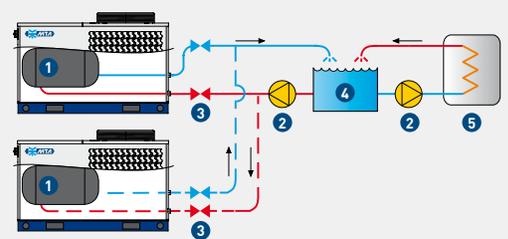
- 1 Accumulation tank
- 2 Pump
- 3 Valve
- 4 Non return valve
- 5 User
- 6 Expansion tank



### Typical configuration for users suitable for open circuit

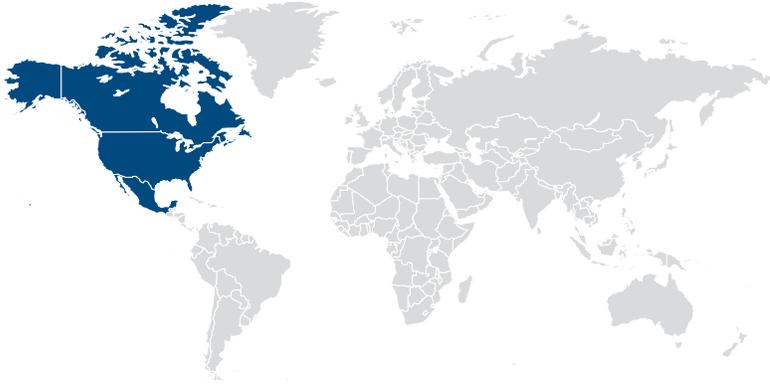
The below diagram shows a typical open circuit lay-out. For atmospheric circuit applications featuring an open tank (4), the water is in contact with the ambient air, as such no expansion vessel is required. Such applications are suited to TAEevo Tech units in standard (evaporator in tank) configuration but without the tank kit and pump, given that the system typically features an external pump (2).

- 1 Accumulation tank
- 2 Pump
- 3 Valve
- 4 Open tank
- 5 User





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