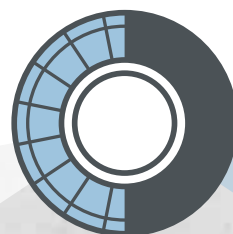


YOUR RELIABLE PARTNER FOR POWER COOLING SOLUTIONS

ENEXIO – the worldwide provider in
developing and manufacturing of
dry and wet power cooling solutions





WE ARE AT YOUR SIDE

ENEXIO is a global provider
with references all over the world.





ENERGY. ENGINEERING. EXCELLENCE.



The former Power Cooling division of GEA Group AG - ranges from Air Cooled Condensers, Heller Technology® and Wet Cooling Towers including Service for Wet and Dry applications to 2H Water Technologies - operates separately and independently under the Name **ENEXIO**.

ENEXIO is a reflection of what we do and what we have accomplished as a pioneer in the field of power cooling and water treatment over the decades. It represents a promise to both our customers and business partners that we - as a global provider for power cooling and water treatment solutions - stand for **Energy. Engineering. Excellence.**

With our experience and pioneering spirit in engineering, manufacturing and service, we deliver state of the art solutions for power plants, water and wastewater applications - always inspired by our profound sense of responsibility for the overall management of resources and a clean environment. We deliver excellence and achieve customer satisfaction everywhere in the world. Our global network of employees work with an unceasing commitment to high quality, ecology and cost effective products and services.

What our commitment to Energy, Engineering and Excellence means for you is that we are a reliable partner who is always there to meet your expectations with superior results. More than 90 years in the market and a great deal of success have made us a leading manufacturer and solutions provider worldwide of both wet and dry cooling systems. Depending on customer requirements, we can provide any type of cooling solution for power generation efficiency while assuring cooling water economy. Our rich product portfolio ranges from all dry air cooled condenser (ACC) and Heller System technologies to all wet cooling towers, with limitless dry/wet combination systems and evaporative add-on solutions in between.

In addition to our core power cooling solutions, we also offer cooling tower, water and wastewater components that ensure a high degree of operating safety and environmental protection. The ecological Circumix technology - as a comprehensive solution to ash and waste water management in coal fired stations - completes our extensive portfolio.



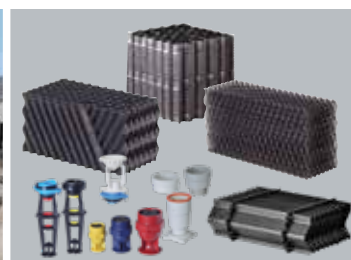
AIR COOLED CONDENSERS



HELLER SYSTEM®



WET COOLING TOWERS & SERVICE



ENEXIO WATER TECHNOLOGIES

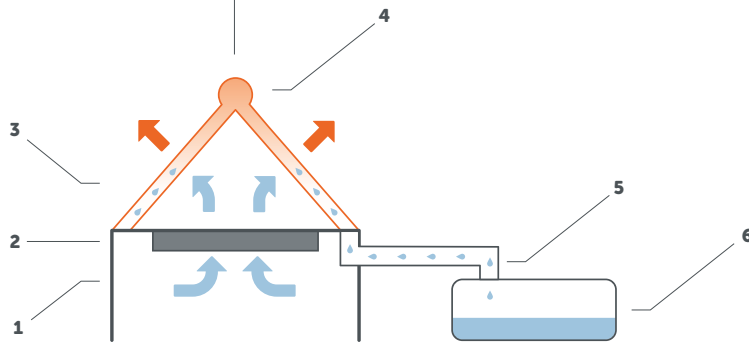


CLASSIC AIR COOLED CONDENSERS (ACC)

ENEXIO - as the inventor of the ACC - has played a leading role in the evolution of this technology. We are known for our comprehensive expertise in the field of cooling technology and we offer- the whole range of services for dry cooling systems.



Classic ACC



- 1 Supporting Steel Structure
- 2 Forced Draft Fan
- 3 ALEX Fin Tube Bundle
- 4 Steam Distribution Duct
- 5 Condensate Lines
- 6 Condensate Tank

SUSTAINABLE SYSTEMS FORM THE BASIS FOR THE PRESERVATION OF NATURAL RESOURCES

For decades, ENEXIO has been building cooling systems all over the world, covering everything from the construction of new systems to the enhancement, maintenance and optimization of existing systems, always to the highest quality standards and incorporating the latest advancements from our own research and development programs.

A proud part of our heritage of innovation in cooling systems is in being the inventor of the Air Cooled Condenser (ACC). The ENEXIO ACC is a direct dry cooling system wherein steam is condensed inside fin tubes. Typically, the aluminum-plated fin tubes are single-row condensing tubes that are brazed with aluminum fins. Since they are air cooled, no water is required for main cooling of the power plant. This application makes it ideal for when plants are located in water-scarce areas or areas where obtaining permits to access water is difficult and time-consuming.

ENEXIO can supply our ACC on a turnkey basis, or delivered solely on a material-supply basis. In addition to our aforementioned fin tube bundles, our scope of supply for an ACC includes the air-moving equipment (fans, motors, gearboxes, etc), steam ducting (from the steam turbine exhaust to the inlet of the fin tubes), structural steel, condensate system and associated equipment and instrumentation.

The benefits at a glance

- No water required in condensing the water-steam cycle
- No plume that ices up roads, runways or neighboring facilities
- There is no challenge on issues of water conservation, pollution or aesthetics

CLASSIC AIR COOLED CONDENSER REFERENCES



ACC for 805 MW
Combined Cycle Power Plant,
Livorno, Italy



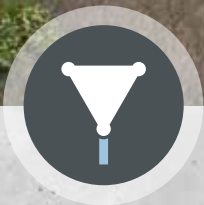
ACC for 45 MW
Waste-to-energy Power Plant,
Bielefeld, Germany



ACC for 413 MW
Combined Cycle Power Plant,
Toul, France

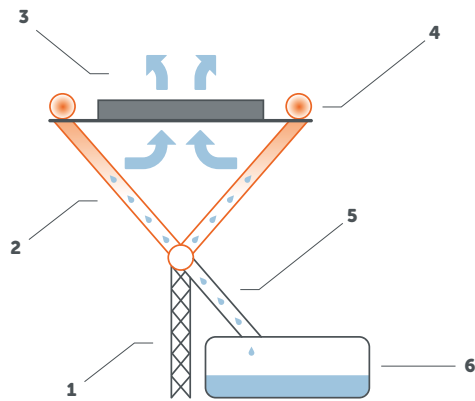


ACC for 775 MW
Combined Cycle Power Plant,
Denizli, Turkey



INDUCED DRAFT AIR COOLED CONDENSERS (ACC)

From ENEXIO, the company who invented the Air Cooled Condenser, comes the next generation of innovative and intelligent design: The InAIR blends proven components and technologies to yield the next generation in dry cooling: an Air Cooled Condenser featuring induced draft fans.



- 1 Supporting Steel Structure
- 2 ALEX Fin Tube Bundle
- 3 Induced Draft Fan
- 4 Steam Distribution Duct
- 5 Condensate Line
- 6 Condensate Tank

InAIR^{ACC}

INNOVATIVE AND INTELLIGENT DESIGN

The InAIR combines proven components and technologies to yield the next generation in dry cooling: an Air Cooled Condenser featuring induced draft fans.

Induced draft fans have been used reliably in the majority of power plant main cooling systems world-wide, like in wet cooling towers applications. Now, through innovative engineering and utilization of our self-supporting ALEX bundles, ENEXIO can offer the InAIR, an ACC which offers the superior operational performance of induced draft fans with added savings in material supply, delivery durations, and construction.

With the new design, due to the omission of the fan bridge the vibrations are reduced. Because of the special arrangement, the life-time of the gear box and fan will increase.

The benefits at a glance

- Reduced air inlet and total height of ACC: less visual impact
- Smaller footprint of columns
- Reduction of steel structure quantities (up to -60%)
- Reduction of steel structure weight (up to - 50%)
- Reduced costs for construction (-10% to - 25%)
- Reduced construction duration (20% to 30% decrease in man-hours for erection work)
- Easier pre-assembly mainly at grade
- Inherent design of supporting steel structure greatly reduces the requirement of scaffolding
- Reduction in the length of the main steam duct
- Reduced investment costs
- Shorter delivery and erection periods
- Patented around the world

INDUCED DRAFT AIR COOLED CONDENSORS REFERENCES



InAIR ACC for 2x60 MW
Coal fired power plant
Hami, China



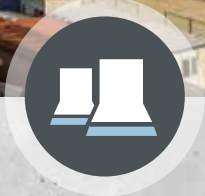
InAIR ACC for 680 MW
Natural gas combined power plant
New York, NY, USA



InAIR ACC for 470 MW
Combined cycle power plant
Oxford, CT, USA



InAIR ACC for 200 MW
Concentrated solar power plant
Ouarzazate, Morocco

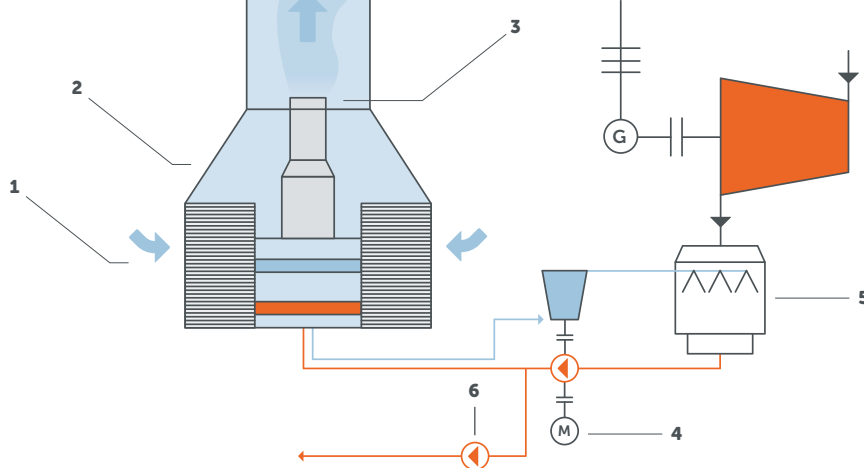


HELLER SYSTEM® DRY COOLING TOWERS

Invented by ENEXIO in Hungary in the early 1950s, Heller System® has gained worldwide recognition as the ultimate dry cooling choice where minimum life cycle costs are in focus. In addition, Heller Systems boast unsurpassed availability/reliability records, with the inherently lowest maintenance and spares stock requirements.



Heller Indirect
Dry Cooling System



- 1 Forró-type Heat Exchanger
- 2 Dry Cooling Tower
- 3 Optional: Flue Gas Desulphurizer
- 4 Cooling water circulating group
- 5 DC Jet Condenser
- 6 Condensate Booster Pump

OPTIMIZED LIFE CYCLE COSTS IN FOCUS

Heller Indirect Dry Cooling Systems include a water-cooled condenser, circulating machine groups, circulating water mains and a dry cooling tower accommodating Forró-type water-to-air heat exchangers. The water-cooled condenser can either be DC Jet or Surface Condenser type. The cooling tower can either be of natural draft or mechanical draft type.

The Heller System's inventory of closed-loop cooling water greatly assists in reducing performance deterioration by wind effects which plagues other cooling systems, and acts as a buffer against steam condensate contaminants. Available in a wide spectrum of configurations, including surface or jet condensers, noise-free and maintenance-free natural draft towers (made either of concrete or steel), as well as induced or forced draft, low-profile mechanical draft towers for urban use. Proven winterization options for extremely cold sites, some in operation for decades beyond the arctic belt. Summertime capacity enhancement with limited use of water by its dry/wet derivatives, that come as a simple spray augmented dry Heller System, or Heller System combined with wet cooling towers placed next to, or inside the tower. The only dry cooling option, selected for nuclear power plants. When serving coal firing units, its natural draft tower can accommodate flue gas exhaust ducts or complete FGDs, thus rendering chimneys unneces-

sary, and diminishing ground level concentration of flue gas particles.

The benefits at a glance

- Its low operational cost and highest operational availability ensure maximum net revenue of dry-cooled power generation plants
- Its natural draft tower features unique environmental compatibility than can assist in overcoming plant permitting challenges: not a source of noise emissions and can diminish ground level pollution if flue gas flue gas is exhausted through the cooling tower.
- With the smallest vacuum space among dry power cooling systems, best supports rapid start-up combined cycle applications
- The thermal inertia of its circulating water inventory provides ultimate resistance to freezing in partial load winter operation, and to performance deterioration by wind gusts; the natural draft tower design also prevents hot-air recirculation
- Comes also as various dry/wet derivatives for optimal trade-off between water economy and summertime peak cooling performance
- The only accepted dry cooling option for nuclear applications, with existing references

HELLER SYSTEM® DRY COOLING TOWER REFERENCES



Concrete Towers 3 x 700 MW
Gebze & Adapazari CCGT,
Turkey



Alu-Clad Steel Tower of 540 MW
Zayzoun CCGP,
Syria



Winter proofed Mechanical Draft Heller
Cooling Tower for 260 MW Co-generating
CCGP, Moscow, Russia

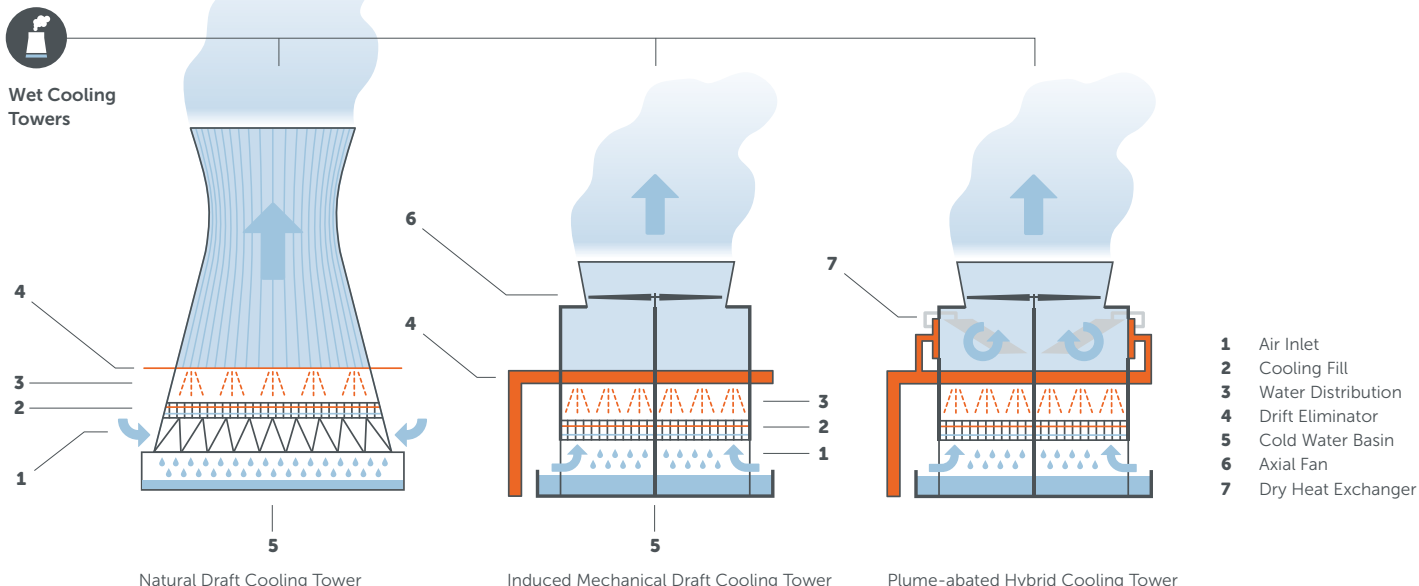


Mechanical Draft Heller Cooling Tower
for a 60 MW captive power station in a
Chemical plant, Japan



WET COOLING TOWERS

ENEXIO is one of the largest providers of technology on the cooling tower market. In 1954, we expanded our portfolio by adding wet-cooling technologies. That means more than 60 years of experience and success have made us a reliable partner in planning, implementation and maintenance of wet cooling systems.



EFFICIENT TECHNOLOGY FOR HIGH-PERFORMANCE SOLUTIONS

ENEXIO Wet Cooling Towers are synonymous with efficiency and reliability. Our engineers for wet cooling systems can offer any type of cooling tower design, with an extensive variety of technologies and concepts.

Energy. Engineering. Excellence. This is our promise and it stands for unique expertise in Wet Cooling Towers solutions. With ENEXIO top quality, our engineering specialists care for maximum efficiency and absolute reliability in process cooling. We design and build various sizes of cooling towers, including field-erected mechanical-draft cooling towers, natural-draft cooling towers, fan-assisted natural-draft cooling towers, and hybrid cooling towers. The wide range of designs available from us ensures that our solutions satisfy all cost and environmental requirements, and minimize operational and service costs. Prominent customers throughout the world rely on us.

The Benefits at a glance

- Maximum cost-effectiveness over the entire life cycle
- State of the art with 2H cooling fills
- Superior product quality in accordance with rigorous ENEXIO standards
- High degree of delivery reliability
- Reliable project management
- Energy efficiency
- Low maintenance and spare parts costs
- Components developed in own test-center based in Germany
- Uninterrupted continuous operation even during winter season

WET COOLING TOWERS REFERENCES



Natural draft cooling tower for 2 x 1.100 MW, Neurath, Grevenbroich, Germany



Hybrid cooling tower for 270 MW, Cottam Power Station, Nottinghamshire, UK



24 Cell-Cooling Towers for 1.100 MW, Florida, USA

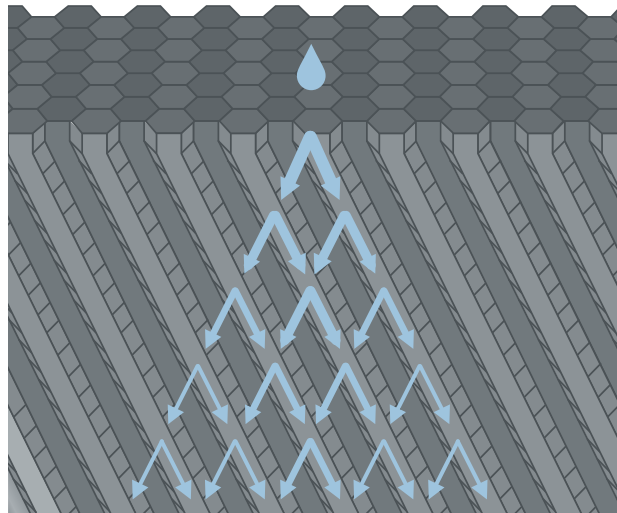


OL2K, Seawater cooling tower with an water flow of 55,000 t/h each. Kuwait



ENEXIO WATER TECHNOLOGIES

Evaporative cooling towers are still considered the most efficient way of cooling process water at industrial sites all over the world. As the pioneer of plastic components for cooling tower applications ENEXIO helps customers to meet their requirements.



FUNCTIONAL SURFACES EFFICIENT SOLUTIONS FOR WATER AND AIR TREATMENT

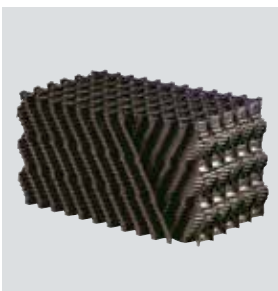
Due to constant product development and optimization, we offer many different fill media structures and surfaces that allow the adaption of the fill to the specific water quality in the cooling circuit and thus improve the efficiency.

With economic and ecological factors always an important consideration, construction and operation of wet cooling towers necessitates the use of efficient fills and drift eliminators. Our products are produced in PP and PVC. With our patented manufacturing processes, we can offer the reinforcement of the edges of our fills as well as a uniform material thickness across the foil sheets. Material thickness and weight of the fills can be customized according to customer requirements.

The Benefits at a glance

- Flexibility in dimensions
- Available in PP and PVC
- High efficiency
- Low pressure drop
- Cross-fluted fills for high cooling capacity
- Vertical flow fills for high fouling applications

2H COOLING TOWER COMPONENTS



Cross-fluted Cooling Tower Fill



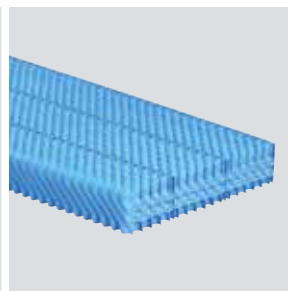
Vertical Flow Cooling Tower Fill



Drift Eliminators



Trickle Fill



Sanipacking Anti-Legionella fills
and drift eliminators



AFTER SALES & SERVICE

Years of experience and success have made us a leading manufacturer and solutions provider worldwide for the design and implementation of wet cooling systems by our installation teams, construction site managers and engineers. Our reputation is based on well-known references from almost all German and numerous international industrial, chemical and power plant locations.

OUR SERVICE – RELIABLE. CUSTOMIZED. SAFE.



ENEXIO Service in
action – see for yourself!

For the operational safety, efficiency and technical lifespan of the cooling equipment, professional and reliable service-activities in a pro-active way are the key factors – which you will find with ENEXIO Service. As one of the world's leading providers of cooling technology, we combine the collective expertise of our company, formerly part of GEA Group AG, with the new ENEXIO Group.



SCOPE OF SERVICES FOR DRY COOLING SYSTEMS

From original replacement parts to comprehensive retrofit projects, ENEXIO Service is always the reliable partner for your dry cooling system to contact.

The replacement of the heat exchanger bundle is the central-key to any air cooled condenser-retrofit project. Through our own manufacturing facilities and a huge network of worldwide partners we can supply any type of heat exchanger bundle to any destination, worldwide!

Upgrades and Retrofits by ENEXIO

- Heat exchanger bundle replacement
- Air cooled condenser cell extension
- Modification and replacement of fan drive units
- Solutions for mitigation of wind and noise
- Modification of control logic
- Supply of semi-automatic cleaning systems
- Upgrade for winter operation and freeze protection
- Many more tailor-made solutions
- Supply and delivery of all components
- Own heat exchanger bundle production
- Inventory management
- Evaluation and supply of alternative solutions
- Installation of spare parts by own Service fleet
- Consultancy by experienced specialists with own R&D and Engineering

SCOPE OF SERVICES FOR WET COOLING SYSTEMS

The use of further-developed components with new technologies goes hand-in-hand with a higher cooling performance, lower power consumption and a lower noise development. ENEXIO Service analyses the inventory and the potential for improvement at the customer's plant, so that an ideal and customized solution can be found. The amortization of such modernization can usually end up being quite short, especially when the modernization is combined with comprehensive maintenance.

Mechanical components

In the last few years mechanical components offering better cooling performance and more resistance to dirt deposits have become available. More efficient fan motors and the use of speed control to match load conditions results in short payback times and reduced noise emissions.

Fans

To ensure ideal airflows reinforced fiberglass fan blades must have intact surface coatings to protect them against adverse weather conditions. Over the course of time, the coating is damaged by moisture, UV radiation and abrasion on the leading edge.

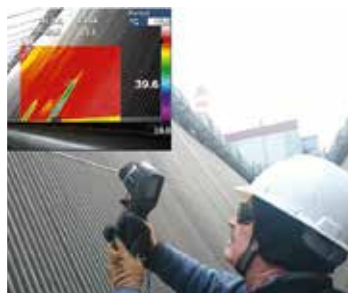
Our service range for wet cooling towers

- Spare parts delivery and installation
- Service and maintenance, service framework agreements
- Plant assessments, plant check, inspections and evaluations
- Installations, removals and cleaning work
- Complete replacement of fills
- Overhaul and upgrade of fans, motors and gearboxes
- Refurbishment, increase in efficiency and optimization of cooling towers of all kinds
- Complete overhaul of the entire cooling units and systems
- Construction of fan-assisted cooling towers
- All work, including necessary engineering services and procurement, from one single source

AFTER SALES & SERVICE



Higher cooling performance by
bundle replacement



Inspection with Infrared-Cameras



Replacement of drift eliminators
and cooling fills, for example



Vibration measurement with
state-of-the-art technology

www.enexio.com