



ENGINEERING & SOLUTIONS

CTP TEAM S.R.L

Corporate Presentation



CTP
INSPIRE EVOLUTION

About us

We are engineers since 1970

International engineering and manufacturing Company with 50 years of experience. Since 1970 we strive to deliver transformative innovation to our customers worldwide.

Our headquarter to the heart of “innovation district”

Our headquarter at “Kilometro Rosso” in Italy is among the major innovation districts in EU and the touch-point for our worldwide projects.



50 years experience

With innovative products in the field of Filtration, Gas Cleaning, Heat Exchangers and Waste Heat Recovery, we decrease the environmental impact of industrial processes.

We are a reliable partner specialized in full EPC turn-key projects. We provide to our customers full support from engineering design to the installation and start-up of our systems.



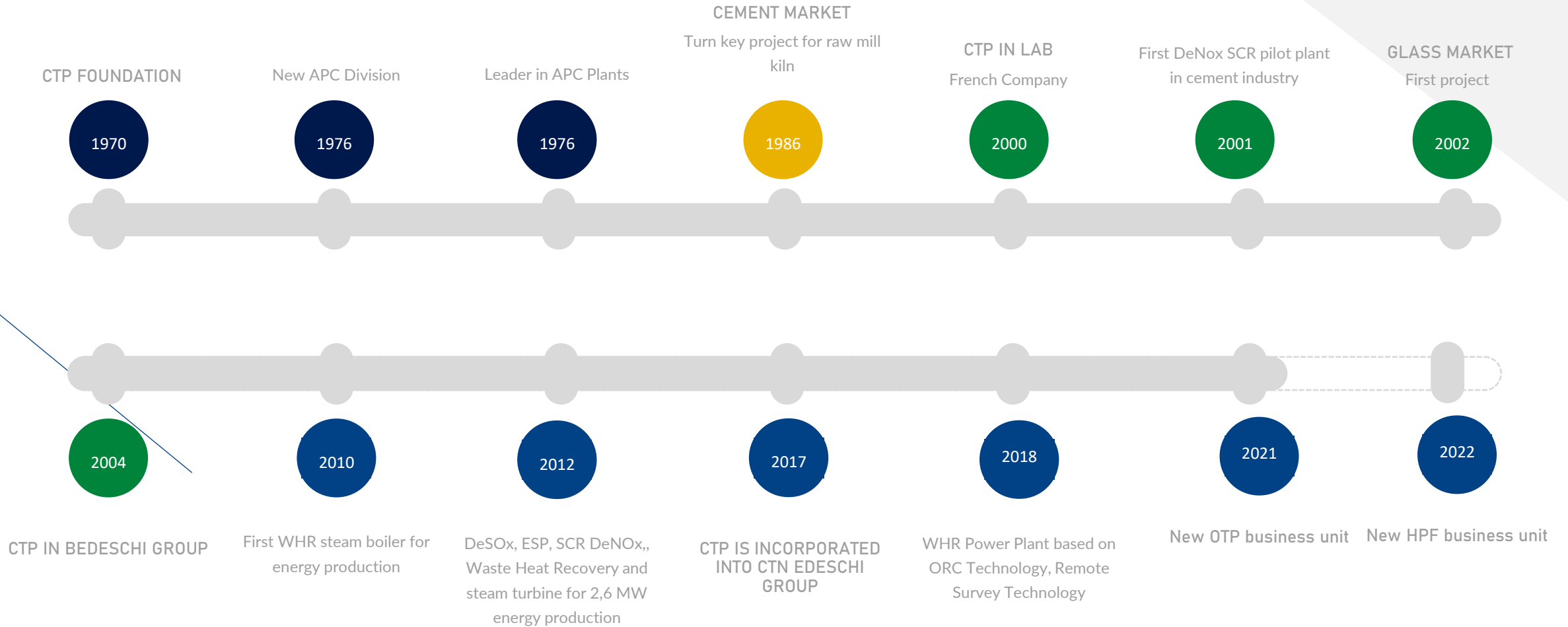
 Gas volume cleaned up
72.300.000 Am³/h

 Captured particulate matter
6.380 T/h

 Electric energy produced
88.000.000 kWh

 Avoided CO₂ emissions
38.000 tpy

50 years Timeline



Global presence

More than 64 countries
1.430 systems worldwide
(emission control systems)



Our solutions

■ FABRIC FILTER



Zero Emissions NEW PM10

■ ESP CONVERSION



Upgrade Technology

■ NUISANCE FILTER



Small components

■ DENOX



SNCR Break down NOx

■ DESOX



Dry & Semi-dry process

■ GAS COOLING



Tower Heat exchangers

■ WHR-ORC



High performances

■ WHR-SRC



High temperature

OEM network & support

As main contractor of EPC project, we partner with the Original Equipment Manufacturer (OEM) of critical equipment in order to guarantee to customers the proper execution and performance of the systems in the whole process.

Our wide network and constant relationship with the OEM of key equipment keep our solutions at the state-of-the-art of technology and ensure longest operating lifetime of the system at the top performances.

We partner with private companies, universities and research centers in developing our worldwide projects and exploring smarter technological solutions.



Full management service

Our team of engineers are dedicated to the continuous improvement of our solutions, new product and technologies. Highest performances and best available techniques.

Through our sister company CTN Group in Turkey, we manufacture all the steelworks at the highest standards of quality certified by TUV. The supply chain is evaluated worldwide on the project needs.

Our process engineers test the whole system. They inspect and test each equipment and the integration of the machines and the communication with the centralized control system.





TECHNOLOGY & PROJECTS
FABRIC FILTER

Fabric Filter Technology

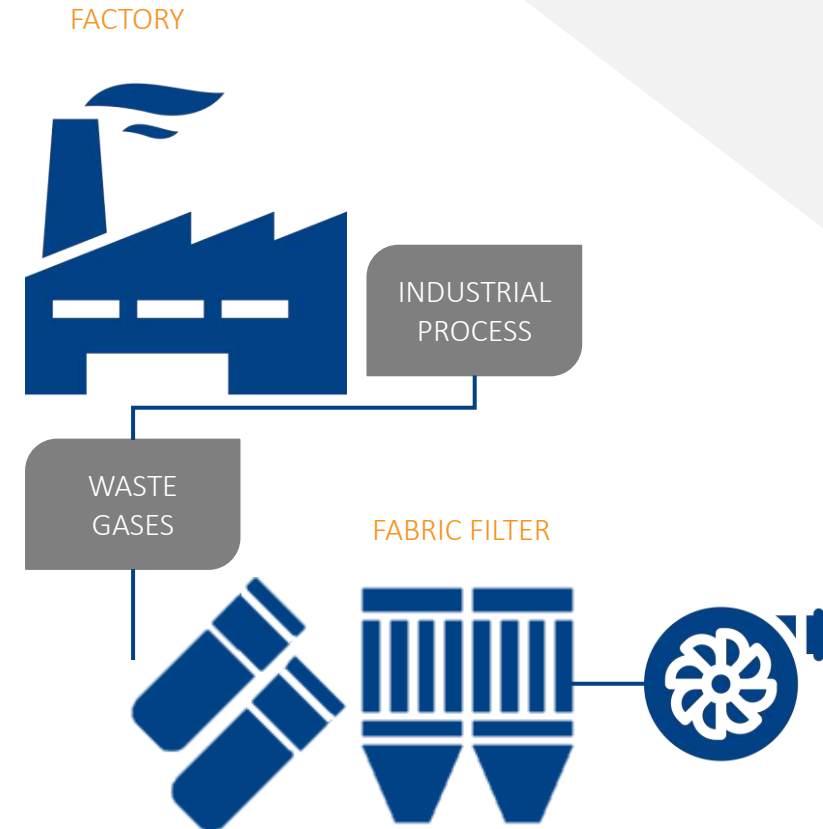
SWAP TECHNOLOGY

Sonic Wave Acceleration Pulse (SWAP) is an innovative low pressure technology for cleaning bags key-components of Fabric Filters. The sonic wave travels all along the length of the bag at a velocity approx. Mach 1.

This technology is the winning alternative to the traditional high pressure cleaning system with Venturi.

PLUS:

- Best efficiency in cleaning of long bags
- Keep constant the pressure drops over time
- Reduced consumption of compressed air thanks to the quick opening of the piston valves
- Modular assembly
- Shorter erection time



TASEK CORPORATION project

WORKING REFERENCE WITH BAGS 12MT LONG

SCOPE: PROCESS FABRIC FILTER

APPLICATION: Cement Kiln#3 Preheater (PH) + Raw Mill

COUNTRY: Malaysia

IN A NUTSHELL:

- **Conversion and upgrade of the existing dedusting system:** The existing process has been revolutionized in one single Fabric Filter installed on the existing support structure of the electrostatic precipitator of the preheater.
- **FULL EP project:** from Engineering to Construction and supervision activity during commissioning and start up
- **Cleaning System: SWAP Technology**
- **Start-up: Feb 2019**

BASIC DESIGN DATA

FILTER DESIGN CAPACITY	Am ³ /h	928.500
TOTAL FILTERING SURFACE AREA	m ²	15.162
BAG SIZE	mm	ø152 x 12,000
COMPRESSED AIR CONSUMPTION (2,5 BAR)	Nm ³ /h	208
NUMBER OF BAGS PER ROW	No.	21
DUST CONCENTRATION AT INLET	G/nM ³	60

Figure 1 top view of Fabric Filter in Tasek corporation, Malaysia



Sustainable future

TOWARDS ZERO EMISSIONS

The technologies today available can guarantee a complete control of the pollutants released in the environment by the exhaust gas.

However, emissions control equipment are obviously all energy consuming; in some cases, high abatement efficiency can have a considerable impact on the production cost and, on top of that, contribute to improve emission of GHG (CO₂).

The sustainability of all these techniques has in any case to be submitted to their possible indirect impact on the climate changes



TECHNOLOGY & PROJECTS
WASTE HEAT RECOVERY

Waste Heat Recovery Technology

BEST AVAILABLE TECHNOLOGY

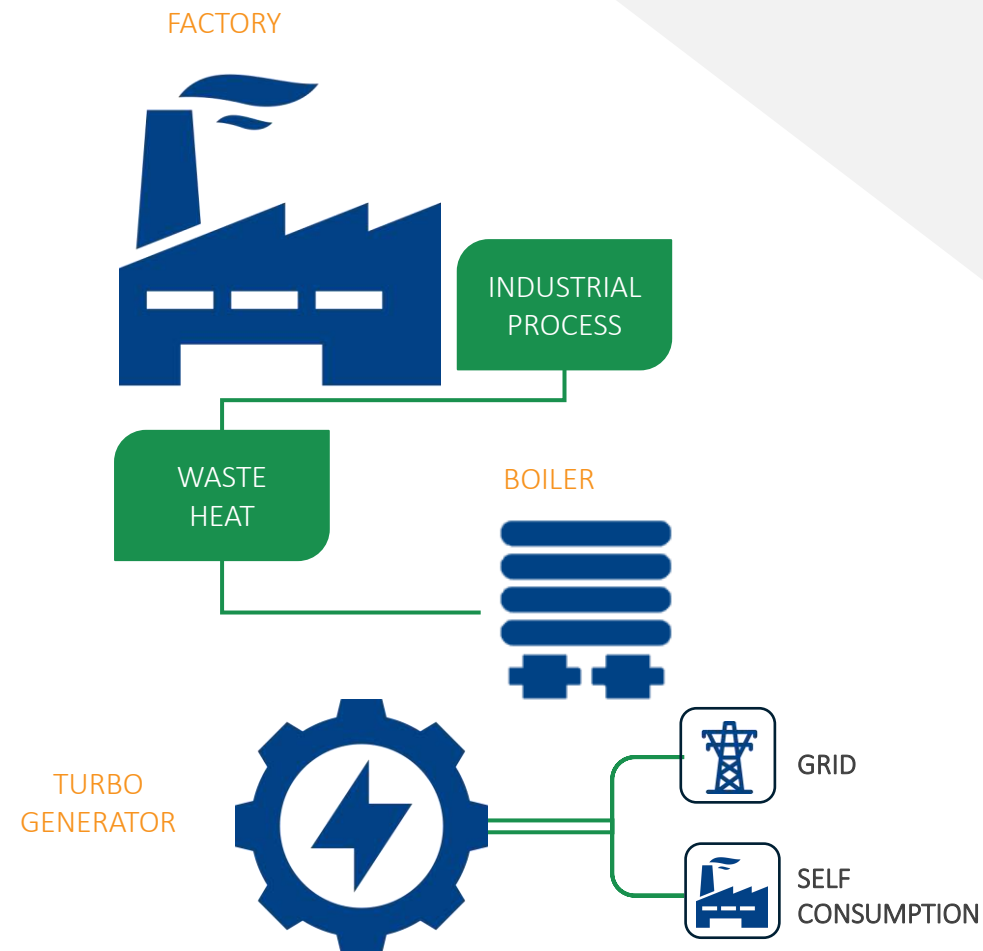
Waste Heat Recovery (WHR) is a profitable, low-carbon, environmentally friendly system to produce electricity by recovering heat from industrial processes. The most common technology used to produce power from a waste heat is based in general on the Rankine Cycle.

This thermodynamic cycle is performed by a working fluid and consists of a heat source (boiler) that generates a high-pressure vapor which is subsequently expanded through a turbo generator producing power.

In general, there are 2 different kind of working fluids:

- Water (most commonly used) : **Steam Rankine Cycle (SRC)**
- Organic fluid: **Organic Rankine Cycle (ORC)**

The kind of fluid used influences the boiler design mainly for difference in working pressure and temperature.



CIMKO NARLI project

WHR-ORC TECHNOLOGY

SCOPE: Turn-key Waste Heat Recovery ORC technology

APPLICATION: Clinker cooler (AQC)

COUNTRY: TURKEY

START-UP DATE: July 2019

IN A NUTSHELL:

- **FULL EPC Turn-key project:** overall management from Engineering to Commissioning & Start-up
- Technological choice: **Organic Rankine Cycle**
- **Neutral impact on environment:** no exploitation of natural resources (water)
- Turbogenerator capacity **7 MW**
- Full integration of mechanical and electrical scope.

BASIC DESIGN DATA

BOILER GAS FLOW	Nm ³ /h	320.000
TURBOGENERATOR CAPACITY	MW	7
TURBINE RATED SPEED	RPM	3.000
MAX WHR THERMAL POWER	kW	26.200

Figure 1 top view of air coolers and boiler in Narli cement factory, Turkey



Cimko Narli Project

PROJECT GOAL ACHIEVED

36.000.000 kWh



15.000 TPY



3.060.000 €/year



3 years payback



No water



Sonmez project

WHR-ORC TECHNOLOGY

SCOPE: Turn-key Waste Heat Recovery ORC technology

APPLICATION: Clinker cooler (AQC) + Pre-heater (PH)

COUNTRY: TURKEY

START-UP DATE: August 2020

IN A NUTSHELL:

- **FULL EPC Turn-key project:** overall management from Engineering to Commissioning & Start-up
- Technological choice: **Organic Rankine Cycle**
- **Dual-loop configuration with No.2 recovery boilers on clinker cooler air (AQC) and kiln-preheater gas (PH);**
- Turbogenerator capacity **9,2 MW**
- one single stream to the ORC unit, with intermediate heat exchangers

BASIC DESIGN DATA

AQC BOILER GAS FLOW	Nm3/h	225.608
PH BOILER GAS FLOW	Nm3/h	345.750
MAX WHR THERMAL POWER	kWt	38.777
TURBINE DESIGN CAPACITY	MW	8,1
TURBOGENERATOR CAPACITY	MVA	9,2

Figure 1 view of heat recovery boiler & air coolers in Sonmez cement factory, Turkey



Sonmez Cimento Project

PROJECT GOALS ACHIEVED

57.200.000 kWh/y



25.700 TPY



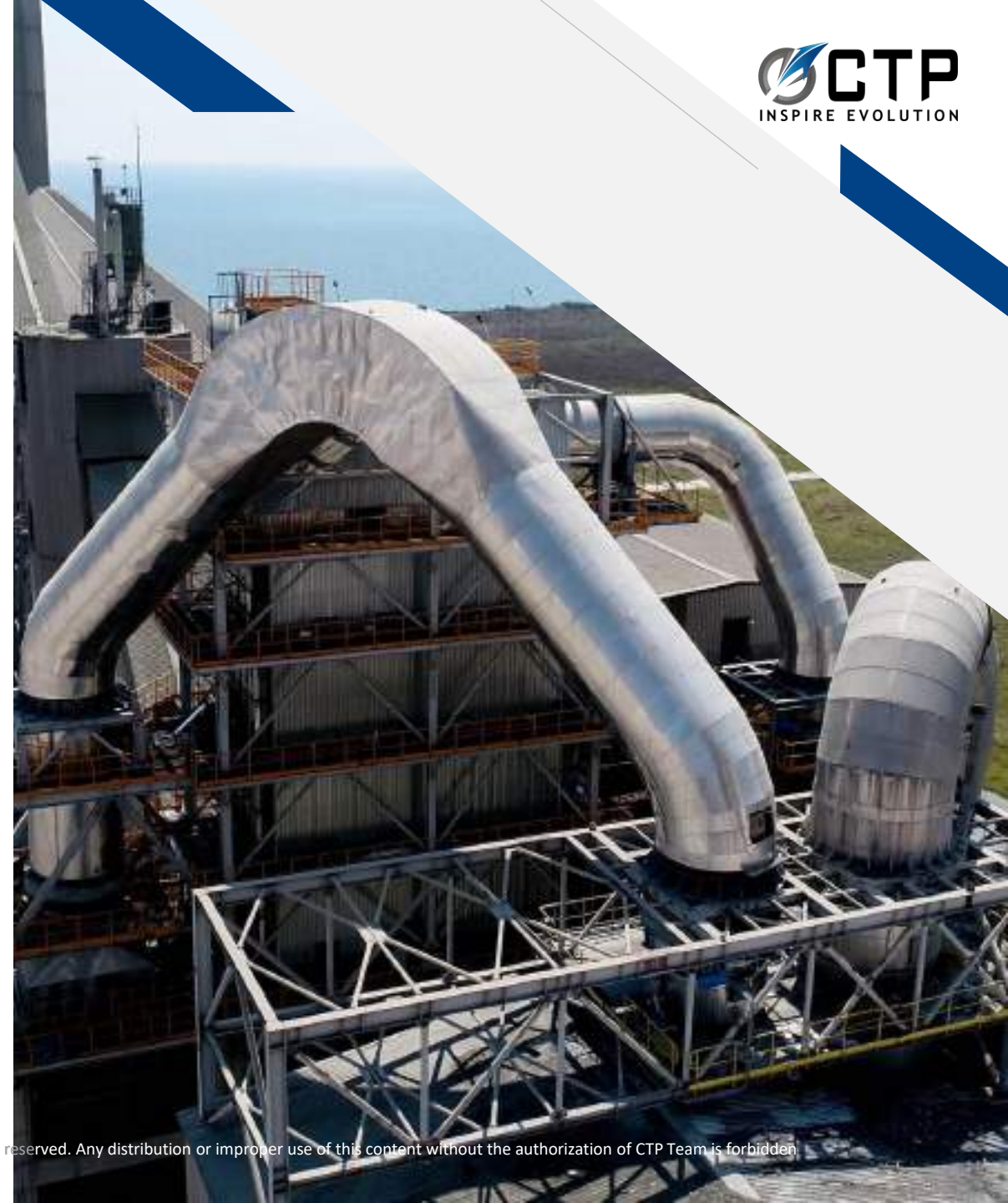
4.800.000 €/year



4 years payback



No water



SECIL Outao project

WHR-ORC TECHNOLOGY

SCOPE: Turn-key Waste Heat Recovery ORC technology

APPLICATION: Clinker Cooler (AQC) + Pre-heater (PH) + Solar Field (SF)

COUNTRY: PORTUGAL

START-UP DATE: 2023

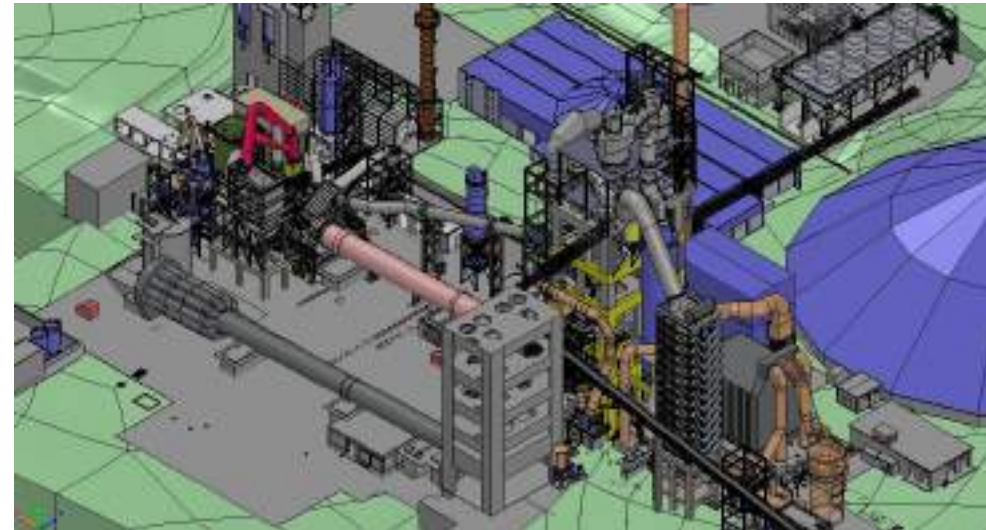
IN A NUTSHELL:

- FULL EPC Turn-key project without civil works: overall management from Engineering to Commissioning & Start-up
- **Technological choice:** Organic Rankine Cycle
- Turbogenerator capacity **8 MW**
- Dual-loop configuration with No.2 recovery boilers on clinker cooler air (AQC) and kiln-preheater gas (PH) and thermal oil from Solar Field
- Permanent establishment opened in Portugal

BASIC DESIGN DATA

AQC BOILER GAS FLOW	Nm3/h	170.000
PH BOILER GAS FLOW	Nm3/h	277.000
MAX WHR THERMAL POWER	kWt	31.137
TURBINE DESIGN CAPACITY	MW	7,2
TURBOGENERATOR CAPACITY	MVA	8

Figure 3 – 3D model of WHR plant in Outao - Portugal



GOMEL GLASS project

STEAM RANKINE CYCLE TECHNOLOGY

SCOPE: Waste Heat Recovery system with SRC technology integrated in a full gas treatment system (DeSOx +ESP+SCR DeNOx)

COUNTRY: Belarus

IN A NUTSHELL:

- Technological choice: **Steam Rankine Cycle**
- Fully Integrated operation with the gas treatment system
- Turbogenerator capacity **2,9 MW**

BASIC DESIGN DATA

BOILER GAS FLOW	Nm3/h	110.000
PRODUCED STEAM	t/h	15,3
STEAM TEMPERATURE AND PRESSURE	°C - bar	350 - 36
TURBOGENERATOR CAPACITY	MW	2,9
TURBINE RATED OUTLET SPEED	RPM	1.500
MAX WHR THERMAL POWER	kWt	11.322

Figure 4 view of WHR system SRC-based in Belarus





OPTIMISATION & TECHNOLOGY

OTP DIVISION

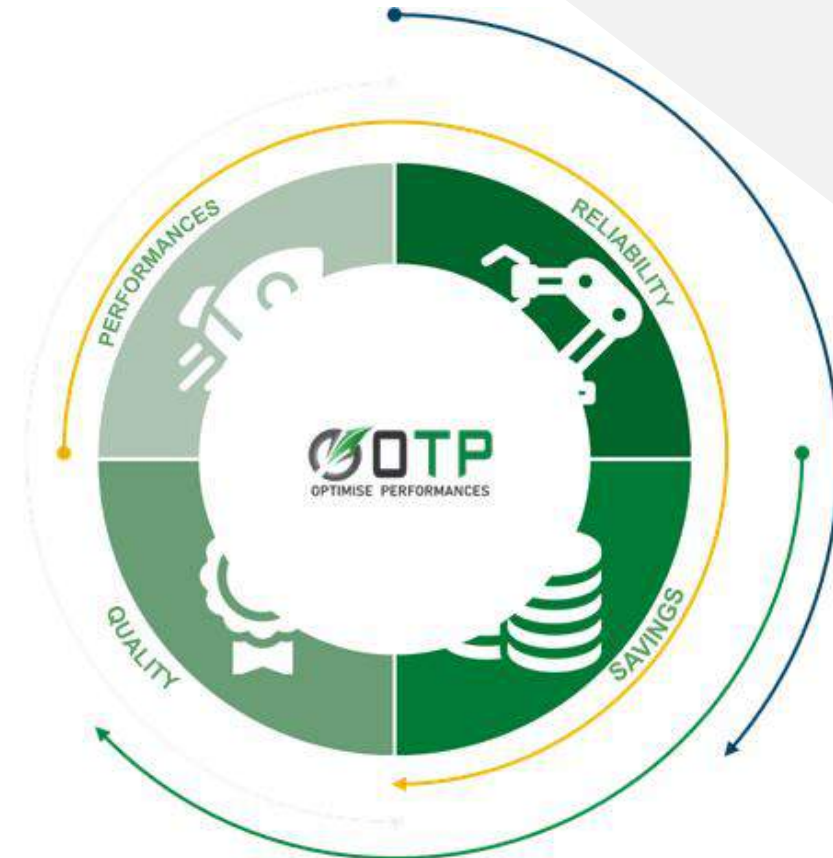
Activity and solutions



About OTP

OTP division is specialized in the optimisation of Bag filters and Waste heat recovery systems.

Thanks to a long experience in the Air Pollution control solutions and the extensive know-how of industrial processes, OTP's mission is, analyzing the existing scenario, identify optimized solutions, reach higher performances, reliability and savings.




“Key values”
Performances | Reliability | Savings

How we do it?

There are many reasons behind an APC system no more adequate to the process conditions

OTP technical approach consists in deep process analysis and equipment validation, identification of critical points, development of solutions to improve the existing equipment and solve plant problems to meet client expectations

1. Analysis of industrial processes
2. Full assessment for APC system (filters)
3. CFD of existing equipment
4. Identification of critical points and opportunities
5. New CFD analysis and identification of potential optimizations
6. Report of the optimizations and performances
7. Proposed technological solution and achievable results



OTP technical approach consists in deep process analysis and equipment validation

Why?

Control guaranteed of dust emission levels

Full line optimisation

Reduce the equipment total cost of ownership

Support the increased clinker production

Decrease energy consumptions

Improve the reliability of filter operation

Prevent future malfunctioning





HIGH PRECISION FILTRATION

HPF DIVISION

Activity and solutions

HPF precision filtration

BAG & CAGE SERVICE & SUPPLY

HPF precision filtration[®] is the manufacturing division of **CTP Team** and is specialized in producing and tailoring high quality filter media for multiple industrial applications. Filter bags are the core of the equipment filtration performances and a full set replacement hides several aspects to be considered in order to ensure material lasting for several years and keep granting emissions compliance.

In details

- Laboratory analyse (critical filter medias)
- Wide range of technical textiles, fibers and felts
- Technical support in textiles selection for any applications
- Internal manufacturing and best standard quality
- Worldwide shipping and logistics

Multiple industries: cement, iron&steel, glass, WTE, biomass, power, pharmaceutical, mining, others.

A large roll of white, pleated filter fabric, likely used for industrial filtration, is shown in a close-up, slightly angled view. The fabric has a distinct pleated texture and is set against a light blue background.

HPF division is located in Italy with a specialized manufacturing workshop

HPF precision filtration

BAG & CAGE SERVICE & SUPPLY

Available filtration medias and a view on main cages design and shape



Side-lock



Twist-lock



Fingerlock



Fiber	Max. Temperature	Acid Resistance	Alkali Resistance	Abrasion Resistance	Flex Resistance
Cotton	180°F (82°C)	Poor	Excellent	Average	Very Good
Polypropylene	212°F (100°C)	Excellent	Excellent	Excellent	Très Bon
PAN (Acrylic)	260°F (°126C)	Good	Average	Good	Very Good
Polyester	275°F (135°C)	Fair	Fair	Excellent	Very Good
PPS	374°F (190°C)	Very Good	Very Good	Very Good	Very Good
Aramid	392°F (200°C)	Fair/Poor	Good	Excellent	Excellent
P-84	473°F (245°C)	Good	Sufficient	Good	Good
PTFE	500°F (260°C)	Excellent	Excellent	Fair	Good
Fiberglass	500°F (260°C)	Good	Fair	Average	Average



Need to know more? Please contact us

CTP TEAM S.R.L

c/o Kilometro Rosso Innovation District

 T. +39 035 6968501 | F. +39 035 6968546

 info@ctp.mi.it

 www.ctp.mi.it