

OPTIMUM CURING SOLUTIONS for the concrete industry



TOTAL CURING & HEATING SYSTEM SOLUTION

Increased production and faster throughput.
High quality products. Significant savings...

The CUREMATIC™ curing and heating system is specifically developed to solve all heating and curing needs in precast concrete, pipe, block and paver plants in the most efficient manner and more importantly to increase the production rate or plant throughput while improving the end-product quality. All with a single unit.

The TURBOMATIC heating unit can also be utilized to handle all batching plant heating needs.

Please refer to Polarmatic Oy's **TURBOMATIC™** heating solutions.

CURING WITH WARM AIR, MOISTURIZING

CURING WITH WARM WATER

ICE THAWING, AGGREGATE PRE-HEATING

The main functions of the CUREMATIC are:

- » curing of precast concrete, pipes, blocks and pavers
- » production of warm concrete
 - › quick melting of frozen aggregates
 - › pre-heating and heating of aggregates, and
 - › generation of warm dosing water

The CUREMATIC is also capable of handling – at the same time, with a single unit – all other heating requirements such as:

- » heating of batching plant production facilities
- » heating of offices and other facilities
- » generation of warm wash water
- » generation of saddle tank fill water (for truck mixers)
- » production of warm utility water



The CUREMATIC system solution is always specifically customized to deliver warm concrete and to control the curing process – temperature and moisture – in an optimum environment and manner... and for a seamless operation with the TURBOMATIC heating system.

The total CUREMATIC curing system solution consists of the following:

- » Basic engineering: dimensioning of the equipment and entire system for the specific process and end-products in question (on a customer-specific basis)
- » **TURBOMATIC™** heating unit (or alternate heat source)
- » **TURBOMOIST™** moisturizing system
- » **CUREMATICenviro™** curing tents, kilns and chambers – with/without air circulation
- » **CUREMATICcontrol™** control system for managing the curing process, including GUI (graphical user interface) and advanced reporting tools



FLEXIBILITY AND PRECISE ENGINEERING FOR OPTIMUM PERFORMANCE

Each CUREMATIC curing system solution is tailored according to customer-specific requirements and the products the customer is producing: precast concrete products, pipes, blocks and/or pavers.

The complete scope of engineering services provided by Polar-matic Oy ranges from basic, conceptual design to dimensioning and detailed, 3D-design including the following:

- » process design of total curing system based on cured products
- » selection and dimensioning of heat source
- » dimensioning of moisturizing system
- » design and dimensioning of curing environment: tents, kilns & chambers including air circulation
- » basic and detailed design of piping system
- » design of curing control system
- » documentation

The aim of the engineering services is to provide the best possible curing solution for each specific customer controlling the curing temperature, humidity and time in an optimum manner - resulting in high quality concrete end-products while at the same time save both time and money ie. time, energy (fuel) and cement.



OPTIMUM TEMPERATURE AND HUMIDITY CONTROL

Optimal curing – resulting in high quality end products – requires precise control of temperature and/or moisture. Cost efficiency requires a correctly dimensioned and selected heat source.

The recommended heat source for the CUREMATIC curing system is the **TURBOMATIC™** heating unit which is available in different models and configurations meeting different customer requirements in an optimum and most effective manner. A wide capacity range, fuel options and various layouts ensure that the best possible solution can always be found for each and every customer. The CUREMATIC curing system can also be designed and delivered with other heat sources such as a conventional steam boiler or a warm air generator.

When precise, separate moisture control is needed the TURBOMATIC heating unit is complemented with the fully integrated **CUREmoist™** moisturizing system.



TURBOMATIC HEATING UNIT

MAIN FUNCTIONS, CURING AND HEATING OPTIONS

TURBOMATIC Thermal Energy Unit

Total curing and heating solution for precast concrete, pipe, block and paver plants: curing with CO₂-rich TURBOsteam, warm water and/or hot air; heating of aggregates and generation of warm dosing water; also capable of handling all other plant heating and warm wash water needs...

- » **maxTURBOMATIC** optimum solution for all 24/7 curing and heating requirements under any and all - even severe - conditions; curing with CO₂-rich TURBOsteam, warm water and/or hot air.
- » **compactTURBOMATIC** solution for curing with hot air/warm water and for batching plant heating requirements in moderate climate conditions and with low heating requirements.
- » **standardTURBOMATIC** solution for curing with hot air/warm water and for batching plant heating requirements in moderate to severe climate conditions.

TURBOMATIC TURBOsteam generator

Most efficient and effective solution for curing with CO₂-rich TURBOsteam; and for aggregate heating in batching plants.

TURBOMATIC Warm Water Unit

Optimum solution when only warm water or hot air is needed for curing and for generation and storage of warm dosing water in batching plants; also capable of handling all other heating and warm wash water needs.

CAPACITY

The TURBOMATIC heating unit is available in a wide capacity range, from 300 kW to 2500 kW (depending on the model).

FUEL

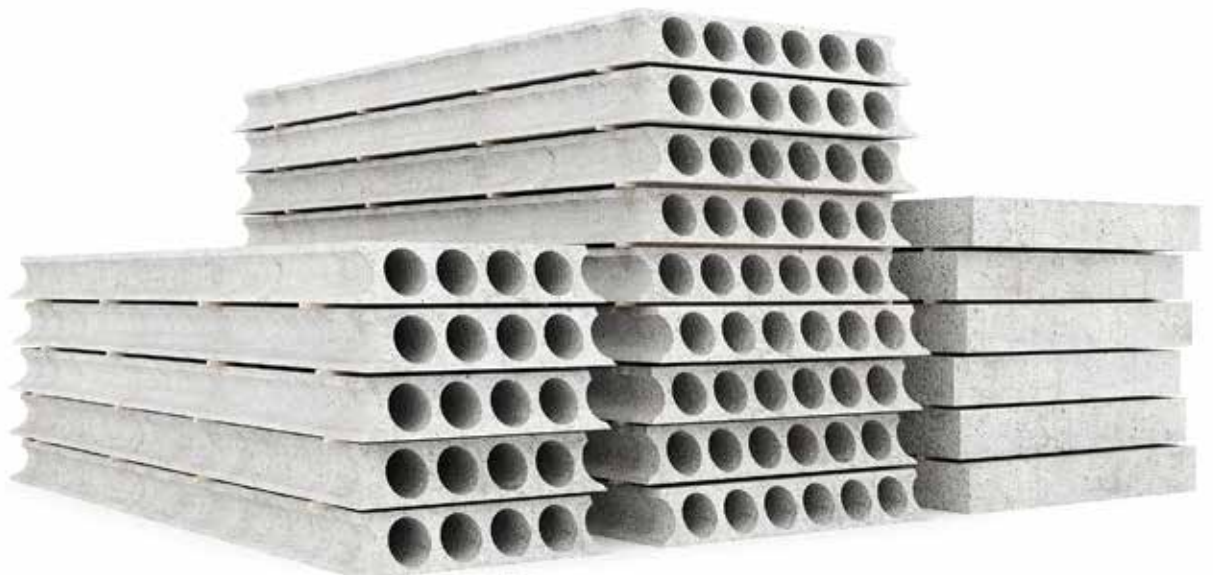
Fuel options are natural gas, propane or equal, light fuel oil and bio-oil. When fuel flexibility is needed the TURBOMATIC can also be equipped with a combi-burner capable of firing both gaseous (natural gas, propane) and liquid fuels (light fuel oil etc).

LAYOUT

The TURBOMATIC is built in a standard 20' or 40' TURBOcontainer which is thermally insulated for outdoor installation. For indoor installations the TURBOMATIC is built on a steel frame (TURBORack).

CUREMOIST MOISTURIZING UNIT

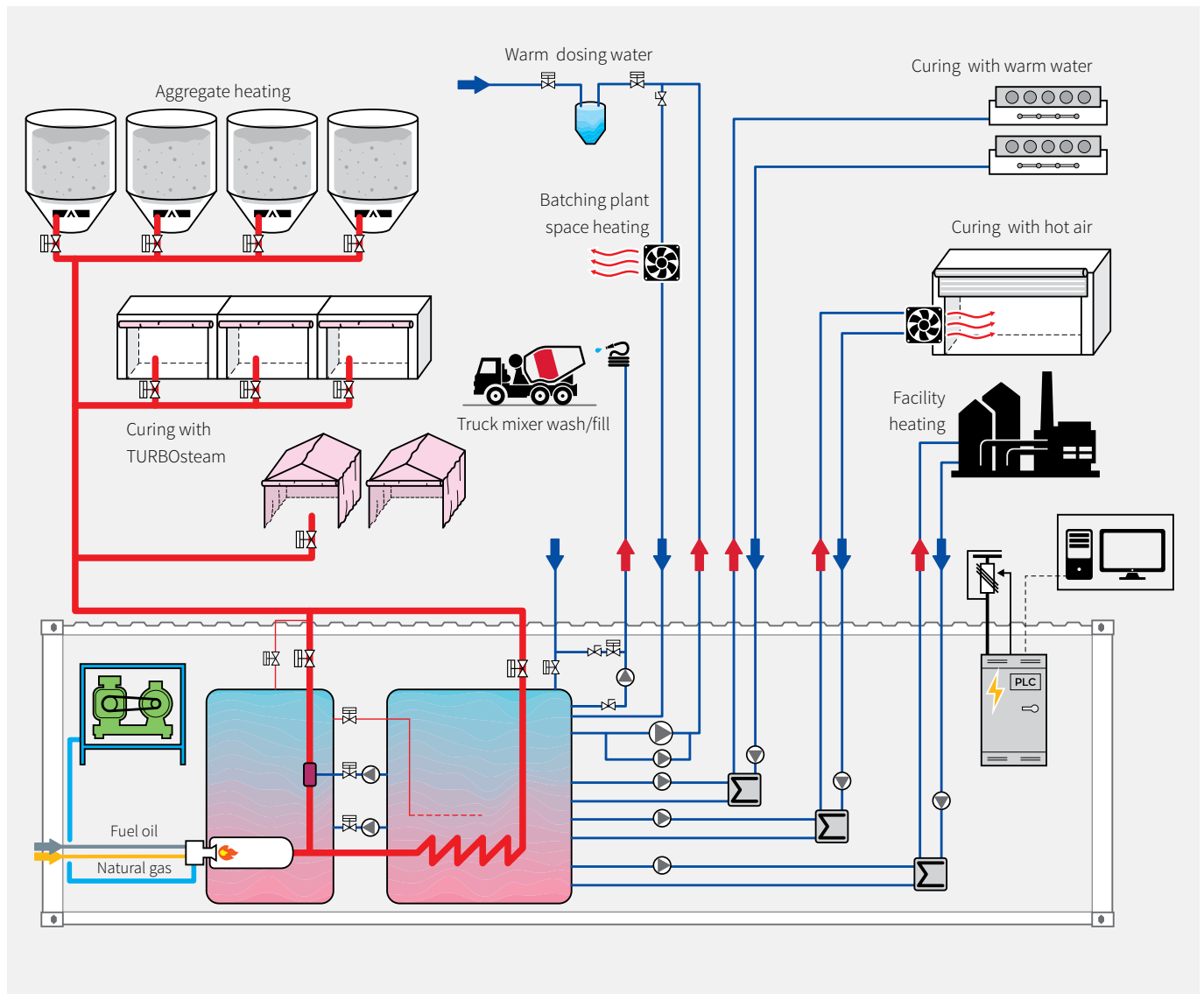
The CUREMOIST moisturizing unit is designed for precise humidity control and for a seamless operation with the TURBOMATIC heating system. The rack mounted CUREMOIST moisturizing system is available in a wide capacity range meeting customer specific requirements, and includes all the required auxiliaries such as pumps, filters, water softeners etc.



maxTURBOMATIC (“MAX”)

thermal energy unit

Total solution for curing and production of warm concrete with optimum water-to-cement-ratio in severe to extreme climate conditions and handling of all other batching plant heating and warm wash water needs.



APPLICATION

Suitable for extreme climate conditions and when high power, continuous 24/7 curing and/or heating of aggregates and/or water is needed.

MAIN FUNCTIONS

- » Curing with TURBOsteam and/or warm water/hot air
- » Aggregate heating with TURBOgas or –steam
- » Generation of warm dosing water

HEATING OPTIONS

- » Heating of batching plant production facilities
- » Generation of warm wash water
- » Supply of warm water for filling of truck mixer saddle tank
- » Heating of other associated facilities e.g. offices, laboratories etc.
- » Production of warm utility water

PME-MAX 1000*	PME-MAX 1250**	PME-MAX 1500**	PME-MAX 2000**	PME-MAX 2500**
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CAPACITY

1000 kW	1250 kW	1500 kW	2000 kW	2500 kW
aggregates 100...1000 kW	aggregates 125...1250 kW	aggregates 150...1500 kW	aggregates 200...2000 kW	aggregates 250...2500 kW
water 0...900 kW	water 0...1125 kW	water 0...1350 kW	water 0...1800 kW	water 0...2250 kW

FUEL

Light fuel oil, biodiesel (max rated oil flow)				
100 l/h	125 l/h	150 l/h	200 l/h	250 l/h
Natural gas (max rated natural gas flow)				
100 m³n/h	125 m³n/h	150 m³n/h	200 m³n/h	250 m³n/h
natural gas pressure: 2-4 bar (g); min. 0,8 bar (g)				
Options: <ul style="list-style-type: none"> » Fully integrated oil tank located inside TURBOcontainer (oil tank volume 4 000 l/20' container or 10 000 l/40' container); separated with fire wall and equipped with all necessary safety etc accessories » Combi-burner for dual fuel operation: light fuel oil or natural gas » Gas-burner for propane or other gaseous fuels 				

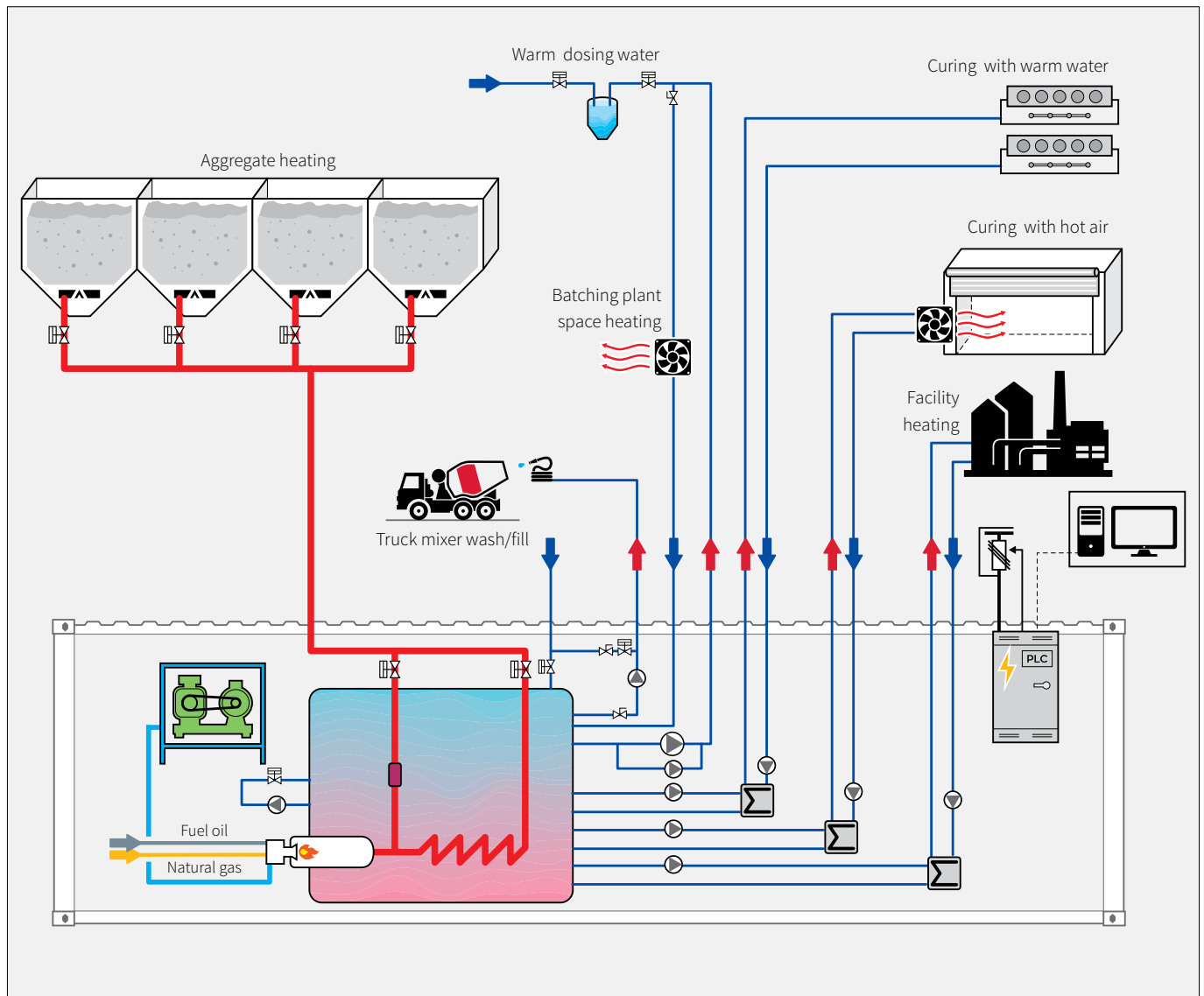
STRUCTURE / LAYOUT

TURBOcontainer <ul style="list-style-type: none"> » thermally insulated, for outdoor usage » side door for easy access » standard 20' (l 6050 x w 2438 x h 2592)* or standard 40' (l 12192 x w 2438 x h 2592)** container also special containers as per customer requirements. » painted as per customer requirements (acc. to RAL-specification)



standardTURBOMATIC (“STD”) thermal energy unit

Proven solution for curing with warm water/hot air and production of warm concrete with optimum water-to-cement-ratio in moderate to severe climate conditions and handling of all other heating and warm wash water needs.



APPLICATION

Suitable for moderate to severe climate conditions and/or for applications with moderate to high curing and/or heating needs.

MAIN FUNCTIONS

- » Curing with warm water/hot air
- » Aggregate heating with TURBOgas or –steam
- » Generation of warm dosing water

HEATING OPTIONS

- » Heating of batching plant production facilities
- » Generation of warm wash water
- » Supply of warm water for filling of truck mixer saddle tank
- » Heating of other associated facilities e.g. offices, laboratories etc.
- » Production of warm utility water

PME-STD 750	PME-STD 1000	PME-STD 1250	PME-STD 1500	PME-STD 2000	PME-STD 2500
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CAPACITY

750 kW	1000 kW	1250 kW	1500 kW	2000 kW	2500 kW
aggregates 75...525 kW	aggregates 100...700 kW	aggregates 125...875 kW	aggregates 150...1050 kW	aggregates 200...1400 kW	aggregates 250...1750 kW
water 675...225 kW	water 900...300 kW	water 1125...375 kW	water 1350...450 kW	water 1800...600 kW	water 2250...750 kW

FUEL

Light fuel oil, biodiesel (max rated oil flow)					
75 l/h	100 l/h	125 l/h	150 l/h	200 l/h	250 l/h
Natural gas (max rated natural gas flow)					
75 m³n/h	100 m³n/h	125 m³n/h	150 m³n/h	200 m³n/h	250 m³n/h
natural gas pressure: 2-4 bar (g); min. 0,8 bar (g)					
Options: <ul style="list-style-type: none"> » Fully integrated oil tank located inside TURBOcontainer (oil tank volume 4 000 l/20' container or 10 000 l/40' container); separated with fire wall and equipped with all necessary safety etc accessories » Combi-burner for dual fuel operation: light fuel oil or natural gas » Gas-burner for propane or other gaseous fuels 					

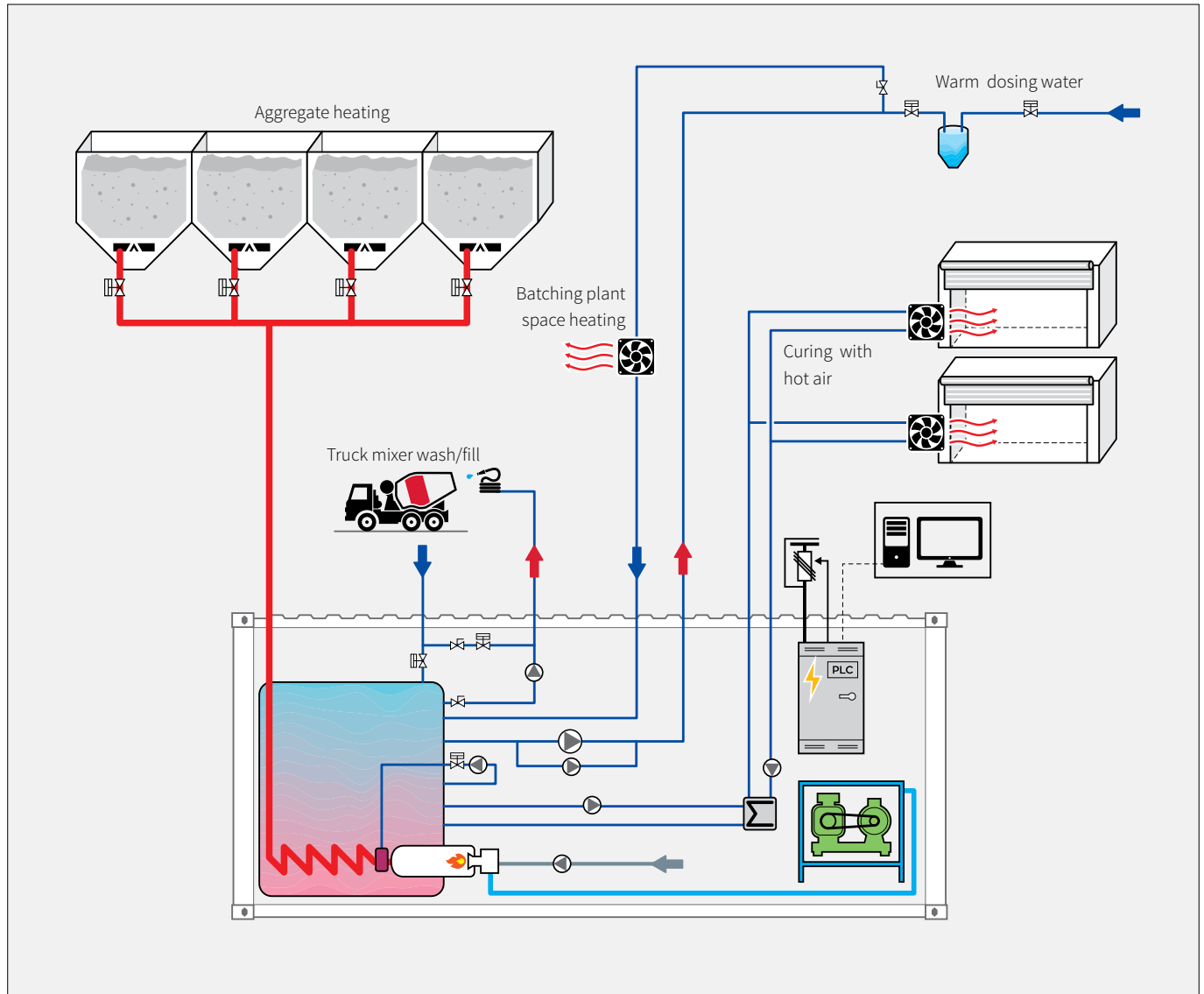
STRUCTURE / LAYOUT

TURBOcontainer <ul style="list-style-type: none"> » thermally insulated, for outdoor usage » side door for easy access » standard 20' (l 6050 x w 2438 x h 2592) or 40' (l 12192 x w 2438 x h 2592) container; also special containers as per customer requirements. » painted as per customer requirements (acc. to RAL-specification)
TURBORack <ul style="list-style-type: none"> » for indoor installation. » rack dimensions (l 4170-5400 x w 2120 x h 2400); also special rack dimensions as per customer requirements



compactTURBOMATIC (“COM”) thermal energy unit

Economical solution for curing with warm water/hot air and production of warm concrete with optimum water-to-cement-ratio in moderate climate conditions and handling of all other heating and warm wash water needs.



APPLICATION

Suitable for moderate ambient temperature conditions and applications with low to moderate curing and/or heating requirements.

MAIN FUNCTIONS

- » Curing with warm water/hot air
- » Aggregate heating with TURBOgas or –steam
- » Generation of warm dosing water

HEATING OPTIONS

- » Heating of batching plant production facilities
- » Generation of warm wash water
- » Supply of warm water for filling of truck mixer saddle tank

PME-COM 300	PME-COM 500	PME-COM 750
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CAPACITY

300 kW	500 kW	750 kW
aggregates 45...150 kW water 105...150 kW	aggregates 75...250 kW water 175...250 kW	aggregates 115...375 kW water 260...375 kW

FUEL

Light fuel oil (max rated oil flow)		
30 l/h	50 l/h	75 l/h
Natural gas (max rated natural gas flow)		
30 m³n/h	50 m³n/h	75 m³n/h
natural gas pressure: 2-4 bar (g); min. 0,8 bar (g)		
Options: <ul style="list-style-type: none"> » Fully integrated oil tank located inside TURBOcontainer (oil tank volume 4 000 l/20' container or 10 000 l/40' container); separated with fire wall and equipped with all necessary safety etc accessories 		

STRUCTURE / LAYOUT

TURBOcontainer

- » for outdoor usage; equipped with electrical heater
- » standard 20' (l 6050 x w 2438 x h 2592) container
- » standard colour: RAL 9002

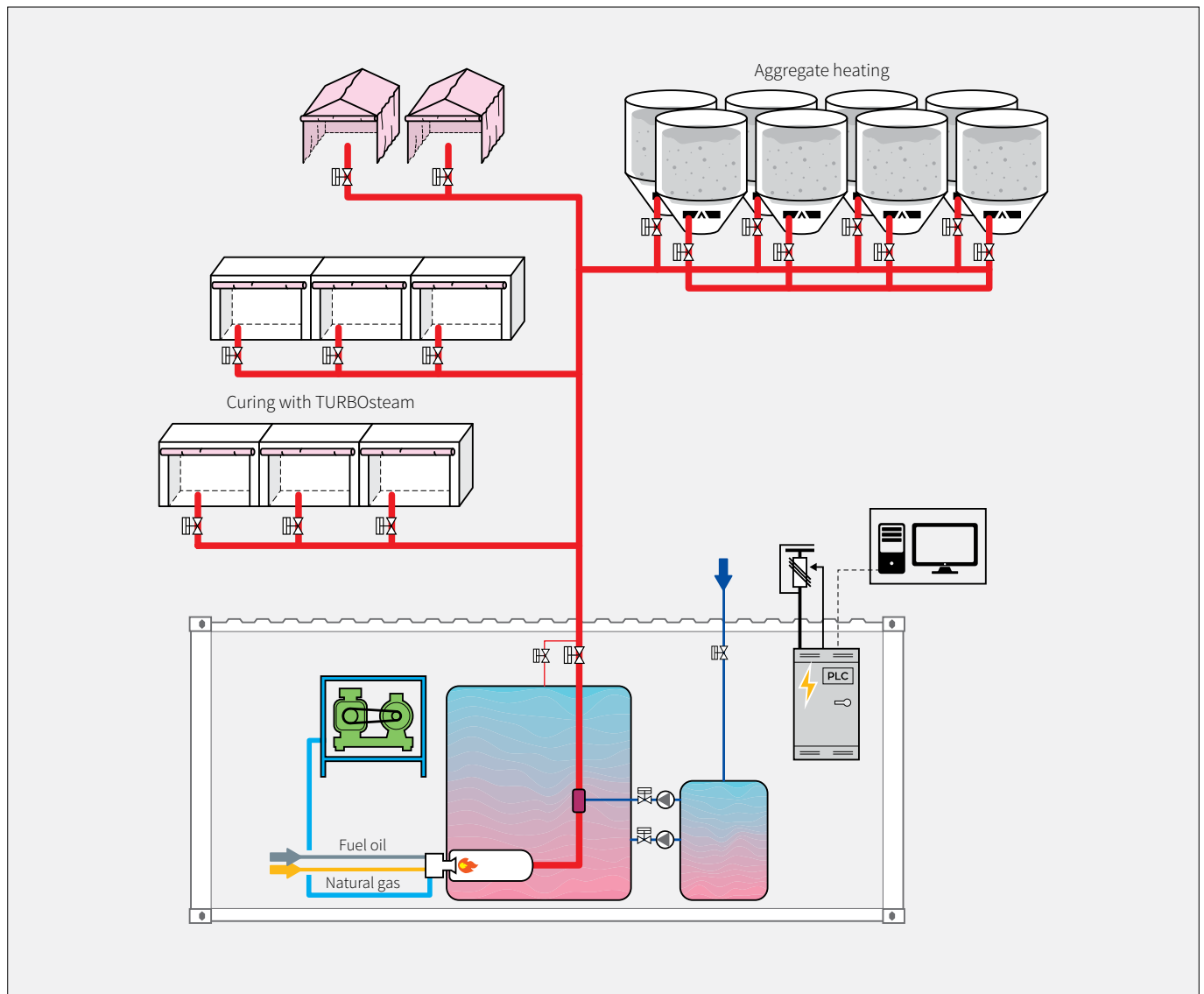
TURBORack

- » for indoor installation
- » rack dimensions (l 2100 x w 2500 x h 1900); also special rack dimensions as per customer requirements



TURBOMATIC TURBOsteam generator (“TSG”)

Optimum solution for curing and/or aggregate heating in batching plants operating in moderate to extreme climate conditions.



APPLICATION

Suitable for extreme climate conditions and when high power, continuous 24/7 curing and/or heating of aggregates is needed.

MAIN FUNCTION

- » Curing with TURBOgas or -steam
- » Aggregate heating with TURBOgas or -steam

PME-TSG 300	PME-TSG 500	PME-TSG 750	PME-TSG 1000	PME TSG-1250	PME TSG-1500	PME TSG-2000	PME-TSG 2500
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CAPACITY

300 kW	500 kW	750 kW	1000 kW	1250 kW	1500 kW	2000 kW	2500 kW
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FUEL

Light fuel oil (max rated oil flow)

30 l/h	50 l/h	75 l/h	100 l/h	125 l/h	150 l/h	200 l/h	250 l/h
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Natural gas (max rated natural gas flow)

30 m³n/h	50 m³n/h	75 m³n/h	100 m³n/h	125 m³n/h	150 m³n/h	200 m³n/h	250 m³n/h
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natural gas pressure: 2-4 bar (g); min. 0,8 bar (g)

Options:

- » Fully integrated oil tank located inside TURBOcontainer separated with fire wall and equipped with all necessary safety etc accessories
- » Combi-burner for dual fuel operation: light fuel oil or natural gas
- » Gas-burner for propane or other gaseous fuels

STRUCTURE / LAYOUT

- » thermally insulated, for outdoor usage
- » side door for easy access
- » standard 20' (l 6050 x w 2438 x h 2592) also special containers as per customer requirements.
- » painted as per customer requirements (acc. to RAL-specification)

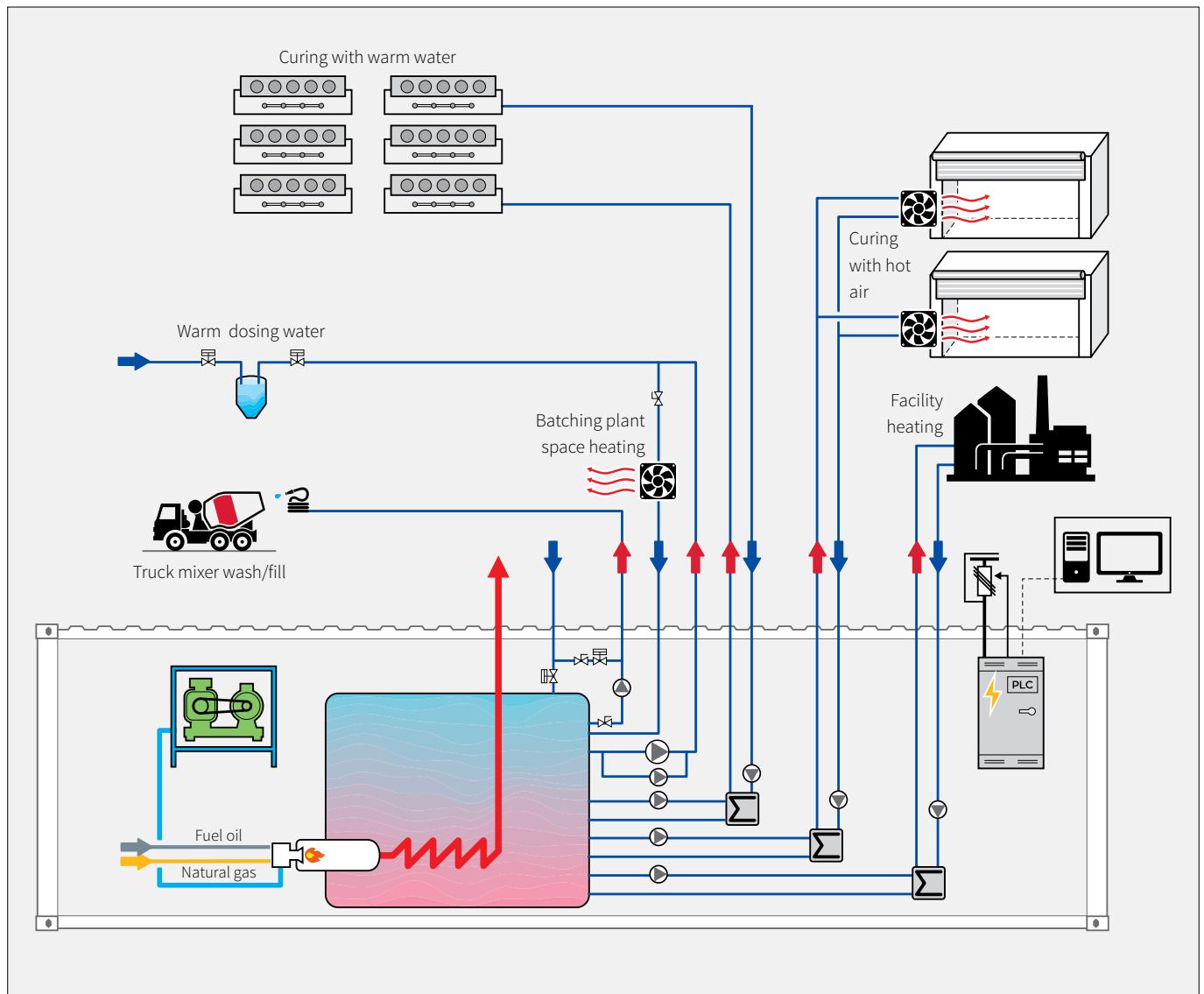
TURBOrack

- » for indoor installation
- » rack dimensions (l 5000 x w 2120 x h 2400); also special rack dimensions as per customer requirements



TURBOMATIC TURBOWarm water Unit (“WAT”)

Solution for generation and storage of warm dosing water in batching plants operating in moderate to severe climate conditions; also capable of handling all other batching plant heating and warm wash water needs.



APPLICATION

Generation and storage of warm water for curing, heating and utility purposes.

MAIN FUNCTION

- » Curing with warm water/hot air
- » Generation of warm dosing water

HEATING OPTIONS

- » Heating of batching plant production facilities
- » Generation of warm wash water
- » Supply of warm water for filling of truck mixer saddle tank
- » Heating of other associated facilities e.g. offices, laboratories etc.
- » Production of warm utility water

PME WAT 300	PME WAT 500	PME WAT 750	PME WAT 1000	PME WAT 1250	PME-WAT 1500	PME-WAT 2000
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CAPACITY

300 kW	500 kW	750 kW	1 000 kW	1 250 kW	1 500 kW	2 000 kW
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FUEL

Light fuel oil (max rated oil flow)						
30 l/h	50 l/h	75 l/h	100 l/h	125 l/h	150 l/h	200 l/h
Natural gas (max rated natural gas flow)						
30 m³n/h	50 m³n/h	75 m³n/h	100 m³n/h	125 m³n/h	150 m³n/h	200 m³n/h
natural gas pressure: 2-4 bar (g); min. 0,8 bar (g)						
Options: <ul style="list-style-type: none"> » Fully integrated oil tank located inside TURBOcontainer separated with fire wall and equipped with all necessary safety etc accessories » Combi-burner for dual fuel operation: light fuel oil or natural gas » Gas-burner for propane or other gaseous fuels 						

STRUCTURE / LAYOUT

TURBOcontainer <ul style="list-style-type: none"> » thermally insulated, for outdoor usage » side door for easy access » standard 20' (l 6050 x w 2438 x h 2592) or » 40' (l 12400 x w 2438 x h 2592) container; also special containers as per customer requirements. » painted as per customer requirements (acc. to RAL-specification)
TURBORack <ul style="list-style-type: none"> » for indoor installation » rack dimensions (l 4170–5400 x w 2120 x h 2400); also special rack dimensions as per customer requirements





OPTIMUM CURING ENVIRONMENT AND CONTROL

Curing requirements differ for different products – precast concrete, pipes, blocks and pavers – as well as for different climate conditions. Each CUREMATIC curing solution is flexibly designed and dimensioned according to customer requirements. In addition to selecting the optimum environment for curing the products in question, also the curing controls has to be designed to accurately control the entire curing process. Flexibly. Precisely. Efficiently.

The curing environment provides the basic means to control both product quality and the entire curing process. In addition to the precise control, features such as insulation of curing chambers will result in significantly lower energy costs – and faster curing times. In addition to higher quality and more homogenous products.

The full range of customized curing **CUREMATICenviro™** environment solutions includes the optimum solution for different concrete products, climate conditions and other customer requirements:

- » Curing tents
 - › stationary
 - › retractable
- » Curing kilns
- » Curing chambers
 - › with air circulation
- » Curing racks

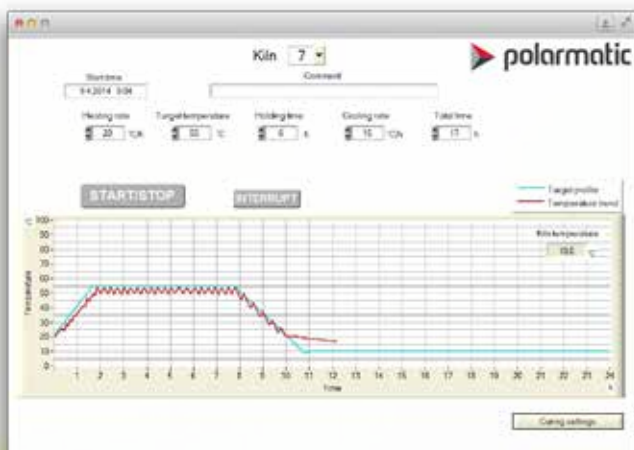
The optimum result – both from a product point of view and in regards to time & cost – is achieved by controlling the curing process in a precise manner.

The **CUREMATICcontrol™ curing control system** controls the temperature and if required the moisture in the curing tent or chamber/ kiln. Optional features include f.ex. maturity calculations. A complete CUREMATIC curing control system includes:

- » curing control valves
- » temperature sensors
- » moisture sensors
- » PLC controller
- » curing reports (temperature, moisture, maturity etc)
- » exhaust control (optional)

The CUREMATIC control system provides an easy-to-use graphical user interface:

- » Start the curing process with minimal set-up - fast, easily and reliably
- » Information about the duration and progress of the curing process
- » Reporting and tracability





INCREASED PRODUCTION. HIGHER QUALITY CONCRETE. SIGNIFICANT SAVINGS.

The CUREMATIC curing system provides the most efficient and cost-effective solution for curing and/or heating in precast concrete, pipe, block and paver plants ensuring both increased production and/or faster throughput and the highest quality end-products. All while saving in the cost of both energy and cement.

In addition to handling the curing requirements the CUREMATIC curing system is also capable of handling all batching plant and precast concrete, pipe, block and paver plant heating needs.

THE NUMEROUS BENEFITS DIFFER FROM CASE TO CASE DEPENDING ON THE SELECTED SOLUTION AND THE CUSTOMERS NEEDS:

- » Total system solution for curing and heating
- » Precise control of the entire curing process
- » Increased annual production and/or faster throughput due to superior heating power and/or use of warm concrete
- » Production of high, constant and homogenous quality end-products with warm, high quality concrete
- » Significant savings in energy consumption and cost – as high as 80%
- » Savings in cement usage and cost, up to 10%
- » Lowest possible operating costs
- » Lowest possible maintenance costs
- » Environmentally friendly minimum fuel consumption, lowNOx-burner technology, no wastes
- » Fully automatic, PC-operated
- » Optimised, precise control throughout entire process – from batching to curing including continuous follow-up, monitoring and reporting
- » Proven solution

The TURBOMATIC heating units are built in Tampere, Finland utilizing only first class materials, equipment and components. The TURBOMATIC is globally accepted by authorities and fulfills all necessary rules, regulations and standards - both international and local: TUKES, EN, GOST, TSSA, CSA, UL etc.

The TURBOMATIC is not classified as a boiler or pressure vessel.



FOR CUSTOMERS WORLD WIDE.

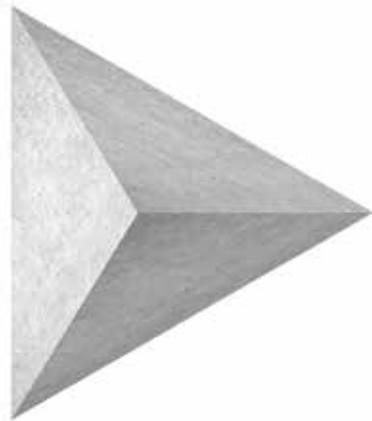
Optimum solution with first-class service and support.



**INCREASED PRODUCTION. HIGHER QUALITY PRODUCTS.
SIGNIFICANT SAVINGS.**



Austria / Belarus / Belgium / Bulgaria / Canada / China / Denmark / England / Estonia / Finland
Germany / India / Italy / Latvia / Lithuania / Netherlands / Norway / Poland / Romania / Russia / Scotland
Sweden / Switzerland / Ukraine / USA



OPTIMIZING THE CONCRETE BUSINESS

Polarmatic Oy is a world leading developer and supplier of innovative heating, curing, cooling, control and information management solutions specifically developed for the concrete industry. Already for more than 30 years.

Polarmatic offers total solutions - from process design & sizing of equipment and systems, to equipment delivery, installation and implementation of fully functional systems, complemented by preventive maintenance and technical services. The innovative, high quality solutions enable customers to increase their annual production and produce higher quality concrete and concrete products in the most environmentally friendly manner - while at the same time save significantly in fuel, operating & maintenance costs.

Polarmatic's solutions are today utilised by ready-mix producers in batching plants and by producers of precast concrete products, pipes, blocks and pavers all over the world. Proven even in the most demanding conditions.

Efficiently. Reliably. Flexibly.



Mixing Concrete & Consistency.....Together!

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www.concretebatch.com

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