# **PRODUCT CATALOGUE** HEATING & STEAM SYSTEMS

5

R

#### **INTRODUCTION**

ENORPA operates to meet the heating, storage and steam needs of many different sectors worldwide in order to perform production, projecting and contracting works for the steam, hot water, hot air, hot oil systems, fuel tanks, horizontal and vertical pressure vessels.

Every bit of ENORPA's production and project services are in compliance with the standards of each region in the world. ENORPA's steam, hot water, hot air, super-heated water , fuel tanks, horizontal and vertical pressure vessels provide eligibility to TSE, CE, ASME, GOST standards and also can be subjected to any spesific certification according to customer requirements.

Together with constantly updated calculation, analysis and material database, ENORPA keeps focusing on continuous Research&Development and Production&Development activities. Our company fully adapts to the requirements of technology continues production within automation. So that the human factor errors are tried to keep out of the systems.

ENORPA has a database that is increasing day by day and covers the information of the products which are already located around the world starting from the marketing phase up to malfunction and maintenance records. ENORPA performs statistical analysis of this database in order to minimize situations that cause customer dissatisfaction such as breakdown factors while working with a discipline based on the slogan "Quality Products, Happy Customers".

> Besides the steam boilers, hot water boilers, hot air generators, superheated steam and water boilers, fuel tanks, horizontal and vertical pressure vessels which takes part in ENORPA's product portfolio; there are sector-specific greenhouse heating boilers, greenhouse heating installation projecting services which are designed especially for greenhouse heating.



PRODUCT CATALOGUE HEATING & STEAM SYSTEMS



#### HAS TURBO SERIES Hot Air Generators

During the time that ENORPA HAS TURBO SERIES Hot Air Generators are produced, optimum thermal construction and the least damaging eco-friendly carbon monoxide emissions are taken into consideration. TURBO SERIES Hot Air Generators provide completely heated and homogeneous hot air distribution as a result of the strength and aerodynamic calculations to be done according to the relevant air flow values.

HAS TURBO SERIES Hot Air Generators can provide a very rapid warming by setting up the air in motion inside the space. TURBO SERIES Hot Air Generators can easily adapt to different distribution lines for special processes and spaces. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures.

S235JR EN 10028-2 Certified high temperature resistant sheets are used in all parts which are exposed to fire and smoke. Fire tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material.

Under favour of the double-stoker combustion cells, TURBO SERIES Hot Air Generator works alternately. TURBO SERIES Hot Air Generator is driven by double inlet cell type fans in order to produce the hot air used in industrial area in top quality and minimum cost state. The process management of all weldings on HAS TURBO SERIES Hot Air Generators are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to ENORPA.

- 🜔 Possibility of working half capacity and alternatively under favour of the double-stoker system
- 🜔 New self-cleaning cylindirical stoker design
- Provides low counter-pressure by wide fireboxes
- 🌔 Possibility to force the hot air through full length lines with the help of cell type double inlet fan.
- 🜔 Contains stripe finned, longlasting combustion chamber
- 🜔 2-Pass, cross-ventillation section
- 🜔 Enables free air circulation due to cylindirical geometry
- 📋 Tracked by analogue or PLC boiler and room control unit



HAS TURBO SERIES - Solid / Liquid / Gas Fired 3-Pass

Model	Capacity (kcal/h / kW)	Hot Air Flowrate (m <sup>3</sup> /h)
HAS Turbo 200	200.000 / 233	10.000
HAS Turbo 300	300.000 / 349	14.700
HAS Turbo 400	400.000 / 465	20.000
HAS Turbo 500	500.000 / 581	24.500
HAS Turbo 600	600.000 / 698	29.500
HAS Turbo 700	700.000 / 814	34.000
HAS Turbo 800	800.000 / 930	39.000
HAS Turbo 900	900.000 / 1.047	44.000
HAS Turbo 1000	1.000.000 / 1.163	50.000



Please contact us for further information about detailed technical data and size.

### HAS SERIES Hot Air Generators

During the time that ENORPA HAS SERIES Hot Air Generators are produced, optimum thermal construction and the least damaging eco-friendly carbon monoxide emissions are taken into consideration.

HAS SERIES Hot Air Generator provides completely heated and homogeneous hot air distribution as a result of the strength and aerodynamic calculations to be done according to the relevant air flow values.

HAS SERIES Hot Air Generator can adapt to various constructions according to a special process. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures.

S235JR EN 10028-2 Certified high temperature resistant sheets are used in all parts which are exposed to fire and smoke. The cassette structure provides a high heat transfer rate by increasing the total surface area. Under favour of the large smoke flow channels and the sections with no welding burrs, the possibility of clogging by the stoop is minimized.

The hot air which has a wide usage in industry is driven by double inlet cell type fans in order to produce the hot air used in top quality and minimum cost state.

The process management of all weldings on HAS TURBO SERIES Hot Air Generators are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to ENORPA.

Can be easily installed due to compact and minimized design

- C Highly efficient, wide stoker design with cylindirical burning surface
- The cassette type smoke flow section lets it have a low counter pressure

Convenient geometry for air flow with low counter pressure

Tracked by analogue or PLC boiler and room control unit

HAS SERIES Hot Air Generator is able to force the hot air through full length lines with the help of cell type double inlet fan

SERA ISITMA SİSTEMLERİ

ENORPA



#### HAS MOBILE SERIES Hot Air Generators

During the time that ENORPA HAS MOBILE SERIES Hot Air Generators are produced, optimum thermal construction and the least damaging environmentally friendly carbon monoxide emissions are taken into consideration.

HAS MOBILE SERIES Hot Air Generator provides completely heated and homogeneous hot air distribution as a result of the strength and aerodynamic calculations to be done according to the relevant air flow values.

HAS MOBILE SERIES Hot Air Generators can provide a very rapid warming by setting up the air in motion inside the space. HAS MOBILE SERIES Hot Air Generator can easily adapt to different distribution lines for special processes and spaces. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures. S235JR EN 10028-2 Certified high temperature resistant sheets are used in all parts which are exposed to fire and smoke. Fire tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material.

Fire tubes are obtained by bending the SRM pipes so that it provides the minimum counter pressure and maximum heat transfer surface area. The counterflow fire tubes and the wide air passage channel make it easy to be used on full length long lines. The axial fan, which is positioned compactly in the boiler, enables low noise operation in order to produce hot air used in the district heating with minimum cost and the highest quality. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures. S235JR EN 10028-2 Certified high temperature resistant sheets are used in all parts which are exposed to fire and smoke. Fire tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactu-

red for boilers made of P235GH material.

- Contains bended and very durable fire tubes by SRM pipes
- 📋 🛛 Due to compact and mobile setup HAS MOBILE SERIES Hot Air Generator has an easy installation and portable design
- Enables free air circulation due to cylindirical geometry
- 🜔 HAS MOBILE SERIES Hot Air Generator is able to force the hot air through full length lines with the help of high flowrate axial fan
- 🌔 🛛 It has the highest output temperature and the volume in its class
- 🌔 Tracked by analogue or PLC boiler and room control unit



HOT AIR GENERATOR

#### TURQUOISE SERIES Hot Water Boilers

During the time that ENORPA TURQUOISE SERIES Hot/Superheated Water Boilers are produced, optimum thermal construction and the environmentally least damaging carbon monoxide emissions are taken into consideration. The strength and aerodynamic calculations to be done according to the relevant air flow values are carried out eligible to TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European),GOST (Russian) standards.

**ENORPA** TURQUOISE SERIES Hot/Superheated Water Boilers are in accordance with 2014/68/EU and it can be manufactured specially according to national regulations. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures.

S235JR for hot water boiler, for superheated water boiler P265GH, P295GH and P355GH sheets are used. These EN 10028-2 Certified high temperature and high pressure resistant sheets are used in all parts which are exposed to direct pressure. Fire tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material. In order to produce hot/superheated water used in industrial area with minimum cost and highest quality; a high water volume is generated as an energy storage.

The process management of all weldings on TURQUOISE SERIES Hot/Superheated Water Boilers are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to ENORPA.

- 🎦 🛛 Highly efficient stoker design with wide burning surface
- 📋 Under favour of the customizable double stoker system, possibility of working half capacity and enables fuel saving.

7

TURKUAZINOO

**TURQUOISE SERIES - Solid Fired 3-Pass** 

ATER BOILERS

- There is 2014/68/EU PED (Pressure Equipment Directive) certification
- 📋 🛛 Suitable design for TS 12953 ASME BPVC AD2000 EN 12953 GOST
- 👔 For every product, there is CE certification B (project) + F (manufacturing) Module
- Tracked by analogue or PLC boiler and room control unit

#### Heating Capacity

100.000 kcal/h -1.000.000 kcal/h



#### CHALCEDONY SERIES Hot Water Boilers

During the time that ENORPA CHALCEDONY SERIES Hot/Superheated Water Boilers are produced, optimum thermal construction and the least damaging eco-friendly carbon monoxide emissions are taken into consideration. The strength and aerodynamic calculations to be done according to the relevant air flow values are carried out eligible to TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European),GOST (Russian) standards.

S235JR for hot water boiler, for superheated water boiler P265GH, P295GH and P355GH sheets are used. These EN 10028-2 Certified high temperature and high pressure resistant sheets are used in all parts which are exposed to direct pressure. Fire tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material. In order to produce hot/superheated water used in industrial area with minimum cost and highest quality; a high water volume is generated as an energy storage.

The process management of all weldings on CHALCEDONY SERIES Hot/Superheated Water Boilers are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to ENORPA.

- CHALCEDONY SERIES Hot/Superheated Water Boiler is an energy storage with high water volume
- 📋 Under favour of the double stoker and double furnace system, possibility of working half capacity and enables fuel saving.
- There is 2014/68/EU PED (Pressure Equipment Directive) certification
- 🜔 Suitable design for TS 12953 ASME BPVC AD2000 EN 12953 GOST
- Environmentally friendly by Multi Cyclone technology

KALSEDON

FN

Tracked by analogue or PLC boiler and room control unit



Please contact us for further information about detailed technical data and size

8

HOT WATER BOILERS

#### **AQUAMARINE SERIES Hot Water Boilers**

During the time that ENORPA AQUAMARINE SERIES Hot/Superheated Water Boilers are produced, optimum thermal construction and the least damaging to the environment carbon monoxide emissions are taken into consideration. The strength and aerodynamic calculations to be done according to the relevant air flow values are carried out eligible to TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European), GOST (Russian) standards.

S235JR for hot water boiler, for superheated water boiler P265GH, P295GH and P355GH sheets are used. These EN 10028-2 Certified high temperature and high pressure resistant sheets are used in all parts which are exposed to direct pressure. Fire tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material. In order to produce hot/superheated water used in industrial area with minimum cost and highest quality; a high water volume is generated as an energy storage.

The process management of all weldings on AQUAMARINE SERIES Hot/Superheated Water Boilers are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to ENORPA.

- There is 2014/68/EU PED (Pressure Equipment Directive) certification
- Suitable design for TS 12953 ASME BPVC AD2000 EN 12953 GOST
- Tracked by analogue or PLC boiler and room control unit
- Possibility to be customized as double firebox and double burner.
- Contains a chamber which is designed specially for optimum flame form
- For every product, there is CE certification B (project) + F (manufacturing) Module O

AQUAMARINE SERIES Hot/Superheated Water Boiler has a possibility to be customized as single firebox and redundant burner

Yedek Brülörlü Tek Külhanlı Özel Üretim İmkanı Optimum Alev Formuna Göre Dizayn Edilmiş Yanma Odası

ENORPA

GREENHOUSE

Anaolog veya PLC Kazan ve Mahal Kontrol Panosu



VATER BOILERS

#### ONIKS SERIES Hot Water Boilers

During the time that Enorpa Oniks series hot water boilers are produced, optimum thermal construction and the least damaging eco-friendly carbon monoxide emissions are taken into consideration. The strength and aerodynamic calculations to be done according to the relevant air flow values are carried out eligible to TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European),GOST (Russian) standards.

Enorpa Oniks series hot water boilers are in accordance with 2014/68/EU. It can be manufactured specially according to national regulations. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures. S235JR for hot water boiler, for superheated water boiler P265GH, P295GH and P355GH sheets are used. These EN 10028-2 Certified high temperature and high pressure resistant sheets are used in all parts which are exposed to direct pressure. Smoke tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material. In order to produce hot water used in industrial area with minimum cost and highest quality; a high water volume is generated as an energy storage.

The process management of all weldings on Oniks series Hot Water Boilers are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to Enorpa.

- 📋 🛛 Suitable Design For TS 12953 ASME BPVC AD2000 EN 12953 GOST
- 🚺 🛛 For Every Product, There Is CE Certification B (Project) + F (Manufacturing) Module
- 📋 Convenient With The 2014 / 68 / EU Pressure Vessels Directive
- 📋 Reciprocating Grate System
- Full Automation Of The Boiler With PLC Control



**PLC Automation System** 



>Fuel Loading Screw Conveyor



10

HOT WATER BOILERS

#### **OBSIDYEN SERIES** Hot Water Boilers

During the time that Enorpa Obsidyen series hot water boilers are produced, optimum thermal construction and the least damaging eco-friendly carbon monoxide emissions are taken into consideration. The strength and aerodynamic calculations to be done according to the relevant air flow values are carried out eligible to TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European), GOST (Russian) standards.

Enorpa Obsidyen series hot water boilers are in accordance with 2014/68/EU. It can be manufactured specially according to national regulations. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures. S235JR for hot water boiler, for superheated water boiler P265GH, P295GH and P355GH sheets are used. These EN 10028-2 Certified high temperature and high pressure resistant sheets are used in all parts which are exposed to direct pressure. Smoke tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material. In order to produce hot water used in industrial area with minimum cost and highest quality; a high water volume is generated as an energy storage.

The process management of all weldings on Obsidyen series hot water boilers are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to Enorpa.

- Suitable Design For TS 12953 ASME BPVC AD2000 EN 12953 GOST
- For Every Product, There Is CE Certification B (Project) + F (Manufacturing) Module
- Convenient With The 2014 / 68 / EU Pressure Vessels Directive
- Hydraulically Driven Solid Fuel Feeding And Reciprocating Grate System
- New Double-Deck Design For Solid/Liquid/Gas Fueled Systems
- Full Automation Of The Boiler With PLC Control



Liquid/Gas

Fired



Coal Fired







Pellet/Pomace Fired

11



**PLC Automation System** 

Please contact us for detailed technical data and dimensions of the product.



VATER BOILERS

#### TURMALIN SERIES Steam Boilers

During the time that Enorpa Turmalin series steam boilers are produced optimum thermal construction and the least damaging eco friendly carbon monoxide emissions are taken into consideration. The strength calculations to be done according to the TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European), GOST (Russian) standarts.

Enorpa Turmalin series steam boilers are in accordance with 2014/68/EU and it can be manufactured specially according to national regulations. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures. EN 10028-2 Certified P265GH,P295GH and P355GH high temperature and high pressure resistant sheets are used in all parts which are exposed to direct pressure. Smoke tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material. In order to produce steam used in industrial area with minimum cost and highest quality; a high water volume is generated as an energy storage as well as generating intense and high volumed steam for responding instant peak loads needs. The process management of all weldings on Turmalin series steam boilers are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to Enorpa.

The design of the parts required for the operation of Turmalin series steam boilers such as condensate tank, degasifier, feed water pump group, water level safety equipment, pressure value safety equipment, chimney, economiser, drainage lines and blow-off are made in accordance with the standards to provide high safety and efficiency according to the requirements of the era.

Suitable Design For TS 12953 – ASME BPVC – AD2000 – EN 12953 – GOST
For Every Product, There Is CE Certification B (Project) + F (Manufacturing) Module
High Volume Steam For Responding Peak Loads Needs
Convenient With The 2014 / 68 / EU Pressure Vessels Directive
Hydraulically Driven Solid Fuel Feeding And Reciprocating Grate System



### **QUARTZ SERIES Steam Boilers**

During the time that ENORPA OUARTZ SERIES Steam Boilers are produced, optimum thermal construction and the least damaging eco friendly carbon monoxide emissions are taken into consideration. The strength and aerodynamic calculations to be done according to the relevant air flow values are carried out eligible to TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European), GOST (Russian) standards.

ENORPA QUARTZ SERIES Steam Boilers are in accordance with 2014/68/EU and it can be manufactured specially according to national regulations. The designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures. EN 10028-2 Certified P265GH, P295GH and P355GH high temperature and high pressure resistant sheets are used in all parts which are exposed to direct pressure. Fire tubes are PED (Pressure Equipment Directive) certified and in TS 10217-2 standard which specially manufactured for boilers made of P235GH material. In order to produce steam used in industrial area with minimum cost and highest quality; a high water volume is generated as an energy storage as well as generating intense and high volumed steam for responding instant steam hammering needs. The process management of all weldings on QUARTZ SERIES Steam Boilers are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to ENORPA.

The design of the parts required for the operation of boilers such as condensate tank, degasifier, feed booster pumps, water level safety equipment, pressure value safety equipment, chimney, economiser, drainage lines and blow-off are made in accordance with the standards to provide high safety and efficiency according to the requirements of the era.

- There is 2014/68/EU PED (Pressure Equipment Directive) certification
- Suitable design for TS 12953 ASME BPVC AD2000 EN 12953 GOST
- Tracked by analogue or PLC boiler and room control unit
- For every product, there is CE certification B (project) + F (manufacturing) Module
- Possibility to be customized as double firebox and double burner for Liquid/Gas Fired systems
- Newly designed double firebox and double-stoker boilers for solid fired systems
- Possibility to produced customized redundant burner system for Liquid/Gas fired boilers
- Intense and high volumed steam for responding instant steam hammering needs



www.enorpa.com

Please contact us for further information about detailed technical data and size.

#### JASPER SERIES Steam Generators

During the time that JASPER SERIES Steam Generators are produced, optimum thermal construction and the least damaging environmentally friendly carbon monoxide emissions are taken into consideration. The strength and aerodynamic calculations to be done according to the relevant air flow values are carried out eligible to TS 12953 (Turkish), ASME BPVC (USA), AD2000 (German), EN 12953 (European), GOST (Russian) standards.

ENORPA JASPER SERIES Steam Generators are in accordance with 2014/68/EU and it can be manufactured specially according to national regulations. The serpentine designs are applied which enable minimizing thermal expansion of the boilers exposed to high temperatures. High strength, highly machinable SRM pipes are used in all serpentine parts, which are exposed to direct pressure. The inner surfaces of the SRM pipes are resistant to calcification since they do not contain welding burrs. Consist of 3-pass serpentine structure that allows the generation of industrial steam to be produced in the fastest way (2 to 3 minutes). The process management of all welding on JASPER SERIES Steam Generators are carried out in accordance with EN ISO 15614-1: 2012 standard and all welds are made by welders tested under TS EN ISO 9606-1: 2014 standard. Compatibility of the welding materials to the main material, welding positions and all kinds of welds are in accordance with the standards of WPS and PQRs specially fixed to ENORPA.

Parts like condensate tank, separator, high-pressure cavitation pump line, high-pressure serpentine pump line, drainage line, water level safety equipment, steam trap are produced compact so that JASPER SERIES Steam Generator does not require long assembly times and high infrastructure costs. The setup is completed very quickly.



EN

www.enorpa.com





## www.enorpa.com

+90 246 210 21 00

Sanayi Neighborhood 3231 Street No:12 32200 Isparta / Turkey

