

60 YEARS OF TRADITION IN COKE ENGINEERING

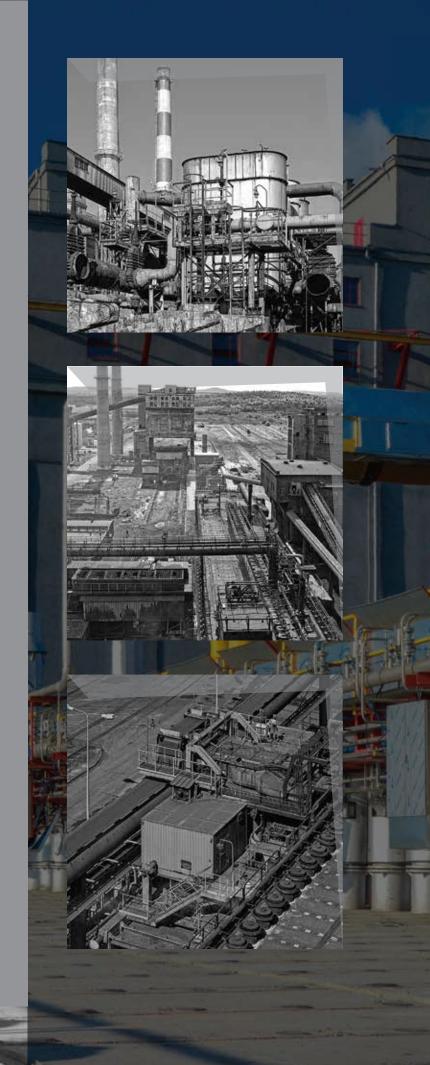
The construction of Koksownia Częstochowa Nowa Sp. z o.o. started in 1955 as an extension to Częstochowa Steelworks, and 5 years later two first coke batteries were commissioned. 4 more batteries intended for production of metallurgical coke were put into operation over the next 12 years. Between 1974 and 1983, yearly coke production was more than 2 million tonnes.

In 2005, Częstochowa Steelworks was acquired by the Industrial Union of Donbass (ISD) from Ukraine, and the steelworks changed its name to ISD Huta Częstochowa Sp. z o.o. In 2008, the coke plant was excluded from the organisational structure of the Steelworks, as an independent entity of Koksownia Częstochowa Nowa Sp. z o.o.

In mid-2009, ZARMEN Sp. z o.o. acquired 100% of shares in the coke plant. The new owner initiated a thorough modernisation of the plant under the "Smart Coke Plant" programme - one of the largest European projects involving the cooperation of the science and industry sector.

In May 2010, the construction of a new coke Battery no. 1 started, which was one of the major stages of the plant modernisation. The battery was launched in September 2011.

in September 2015, the construction of an innovative coke oven gas treatment system was completed, while in November 2017, a new wide-chambered Battery no. 4bis for production of foundry coke was launched.

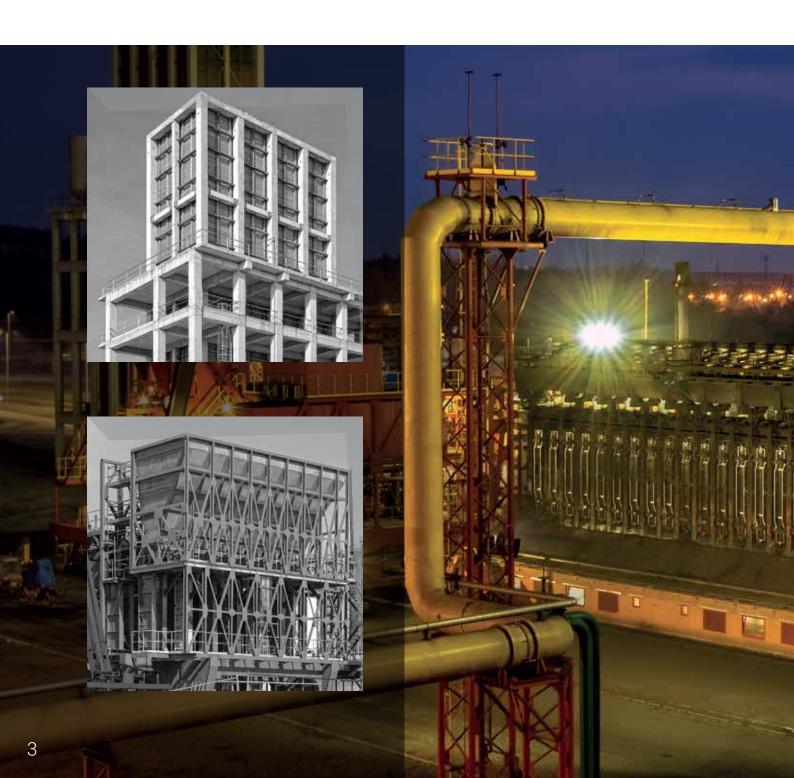






Koksownia Częstochowa Nowa Sp. z o.o. is a European household name for the production of the highest qualit coke, coal derivatives and coke oven gas for third-party customers, widely recognised on the European market. Since 2009, the company is a member of ZARMEN GROUP, that has created favorable conditions for the dynamic growth of the plant located in Częstochowa.

The coke plant has been rebuilt as a facility with three coke batteries and a modern coke derivatives department and currently is one of the most advanced and environmentally-friendly plants in this branch in Poland. Its annual production capacity reaches almost 1 million tonnes of coke.



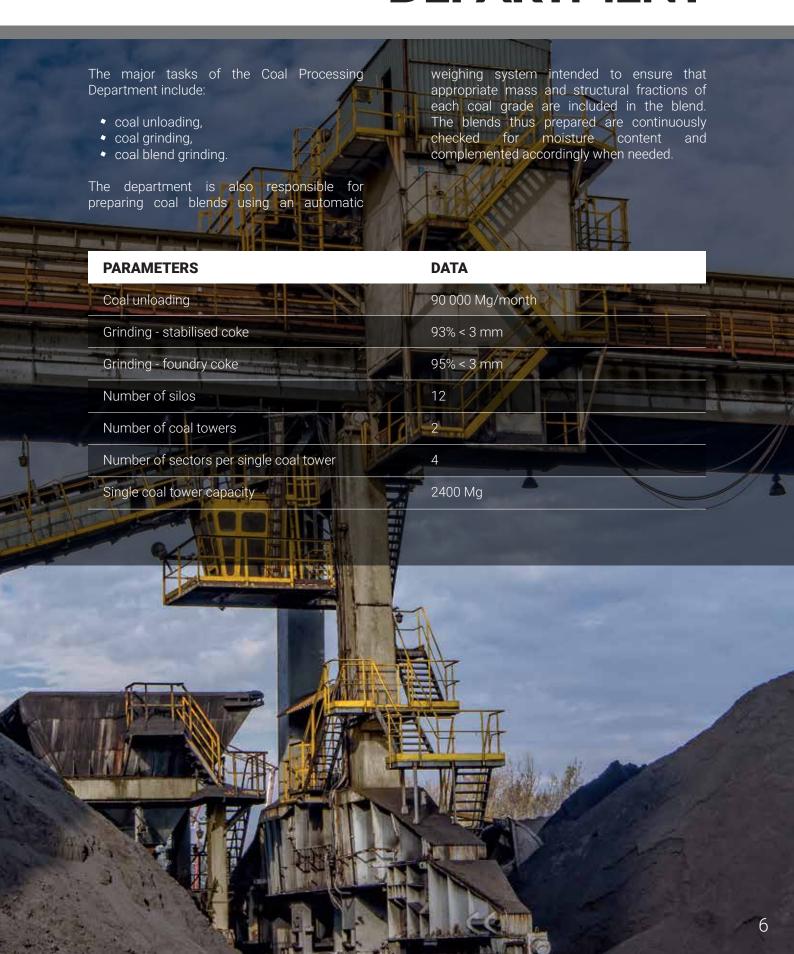


FOCUS ON GROWTH





COAL PROCESSING DEPARTMENT



COKE OVEN DEPARTMENT

Battery no. 1

Launched in 2011, with the yearly production capacity of 415,000 tonnes of coke, consists of 57 chambers. An innovative solution used in its construction was firing control with side supply of fuel gas, by introducing firing pauses.

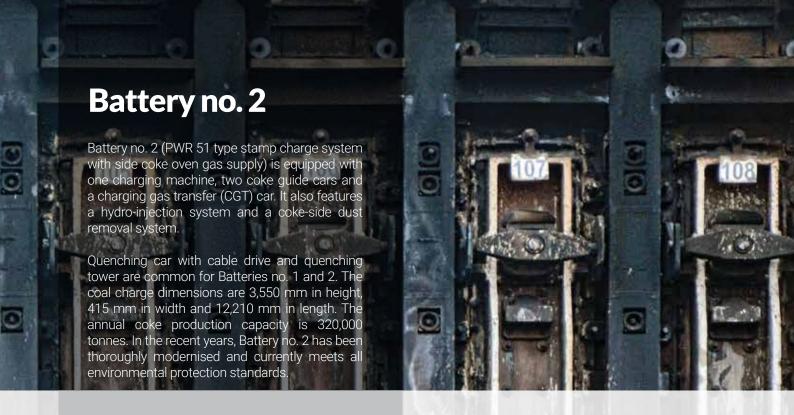
This investment resulted in:

- ▼ lowering total dust emission beyond the BAT requirements (less than 5 mg/m³),
- reaching high efficiency of dust extraction equipment, at the level of 99.9%,
- 40% reduction in overall dust emission (PM 2.5 and PM 10),
- 30% reduction in SO₂, CO, NO₂ emission,
- 20% reduction in energy consumption of the production process,
- reduction in material consumption (i.e. gas per 1 Mg of coke production - by 12%; gas heating and stripping - by 25%).

The battery features a hydro-injection system, a charging gas transfer tube and a coke-side dust removal system. There is no CGT car, since a different solution was applied instead charging machine no. 1 is equipped with a device for scraping of discharge tubes and the transfer tube is mounted on the coke guide car. The coal charge dimensions are 4,060 mm in height, 415 mm in width and 12,210 mm in length.







Battery no. 4 bis

Battery no. 4 bis is a wide-chambered PWR type stamp charged battery with side coke oven gas supply. It was launched in November 2017 and is used for production of high quality foundry coke. It has 50 coking chambers with the average width of 550 mm. The coal charge dimensions are 4,050 mm in height and 12,210 mm in length. The battery also features a hydro-injection system, a transfer tube and a coke-side dust removal system. Its yearly production capacity is 250,000 tonnes, which allowed the coke plant to increase the production output, consolidating its position on the coke market.

The restrictions for gas emissions enabled implementation of a number of innovative technological and structural solutions in battery supporting equipment, including:

- installation of a hood on the coke guide car, with highly effective ventilation system to capture dust and gas emissions during coke pushing from the chamber,
- dust removal system is equipped with the set of bag filters to extract gaseous dust, with the efficiency reaching 99.9%,
- coke quenching takes place at an advanced quenching tower, equipped with two-level chamber filling, reducing dust emission to the air.



Proper operation of the battery is ensured by a remotely controlled master firing management and oven machine control system. Additionally, the charging machine uses a smart coal charge stamping system, SmartStamp.

The battery fully conforms to the EU guidelines concerning BAT conclusion. The General Contractor of the Project was ZARMEN Sp. z o.o.

COAL DERIVATIVES DEPARTMENT

The coke oven gas treatment system, with the capacity of 46,000 m³/h was launched in 2015. In its construction, world innovative solutions have been used for coke derivatives separation from coke oven gas, up to a level that allows to classify coke oven gas as an ecofuel. All used technological and technical solutions are consistent with the requirements of the Best Available Techniques (BAT). The new system has replaced the previously operating, technologically outdated unit.

The main premises taken into consideration in its design included fulfilment of the following requirements:

- minimised atmospheric emission of pollutants by introducing a hermetisation system,
- implementing state-of-the-art and innovative technical solutions,
- deep flue gas desulphurisation by following the applicable BATs,
- automation of processes and implementation of a visualisation system,
- compact system dimensions minimised installation area,
- reduced energy consumption.

The system ensures deep treatment of coke oven gas for in-house as well as external

PARAMETERS	DATA
Throughput	25 m³/h
Operating time	8 760 h/year
Parameters of purified proc	ess water
Ammoniacal nitrogen	< 10 mg/l
Volatile phenols	< 5 mg/l
Sulphides	0,2 mg/l
Free cyanides	0,1 mg/l
- 10 (- b	

recipients' purposes, which can also be utilised for power generation and in gas engines. This investment has resulted in over 90% reduction in unorganised emission. The most significant effect of this reduction concerned the BTX substances emission (benzene, toluene, xylene).

PARAMET	TERS UNIT	DATA
H ₂	% vol.	57
СО	% vol.	7,2
CO ₂	% vol.	2,8
O_{2}	% vol.	1,0
CH₄	% vol.	24,7
N ₂	% vol.	4,8
C _n H _m	% vol.	2,5

PARAMETER	RS UNIT	DATA
H ₂ S	mg/Nm³	300
NH ₃	mg/Nm³	30
Naphthalene	g/Nm³	0,3
Tar	g/Nm³	0,02
Benzol	g/Nm³	2
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The tasks of the Sorting Division include separating foundry coke and blast-furnace coke produced into fractions. This division comprises a rough and a fine sorting plants. The rough sorting plant features 4 roller bar screens. The fine sorting plant is equipped with 7 vibrating screens, with 4 in one line and 3 in the second line.

There are also loading stations featuring scales which enable the quantity of the loaded cargo to be inspected, and adjustable conveyor belts to reduce the coke dropping height and to prevent its degradation during loading.

PARAMETERS

Sorting plant efficiency

Rough sorting plant - obtained fractions

Softling plant efficiency

Fine sorting plant - obtained fractions

DATA

200 Mg/h

25 - 80 mm

+ 80 mm

+ 100 mm

20 - 40 mm

10 - 25 mm

0 - 10 mm





LABORATORY

The Quality Department of Koksownia Częstochowa Nowa Sp. z o.o. is responsible for preparing and conducting certain analyses in order to examine quality parameters of the produced coke as well as

the coal supplied and used for feedstock blending.

The Quality Department tests the material for the below parameters:

parameters of the produced coke as well as	for the below parameters:
PARAMETERS	TEST PROCEDURE
Mechanical strength factor	ISO 556:1980
Moisture content, operating condition	PN-ISO 579:2002
Ash content	PN-ISO 1171:2002
Volatile matter content	ISO 562:2010
Total sulphur content	ISO 19579:2006
Fixed carbon factor	ICB 0835 procedure, rev. 2016
Phosphorus content	ICB 0857 procedure, rev. 2016
Calorific value	PN-ISO 1928:2002
 Undersized particles Oversized particles	- PN-ISO 728:1999
Coke reactivity index CRI Coke strength after reaction CSR	- ISO 18894:2006
SO ₄ Is	700 - 400
H ₂ C study	300 \$



The plant produces blast-furnace coke, foundry coke, heating coke and special purpose coke. The yearly production capacity of the coke plant reaches almost 1,000,000 tonnes of coke.

Our main customers are leading entities operating in metallurgical, chemical, mining and sugar industries, lime processing and soda plants, as well as producers of insulating materials, foundries and manufacturers of automotive parts and construction components.

The majority of our products is exported to the EU and Eastern Europe countries, mainly Germany, Russia, Italy, Great Britain, Slovakia, Austria, France, Netherlands, Belarus, Czech Republic, Hungary and Serbia.







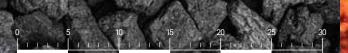


BLAST FURNACE COKE COKE FOR THE STEEL INDUSTRY 25-80MM

QUALITY PARAMETERS	VALUE
Total moisture content, Wt ^r	max 6,0%
Ash content, A ^d	max 10,0%
Volatile matter content, V ^{daf}	max 0,7%
Total sulphur content, St ^d	max 0,6%
Calorific value, <i>Qi^r</i>	min 28 000 kJ/kg
Mechanical strength, M40	min 76-78%
Mechanical strength, M10	max 6,0%
Undersized particles	max 6,0%
Oversized particles	max 6,0%
CRI	max 33,0%
CSR	min 60,0%

INDUSTRIAL AND HEATING COKE COKE FOR THE CHEMICAL AND POWER ENGINEERING INDUSTRY 25-80MM

QUALITY PARAMETERS	VALUE
Total moisture content, Wt'	max 7,0%
Ash content, A ^d	max 10,0%
Volatile matter content, V ^{daf}	max 0,7%
Total sulphur content, St ^d	max 0,6%
Calorific value, <i>Qi^r</i>	min 27 500 kJ/kg
Mechanical strength, M40	min 76%
Mechanical strength, M10	max 6,0%
Undersized particles	max 6,0%
Oversized particles	max 8,0%



INDUSTRIAL AND HEATING COKE COKE FOR THE CHEMICAL AND POWER ENGINEERING INDUSTRY 30-70MM

max 7,0% max 10,0% max 0,7%
A STATE OF THE STATE OF
max 0,7%
max 0,6%
min 27 500 kJ/kg
min 76%
max 6,0%
max 6,0%
max 7,0%

INDUSTRIAL AND HEATING COKE COKE FOR THE CHEMICAL AND POWER ENGINEERING INDUSTRY 30-60MM

VALUE
max 7,0%
max 10,0%
max 0,7%
max 0,6%
min 27 500 kJ/kg
min 76%
max 6,0%
max 6,0%
max 7,0%

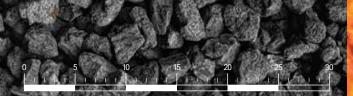


NUTICOKE 40-60MM

QUALITY PARAMETERS	VALUE
Total moisture content, Wt'	max 7,0%
Ash content,A ^d	max 10,0%
Volatile matter content, V ^{daf}	max 0,7%
Total sulphur content, St ^d	max 0,6%
Calorific value, <i>Qi^r</i>	min 27 500 kJ/kg
Undersized particles	max 6,0%
Oversized particles	max 7,0%
Oversized particles	max /,0%

NUT II COKE 20-40MM

QUALITY PARAMETERS	VALUE
Total moisture content, Wt ^r	max 11,0%
Ash content, A ^d	max 10,0%
Volatile matter content, V ^{daf}	max 0,8%
Total sulphur content, St ^d	max 0,6%
Calorific value, <i>Qi^r</i>	min 26 000 kJ/kg
Undersized particles	max 6,0%
Oversized particles	max 8,0%



PEA COKE 10-25MM

QUALITY PARAMETERS	VALUE
Total moisture content, Wt ^r	max 14,0%
Ash content, A^d	max 10,0%
Volatile matter content, V ^{daf}	max 1,4%
Total sulphur content, St ^d	max 0,6%
Calorific value, <i>Qi</i> r	min 25 000 kJ/kg
Undersized particles	max 6,0%
Oversized particles	max 6,0%
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COKE BREEZE 0-10MM

QUALITY PARAMETERS	VALUE
Total moisture content, Wt ^r	max 15,0%
Ash content, A ^d	max 10,5%
Volatile matter content, V ^{daf}	max 1,5%
Total sulphur content, St ^d	max 0,6%
Calorific value, <i>Qi^r</i>	min 24 000 kJ/kg
Oversized particles	max 10,0%

COAL DERIVATIVES



QUALITY PARAMETERS

VALUE

Distillation

min 95,0%

Density at 20°C

max 0,887 g/cm³

SULPHUR

QUALITY PARAMETERS

VALUE

Sulphur content

approx. 99,9%

Ash content

less than 0,08%

COKE OVEN GAS

Koksownia Częstochowa Nowa Sp. z o.o. continues activity in the field of coke oven gas production based on the licence no. DPG/145/21390/W/2/2012/KF dated 26 September 2012, concerning the distribution of gaseous fuels.

CERTIFIED QUALITY

Koksownia Częstochowa Nowa Sp. z o.o. holds certificates that confirm the highest quality of the offered products, combined with the most efficient use of the resources. The company has implemented and applies the Integrated Management System, certified for conformity with the requirements of:

- ◆ ISO 9001:2015
- ▶ ISO 14001: 2015
- ▶ PN-N 18001:2004
- ▶ ISO 50001:2011

The major goals of the Integrated Management System implemented at Koksownia Częstochowa Nowa Sp. z o.o. include:

- customer satisfaction increase and products quality improvement,
- reduction of emissions and preventing environmental pollution,
- continuous improvement of occupational safety and health and preventing accidents at work, occupational diseases and potentially dangerous incidents,
- energy efficiency increase.

BUREAU VERITAS
Certification







ZARMEN GROUP THE POWER OF SYNERGY

ZARMEN GROUP is a leader in comprehensive implementation of industrial projects and consists of 13 entities. The strength and potential of the group lies mainly in the diversified scope of activity of its members, and thus in the diversity of market sectors in which individual companies are present.

The activity of the Group is addressed to entities representing the following sectors of industry: power engineering, coke engineering, chemical, oil refining, steelworks and metallurgy, mining, railway, shipbuilding, cement and lime processing, foundry.

ZARMEN GROUP consists of 13 companies and affiliated entities:

- ➤ ZARMEN Sp. z o.o.
- Energomontaż Zachód Wrocław Sp. z o.o.
- Koksownia Częstochowa Nowa Sp. z o.o.
- ZARMEN FPA Sp. z o.o.
- ▶ HPH-Hutmaszprojekt Sp. z o.o.
- Przedsiębiorstwo Technicznej Obsługi Przemysłu OPOLREM Sp. z o.o.
- RUE-RZN Sp. z o.o.
- PROGRESJA S.A.
- Przedsiębiorstwo Modernizacji Urządzeń Energetycznych REMAK S.A.
- KOFAMA Koźle S.A.
- ZARMEN Energia Sp. z o.o.
- ▼ ZARMEN GPP Sp. z o.o.
- ZARMEN Development Sp. z o.o.

An unquestionable advantage of ZARMEN GROUP is the highly qualified staff, extensive manufacturing and contracting potential, as well as know-how that ensures comprehensive turnkey execution of industrial projects, including design and practical implementation.

The group employs more than 2700 people with specialist competences and extensive industrial experience. The companies belonging to the capital group have various certifications, recognised worldwide.

GRUPA ZARMEN



Please visit www.grupa-zarmen.pl for more information.

COMPREHENSIVE OFFER

The potential and capabilities resulting from the presence in a strong capital group allow to adjust the offer to any needs and expectations of the Customers. Thanks to the variety of offered products as well as specialist services and qualified teams in all branches - from design, through prefabrication and assembly, to the final commissioning - we provide services for most sectors of industry in Poland. The continuous maintenance service provided after the completion of the entire investment process allows us to ensure the real safety and guarantee stable operation of the system.

The tenet of the Group is Customer orientation. We meet the expectations of investors, maintaining high quality of offered products and services.

The production capabilities of ZARMEN GROUP allow the yearly output of:

- 8,000 tonnes of building structural components,
- 6,000 tonnes of machinery structural components,
- 30,000 tonnes of forgings,
- 15,000 tonnes of industrial installations and
- 50,000 tonnes of components assembled at the construction site.
- 18,000 m³ of reinforced concrete structures,
- 700,000 tonnes of blast-furnace coke,
- 20,000 tonnes of ceramic furnace structural components,
- 17,000 low voltage (24V) test points,
- 11,000 240V to 100kV power measurement

ZARMEN GROUP has an extensive manufacturing potential, including:

- 38,000 m² of manufacturing area,
- 14 mobile cranes with lifting capacity up to 200
- 120 swarf machining devices with load capacity up to 120 tonnes,
- 17 construction machines (diggers, loaders, drill rigs, etc.), 4 presses with the load up to 3,000 tonnes, 15 lorries with load capacity up to 65 tonnes

- 31 service buses,
- 115 independent assembly teams.





CONTACT





343890700

COMMERCIAL DEPARTMENT



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Kapitał zakładowy: 89.548.400,00zł w całości wpłacony

