GUSS-EX Company profile

„We know it all about castings”
GUSS-EX is active on foundry and warehouse logistics market with still the dominating significance of the Polish market

GUSS-EX group – areas of activity

<table>
<thead>
<tr>
<th>Area</th>
<th>Countries of activity</th>
<th>Description</th>
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<tbody>
<tr>
<td>Castings supply</td>
<td></td>
<td>• Supply of raw and machined castings from Poland to majority of the EU countries.</td>
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<tr>
<td>Foundry Equipment</td>
<td></td>
<td>• GUSS-EX is an agent of numerous foundry equipment manufacturers on polish and former USSR markets. We are one of a few companies that are able to manage a green field project of a turn key foundry.</td>
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<tr>
<td>Foundry Materials</td>
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<td>• We are the leading supplier of different foundry materials for polish foundries. We are also strengthening our position abroad.</td>
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In the recent years GUSS-EX has founded several subsidiaries in the former USSR to strengthen its presence in these countries.

GUSS-EX group offices worldwide

Warsaw
- GUSS-EX
- Founded: 1989

Minsk
- Bellitmas
- Founded: 2006

Moskva
- Ruslitmash
- Founded: 2006

Nizh Tagil
- Ruslitmash
- Founded: 2008

Krakow
- Metals Minerals
- Founded: 1994
Turnover (in million Euro)
GUSS-EX SPECIALIZES IN DELIVERY OF GREY IRON, NODULAR IRON AND ALUMINUM CASTINGS

Portfolio of casting alloys

- **Gravity aluminum castings**
- **Grey Iron castings GG 20, 25 from cupola**
- **Nodular Iron Castings GGG 40, 40.3, 50, 55, 60**
- **Grey Iron castings G20, 25 from induction furnaces**
- **Cast steel and Special Iron castings**
- **High pressure aluminum die castings**
Most of our castings undergo processing or treatment before they are delivered to final customer.

Processing and treatment portfolio:
- CNC turning
- CNC milling
- Painting
- Other surface treatment
- Heat treatment
EVERY YEAR, WE DELIVER ALMOST 10 000 T OF DIFFERENT CASTINGS TO OUR CUSTOMERS

GUSS-EX sales structure

By alloy:
- Nodular Iron Castings: 39%
- Grey Iron Castings: 54%
- Aluminium Castings: 7%

By processing:
- Raw Castings: 65%
- Machined Castings: 35%
WE SUPPLY CASTINGS TO MOST OF THE EU COUNTRIES, BUT OUR MAIN TARGETED MARKETS ARE FRANCE, GERMANY AND SWEDEN

GUSS-EX sales structure by country:

1) Other markets about 14%
2011 – PRIVATISATION AND BEGINNINGS OF MODERNISATION

On 18 November 2011, the Polish State Treasury sold 85% of KZO shares to GUSS-EX Sp. z o.o. company, residing in Warsaw.

As one of the most distinctive companies on the Polish foundry market, which cooperates with numerous foundries in Poland, the investor has decided to restore the position of KZO S.A. on the Polish market as well as to expand to foreign markets. Thus began the modernisation and further development of the Koneckie Zakłady Odlewnicze S.A.

The new investment programme assumes spending more than PLN 30 mln for the modernisation of the existing manufacturing facilities and purchase of the most modern machines in Europe.
In 2013, the company completed the establishing of the new core manufacturing department that utilises Cold Box technology.

The core shooters (machines for producing cores) were supplied by the German manufacturer AHB.

The quality of core manufacturing has become an element of ensuring stability of recreating product surface in large-lot production.
KZO S.A. - GUSS-EX Group Iron Foundry

- TECHNOLOGY – HOT BOX

- Cores are made in technology based on sand wrapped in resin.
- British company STONE Wallwork (20/30 liters capacity).
THE LINE WITH VERTICAL FORM DIVISION

- Flaskless Moulding Line - 2015
- The output: 400 forms per hour (coreless manufacturing)
- 350 forms per hour (core-based manufacturing)
- Form size: 550x675x120-400
- AMC/SBS conveyor (70 m)
- Weight of casts: 0.1 kg – 30 kg

LORAMENDI VMM 5070C — the part of the most modern foundry process in Europe.
CAST IRON MELTING

- Two cupolas with a diameter of 900mm. Yield max. of 8 tons per hour
- One of the most modern and environmentally-friendly cast iron melting facility in Poland
- Automated charge burdening
- State-of-the-art installation for dedusting of cupola gases

In Q1 2016, the plant will launch Inductive Melting Plant, equipped with OTTO JUNKER furnaces with output of 6 tons per hour
CLEANING AND FINISHING

- A modern STEM cleaner was put in operation in April 2012
- We have new machines for Cleaning Department (OWTP300 tunnel passage cleaners).

The machines ensure better surface of the elements being cleaned.
KZO S.A. - GUSS-EX Group  Iron Foundry

- **POURING FURNACE FOR VERTICAL LINE**
  - 2T pouring furnace
  - Hydraulic moving and tilting devices with hydraulic aggregate
  - Automated temperature measurement and controlling system for pouring

  **Guaranteed stability of the pouring process**

- **MASS PROCESSING FACILITY**
  - Output: 160 tons per hour
  - Two turbine mixers with ceramic-linen bowl
  - Automated system for controlling parameters of moulding sand
  - Environmentally-friendly dust removal system

  **Significant capacity of mass processing ensure its homogeneity**
KZO S.A. - GUSS-EX Group  Iron Foundry

- NEW MACHINING LINE FOR MANHOLES AND ROAD POINTS DRAINAGE
  - The ability to change the rotational speed at each stage
  - The most modern system of manipulators

Performance of minimum of 60 products per hour.
The paint shop has an output of more than 10 thousand tons of products.
Powder coating was modernized in 2013 to meet the highest demands of our customers. They are painted on it primarily our SML DKI pipes systems and fittings.
KZO S.A. - GUSS-EX Group  Iron Foundry

- Designing of moulding instrumentation.
- Adaptation of the received foundry instrumentation.
- Assembly of modelling components in the in-house pattern shop.
- In scope of the foundry instrumentation, the plant makes models along with their installation on plates as well as core boxes.
- The modelling instrumentation is made of metal or plastics.

The models are made with AWEA VP 2012 automated machining centres.
QUALITY ASSURANCE

Chemical testing laboratory performs:
- parameter testing of moulding sands,
- quick chemical content analysis (28 elements) of cast iron with spectrometer,
- strength tests,
- measurement tests with Fusion FaroArm measuring arm,
- Non-destructive testing of casts by means of KRAUTKRAMER USM 36 ultrasonic flaw detector (manufactured in 2014).
KZO S.A. - GUSS-EX Group Iron Foundry

MODERNISATION

Koneckie Zakłady Odlewnicze S.A. company has been modernised to:
- increase its output and reduce the costs by full automation, thus becoming the most competitive foundry in Europe
- ensure the top quality, repeatability and homogeneity of products for various industries.
- **A TÜV certificate** for the implemented Quality Management System in accordance with the ISO 9001 standard, obtained by **KZO** in 2004.
- ISO/TS 16949 standard
- Environmental certificate in accordance with the ISO 14001 standard.
**OUR CO-OPERATORS TECHNOLOGY**

- Molding line LORAMATIC
- Materials: GG20, GG25, GG30, GGG40, GGG40.3, GGG45, GGG50, GGG60
- Min. weight of casting is 1,5 kg
- Max. weight of casting is 150 kg
- Size of mould plate is 480x550x600/675 (for LORAMAIC)
- CT10 casting accuracy (EN standards)
- Stress relieving treatment is available
- Core technologies are available as hot box and cold box
- Minimal batch for LORAMATIC is 200 mould cycles
OUR CO-OPERATORS TECHNOLOGY

- Moulding line DISAMATIC 230-C
- Material: GG20, GG25, GG30, GGG40, GGG40.3, GGG50, GGG60
- Min. weight of casting is 0.5 kg
- Max. weight of casting is 45 kg
- Size of mould plate is 675x550mm
- CT 10 casting casting accuracy (EN standards)
- Minimal batch is 10,000 kg
- Capacity up to 510 moulds per hour
OUR CO-OPERATORS TECHNOLOGY

✓ Moulding line DISAMATIC 280C
✓ Material: GG20, GG25, GG30, GGG40, GGG40.3, GGG50, GGG60
✓ Min. weight of casting is 0.5 kg
✓ Max. weight of casting is 100 kg
✓ Size of mould plate is 1200 x 1050 x 250-675 mm
✓ CT 10 casting casting accuracy (EN standards)
✓ Core technology: hot box, cold box
✓ Minimal batch is 10,000 kg
Our co-operators technology

- Horizontal moulding line HWS
- Material: GG20, GG25, GG30, GGG40, GGG40.3, GGG50, GGG60
- Min. weight of casting is 1.5 kg
- Max. weight of casting is 150 kg
- Size of mould plate is 650 x 800 x 350
- CT 10 casting casting accuracy (EN standards)
- Core technology: hot box, cold box
- Minimal batch is 10,000 kg
OUR CO-OPERATORS TECHNOLOGY

- Two modern cupolas with automatic load of charge and visualization of the process
- Pouring furnace (producer Otto Junker) 2t capacity
  - Hydraulic moving and tilting devices
  - Automated temperature measurement and control system for pouring
OUR CO-OPERATORS TECHNOLOGY

- Double-crucible furnace of medium frequency (OTTO JUNKER GmbH)
- Capacity- 7 tones,
- Cooling and dosage system
- Crusher of circulating scrap metal
OUR CO-OPERATORS TECHNOLOGY

Aluminum high pressure castings

- 14 injection machines
- Min. weight of casting is 0.01 kg
- Max. weight of casting is 2.5 kg
- Maximum closing force of injection
- Injection machines up to 1100 ton closing power
- CT5 casting accuracy (EN standards)
- Heat treatment is available
- Shot blasting and troval processes are available
OUR CO-OPERATORS TECHNOLOGY

Aluminum gravity castings

- Min. weight of casting is 0,5 kg
- Max. weight of casting is 6,0 kg
- CT10 casting accuracy (EN standards)
- Heat treatment is available
- Shot blasting and troval processes are available.
- Core sand process is available
OUR CO-OPERATORS TECHNOLOGY

Aluminum sand castings

- Min. weight of casting is 1,0 kg
- Max. weight of casting is 50,0 kg
- CT10 casting accuracy (EN standards)
- Heat treatment is available
- Shot blasting and troval processes are available
- Core sand hot box process is available
FOUNDRY PATERNs SAMPLES
OUR CO-OPERATORS TECHNOLOGY

We are working compatible standard **RAL-GZ 662**
We have the possibilities to control adhesion, impact resistance, crosslinking, electricity break down by DC and others according client requirements

The available thickness which we guarantee during dip painting is between 25 micrometres and 80 micrometres after 1 cycle.

**We use paints :**
- Ground coat
- Final coat
- Priming paint
- We can offer also the spray painting
Max size of available painting items is: width 1,5 m, height 1,7 m, length 3,5 m, our production we exported to EU countries. We are producing according standard - RAL-GZ 662.
GUSS-EX is qualified and proven iron and aluminium machined castings supplier within EU administers

Quality Management

- Quality Management System based on EN ISO 9001:2008,
- Quality Management system according to EN ISO TS 16 949:2002,
- Environment Management System EN ISO 14001:2004,
- Elements of VDA 6 and QS systems,
- Foundry laboratories: chemical and structural,
- Measurement control laboratories,
- Computer software: Statistica SPC, SolidWorks2010, AutoCad2009,
- Fast and safe digital ISDN connection for on-line data transmission.
SAMPLES OF CAST IRON CASTINGS
High voltage equipment, overhead transmission lines
MACHINE INDUSTRY
Automotive industry
Machine industry
WHEELS AND CASTORS
WATER & SEWAGE SYSTEMS
WATER & SEWAGE SYSTEMS
PRESSURE DIE CASTINGS
PACKING
INTERNATIONAL FAIRS – MEET US HERE!

- Metal Kielce (POLAND)
- ITM (POLAND)
- Nortec (GERMANY)
- Industrial Supply Hannover Messe (GERMANY)
- Elmia Subcontractors (SWEDEN)
- Metal Ekspo (RUSSIA)
- Metalurgy Litamash (RUSSIA)
- Midest (FRANCE)
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