PRODUCTION TECHNOLOGY

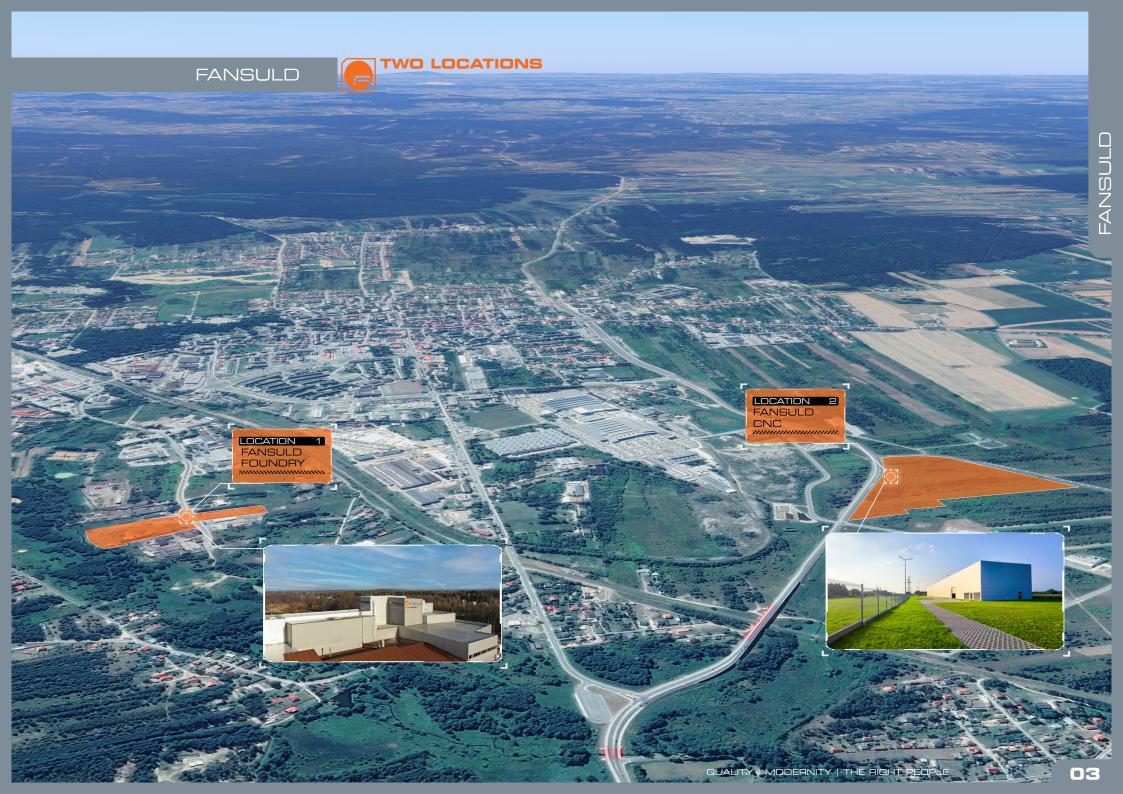




The "FANSULD" Company is a dynamically growing Polish family business founded in 1991. The company's over 30 years of experience has allowed it to build a strong and well-established brand on the market. FANSULD is a leading Polish producer of cast iron, enjoying the reputation of a modern and reliable company continually investing in innovative process and product solutions. The full portfolio of products is made at the two plants in Końskie (the Świętokrzyskie Province) one Factory is iron foundry and second is CNC machining shop. The company exports products i.a. to the markets of: Belgium, Spain, Italy, Germany, the Netherlands, France, Austria, Romania, Czech Republic, Slovakia and Croatia.

As of 2006, the company has a certified quality management system in accordance with ISO 9001. Implemented in 2011 was an environmental management system in accordance with ISO 14001. In 2016 was implemented BS OHSAS 18001 and in 2021 ISO 45001. The Certificates of Compliance were issued by the TÜV SÜD MANAGEMENT SERVICE Company.









The iron melting process is carried out in two induction furnaces with capacity of 8t/h each, and power of $6.6~\mathrm{MW}$



Spheroidization is performed variably with two technologies:

- 1. Tundish-Cover
- 2. Inmold (on both production lines)









2 MOULDING AND POURING

As part of the cast iron foundry, we have two moulding lines with independent sand preparation stations.

LINE NO.1

HWS FBO V

- year of launch of the new line: 2012
- mould size: 813 x 813 x 350/350 [mm]
- horizontal moulding
- efficiency of 80 moulds/h
- casting weight up to 100kg
- automatic pouring channel furnace: Otto-Junker
- producer of moulding line: HWS





LINE NO.2

DISAMATIC D3

- year of launch of the new line: 2023
- mould size: 750 x 570 [mm]
- vertical moulding
- efficiency of 425 moulds/h
- casting weight up to 24kg
- fully automatic pouring: made by Pour-Tech
- shot blast machine operating on-line
- all devices made by Disa
- producer of moulding line: Disa









LINE NO.1

SAND PREPARATION STATION

The green sand is prepered on automatic Sand Preperation Station with the capacity of 50 T/h based on Eirich-Küttner devices.



LINE NO.2

SAND PREPARATION STATION

The green sand is prepered on automatic Sand Preperation Station with the capacity of 100 T/h based on all devices made by Disa.







4 PRODUCTION OF CORES



PRODUCTION OF CORES

In our internal Core Shop we are using two technologies:

- Cold Box cores up to 30kg
- Hot Box cores up to 0,5kg

We based od devices made by Primafond.







GRINDING

For grinding we are using CNC grinders from Koyama company. We also use manual grinding.











PAINTING

Under "One Roof" we have 3 technologies:

- painting by spraying, based on water based paint
- painting by dipping, based on water based paint
- powder painting







LABORATORY

In order to ensure the highest quality and reliability of our products, we constantly monitor the technical parameters of the process. Our laboratory routinely carries out a number of tests associated with metallurgy and the form creation technology. With a complex production process like the one we deal with, even the tiniest details are of great importance.

We have a fully equipped laboratory:

Metal:

- spectrometers
- thermal analysis
- metallographic microscopes
- tensile strength test with anatomic analysis of elongation
- hardness test

Sand:

- all kinds of mechanical strength tests
- sieve analysis
- moisture test
- compactibility test
- permeability test
- active clay analysis
- lost of weight



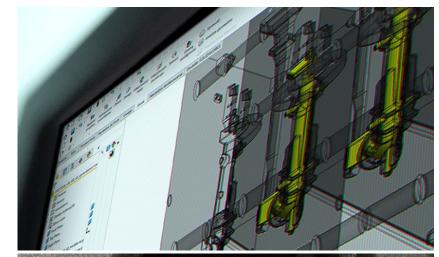


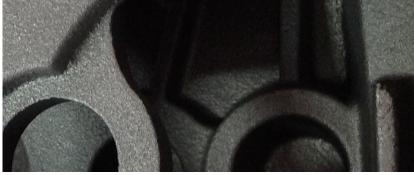




Our design office is equipped with 10 stations for 3D design. Tooling is made in our pattern shop equipped with a 5-axis CNC machine and with the use of external companies.

Thanks to the use of CAD and CAM engineering software, we are able to quickly develop the product shape, process technology and determine the cost of implementation. 3D designing allows precise development of documentation and execution of foundry equipment and CNC.







1 CNC MACHINING



We are equipped with 4-axis horizontal machines, 5-axis machines and lathe, exclusively of Mazak.





The measurement department is equipped with 2 automatic CMM coordinate measuring machines of Mitutoyo and GOM measuring scanner.





The tools are measured automatically using the Zoller automatic CNC scanner. Tool room equipped with automatic tool dispensing machines.





Environmental protection constitutes an integral part of the legal system and has a greater and greater impact on your lives. Care of the natural environment is a moral responsibilities towards the future generations.

The company's concern for the natural environment is documented by the implementation of the environmental management system in accordance with PN-EN ISO 14001:2005, confirmed by the ISO 14001 certificate.

Awareness of both the Board and the staff, supervision and monitoring of the impact on the environment and the pursued environmental objectives all guarantee that the company's development is done with respect for the natural environment.







The company undertakes to comply with the legal and other requirements regarding environmental protection, associated with the conducted business activity at all stages of product creation by means of:

- reduction of atmospheric emissions from technological processes
- rational waste and sewage management
- reduction of noise emissions to the environment
- reduction of the amount of waste
- rational energy and raw materials management
- water use optimization



CERTIFICAT

CERTIFICADO

CERTIFICATE

ZERTIFIKAT

CERTIFICATE

The Notified Body - 0036 of TÜV SÜD Industrie Service GmbH

certifies that



Odlewnia Żeliwa Fansuld Sp.j. J.Postuła, R.Rudziński, R.Postuła ul. Zielona 22 26-200 Końskie Poland

has implemented, operates and maintains a

Quality Assurance System in accordance with the Pressure Equipment Directive 2014/68/EU, Annex I, Section 4.3, AD 2000-Merkblatt W 0 as well as EN 764-5, Para. 4.2

as a material manufacturer for the scope of

grey cast iron.

The scope of the approval is described in the annex to this certificate. Further details are mentioned in report no. IS/DGR/W0/PL/3051/19.

The manufacturer is therefore authorized to issue certificates of specific product control within the scope of the assessed quality system and in accordance with the Pressure Equipment Directive 2014/68/EU. Possible additional requirements - specific to applied technical specifications to meet FED Annex 1 - are not affected.

This certificate is valid through November 2022.

In order to adhere the validity an annual surveillance audit is required.

Certificate No.: DGR-0036-QS-W 903/2019/MUC-001 Munich, November 28th, 2019





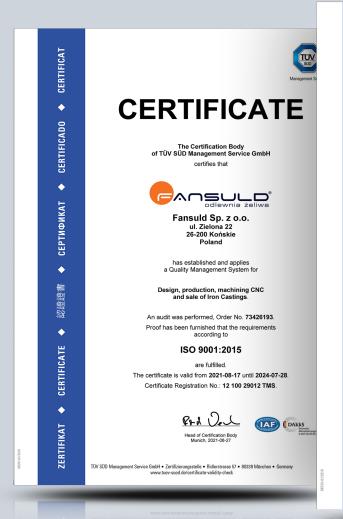


TÜV SÜD Industrie Service GmbH, Westendstr. 199, 80686 Munich, Germany

PRESSURE 2000-MERKBLATT









CERTIFICAT **CERTIFICATE** CERTIFICADO The Certification Body of TÜV SÜD Management Service GmbH certifies that ^NSULD СЕРТИФИКАТ Fansuld Sp. z o.o. ul. Zielona 22 26-200 Końskie Poland has established and applies an Environmental Management System for Design, production, machining CNC and sale of Iron Castings. An audit was performed, Order No. 73426193. Proof has been furnished that the requirements according to CERTIFICATE ISO 14001:2015 are fulfilled. The certificate is valid from 2021-08-17 until 2024-07-28. Certificate Registration No.: 12 104 29012 TMS. ZERTIFIKAT TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Ridlerstrasse 57 • 80339 München • Germany www.tuev-sued.de/certificate-validity-check TUV[®]

ISO9001:2015

TDV SDD Management Service GmbH + Zentfalserungsstellle + Riderstraase SJ + 80339 München + Germany vww.tuor-aued.du/certificate-validity-check.

ISO 45001:2018

ISO14001:2015