

MAIN PRODUCT RANGE

SA-FOUNDRY IN 2021–2022

PART 1. FOUNDRY

EQUIPMENT, MATERIALS AND ENGINEERING FOR NON-FERROUS FOUNDRY AND RECYCLING:



- Gravity die casting (GDC) machines and automatic cells
- Low pressure die casting (LPDC) machines
- High pressure die casting (HPDC) machines and cells
- Fluxes and die coatings for casting



- Melt degassing units
- Melting / holding furnaces
- Tilting rotary furnaces for scrap recycling
- Crushing and briquetting machines



SA FOUNDRY

SA-FOUNDRY sp. z o.o.,
30-717, Krakow, Poland,
ul. Koszykarska 27B/26

E-mail: foundrysa@gmail.com,
www.sa-foundry.com

SA-FOUNDRY Sp. z o.o.

Foundry equipments, materials and technology

Krakow, September 2021

sa-foundry.com

About us



SA-Foundry sp. z o.o. is a team of specialists experienced in implementing advanced technologies for the manufacture of castings and semi-fabricated products made of improved non-ferrous metals and alloys (aluminum, copper, zinc, lead).

We offer:

1. Consulting on casting techniques and equipment to ensure maximum production profitability.
2. Optimization of existing foundry technologies to reduce the rejection of castings and defects of non-ferrous metals and alloys.
3. Effective technologies, materials, tools and equipment for melt processing (finishing, degassing, modifying, protecting melt from oxidation, injecting inoculators of various purposes and dispersity) for castings making and recycling of non-ferrous metals and alloys.
4. High-quality materials (fluxes, addition alloys, chill paints, casting greases) for the production of castings and blanks from non-ferrous metals and alloys.
5. Modern efficient equipment for foundry production.
6. Engineering in mastering the foundry technology

of high-strength aluminum alloys, pistons for various purposes, including pistons with a low-temperature coefficient of linear expansion.

7. Development and manufacturing of effective melting and thermal equipment for specific production purposes.

8. Materials for welding and soldering of non-ferrous metals and alloys for an individual (specific) joined material.

Based on many years of experience and advanced development we can offer you products adapted to your individual technological process and the specific equipment used, which will really improve the quality of castings, reduce rejects and production costs.

A. Consulting and engineering for foundries and recycling factories



More than 30 years of experience in the foundry industry and taking into account the modern science researches allow SA-FOUNDRY Sp. z o.o. to present effective solutions for non-ferrous metals foundries and recycling factories.

Our team of experts (among them Ph.D researchers and engineers with long-term experience) propose the wide range of consultations in the field of foundry and recycling of non-ferrous metals and alloys:

1. Selection the optimal technology, materials and equipments for new casting or recycling projects, for expansion projects and for modernization of existing foundries.
2. Selection the optimal technological parameters for increasing the productivity and decreasing the rejects for existing castings of non-ferrous metals and alloys.
3. Cast metals quality complex investigations (structure, mechanical and physical properties, cast defects analyzing).
4. Calculation and design of heating systems for

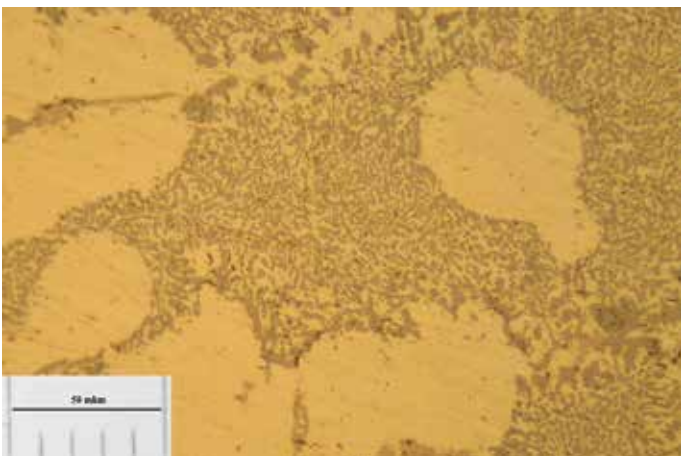
foundry (furnaces and preheating systems).

Testing of new products and technical solutions in our technological center, long-term experience and up-date knowledge give us the optimal solutions in accordance to the customer's technological operations with non-ferrous liquid metals and alloys during melting and casting in various conditions.



The optimal solutions for effective casting technologies (high-pressure die casting, low pressure and gravity die casting in permanent or sand molds) can be proposed for our customers.

We are in progress for new innovative solutions in the field of non-ferrous metals and alloys casting for foundries and for recycling factories.



B. Gravity die casting machines and automatic cells



Manufacturing technologies for high-quality castings for automotive, shipbuilding, aviation and military industries are always relevant and demanded worldwide.

Recently, tilting gravity die casting machines have been used for casting gas-tight dense castings.

This technology allows to adjust the speed of filling the mold with liquid metal according to a given program by tilting the mold, as well as to realize directional solidification of the casting.

The main advantages of this casting technology are following:

- Obtaining high density casting with minimum gas porosity.
- High mechanical properties of the obtained castings.
- High degree of process automation.
- Ability to work with various non-ferrous metals and alloys (aluminum, copper, zinc alloys).

In general, the automatic gravity die casting cell consists of the following components:

1. Gravity die casting machine (stationary or tilting).
2. Automatic robot for pouring melt into the receiving ladle of the machine.
3. Automatic robot or mechanism for extracting a casting and installing sand cores in die.
4. Die (mold) for casting with a set of tooling for the manufacture of sand cores (core boxes).

Our company offers the customer the realization of foundry projects on a turnkey basis using gravity die casting machines. Also, we can propose the customer individual components of the gravity die casting automatic cell, including dies, core boxes and technologies.

The experience of introducing technologies for casting non-ferrous metals and alloys by gravity die casting method allowed us to offer the customer the most advanced solutions for the production of high-quality castings in this way.

As an example, the main technical parameters of the tiltable SA-Foundry gravity casting machine of the ALG-1500×1300 type are presented below. This machine is designed and manufactured for the production of gas-tight castings of pump body made of aluminum alloys, cast weighing 25 kg.

The main parameters of tiltable die casting machine ALG-1500×1300.

- Overall dimensions of plates: 1500 x 1300 mm
- Die dimensions: 1200 x 1000 mm
- Columns diameter: 80 mm
- Plates thickness: 80 mm
- Plate moving: at least 1200 mm
- Angle of the tilting during the working cycle: up to 90 degrees
- Die opening force: 300 kN
- Cast ejection force: 100 kN
- The total force of the disclosure of the die: 400 kN
- The control cabinet is based on the Siemens S7 PLC controller and the Siemens TP1200 process visualization system (touchscreen display).



The resulting casting of the aluminium pump body before being ejected from the die

C. High pressure die casting machines (HPDC) with a cold chamber, automatic HPDC cells

SA-Foundry sp. z o.o. offers automatic high pressure die casting cells based on HPDC machines with a cold chamber for the serial production of high-quality castings from non-ferrous metals and alloys.

Accumulated by the specialists of SA-Foundry sp. z o.o. experience in the implementation of projects in the field of high pressure die casting allows us to offer modern HPDC machines and automatic HPDC cells.

Modern design solutions and the use of units from the world's leading manufacturers (VICKERS, PARKER, SIEMENS, ABB) guarantee the reliability and high performance of the offered cold-chamber HPDC machines.

The main parameters of the proposed cold-chamber HPDC machines are presented in Table 1.

Table 1: The main technical parameters of the offered HPDC machines with a locking force of 160-2000 tons

Main technical parameters												
Model		MPS 160	MPS 200	MPS 300	MPS 400	MPS 550	MPS 750	MPS 900	MPS 1100	MPS 1350	MPS 1650	MPS 2000
	(1 kN = 100 kg)											
LOCKING FORCE	kN	1800	2200	3200	4200	5700	7700	9300	11500	14000	17000	21000
	(MAX.)											
MOVING PLATEN STROKE	mm	400	440	450	600	750	850	930	1040	1200	1300	1400
	(MIN.)	150	150	180	250	300	350	350	350	400	500	500
	(MAX.)	600	650	700	850	900	950	1000	1100	1200	1400	1500
PLATEN DIMENSIONS	mm	700 x 700	780 x 780	860 x 860	1000 x 1000	1150 x 1150	1300 x 1300	1450 x 1450	1600 x 1600	1780 x 1780	1950 x 1950	2100 x 2100
DISTANCE BETWEEN TIE-BARS	mm	435 x 435	480 x 480	550 x 550	635 x 635	710 x 710	790 x 790	900 x 900	990 x 990	1100 x 1100	1200 x 1200	1300 x 1300
TIE-BAR DIAMETER	mm	85	100	110	130	150	180	190	210	230	260	280
EJECTOR FORCE	kN	130	130	160	200	280	370	420	520	600	600	700
EJECTOR STROKE	mm	90	100	120	150	180	200	220	240	270	270	300
INJECTION FORCE	kN	225	250	340	500	600	650	700	750	870	1100	1250
INJECTION STROKE	mm	400	400	475	475	550	550	650	750	800	900	1000
	(MIN.)	40	45	50	50	60	70	80	90	90	90	100
	(MAX.)	60	70	80	90	100	120	140	150	150	150	160
MAX. SHOT WEIGHT	(Al) gr	1 800	2 500	4 000	5 000	7 200	10 000	16 000	20 000	23 500	26 500	35 000
MAX. CALCULATE CASTING AREA (400 kp/cm ²)	cm ²	400	500	750	1000	1375	1875	2250	2750	3375	4125	5000
MOTOR RATING	kW	15	15	15	22	30	30	37	45	60	74	90
MACHINE WEIGHT	kg	6 000	8 500	10 500	16 000	24 000	33 000	42 000	50 000	65 000	80 000	100 000
OVERALL DIMENSIONS	Lenght	5500	5800	6400	7000	8000	8300	9000	10000	10500	11000	13000
	Widht	1500	1600	1700	1850	2400	2700	3000	3200	3400	3700	4000
	Height	2300	2300	2500	2700	3100	3200	3300	3500	3700	4000	4200



High pressure die casting machine with a cold chamber with a locking force of 200 tons with automatic melt pouring and die lubrication systems



Unit for adjusting the pressing system of the HPDC machine with a locking force of 300 tons

HPDC machines are equipped with:

- The control system of the casting machine based

on the Siemens S7 PLC controller.

- System for monitoring and visualization of the working process.
- A system for monitoring the parameters of the machine with the transfer of information via the Internet.
- A system for synchronizing the operation of peripheral equipment (automatic plunger lubricator, automatic die lubrication system, automatic melt pouring robot, automatic cast parts extracting robot).

The quality of HPDC machines and automatic HPDC cells is confirmed by international certificates ISO, TUV, EN, CE.



Some examples of aluminum alloy castings obtained on the proposed HPDC machines

D. Fluxes for non-ferrous metals and alloys



Well known practice for melting of non-ferrous alloys is fluxing operations of liquid metal for various functions:

- covering melt,
- drossing off,
- cleaning (refining) melt,
- degassing melt,
- Modifying cast structure.

More than 30 years of experience in liquid non-ferrous metals operations in accordance to the modern science researches allow us to present effective products for non-ferrous metals recycling factories and for foundries.

Among them the "ECO RECYCLING" line of fluxes for melting of non-ferrous metals in scrap recycling factories. The main advantage of these fluxes is good efficient / price ratio.

"ECO FOUNDRY" line of fluxes for non-ferrous metals contains product solutions for operations with liquid metals in casting technology.

We are in progress for new innovative solutions in the field of fluxing treatment for recycling factories and for foundries.

Based on the researches in our technological center, long-term experience and up-date knowledge we are propose the optimal solutions for customer's technological operations with non-ferrous liquid metals during melting in various conditions.

FLUXES FOR NON-FERROUS METALS AND ALLOYS

(cleaning, covering, degassing, modifying)

The main list of fluxes:

1. For aluminum alloys

SA-flux-0101	Flux Covering-Refining for aluminium foundry alloys (Eco-recycling line)	Powder flux for cleaning, drossing off and covering molten aluminium foundry (Al-Si) alloys
SA-flux-0102	Flux Covering-Refining for aluminium extrusion alloys (Eco-recycling line)	Powder flux for cleaning, drossing off and covering molten aluminium extrusion alloys
SA-flux-0103	Flux or concentrate for rotary furnaces (Eco-recycling line)	Powder flux or concentrate for drossing off, cleaning and covering molten aluminium alloys for tilting rotary furnaces
SA-flux-0104	Exothermic flux (Eco-recycling line)	Powder flux with exothermic effect for drossing off, cleaning and covering molten aluminium alloys
SA-flux-0105	Flux for Magnesium and Calcium removal (Eco-recycling line)	Powder flux for Magnesium and Calcium removal from aluminium alloys, cleaning, drossing off and covering molten aluminium alloys
SA-flux-0106	Flux for lining cleaning (Eco-recycling and Eco-foundry lines)	Powder flux for build up cleaning from furnaces and ladles lining in aluminium melting / holding furnaces and ladles
SA-flux-0107	Granular refining flux (Eco-foundry lines)	Granular flux for cleaning and drossing off molten aluminium alloys
SA-flux-0108	Degassing tablets (Eco-foundry lines)	Degassing tablets for aluminium alloys

2. For pure copper and copper-based alloys

SA-flux-0109	Flux Covering-Refining for copper (Eco-recycling and Eco-foundry lines)	Powder flux for cleaning, drossing off and covering molten pure copper and copper-based alloys
SA-flux-0110	Boron containing tablets for oxygen and hydrogen removal (Eco-recycling and Eco-foundry lines)	Boron containing tablets for oxygen and hydrogen removal from pure copper and copper-based alloys

3. For lead and lead-based alloys

SA-flux-0111	Flux Covering-Refining for lead (Eco-recycling and Eco-foundry lines)	Powder flux for cleaning, drossing off and covering molten pure lead and lead-based alloys
--------------	--	--

And another products by customer's request.

Quality certificate: ISO 9001-2009

E. Foundry tools

SA-FOUNDRY Sp. z o.o. produces foundry tools in accordance to our long-term experience in foundry technologies and modern materials usage. The main list of our foundry tools is suitable for gravity casting, high pressure die casting, art casting, recycling plants and also for ferrous cast and metallurgy. Foundry tools are designed for effective technological operations with liquid metals in different types of furnaces. Working

parts of foundry tools are made from steel by stamping. Working surface of tools contacting with liquid metal can be protect with special coatings.

Foundry handles are made from variable sections of steel with different types of ending according to the customer request. Different shapes and capacities of foundry tools can be possible by customer request .



F. Degassing / refining machines for molten aluminium treatment



One of the most common process of aluminium melt degassing and refining is blowing of inert gas through the rotating rotor with or without flux addition.

The main advantages of this process:

1. Reduction in porosity. Low hydrogen content after treatment.
2. Decreasing of non-metallic impurities amount in the melt after treatment.
3. Possibilities of degassing operation in continues melt pouring technology.
4. Reduction in the production costs of melt treatments.
5. Reproducible results (hydrogen level) in foundries.
6. Low fume emission (environment friendly operation).

We propose different machines (with or without flux addition) for optimal technology of degassing and refining aluminium melt according to the customer requests and taking into account our foundry experience and actual science researches.

G. Protective coatings and lubricants for casting of non-ferrous and ferrous metals



We propose wide range of special protective coatings and lubricants for following purpose:

1. Gravity die casting and low pressure die casting of non-ferrous metals and alloys.
2. Gravity die casting of cast iron.
3. High pressure die casting of non-ferrous metals and alloys.
4. Casting in sand molds of ferrous and non-ferrous metals and alloys.

We are flexible for customers requests for optimal technical solution concerning appropriate coatings and lubricants for foundries.

Contents

ABOUT US	2
A. Consulting and engineering for foundries and recycling factories	3
B. Gravity die casting machines and automatic cell	4
C. High pressure die casting machines (HPDC) with a cold chamber, automatic HPDC cells	5
D. Fluxes for non-ferrous metals and alloys	7
E. Foundry tools	9
F. Degassing / refining machines for molten aluminium treatment	10
G. Protective coatings and lubricants for casting of non-ferrous and ferrous metals	11
Contents	12

For notes

SA-FOUNDRY Sp. z o.o.

ul. Koszykarska nr 27B, lokal 26,
kod poczt. 30-717, Kraków, kraj POLSKA
Numer KRS: 0000624462
REGON: 364765255, NIP: 6772404829
E-mail: foundrysa@gmail.com
Website: sa-foundry.com
Phone: +48 (511) 480-980



*Automatic gravity die casting cell based on tiltable gravity casting machine SA-Foundry ALG-1500*1300*

Our authorized dealer in Ukraine:

“Engineering Company - SAS” Ltd.

03680, Kiev, st. Semashko 13, of.105
Phone/Fax : +38 044 424 25 03, +38 044 423 82 99
e-mail: info@sasua.com.ua

Website: www.sasua.com.ua

Our authorized dealer in Turkey:

ACAN MAKINE IMALAT SANAYI VE DIS
TICARET LTD. STI.

Cumhuriyet Mah. 1993 Sk. Papatya 2 Residence A
Blok D.81 Esenyurt, Istanbul, Turkey
Phone: +90 212 694 67 44, +90 212 852 88 25
Fax: +90 212 852 26 06
E-mail: acan@acanmachine.com
Website: acanmachine.com