

Bronze and brass castings in Slovakia
Slovakia Country Code 00421

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The company's main activities are in the fields of evolution, production and sale of mechanical gear boxes, mechanical linear drives, sheet metal forming machines (shears and bending machines) and production of grey cast iron, aluminum and bronze castings.

GRAY CAST IRON FOUNDRY

Quality of material:

ČSN 422415, 422420,
(DIN GG-15, GG-20)

Weight of cast:

0,1 - 800 kg

Maximum cast dimensions:

600 x 1200 x 200 mm

Minimum thicknes of cast side:

5 mm

Quantity in series:

1- 100 000 ks

Formation frames:

From 350 x 450 x 120 mm,
to 900 x 1500 x 300 mm

Formation:

machine, manual

Production of models made from:

wood, aluminum, steel

Expedition of cast:

sand-blasted, abrasion,
colored and turned

NON-FERROUS METAL FOUNDRY

Copper alloys:

ČSN 423119 CuSN

ČSN 423146 CuAl

ČSN 423137 Rg8

Aluminum casts:

ČSN 424331 AlSiMg



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Activities:

Foundry of non ferrous metals

Production of Cu, Al, Zn alloys castings

Al alloys sand castings (agriculture, gear boxcovers, parts of engines...etc)

Al castings for automotive industry (prototypes)

Cu castings for power engineering

Sn, Al bronze and brass semi-products up to 600 kg

ZN alloys castings for automotive industry

Al and bronze art castings (bells, sculptures)

3) VSS s.r.o.

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Foundry :

Production Programme:



At present the Foundry is oriented mainly to the production of castings from:

- grey cast iron, nodular cast iron in a wide range of shapes and of weights ranging from 0,5 to 13,800 kg, cast by gravity fall into sand
- aluminium alloys, cast to sand moulds up to the weight of 60 kg
- Cu-alloys up to the weight of 250 kg,
- bronze cast by centrifugal casting up to the sizes of bushings, outer diameter up to 420 mm, inner diameter over 80 mm

Surface treatment

- machine core withdrawal with lifting, table and drum air-blast machines
- heat treatment
- manual finish grinding
- basement with paint according to customer requests by high-pressure two-component system

Castings production



Larger sizes of castings are produced by the **manual production of moulds**.

- Approximate castings sizes are up to around: 3800 x 2500 x 1500 mm.
- Maximum castings weight: 13, 800 kg.
- The production capacity of this moulding-method: 10,000 ton /year
- Foundry is equipped with a semiautomatic moulding link “FOROMAT-RETOMAT“

Foundry is equipped with a **semiautomatic moulding line**

- Maximum frames size: 600 x 500 x 160/160 mm.
- Maximum castings weight: approximately 45 kg
- The production capacity of this moulding-method: 8,000 ton /year

Material for castings according to STN and DIN standards STN EN DIN

Grey cast iron

42 2410-42 2430 EN-GJL-150, 200, 250, 300
1691 GG 10 – GG 30

Nodular cast iron

42 2304-42 2307 EN-GJS-400-18, 500-7, 600-3, 700-2
1693 GGG 40 – GGG 70

Production of non-ferrous metal castings



Aluminium and its castings alloys are produced by manual sand molding or by permanent mould casting.

Tin bronze castings and brass castings are cast to permanent moulds by centrifugal casting.

The Foundry possesses two centrifugal machines with the possibility of production of bushings up to the diameter size of 430 x L = 420 mm. These castings have the shape of a hollow cylinder and are delivered roughed to the size with minimal machining allowance.

Material for castings according to STN and DIN standards	STN	
	EN	DIN
Silunins	42 4331-42 4384 1725/70 Aluminium legierungen	AlSi10Mn0,3
Tin bronze	42 3119-42 3123 1705/70 CuSn10, CuSn12	CuSn 10, CuSn 12
Red bronze	42 3137 1705/63 CuSn9PbZn	CuSn9PbZn
Aluminum bronze	42 3146 1705 CuAl10Fe3Mn1.5	CuAl10Fe3Mn1,5
Brass	42 3311 1705 CuZn35Al5Fe3Mn2	CuZn35Al5Fe3Mn2
Special	Ms 58 Al 1705 Cu58 Al	Cu 58 Al

At the customer's requests, the foundry can produce castings made of special alloys in a wide range of chemical composition including thermal treatment, surface treatment and roughing.

Pattern production



One part of Foundry VSS a.s. is a pattern-shop, where patterns and pattern equipment are produced, even with complex shapes up to the maximum size of 6000x2500x2000 mm. Patterns are made of wood, metals and synthetic resins.

Quality control

Casting quality is ensured at entry, during manufacturing and prior to dispatch. Quality of cast materials is documented by certificates according to customer requests.

Quick testing of basic chemical composition of the initial melt and specification of the metallurgical quality included modularity is ensured by the appliance MULTI LAB – QUICK CUP. Chemical composition is controlled by the appliance SPECTROCAST. Mechanical properties of castings materials are controlled in mechanical and metallographic laboratory. Quality of moulding materials is controlled in the sand laboratory.

Regeneration of the moduling mixtures

The new regeneration line from firm FAT was executed in December 2003 in plant Foundry VSS. The delivery contained grinder, sorter, cooler and pneumatic transfer. The part of the delivery were also moulding mixture mixers with output of 6,15 and 22 tons/hour.

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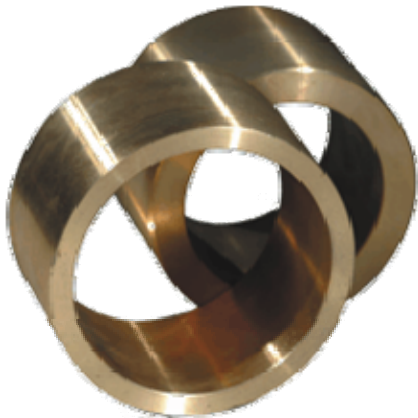
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Medeko Cast was founded in 1994 as a producer of copper and aluminium alloys foundry products. Our vision was to build the specialized foundry able to serve all the customers requests for the copper alloys and non-ferrous metal and steel castings, even in small quantities.

CENTRIFUGAL CASTING



Bronze casting, sliding bearings and other cylindrical components are manufactured using centrifugal casting. In centrifugal casting, a permanent mold is rotated about its axis as the molten metal is poured. The molten metal is centrifugally thrown towards the inside mold wall, where it solidifies after cooling. This method guarantees the high density and great strength properties of the semi-finished product.

Casts are delivered in the machined state in a component tolerance, which guarantees minimal allowance of shaping by the customer.

The alloys used in casting are made according to the material standards STN, EN or DIN. We are able to manufacture also specific type of alloy by a customer requirement. Chemical composition is controlled by a spectrometer.

Finished castings are 100% controlled, especially the dimensions and existence of any possible foundry defects

Dimensions of semi-finished products:

Outer diameter: 50 – 320 mm

Side thickness: 4 – 60 mm

Length: 60 – 300 mm

Max. weight of cast: 100 kg

INVESTMENT CASTING

The casts are produced by the lost wax model method.

The main advantage of this method is a high dimensional and surface grade of castings.

The ceramic materials used in production fully replicate even the tiniest details of the wax model and the final casts are without expressive joint faces, displacements and feeding tracks.

The cast materials:

- Copper alloys
- Aluminum alloys
- Carbon steel
- Tool steel
- Cor – Ten steel
- Stainless steel

Castings accuracy:

Range 1, according to STN 014470 or ČSN 014470

Range D1, D2, D3 according to VDG P690.

Surface quality :

From Ra 1,6 depending on the type of cast material.

Weight of castings:

From few grams to approx. 4 kg depending on the shape of castings.

On the customer demand we work out the offer, containing the mould price, casting price, term of mould production and delivery date of sample castings.

After customer adjustment we produce the sample casts and subsequently we start the serial production.

PERMANENT MOLD CASTING



Castings are produced by the method of gravity pouring of liquid metal to the chill mold. Because molten metal flows into all parts of the mold by gravity pressure, each casting is dimensionally accurate and free of porosity.

Weight of casts:
from 0,1 till 5 kg.

Max. dimensions:
250 x 250 mm

We produce the casts from copper- and aluminum alloys.

The most often used alloys:

Al alloys (AlSi7Mg, AlSi10Mg, AlSi6Cu, AlSi9CuFe)

Cu alloys (Ms58, Ms60, Ms65Fe3Al5, CuSn10, CuSn7Zn6Pb2, CuAl10Fe3, CuAl10Re3Ni5)

We are able to manufacture specific type of alloy by a customer requirement.

References

S.A.M.P. s.a.	Pommeret	FR
Metaling s.r.o.	Horný Bar	SK
TEMPO Ing. Rapant Miroslav	Považská Bystrica	SK
SIDALOK - Ing. Ladislav Oleš	Nová Dubnica	SK
KOPS s.r.o.	Detva	SK
Hudák s.r.o.	Čaklov	SK
K.M. plus s.r.o.	Prešov	SK
KOVEX+N21	Veľké Zálužie	SK

COPPER ALLOYS



Production of copper alloys is orientated on metal scrap processing. Metal scrap is sorted and batched correctly according to manufactured alloy.

Before casting alloy to blocks, chemical composition is controlled using a spark spectrometer and by the results of chemical analyses is adjusted to material standards EN, DIN, STN, alternatively by a customer requirement. Before casting the alloys are deoxygenated and degassed. The alloys are casted in blocks, weight 9 – 10 kg, dimensions 90 x 60 x 250 mm.

The alloy casting is planed according to customer request and the blocks are delivered in specified dates.

The assortment of commonly used alloys is stated in the chart, but we can produce also alloys according to the customer demands.

Red brass and tin bronzes

Designation	Standard	Cu	Sn	Pb	Zn	Ni	Contamination
CuSn5Zn5Pb5 2.1097							
CB491k	DIN17656 EN 1982	83,5 – 85,5	4,3 – 6,0	4,0 – 6,0	4,5 – 6,5	< 2,3	Max 0,4
CuSn4Zn7Pb3			83,5 – 84,5	3,8 – 4,5	3 – 4	6,5 – 7,5	0,6 – 1,0
CuSn7Zn4Pb7 2.1091							Max 0,4
CB493k	DIN17656 EN 1982		81,0 – 84,5	6,3 – 8,0	5,3 – 7,0	3,3 – 5,0	< 1,8
CuSn10 2.1051							Max 0,4
CB 480k	DIN17656 EN 1982		88,5 – 90,5	9,3 – 11,0	Max 0,8	Max 0,5	Max 1,8
CuSn11Pb2 2.1065							Max 0,8
CB 482k	DIN17656 EN 1982		83,5 – 86,5	10,7 – 12,5	0,7 – 2,5	Max 2,0	Max 2,0
CuSn12 2.1053							Max 0,8
CB483k	DIN17656 EN 1982		85,5 – 88,5	11,2 – 13,0	Max 0,6	Max 0,4	Max 2,0
CuSn12Ni2 2.1063							Max 0,8
CB484k	DIN17656 EN 1982		84,0 – 87,0	11,3 – 13,0	Max 0,2	Max 0,3	1,5 – 2,4

Casting brass

Designation	Standard	Cu	Zn	Pb	Al	Fe	Contamination
CuZn39Pb1Al 2.0342							
CB754s	DIN17656 EN 1982	58,0-62,0	Rest/ Zbytok	0,5 – 2,4	0,1 – 0,8	Max 0,7	Max 1,0
CuZn33Pb2 2.0291							
CB750s	DIN17656 EN 1982	63,0-66,0	Rest/ Zbytok	1,0 – 2,8	Max 0,1	Max 0,7	Max 1,8 Ms 58 Pb
		57,0–59,0	Rest/ Zbytok	1,0 – 2,0	0,05-0,15	Max 0,5	Max 1,8

Aluminum bronze

Designation	Standard	Cu	Zn	Pb	Al	Fe	Ni	Contamination
CuAl10Fe2 2.0941 CB331G DIN17656 EN 1982	83,0 – 89,0	Max 0,5	Max 0,03	8,2 – 10,5	1,5 – 3,3	Max 1,5	Max 0,7	
CuAl10Ni3Fe2 2.0972 CB332G DIN17656 EN 1982	80,0 – 85,5	Max 0,5	Max 0,3	8,7 – 10,5	1,0 – 2,8	1,5 – 4,0	Max 0,3	
CuAl10Fe5Ni5 2.0976 CB333G DIN17656 EN 1982	76,0 – 82,5	Max 0,4	Max 0,03	8,8 – 10,0	4,0 – 5,3	4,0 – 5,5	Max 0,3	

References

Allermann GmbH	Schwelm Deutschland	
Anton Gugg GmbH	Straubing Deutschland	
Bernd Dümmig GmbH	Rastatt Deutschland	
Dillenberg GmbH & Co. KG	Düsseldorf Deutschland	
FIMES a. s.	Uherské Hradiště Tschechien	
Kajo Metal s.r.o. Meltal d.o.o.	Dolný Kubín Maribor Slowenien	Slowakei
Metallhütten-u. Recyclingges. Schumacher mbH&Co.	Rommerskirchen Deutschland	
MKB Metallguss GmbH	Eichstätt Deutschland	
Siegfried Jacob Metallwerke GmbH&Co.KG	Ennepetal Deutschland	
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Techservice CZ, s.r.o.	Brno Tschechien	
Vítkovické slévárny, s.r.o.	Ostrava-Vítkovice Tschechien	
VSS a. s. Wilhelm Grillo Handelsgesellschaft mbH	Košice Duisburg Deutschland	Slowakei
Wilhelm Raven Euro Metall GmbH	Dortmund Deutschland	
Zvonařská dílna Tomášková-Dytrychová s.r.o.	Brodek u Přerova Tschechien	
ŽDB a. s.	Bohumín Tschechien	