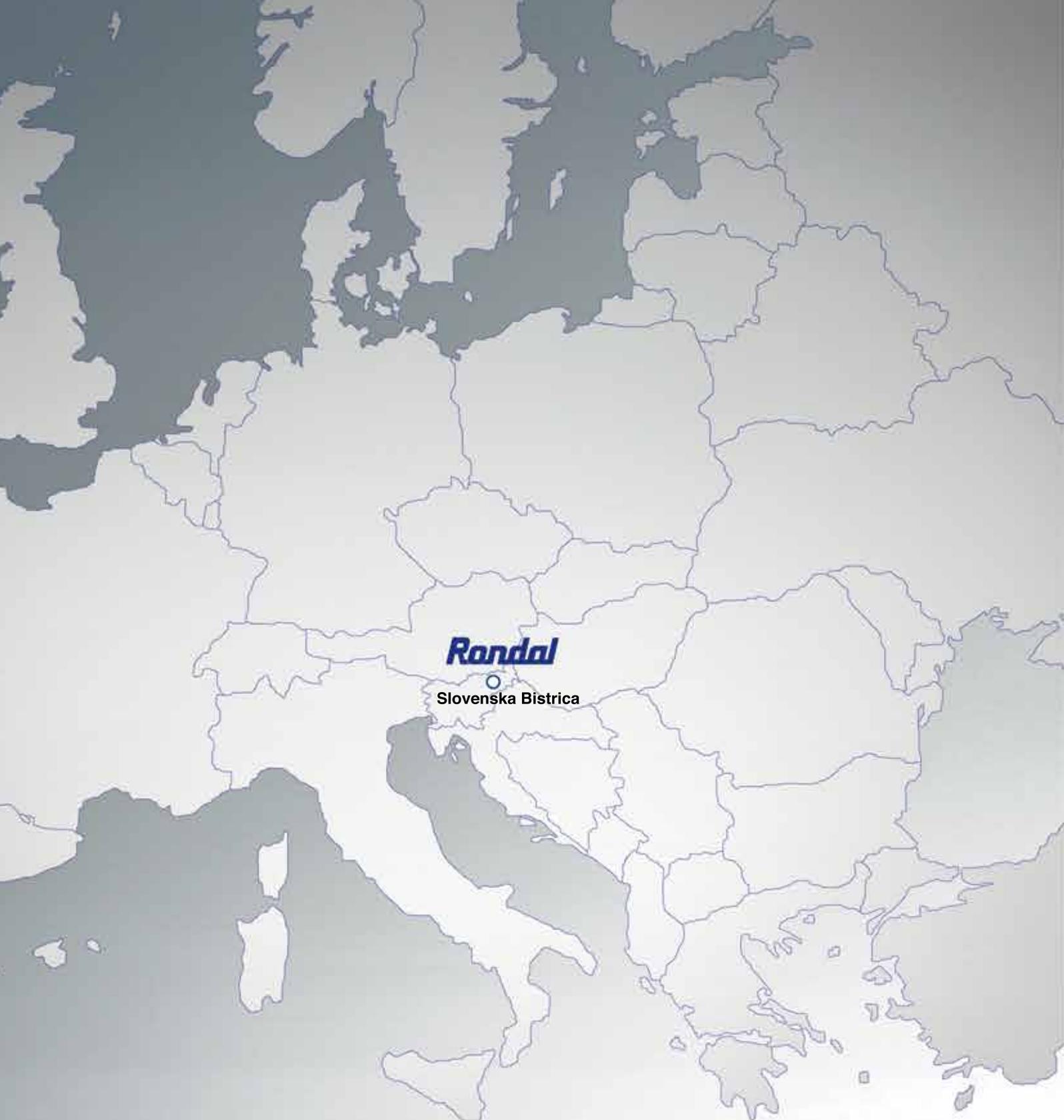




**SLUGS**

***Rondal***  
impal GROUP



## RONDAL

Based on many years of experience, we provide our buyers with a wide range of high-quality stamped and sawn slugs from pure aluminium and aluminium alloys. Different dimensions and shapes with excellent transformation capacity can be applied in the manufacturing of tubes, cans and technical parts, intended for various industries.

Our advantage is adaptability in manufacturing orders, we treat our clients with very short delivery periods, we also offer smaller quantities, and fully adapt to buyer's requirements. The quality of our products is the result of our long-standing experience and knowledge.

The use of slugs is extremely widespread and diverse, because they are processed in various industries, such as:

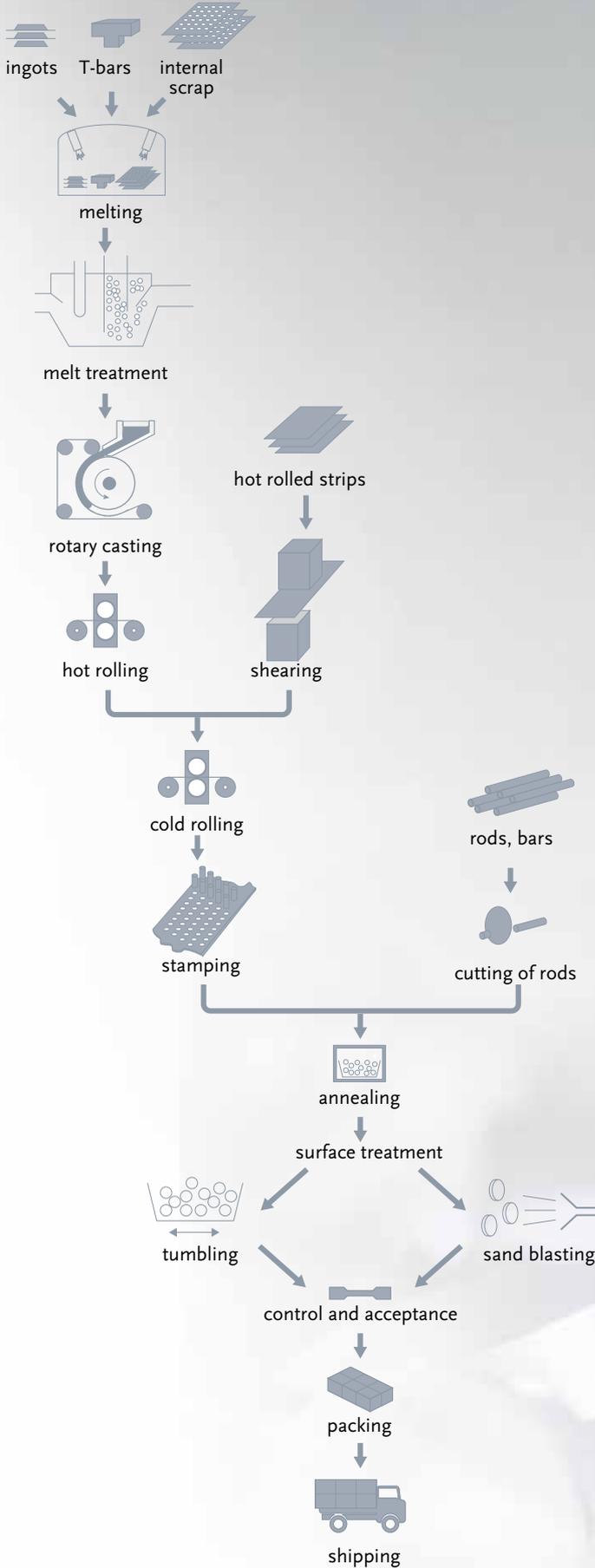
- Automotive industry;
- Food industry;
- Cosmetics industry;
- Pharmaceutical industry;
- Electric industry.

We are part of the business system of the Impol group. This entails many advantages for us, such as:

- increased stability and reliability of raw material supply;
- good knowledge of the characteristics of operations in various demanding industries;
- effective knowledge transfer within the group;
- a strong and centralised development department;
- in-house development of a wide range of alloys;
- extensive metallographic examinations and investigations of mechanical properties in own laboratories;
- corporate governance of a number of functions to enhance business efficiency.



# PRODUCTION PROCESS



## PRODUCTS

Slugs can be manufactured from pure aluminium and aluminium alloys. Our company adapts to different buyer requirements and thus delivers a wide range of high-quality products. We offer three different programmes:

1. Stamped slugs from alloys EN AW 1070, EN AW 1050, EN AW 3102 and EN AW 3207.
2. Stamped slugs from alloys EN AW 6082, EN AW 6060 and EN AW 3003.
3. Sawn slugs.

In terms of shape, alloy and method of manufacture, we adapt to the requirements of our buyers in order to develop the product together and create customer satisfaction. We also manufacture slugs for the automobile industry, which consequently demands high quality and precision of products.

## STANDARDS AND CHEMICAL COMPOSITION

We manufacture slugs from different alloys according to international standards. The chemical composition, mechanical properties and tolerances are in compliance with EN standards for various products:

- EN 573-3, chemical composition;
- EN 602, chemical composition;
- EN 570, mechanical properties;
- EN 570, tolerances.

According to the customer's wishes, we arrange special properties for slugs.

Our slugs also observe the 94/62/EC Directive, the 2011/65/EU (ROHS) Directive, the EC No. 1935/2004 Regulation, the 2000/53/EC (ELV) Directive, the EC No 2023/2006 Regulations, and others.

# STAMPED SLUGS FROM ALLOYS EN AW 1070, EN AW 1050, EN AW 3102 and EN AW 3207

## Manufacturing procedure

In our own foundry, we melt the primary high-quality aluminium and internal scrap of our own production. We do not use the secondary scrap, which might harm the quality of products. In order to achieve the appropriate composition and quality of product, the melt is alloyed, held and treated, and after these processes the melt is ready for rotary casting. In our foundry we cast a narrow strip of the above alloys and of different widths. A narrow cast strip then travels through a hot rolling mill, where we reduce its thickness and coil it.

The hot-rolled coil prepared in accordance with the procedure above constitutes the input raw material for manufacturing of slugs. Further, it is cold rolled on a completely new cold rolling mill, which enables laser measurement of the thickness of strip and thus creates a quality profile of cold-rolled strip of narrow tolerances. The cold-rolled coil then travels to stamping lines. Currently, for this alloy programme we are using 5 stamping machines (120-315 tones). New high-quality stamping lines enable stamping of thicker slugs and stamping speeds of up to 300 strokes/min; in most cases they are automated, which reduces the amount of human error. Slugs then travel to the annealing furnace, where they are annealed to an appropriate hardness, whereby they achieve mechanical and formation properties enabling the buyer to transform them according to his wishes. Slugs are then also surface treated by sandblasting or tumbling, depending on customer's requirements. We are using a new sandblasting machine, which enables a more unique and higher quality surface of sandblasted slugs. Further on, the slugs are packed and stored in a covered and closed warehouse, where they are kept before being shipped to the buyer.

## Alloy, temper and surface:

Alloy	EN AW 1070, EN AW 1050, EN AW 3102 in EN AW 3207
Temper	OH-Soft annealed, H18- Hard
Surface finish	Tumbled, Sand blasted, without surface treatment

## Available dimensions and shape:

Diameter [mm]	5,00 - 140,00
Thickness [mm]	1,50 - 15,00
Shape	Flat, Domed, Round, Oval, Rectangular, etc. Slugs with hole or without hole

We are very adaptable when it comes to slug dimensions; on the basis of our buyer's requirements we can make a completely new tool with a short delivery period, providing our client with the wanted dimension of slug.

## STAMPED SLUGS FROM ALLOYS EN AW 6082, EN AW 6060 and EN AW 3003

### Manufacturing procedure

From the company within the Impol group we purchase a high-quality material in the form of hot-rolled plates and hot-rolled or cold-rolled strips, made from the above alloys. This material is then cut to appropriate widths and stamped on two newer stamping machines. With that programme we can stamp also other types of alloys and slugs up to 22 mm thick. This makes the technological manufacturing procedure a novelty in the market, because it allows us to make slugs from various alloys, which cannot be manufactured by casting narrow strips. Slugs, made in accordance with this manufacturing procedure with alloys are appropriate for technical parts in the automobile industry.

Stamping is followed by annealing, surface treatment and packing. According to this manufacturing process, we can, in principle, develop a number of other alloys, which are developed jointly with the buyer, if so required. The range of alloys that can be used here is very wide.

### Alloy, temper and surface:

Alloy	EN AW 6082, EN AW 6060, EN AW 3003, or any other Al-alloys (series 1000, series 3000, series 6000, etc.)
Temper	OH-Soft annealed, H18-Hard
Surface finish	Tumbled, Sand blasted, without surface treatment

### Available dimensions and shape:

Diameter [mm]	5,00 - 140,00
Thickness [mm]	1,50 - 22,00
Shape	Flat, Domed, Round, Oval, Rectangular, etc. Slugs with hole or without hole

We are very adaptable when it comes to slug dimensions; on the basis of our buyer's requirements we can make a completely new tool with a short delivery period, providing our client with the wanted dimension of slug.

## SAWN SLUGS

### Manufacturing procedure

The third programme is the manufacturing of sawn slugs, which are sawn from pressed or drawn bars, which enables different tolerances per diameter of sawn slugs. This programme covers the manufacturing of sawn slugs from all types of aluminium alloys and of different diameters and thicknesses. We saw slugs ranging from thicknesses of 11.00 mm to 200.00 mm or more, and diameters of sawn slugs range from 10.00 to 100.00 mm. Sawn slugs are sawn on custom-made highly productive and quality saw, which enables precise cutting of different thicknesses. Its advantages are precision and quality of cut. Sawn slugs are then annealed by various annealing programmes, depending on buyer's requirements, and surface treated by sandblasting, which is followed by packing and storage.

The advantage of this programme is the manufacturing of sawn slugs from different types of aluminium alloys and of different dimensions. On the basis of the buyer's requirements, we jointly develop slugs.

### Alloy, temper and surface:

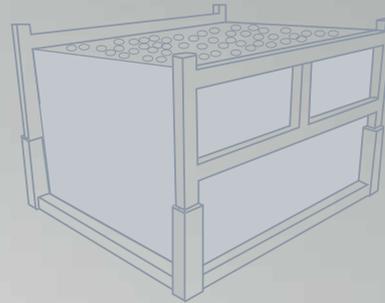
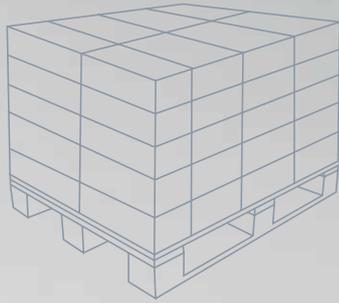
Alloy	Any aluminum alloys
Temper	OH-Soft annealed, H18-Hard
Surface finish	Tumbled, Sand blasted, without surface treatment

### Available dimensions and shape:

Diameter [mm]	10,00 - 100,00
Thickness / length [mm]	11,00 - 200,00 (or more)

## PACKING

Our products are packed according to the customer's wishes and our capabilities. Rondal's standard packing methods include packing slugs in cardboard boxes, approx. 25 kg in weight, which are piled on wood pallets. Pallet is then covered with PE foil and wrapped with elastic foil. Special packing in metal boxes is also available on agreement.



## ORDERING

For a quicker response to your inquiry we kindly ask you to provide us with the following data:

- Dimension
- Alloy
- Temper (OH or H18)
- Surface Treatment (Tumbled or Sand Blasted)
- Shape (Flat or Domed)
- Quantity
- Requested Delivery time



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