



AEROSOL & FILLING TECHNOLOGY

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**MACHINES CATALOGUE**  
2019 EDITION

[www.zigler.pl](http://www.zigler.pl)

# TOP IN OUR OFFER

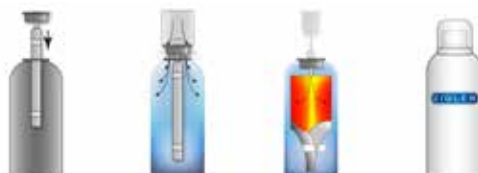
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**AUTOMATION OF PRODUCTION PROCESS  
... FROM DESIGN TO START UP!**



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# WHY ZIGLER ?

It is a great pleasure to introduce to you ZIGLER POLAND. We are confident that all given information will help you in getting familiar with our company and will encourage you to start cooperation with us.

We are producer of machinery and devices for product filling into the aerosol cans and glass bottles with atomizers. In 2012 we diversified our offer to include **BOV lines**.

Our main goal is to produce machinery of the highest quality. This is possible by continuous development of the latest technologies and use of the best components. Thus, the ZIGLER brand is getting increasingly acknowledged and recognized by customers all around the world. Our machines operate now in over **35 countries**.

Highly qualified aerosol engineer team, best structural designers in the sector who have been designing aerosol machines for over **25 years**, and a very well developed design department using the cutting-edge software, applying the ISO 9001:2015 standard, make it possible to extend a **24-month warranty** for ZIGLER products.

The ZIGLER team counts **over 50 people** now. Ample, **30 year long experience** of the management acquired through many filling line implementation projects allows us to provide **custom made products** precisely fitted to our customers' needs. Each line is unique, made to meet all specifications given to us by our customers.

Still, machines are not the only part of our offer. We also provide **comprehensive support** for our clients, especially to those who begin their adventure with aerosols production. Full aftersales service and assistance, development of technology for selected products, technical support before and during building of a new facility, staff training, help with selection and purchase of components necessary for the production of aerosols. We also offer maintenance and refurbishments of equipment made by Swiss company Pamasol.

## KNOW-HOW:

**Would you like to make aerosols?  
Do you know how to start?**

We are offering our knowledge and experience to those who are just starting their "adventure" with aerosols. This includes full service and after-sales support, preparation of a technology of selected products, technical advice on the construction of manufacturing facilities, staff training as well as a help with the selection and purchase of components necessary for the production of aerosols.

**YOU ARE WELCOME TO START  
A COOPERATION WITH ZIGLER POLAND**





# AEROSOLS

An aerosol production is an industry that is constantly evolving. From year to year we are getting introduced to newer products and solutions for aerosol products. That is also the challenge for the manufacturers. Therefore Zigler products are constantly adjusted to the needs of the market. Whole time Zigler's design department develops the latest solutions to keep up with the latest trends in aerosols.

Our offer includes aerosol machines and devices composed of several component segments.

Below you can find the basic classification based on production capacity:

- > Semi-automatic/laboratory lines
- > Stand-alone automatic filling modules (BASIC)
- > Automatic filling lines with the capacity of up to 30 pcs/min.
- > Automatic filling lines with the capacity of up to 60 pcs/min.
- > Automatic filling lines with the capacity of up to 120 pcs/min.
- > Automatic filling lines with the capacity of 120 – 250 pcs/min. – ZIGMAT

## SEMI-AUTOMATIC MACHINES

In the beginning we present semi-automatic machines. These are the smallest units used for production of aerosols. They can be successfully used in any professional aerosol laboratory. Semi-automatic machines are easy to use. They also could be adapted for use in potentially explosive zone.

### TYPE: Z-2068 LABORATORY AEROSOL FILLING SYSTEM

#### Areas of application for the system:

- > Professional aerosol laboratory
- > Performing trial parties of aerosol products
- > Aerosol production in a small scale (capacity around 500 pcs/h)
- > Aerosol production requiring fast and frequent changing of a product type



#### Operational parameters:

**Production capacity:** 500 ÷ 700 pcs/h (8 ÷ 11 pcs/min.) Effective capacity depends on production organization and operators experience

**Crimping type:** Standard or vacuum (additional option)

**Range of dosage:** Depending on order (30 – 400 ml)

**Dosage tolerance:** ± 2%

#### Dimensions and weight:

**Width:** 2210 mm

**Length:** 905 mm

**Height:** 1935 (+50 mm regulation)

**Weight:** 450 kg

#### Supply:

**Supply type:** Pneumatic

**Air supply pressure:** 0,8 ÷ 1,0 MPa (8 ÷ 10 bar)

**Air consumption (for capacity 500 pcs/h):** 6,6 m³/h – for 20% of max product and gas dosage;  
10,4 m³/h – for 50% of max product and gas dosage;  
20,4 m³/h – for 100% of max product and gas dosage;

**Compressed air quality:** Class IV according to ISO 8573-1 for temperatures 15 ÷ 35°C

#### System equipment:

- > Stainless steel table with an integrated pneumatic control for all working modules
- > Product filling module
- > Aerosol valves crimping module
- > Gas filling module
- > Product pump
- > Gas (propellant) pump
- > Built-in propellant filter (40 µm)
- > Connection lead for the product
- > Connection lead for gas
- > Aerosol valve crimp controlling device
- > Aerosol can pressure controlling device
- > Laboratory glass probe



### TYPE: Z-2001 SEMI-AUTOMATIC FILLER

The semi-automatic filler Z-2001 fills a liquid product into the cans. Depending on the type of product (dense, foaming, caustic, etc.), the device may be equipped with a special filling head.

Dimensions:	400 x 400 x 1170 mm
Weight:	~50 kg
Power supply / Controls:	pneumatic
Height of supported cans:	30 ÷ 330 mm
Diameter of supported cans:	22 ÷ 66 mm
Standard dosage:	up to 100, 300 or 420 ml
Special designs:	AISI 316, ATEX, GMP – on request



### TYPE: Z-2002 SEMI-AUTOMATIC CRIMPER / Z-2202 CRIMPER VACUUM

The Z-2002 semi-automatic aerosol valve crimper is designed to crimp 1" aerosol valves. The device is equipped with a crimping head with crimping jaws of 6 or 8 segments, depending on customer needs. We also offer rip stop crimping jaws for special valves (made of heavy steel plate). The device is fitted with a smooth crimping adjustment system allowing to set precise parameters. Option vacuum.

Dimensions:	400 x 400 x 850 / 950 mm
Weight:	~45 kg / ~62 kg
Crimping / Control:	pneumatic
Height of supported cans:	30 – 330 mm
Diameter of supported cans:	22 – 66 mm



### TYPE: Z-2003 SEMI-AUTOMATIC GAS FILLER

The semi-automatic gas filler Z-2003 fills gas into the aerosol can through the valve. Depending on the type of injected gas, this unit is equipped with an appropriate head. This filler can either inject HC gases (i. e. isobutane, propane-butane, etc.) as well as expanded gases (i. e. CO<sub>2</sub>, nitrogen, R134, helium).

Dimensions:	400 x 450 x 850 / 1150 mm
Weight:	~60 kg
Power / Control:	pneumatic
Height of supported containers:	30 ÷ 330 mm
Diameter of supported containers:	22 ÷ 66 mm
Standard dosage:	up to 100, 300 or 420 ml
Special design:	AISI 316, ATEX, GMP – on request



### TYPE: Z-2008 GAS PUMP

The pump's intended use is to provide propellants in liquid form. It guarantees that constant output gas pressure is maintained. The pump is controlled automatically.

The pump works with a filler type Z-2003.



### TYPE: Z-2109 LIQUID PUMP

Liquid Pump Z-2109 – its intended use is to provide active substances to the filling machine for the aerosol cans. It guarantees maintaining the liquid output pressure at a constant level which can be regulated.



## SEMI-AUTOMATIC MACHINES FOR PAINT

Due to the nature of production and the product itself which is spray paint, we designed a special line of paint filling machines – “paint edition”.

**TYPE: Z-2001  
DOSING**



**TYPE: Z-1553  
BALL DROPPER**



**TYPE: Z-2003  
GAS FILLING**



The solutions that we have implemented in these devices greatly simplify the production of aerosol paint and allow to reduce to a minimum the time associated with any stopping of the production for color changes or random events, eg. spillage of paint or can's bursting.

### Main elements distinguishing “PAINT EDITION” line:

- > Special filling head (easy and quick washing, eliminated places with drying and setting seals, no splashing)
- > A special divider separating the filling zone from the rest of the device
- > Special stainless steel casing, which secures all automation and control equipment
- > Special covers for operating heads that support device's operators
- > A special version of the product tubes resistant to aggressive media, eg. Acetone

**TYPE:  
CRIMPING + CO<sub>2</sub>**



Photos above show a semi-automatic “PAINT EDITION” line.

# AUTOMATIC LINES

Each line is designed as custom-made so it could be adapted to the needs of our customers, depending on the type of a production (types of aerosol products), a planned capacity and space requirements (size and shape of the production hall). In our offer you can find full range of aerosol production machines, being part of aerosol automatic production line. Modular type construction of our machines gives flexibility with a line configuration.

From the beginning to the end, each project is conducted individually. At the beginning we precisely analyze our customers' needs, which allows us to match the best solution. Then we design the whole technological line so it can be fit in the client's production hall. With such flexible solutions our lines always meet the needs of our customers.

Therefore, ZIGLER company devices have become increasingly popular among customers around the world.

On the following pages of this catalog, in Aerosols section, we present devices included in the automatic production lines.

**ZIGLER equipment for the production of aerosols is made in accordance with the requirements of the ATEX directive 2014/34/EU. ATEX certificate is issued by a Notified Body.**



## AUTOMATIC INDEXING MODULES



### TYPE: AMI Z-1200

AMI, type Z-1200, is one of the basic components of an automatic production line. Through the use of different operating heads (depending on an order and the type of product filled on the line) the unit may have many purposes. The design of the module enables the use of 1 to 9 working heads (executive modules).

It is possible to order the device in the special design, adapted for use in EX zone with all the necessary approvals for zones 1 or 2 (according to 2014/34/EU).



### Basic functions which may be performed by an Automatic Indexing Module:

- > Inserting of balls into empty cans (paint filling)
- > Dispensing powdery products into the cans (pharmaceutical products)
- > Dispensing of liquid products into the cans
- > Valves embedding onto cans
- > Control of valve presence in the cans
- > Tight sealing of valve onto the cans
- > Injecting of propellant into the cans
- > Other, depending on the equipment options

<b>Dosage range:</b>	up to 1000 ml – with four filling heads
<b>Types of used valves:</b>	1" (1 inch) aluminum or steel valves with or without a dip tube (depending on options)
<b>Type of crimping head:</b>	for aerosol valves with a diameter of 1"
<b>Height of supported cans:</b>	65 – 330 mm
<b>Diameters of supported cans:</b>	35 – 66 mm (larger diameters are available on special order)

### Capacity:

Standard assumption is 1000 ÷ 3000 pcs/h (16 ÷ 50 pcs/min). The maximum capacity of the system stands at 3600 pcs/h (60 pcs/min) and depends on the type of product and the size of cans used in the process.





## ROTARY MACHINES

In this section we present you with equipment and **ROTARY LINES TYPE “ZIGMAT.”**

**ZIGMAT devices are equipped with an appropriate amount of operating heads depending on the production capacity:**

- > capacity up to 120 pcs/min – amount of operating heads – 6
- > capacity up to 180 pcs/min – amount of operating heads – 9
- > capacity up to 250 pcs/min – amount of operating heads – 12

**In ZIGLER's offer you will find a whole set of rotary equipment necessary to equip the production line. We offer full lines as well as individual elements such as:**

- > Feeding tables
- > Filling modules
- > Valve crimping modules
- > Gas filling modules
- > Test baths for leakage control
- > Actuator placers
- > Sorters and elevators
- > Cap placers
- > Checkweighers



### Technical specification of Rotary Monoblock Zigmat 120-3/Z-1431

#### Working parameters:

Capacity:	7200 pcs/hour (120 pcs/minute)
Working pressure:	0,8 MPa (8 bar)
Supported valves:	1" male and female aerosol valve with dip tube (length 90 ÷ 300 mm)
Supported containers diameter:	Ø 35 ÷ 66 mm
Supported containers height:	100 mm ÷ 320 mm

#### Dimensions and weight:

Width:	1510 mm
Length:	3320 mm
Height:	2860 mm
Weight:	~3000 kg

#### Supply parameters:

Supply type:	Pneumatic and electric
Required supply pressure:	0,8 ÷ 1,0 MPa (8 ÷ 10 bar)
Air consumption:	42 m³/h
Quality of compressed air:	IV-th class (according to ISO 8573-1) for temperatures 15 ÷ 35°C
Electric supply:	3x230 VAC 50 Hz
Power:	2.6 kW

ABOVE WE PRESENT CONTENT SHOWING THE OPERATION OF OUR ROTARY EQUIPMENT – TYPE ZIGMAT.



**Technical specification of Rotary Monoblock  
Zigmat 180-3/Z-1432**

<b>Working parameters:</b>	
Capacity:	10800 pcs/hour (180 pcs/minute)
Working pressure:	0,8 MPa (8 bar)
Supported valves:	1" male and female aerosol valve with dip tube (length 90÷300 mm)
Supported containers diameter:	Ø 35 ÷ 66 mm
Supported containers height:	100 mm ÷ 320 mm
<b>Dimensions and weight:</b>	
Width:	1510 mm
Length:	3320 mm
Height:	2860 mm
Weight:	~3600 kg
<b>Supply parameters:</b>	
Supply type:	Pneumatic and electric
Required supply pressure:	0,8 ÷ 1,0 MPa (8 ÷ 10 bar)
Air consumption:	63 m³/h
Quality of compressed air:	IV-th class (according to ISO 8573-1) for temperatures 15 ÷ 35°C
Electric supply:	3x230 VAC 50 Hz
Power:	2.6 kW

**Technical specification of Rotary Monoblock  
Zigmat 250-3/Z-1433**

<b>Working parameters:</b>	
Capacity:	15000 pcs/hour (250 pcs/minute)
Working pressure:	0,8 MPa (8 bar)
Supported valves:	1" male and female aerosol valve with dip tube (length 90÷300 mm)
Supported containers diameter:	Ø 35 ÷ 66 mm
Supported containers height:	100 mm ÷ 320 mm
<b>Dimensions and weight:</b>	
Width:	1920 mm
Length:	3950 mm
Height:	2860 mm
Weight:	~4500 kg
<b>Supply parameters:</b>	
Supply type:	Pneumatic and electric
Required supply pressure:	0,8 ÷ 1,0 MPa (8 ÷ 10 bar)
Air consumption:	84 m³/h
Quality of compressed air:	IV-th class (according to ISO 8573-1) for temperatures 15 ÷ 35°C
Electric supply:	3x230 VAC 50 Hz
Power:	2.6 kW

## SPRAY HEADS INSERTER AND SORTER



### TYPE: Z-1109 / Z-1481 HIGH SPEED

This is the machine which is installed on the technological line for the aerosol production. It is used to automatically insert spray heads on crimped aerosol cans which have been pre-filled with the product and gas. The device operates in an automatic cycle. The device ensures a perfect centering of both the can and the spray head. Placing of spray heads is done quickly, preventing the product from escaping during the process.

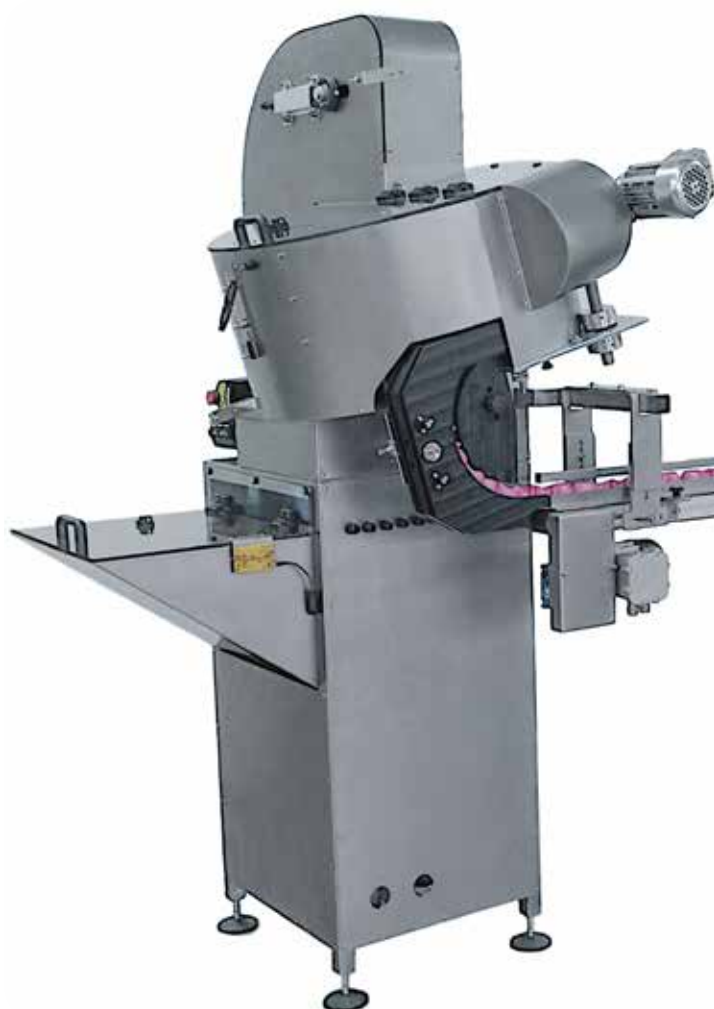
Made of:	stainless steel
Housing:	safety glass
Power supply:	electrical / pneumatic
Capacity:	50 – 60 cpm, 80 cpm, 200 cpm
The height of supported containers:	65 mm – 350 mm
The diameters of supported containers:	Ø 35 – Ø 66 mm



## CAPS SORTER

### TYPE: Z-6201 / Z-6203 HIGH SPEED

A cap sorter is a device that, with the use of an exchangeable sorting disc, sorts and feeds caps in a correct position to the feeding conveyor and subsequently to the cap placer. The drive unit is made of an electrical motor equipped with a gearbox for smooth rotation of the plate. The sorter operation is controlled by an automatic system of photoelectric cells (minimum and maximum queue control) installed on the cap feeding conveyor. This solution guarantees the correct operation of the whole cap providing system.



## CAPS PLACER

### TYPE: Z-1102 / Z-1491 HIGH SPEED

Cap Inserter Z-1102 is a machine used for automatic placing of plastic caps (one or two-element) on aerosol cans. It is one of the last units of a production line. It is equipped with an indexing drive with a mounted can guiding set, which function is to automatically pick up the cans off the belt. The caps are fed from a cap sorter by the conveyor.



Power type:	electrical
Supply voltage requirement:	3x400 VAC, 50 Hz
Power input:	0,92 kW
Capacity:	50 – 60 cpm, 80 cpm, 200 cpm

Made of:	stainless steel
Housing:	safety glass
Power supply:	electrical / pneumatic
Capacity:	50 – 60 cpm, 80 cpm, 200 cpm
The height of supported containers:	65 mm – 350 mm
The diameters of supported containers:	Ø 35 – Ø 66 mm

## ELEVATORS

### TYPE: Z-4009

The wide elevator is used to feed larger-dimension elements such as aerosol valves, caps, polyurethane foam adapters, bottle closing caps, jars caps, etc. It is made of stainless steel and high quality materials. The elevator works in a continuous and intermittent cycle mode.



### TYPE: Z-4012

The narrow elevator is used to feed small items such as spray heads, mini spray valves, caps, applicators etc. The machine is made of stainless steel and plastics of high quality. This unit works in a continuous and intermittent cycle.



## SORTERS

### TYPE: Z-3007 STANDARD / Z-3009 HIGH SPEED

The valve sorter is used for properly orienting and sorting 1" inch aerosol valves. With the help of selection and guiding systems the valves are fed to the so-called "ejector" and then to the rotary "injector" which is built in with the AMI and places the valves into cans before crimping. The design of this sorter allows the use of both types of valve bodies – steel and aluminum.



### TYPE: Z-3102 / Z-3049 / Z-3071 – VIBRATING

A vibrating sorter Z-3102 is used for feeding valves without a tube, spray heads of various kinds, applicators, PU foam adapters, etc. – depending on the order.



## TEST BATH



### TYPE: Z-7503 / Z-7505 / Z-7506

Test Bath is a device used for controlling the tightness of can sealing during an automatic production cycle. Cans filled with product and propellant are water-tested. Proper water temperature (approx. 55°C) helps in the detection of any leaks.

#### Test bath technical specification:

Diameter of supported cans:	Ø 35 ÷ Ø 66 mm
Height of supported cans:	105 mm ÷ 320 mm
Valve type:	aerosol valve with a diameter of 1" without adapter
Capacity:	60 – 250 pcs/min (depending on the version), i. e. each can is immersed in a water bath for at least 180 sec.
Cans guiding:	plastic clips holding the cans inside the aerosol valve
Leakage detection:	by using infrared sensors
Power type:	electrical and pneumatic
Supply voltage requirement:	3x400 VAC, 50Hz
Power input:	~3kW (without heating system)
Required air pressure:	2 – 8 bar (0.2 – 0.8 MPa)
Air consumption:	Max. 75 m³/h (can drying system)
Overall dimensions:	Overall length: 5150 mm Overall width: 1460 mm Overall height: 1600 mm Volume: ~2,0 m³

**Attention! Test bath's dimensions might vary depending on its capacity.**

## AUTOMATIC CHECKWEIGHER



### TYPE: WIPOTEC – OCS

Automatic checkweigher controls dosing/metering accuracy of both mediums – liquid and gas filling devices. Programmable weighing range for each can allows to reject any aerosol which is not compliant with the set value. This equipment meets all of aerosol industry requirements. Available in ATEX.



## SLAT FEEDING TABLE

### TYPE:

**Z-5200 / Z-5201 / Z-5204 / Z-5205 / Z-5215**

A slat-type feeding table is an input device of the aerosol production line. Aerosol can feeding table allows the operators to unload pallets of empty cans and automatically put them on the slat conveyors. Subsequently the devices will continue the production cycle. The moveable slats of the feeding table are made of plastic. The entire unit is based on a stainless steel structure with adjustable height.

The feeding table surface consists of 4 – 7 straps (depending on the version) made of plastic. You can order a table in the special design adapted for use in hazardous areas with all the necessary approvals for zones 1 or 2 (according to 2014/34/EU). The feeding table is equipped with a speed adjusting system adapted to the set line capacity.

Pneumatic anti-jamming device prevents cans from jamming on conveyor entry. It ensures constant and even flow of cans provided on production line.

**ZIGLER offers several types of feeding tables:**

THE UNIT ACCOMMODATES ALL TYPES OF AEROSOL CANS.



**TYPE: Z-5200**  
**TABLE WITH A SIDE EXIT (R OR L)**



**TYPE: Z-5201**  
**TABLE WITH A CENTRAL EXIT**

AS AN OPTION FEEDING TABLE MIGHT BE MADE IN ROTARY VERSION.

# CONVEYOR BELTS



## TYPE: Z-5300

Slat-type conveyor belt is used to transfer cans between particular machines in the aerosol production line. The transporter is designed as a standard unit of the length of 2 meters and its multiples, i.e. 4 m, 6 m, 8 m. Optionally, we can also deliver conveyors in non-standard lengths, i. e. 1 m, 1.5 m, 3 m, 5 m, etc.

ZIGLER produces also conveyors which are not typical, adapted for use in hazardous areas with all the necessary approvals for ATEX zones 1 or 2 (according to 2014/34/EU).

Depending on the configuration of the production line and the shape of the hall, the conveyors are interconnected with curves, thus ensuring a smooth operation of the line and transfer of aerosol cans even along the line of a complex shape.

Module length:	2000 mm (1, 1.5, 2) max. 8 m
Belt width:	82.5 mm (made of anti-static plastic or stainless steel)
Working height:	900 ± 30 mm (without guiding railings)

# COLLECTING TABLE



## TYPE: Z-5102

Rotary collecting table is an exit unit of the aerosol production line. Collecting table is designed for receiving, packing and packaging of ready aerosol cans.

The unit is made of stainless steel with rotating table top with the diameter of 1m and a smooth speed adjustment. This ensures a constant reception of ready products from the production line.

The table may hold up to several hundred cans depending on their diameter.

It is possible to order the table in a special design, adapted for use in hazardous areas with all the necessary approvals for zones 1 or 2 (according to 2014/34/EU).

## MINI AEROSOLS

Zigler offer also includes devices for filling aerosol cans with a diameter of 22 and 25 mm. These “special” types of aerosol products are now very popular in the cosmetic and pharmaceutical industries.

We offer both semiautomatic devices as well as fully automatic production lines for this type of aerosol products.

- > Semi-automatic devices in “micro” version with very high accuracy and filling speed of both the product and the propellant. Devices in this version have a low compressed air consumption. They have small dimensions. Semi-automatic line efficiency: up to 1000 pcs/h
- > Special integrated automatic machines with a capacity of up to 3600 pcs/h with a diameter of 22 or 25 mm and volume of up to 30 ml.

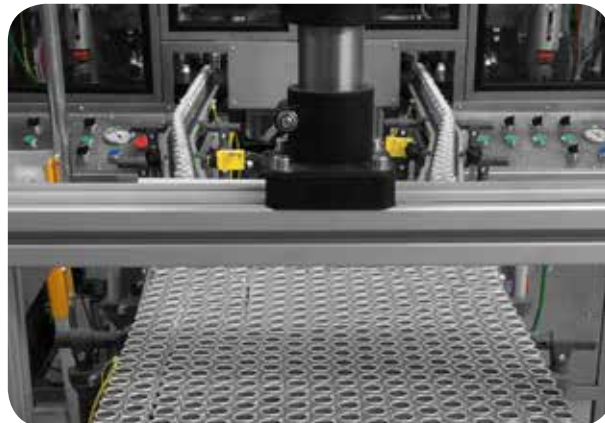
**The standard automatic line has the following configuration:**

- > Feeding table, slat or rotary
- > Automatic Rotary module equipped with:
  - Product filler (1 – 4 pcs)
  - Valves inserting module
  - Valves crimper
  - Propellant filler (1 – 2 pcs)
- > Valves sorter
- > Valves elevator
- > Test bath
- > Labeling machine (optional)
- > Rotary collecting table
- > System of conveyors transporting cans between the modules
- > Central control cabinet

**Automatic line with configuration listed above can be modified to achieve a capacity of up to 6000 pcs/h.**



**Our offer includes also a “special” version of the line for pharmaceutical products made in accordance with GMP standards.**



## POLYURETHANE FOAM PRODUCTION



Due to the PU production profile and the product itself, devices used for manufacturing PU foam are very much different from the equipment used for standard aerosols. ZIGLER offer features all necessary devices and tooling for production of polyurethane foam in the aerosol form.



DEDICATED  
DOSING HEADS



SHAKER

Our design department has created special product heads taking into account polyurethane specification, system of providing valves without tube, automatic machines mixing content in the cans (ROTOMIX, SHAKER) and a number of other improvements thanks to which we can offer our clients solutions that match their individual needs.

1. Semi-automatic lines – 500 pcs/h
2. Automatic filling modules – 1200 pcs/h
3. Complete automatic lines – 2400 pcs/h

## TURN KEY FACTORY



Owing to our vast experience in the aerosol sector our offer also comprises a contribution to the complex development of aerosol factories or smaller production workshops. We can supervise the whole process from the very beginning – project coordination, construction of the production facility, line assembly – to the last step being the delivery of production lines. We also provide advisory services for selected project aspects.





## GAS HOUSE



### TYPE: Z-7000 / Z-7001 – GAS HOUSE

It is a steel, movable construction made in accordance with the highest endurance and safety standards. The gas house is equipped with a gasser which automatically fills gas into aerosol cans (unmanned operation).

#### The gas house is equipped with the following systems:

- > Advanced ventilation system with two Ex fans providing multiple exchanges of circulating air per minute.
- > Heating with a heat exchanger which supplies heated, compressed air to the AMR device.
- > Gas filling head heating system effectively prevents gas filling heads from freezing.
- > Gas shut-off valves controlled by a gas detection system.
- > Professional gas detection system guarantees safe operation. The system is equipped with 3 detectors.
- > Multi-stage warning system and CCTV assures an early response to any potential danger.
- > Access monitoring system. The access door is protected in the event of an opening when the unit is running. Such unauthorized opening of the door will shut down the entire line. This prevents any possible disruption of air exchange cycle.
- > The air conditioning system of the container – special version depending on climate zone

The entire steel construction is covered with smooth or corrugated steel sheet with RAL color paint – accordingly to the order. The inner walls of the gas house are made of stainless steel. All ventilation ducts are made of stainless steel. The gas house roof is made of a lightweight plastic material.



## MEASURING AND LABORATORY DEVICES

As an addition to the full equipment of a production line it is necessary to get measuring instruments.

### LABORATORY PROBE

Instrument for laboratory use with a design of an aerosol can and a transparent surface that makes it possible to observe chemical reactions going on inside the aerosol cans.

Essential in every professional aerosol laboratory and not only there... Capacity: 90 ml

### LABORATORY PROBE BOV

An instrument replacing aerosol container with BOV (Bag on Valve) valve type which allows making tests with BOV valves without the need to destroy aerosol cans.



GLASS PROBE  
– PPSZ



BOV PROBE  
– PBOV

### PRESSURE CONTROL

It is an instrument for pressure control in aerosol cans.

Recommended mostly for controls near production line (to check parameters during production process), but also very convenient in the laboratory and during controls outside production facility. The digital version PCBE and laboratory version PCSA on a steel stand are also available in our offer.

The device can be delivered together with the certificate of quality (certificate of calibration) issued by a professional measurement laboratory.



PCSA /PCSE



PCBE

### CRIMPING CONTROL

Devices used for:

- > Crimping diameter measurement "D" on aerosol cans with the crimped size of 1 inch (25.4 mm).
- > Crimping height measurement "H" on aerosol cans with the crimped closure size of 1 inch (25.4 mm).
- > Measurement of the contact height "HK" on aerosol cans with the crimped closure size of 1 inch (25.4 mm).

Advantages:

- > Easy to use
- > Adjustable tolerance range



PPDZ / PPHZ

PPSH – AEROSOL  
VALVE STEM'S HIGHT  
MEASURING DEVICE

PPHK

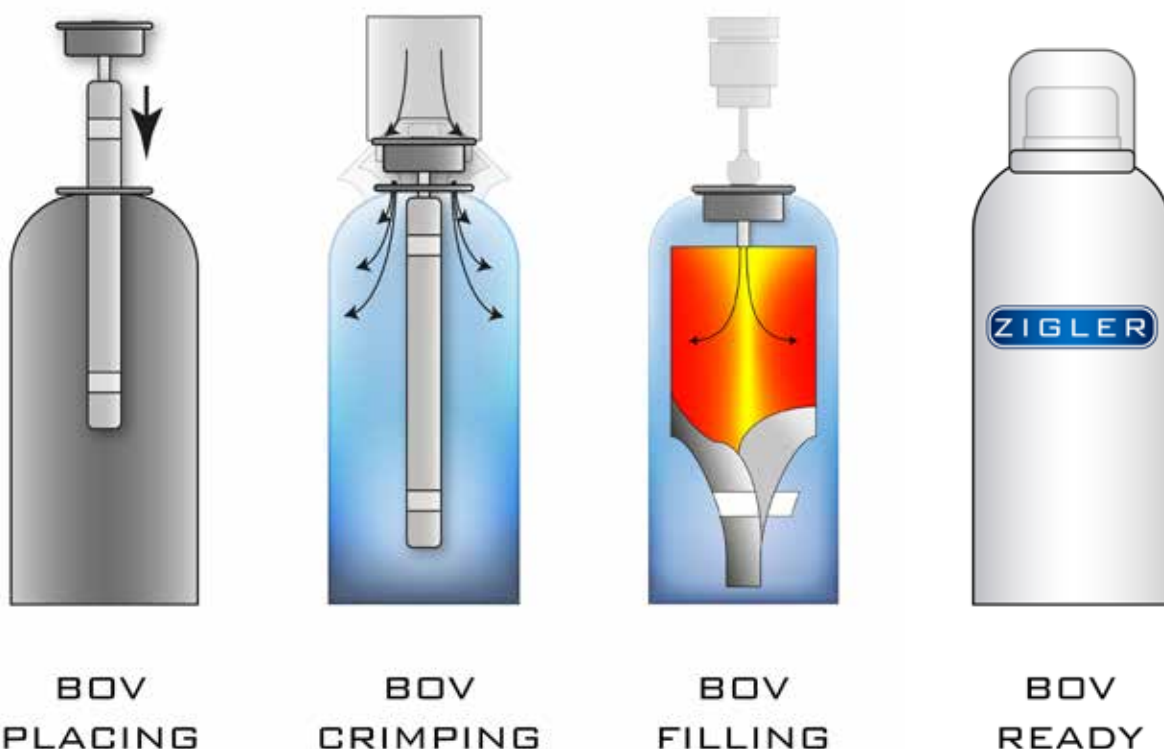


# **BAG-ON-VALVE**



## BOV

**BAG-ON-VALVE** is an innovative aerosol technology. It has many advantages compared to solutions of conventional valves. It is used especially in pharmaceutical products, high-end cosmetics and also for those formulations that may not come into contact with propellant.



### WHY BOV?

- > Compressed air is used only to propel and dispense the product.
- > No harmful or flammable propellants.
- > Product is isolated in an air tight bag inside the can.
- > Product is not contaminated by the propellant.
- > Sterilized products remain sterile.
- > Formula does not have to be changed in order to accommodate propellant.
- > Cans can be sprayed at any angle (even upside down).
- > Product is emptied in almost 100% (no product waste).

**Within ZIGLER offer you can find machines and full production lines for BOV technology in following configurations:**

- 1. Semi-automatic lines, with a capacity of up to 500 pcs/h**
- 2. Basic automatic machines with a capacity of up to 1200 pcs/h**
- 3. Automatic production lines with a capacity of up to 3600 pcs/h**

## SEMI-AUTOMATIC LINE FOR BOV AEROSOLS CONSISTS OF TWO STATIONS:

1. A device for pre-gassing and closing cans with valves BOV. Prior to solid crimping of a valve on a can follows an injection of air or nitrogen (depending on the option) to the inside of the can. For this purpose is used unit no. Z-2312.
2. A device for filling of a product through a valve stem. The amount of product is smoothly adjustable. The second filling head installed on the device is used for cleaning of a BOV valve's stem after filling the product. This is particularly important for pharmaceutical products and whose remaining may have a negative impact on the quality of the product. These functions performs the device no. Z-2323.



**TYPE: Z-2312**  
**SEMI-AUTOMATIC BOV CRIMPER**



**TYPE: Z-2323**  
**SEMI-AUTOMATIC FILLING  
AND CLEANING MACHINE**

## AUTOMATIC LINES FOR THE PRODUCTION OF BOV AEROSOLS:

Depending on the configuration, automatic lines can be built based on Automatic Indexing Module on which are placed all working modules.



The line in this configuration works with capacity of up to 1800 pcs / h and performs following operations in an automatic cycle:

1. Transporting of empty cans off the feeding table
2. Inserting of BOV
3. Crimping of BOVs on cans
4. Product dosing into a BOV'S bag
5. Cleaning of stems after injection into the valve
6. Collection on a receiving table of finished products

To increase the efficiency Zigler also offers lines built with double index and equipped with additional equipment, such as:

1. BOV sorters
2. Module for BOV's leakage control
3. Module to control the pressure of the product after filling
4. Placer for spray heads
5. Placer for caps
6. Checkweighers

The lines in this configuration can reach a capacity of up to 5000 pcs / h.





# LIQUID FILLING – CAPPING

PERFUMES / CREAMS / LIQUIDS

Basic classification in terms of line capacity:

- > Semi-automatic/laboratory lines, capacity of up to 500 pcs/h
- > The individual automatic filling modules (MRI 110/16), capacity of up to 2400 pcs/h
- > Fully automatic lines with a capacity of up to 3600 pcs/h
- > Other custom made monoblocks

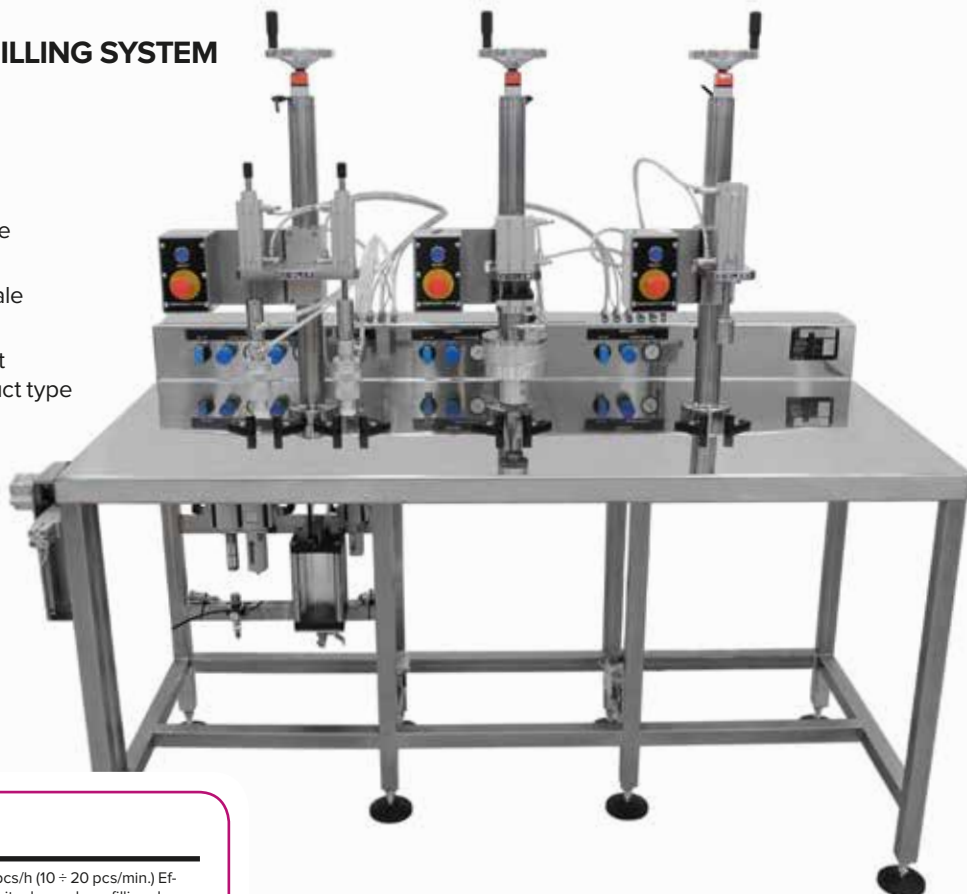
## SEMI-AUTOMATIC MACHINES

In the beginning we present semi-automatic machines. These are the smallest units used for production of aerosols. They can be successfully used in any professional aerosol laboratory. Semi-automatic machines are easy to use. They also could be adapted for use in potentially explosive zone.

### TYPE: Z-2168 LABORATORY PERFUME FILLING SYSTEM

#### Areas of application for the system:

- > Professional perfume laboratory
- > Performing trial parties of perfume products
- > Perfume production in a small scale (capacity around 1000 pcs/h)
- > Perfume production requiring fast and frequent changing of a product type



#### Operational parameters:

Production capacity:	600 ÷ 1200 pcs/h (10 ÷ 20 pcs/min.) Effective capacity depends on filling dose, production organization and operators experience
Range of dosage:	vacuum („up to the level“)
Crimping type:	external Ø 13 – Ø 22 mm
Dimensions and weight:	
Width:	1860 mm
Length:	910 mm
Height:	1760 mm
Weight:	340 kg
Supply:	
Supply type:	Pneumatic
Air supply pressure:	0,8 ÷ 1,0 MPa (8 ÷ 10 bar)
Air consumption (for capacity 1200 pcs/h):	recommends compressor able to deliver around 115 litres/min @ 10 bar
Compressed air quality:	Class IV according to ISO 8573-1 for temperatures 15 ÷ 35°C

#### System equipment:

- > Stainless steel table with an integrated pneumatic control for all working modules
- > Product filling module
- > Atomizers crimping module
- > Collars/rings inserting module
- > Connection lead for the product
- > Product pump (optional, depending on order)
- > Atomizers tubes cutting device (optional, depending on order)





**TYPE: Z-2411  
SEMI-AUTOMATIC  
VACUUM FILLER**

Dimensions:	400 x 400 x 850 mm
Weight:	~25 kg (vacuum version); ~40 kg (volume oriented version)
Supply / Controls:	pneumatic
Container height:	50 ± 300 mm
Standard system of filling:	vacuum („up to the level“)
Special design:	according to the order – volume oriented dosing



**TYPE: Z-2102  
SEMI-AUTOMATIC  
ATOMIZERS CRIMPING  
MACHINE**

Dimensions:	400 x 400 x 850 / 950 mm
Weight:	~38 kg
Supply / Controls:	pneumatic
Container height:	20 ± 250 mm (special design for higher packaging)
Atomizer diameter:	13 – 22 mm (exchangeable crimping tongs for each diameter)



**TYPE: Z-2005  
SEMI-AUTOMATIC  
COLLARS EMBEDDING  
MACHINE**

Dimensions:	400 x 400 x 850 mm
Weight:	~25 kg
Supply / Controls:	pneumatic
Atomizer diameter:	13 – 22 mm – according to the order
Ring diameter:	according to received samples



**TYPE: Z-2007  
PNEUMATIC  
ATOMIZER DIP-TUBE  
CUTTER**

Working parameters:	
Tube length range:	50 – 250 mm
Dimensions and weight:	
Width:	165 mm
Length:	370 mm
Height:	250 mm (adjustable range: 25 mm)
Weight:	~5 kg

**We configure each line accordingly to the order, depending on the capacity, level of automation, components and types of product.**

## AUTOMATIC ROTARY MODULE MRI 110/16



### Equipment:

- > Bottles purging system
- > Vacuum dosing system – 4 filling heads
- > Vacuum creating system
- > Pre-crimper system
- > Crimping module for the atomizers
- > Decorative rings inserter

Height:	1710 mm
Width:	1230 mm
Lenght:	1320 mm
Indexing wheel diameter:	1100 mm
Weight:	300 kg
Working pressure:	6 – 8 bar
Air consumption:	12 – 25 m <sup>3</sup> /h (depending on equipment and productivity)
Capacity:	up 2400 pcs/h

### TYPE: Z-1300

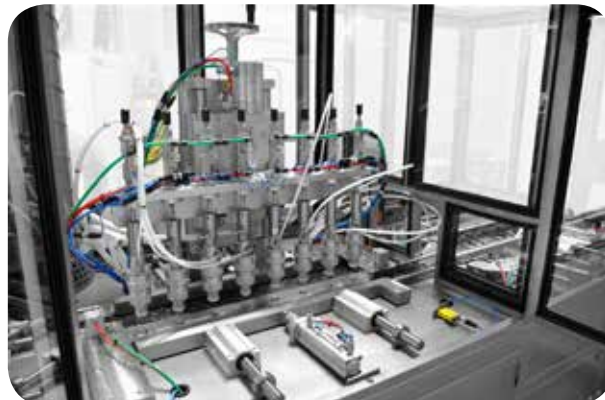
The MRI 110/16 is a device used to fill containers (glass or plastic bottles) with liquid product. Materials of the highest quality (stainless and acid resistant steel) are used for the MRI construction, thus creating working conditions even in a highly hazardous environment. The MRI machine is design to prevent a hazard of explosion during the production process. Exchangeable indexing wheel sockets, easy and smooth regulation of modules height: filling and crimping, allows changing of production profile efficiently and, owing to this, the adaptation to quickly changing market demands does not create any problem.

### ADVANTAGES OF MRI 110/16

- > **Supplied solely with compressed air**
- > **High operational safety**
- > **Low operating costs**
- > **Dispensing accuracy**
- > **Possibility of cycle regulation**
- > **Small dimensions**
- > **Modularity – possibility of implementing additional devices**



## AUTOMATIC PERFUME FILLING LINE



We also offer a „special” version of the line made in accordance with the ATEX 2014/34/EU directive along with valid certificates.

**ZIGLER offers also fully automatic production lines to create products in glass packaging with atomizers (spray system).**

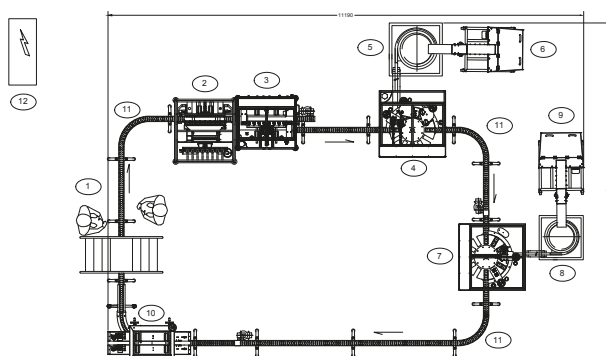
Our lines attain a productivity of up to 3600 pcs/h with a capacity of 100 ml.

**A typical automatic line is configured as follows:**

1. Bottles positioning table for placing bottles into pucks.
2. Purging module for bottles cleaning
3. Linear filling module (8 working heads)
4. Automatic Rotary Module equipped with:
  - > System for atomizers placing
  - > Pre-crimper
  - > Crimper
5. Atomizers sorter
6. Atomizers elevator
7. Automatic Rotary Module with:
  - > Placer for collars (decorative rings)
  - > Placing system for decorative caps onto bottles
8. Sorter for collars (decorative rings)
9. Elevator for collars
10. Depucker
11. Conveyors
12. Control cabinet



**Line layout**



## FILLING LINES

ZIGLER offers not only aerosols. We also make automatic filling and capping production lines. Each line is designed accordingly to the needs and requirements of our clients.

- > Automatic line to produce creams in containers with a capacity of 50 ml – 200 ml
- > Automatic filling line for chemical and cosmetic products in containers with a capacity of 500 ml – 2l
- > Automatic filling line for dense gel-like products in containers with a capacity of 100 ml – 500 ml

OUR LINES DELIVER A CAPACITY OF UP TO 3600 PCS/H DEPENDING ON THE TYPE OF PRODUCT AND THE SIZE OF PACKAGING.



## SPECIALIZED FILLING MACHINES



- MONOBLOCK FOR COSMETICS
- LINEAR DOSING AND PHARMA INDUSTRY PRODUCTS
- INTEGRATED CONTROL PANELS

**Execution of a special dosing system based on ATEX flow meters with a pharmaceutical purity class.**

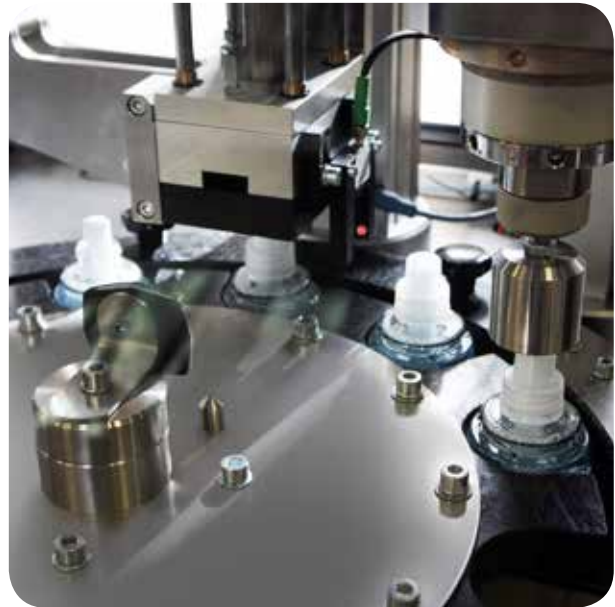
## AUTOMATIC CAPPING LINE

The automatic capping line consists of the following components:

1. Elevator for caps
2. Sorter for caps
3. Automatic Rotary module equipped with:
  - > Head for placing of caps on a bottle with the "pre-closing" system
  - > Cap screwing and controlling system of the tightening force adjustment and torque overload
  - > Head for caps presence control
4. Conveyor Belt
5. Central control cabinet with operator panel

The lines are designed in such a way that at any time allow swift adjust it to a new type and shape of a cap and bottle. In case of new shapes of caps or bottles Zigler company offers to make all the necessary format parts.

Due to compact solutions and not large overall dimensions our capping lines can be a very good complement to the existing production lines, even where there is little space.



**Individual designs for various types of caps.**





# PHARMA

Machinery and equipment for the pharmaceutical industry is one another segment of the ZIGLER's offer. Over the years we have implemented a number of solutions according to the specific requirements of the pharmaceutical industry. Our experts are people with years of experience. This ensures that our equipment meets all the requirements to use them for manufacturing of pharmaceutical products.

ZIGLER offers individual devices and entire technological lines for liquid pharmaceutical products. Each line made to meet individual customer's needs.

We offer machines and equipment for the following types of packaging:

- > STANDARD Aerosols (medicine for burns, disinfectants, etc.)
- > MDI Aerosols (metered-dose-inhalers)
- > BOV Aerosols (ointments, creams, nasal sea water, etc.)
- > SNAP-ON PACKAGING SYSTEM (nasal drops, eye drops, etc.)
- > Screw-cap glass bottles (syrups, herbal drops, etc.)
- > Screw-cap PET bottles (syrups, drops, etc.)
- > BOTTLES with atomizers (medicine for sore throat, skin disinfection, etc.)

**We build each line based on the individual needs of our customers.**

**Equipment will be adjusted to the packaging samples provided by the customer.**



## MACHINERY FOR METERED DOSE INHALERS (MDI)

ZIGLER POLAND over last years has developed an equipment for filling of Metered Dose Inhalers.

ZIGLER provides documentation for operation, maintenance, training and validation qualification to meet legislative and industry requirements and to help the project through validation.

### MDI production equipment:

**TYPE: Z-2111 / Z-2131**

**SEMI-AUTOMATIC PRODUCT FILLING MACHINE**

**TYPE: Z-2132**

**SEMI-AUTOMATIC VACUUM CRIMPING MACHINE**

**TYPE: Z-2133**

**SEMI-AUTOMATIC PROPELLENT FILLING MACHINE**

### Main features:

- > Oilfree execution
- > On column and base plate
- > Protection guard with safe operating system
- > Easy hand wheel adjustment
- > All steel parts, which are in contact with the product are made of stainless steel AISI 316L

**All materials in contact with product  
fulfill the FDA requirements.**



**TYPE: Z-2133**



**TYPE: Z-2132**



**TYPE: Z-2111**

### Working parameters:

<b>Production capacity:</b>	Standard assumption is 1000 pcs/h (16 pcs/min.)
<b>Supported containers diameter:</b>	Ø 22 ÷ 35 mm
<b>Supported containers height:</b>	40 mm ÷ 100 mm
<b>Dose:</b>	0 ÷ 5 ml (microfiller) / opt 0 ÷ 20 ml

### Dimensions and weight:

<b>Width:</b>	610 mm
<b>Length:</b>	635 mm
<b>Height:</b>	865 mm (max 930 mm)
<b>Weight:</b>	~120 kg

### Supply parameters:

<b>Required supply pressure:</b>	0,8 ÷ 1,0 MPa (8 ÷ 10 bar)
<b>Compressed air quality:</b>	CLASS IV according to ISO 8573-1 for 15 ÷ 35°C
<b>Liquid product supply pressure:</b>	1 – 2 bar with delivery rate 50 litres/h

## CAPPING MACHINES

Zigler offer also includes machines and equipment for caps capping. They can be an addition to filling lines or a completely individual installations.

**Below a basic division in terms of line capacity:**

- > Semi-automatic machines with a capacity of 500 – 700 pcs/h
- > The single automatic screwing modules with a capacity of 1200 to 1800 pcs/h
- > Automatic capping lines with a capacity of up to 3600 pcs/h

Each device is custom made considering the size and shape of the cap, packaging and planned capacity.



## SEMI-AUTOMATIC MACHINES



### TYPE: Z-2204 SEMI-AUTOMATIC CAPPING DEVICE

The automatic screwing machine Z-2204 is used for screwing a closing cap that is embedded onto bottle. The type of screwed caps depends on the screw head used which is a part of the device exchangeable tooling.

### TYPE: Z-2004 SEMI-AUTOMATIC CAPPING DEVICE

The semi-automatic screwing machine Z-2004 is used for screwing a closing cap that is embedded onto the bottle in the EX design. The device is adapted to work in explosion danger areas (the drive and controls are completely pneumatic). To follow our customers' requirements we can also deliver this device with the ATEX certificate. The type of screwed caps depends on the screwing head used which is a part of the device exchangeable tooling.

#### Working parameters:

Capacity:	the standard assumption is 1,000 pcs/h (16 pcs/min)
Container height used:	30 mm ÷ 100 mm
Maximum container height:	350 mm
<b>Dimensions and weight:</b>	
Width:	415 mm
Length:	410 mm
Height:	min: 810 mm, max: 940 mm
Weight:	~43 kg

## AUTOMATIC CAPPING MONOBLOCK



### TYPE: Z-1018 – CAPPING MODULE

It is a machine used for placing and closing of screw caps on bottles. Type of screwing head depends on a type of caps. This head is an exchangeable part of the module. Optional: the module might be integrated with an automatic sorter.

This machine is designed for installation onto conveyor, on which packagings with screw caps are transported. The sensor system controls operation of the device which allows smooth work in an automatic cycle.

**NOTE ! We offer filling lines and capping units in the version for the Pharmaceutical Industry made in accordance to GMP and with validation documentation.**

#### Machinery and equipment for the pharmaceutical industry:

- > STANDARD Aerosols (medicine for burns, disinfectants, etc.)
- > MDI Aerosols (metered-dose-inhalers)
- > BOV Aerosols (ointments, creams, nasal sea water, etc.)
- > SNAP-ON PACKAGING SYSTEM (nasal drops, eye drops, etc.)
- > Screw-cap glass bottles (syrups, herbal drops, etc.)
- > Screw-cap PET bottles (syrups, drops, etc.)
- > BOTTLES with atomizers (medicine for sore throat, skin disinfection, etc.)



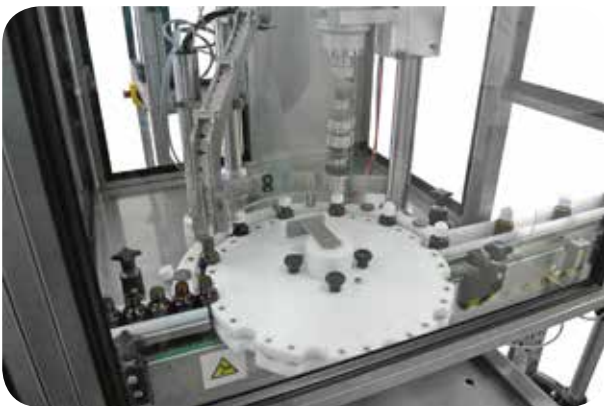


The following illustrations show some of the machines that were made by Zigler from the design to final assembly.

We invite all interested customers from the pharmaceutical industry to contact us. We will be pleased to present our offer and answer any questions.



CONTROL OF EACH STAGE DURING PRODUCTION PROCESS



ATTESTED MATERIALS



COMPACT WORKING MODULES

Main distinguishing characteristics of the equipment produced by Zigler for the pharmaceutical industry:

- > Design in accordance with GMP;
- > Special dosing systems with automatic cleaning and the possibility of connecting a washing station – CIP;
- > Easily removable dispensing cylinders;
- > Qualification and Validation documentation IQ, OQ, DQ
- > FAT and SAT documentation



DESIGN ACCORDING TO GMP



**MORE FROM  
ZIGLER...**

## REPAIRS AND SPARE PARTS:

We invite you to cooperate in the renovation and modernization of equipment for the aerosols production. We especially recommend repairs of Pamasol company machines. We have got spare parts for those devices. On the occasion of refurbishments, we also make an update of the technical documentation, therefore allowing the machine to work in accordance with current regulations.

Starting in 2013, we have the possibility of upgrading and certification of equipment in accordance with the requirements of the ATEX Directive.

### BENEFITS:

- > Maximum shorten service response time – up to 24 hours!
- > Professional service
- > The best specialists with vast experience
- > Always ORIGINAL parts and components

## SERVICE:

### YOU ARE WELCOME TO USE OUR SERVICE SUPPORT FOR ZIGLER'S EQUIPMENT:

- > Current maintenance
- > Planned warranty inspections
- > Periodic post-warranty inspections
- > Modernization and modification for newer solutions
- > Expansion of machines

### AS PART OF THE MAINTENANCE SERVICES, WE ALSO OFFER:

- > Customer line audit to determine the best options for line expansion or change of purpose (type of products)
- > Technical consultancy related to the adaptation of existing solutions to the current security regulations (ATEX)
- > Modernization of safety systems in gas containers (GAS HOUSE)
- > Preparation of as-built documentation in accordance with up to date standards

**BEFORE**



**AFTER**





## ZIGLER LAB

We are pleased to announce that in response to the needs and expectations of our clients in 2018, we have established a professional aerosol laboratory under the brand name "ZIGLER LAB". In connection with the above, we invite our current and future clients to cooperate in matters related to the broadly understood technology of aerosol products, in particular in the field of Bag-On-Valve (BOV).



### BASIC SERVICES OFFERED BY ZIGLER LAB:

- > Consulting in the selection of components for the production of aerosols (valves, spray heads, aerosol containers)
- > Selection of propellant gases for aerosols
- > Formulations of aerosol products in the field of: product-gas
- > Recipes for cosmetic and technical formulas
- > Complete product development including trials
- > Investigation of flaws in aerosols e.g. leakage, corrosion, etc
- > Product flammability test and its classification consistent with the regulation of the Council of Ministers
- > Comprehensive advice on the use of BOV (Bag-On-Valve) systems
- > Samples and a trial series in BOV technology up to 1000 pieces from the entrusted base (load)
- > Advice on the selection of machinery and equipment for filling aerosols depending on the type of technology



# STABILITY CHAMBERS FOR AEROSOL CANS

**ZIGLER's stability chambers are designed to conduct following tests of aerosol cans within a controlled environment:**

- > stability testing
- > shelf life
- > package testing

**This device is dedicated for:**

- > **pharmaceutical**
- > **cosmetic**
- > **household**
- > **technical**
- > **other**



**TYPE: Z-7011**

## BENEFITS

- > In the event of leakage of the chamber is ventilated automatically without stopping the test
- > In the event of a sharp increase in gas concentration tests will end and ventilation work with high efficiency
- > All events are recorded (gas concentration, start/stop, door's opening, temperature)
- > Interior made with an accordance to ATEX II 3G

## FEATURES

- > EX-proof, accordance to ATEX II 3G
- > Stainless steel interior and exterior
- > Touch screen control panel HMI
- > Temperature range adjustable
- > 4 – 6 shelves per door
- > Electric power supply only, power consumption: 3kW
- > Thermally insulated
- > Door with lock (provides from an interference during test)
- > Gas level controlled (LPG)
- > Authorized access for operators

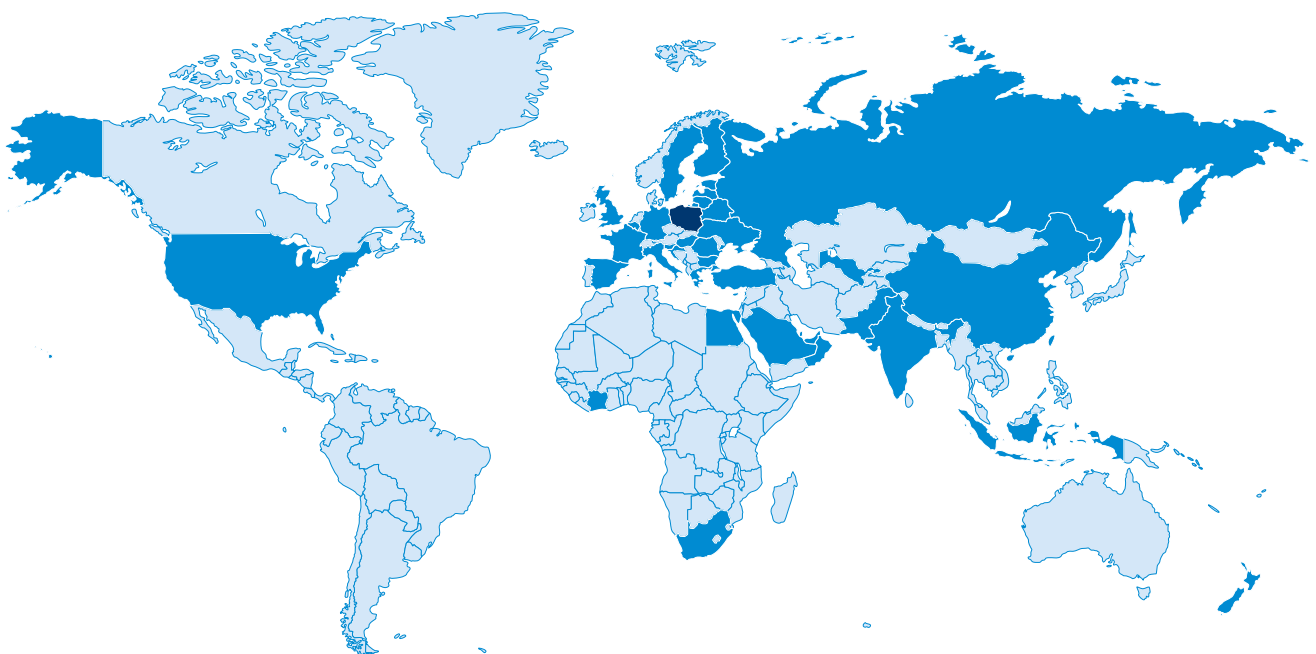
Temperature range	3 – 50	°C
Workspace Volume	0,8	m <sup>3</sup>
External Dimensions W x D x H	1620 x 1260 x 2500	mm
Voltage	3 x 400 / 50	V/Hz





# OUR MARKETS

Zigler Poland is providing services all over the globe. You are welcome to join the group of our professional customers. We will be happy to supply you with our high class equipment and support you in your business in our field. Our team of designers, mechanics, lab specialists and other is waiting to work with you for our mutual success!



## AMONG OTHERS:

- > Poland
- > Germany
- > France
- > Spain
- > Italy
- > Hungary
- > Sweden
- > UK
- > Russia
- > RSA (South Africa)
- > New Zeland
- > India
- > Indonesia
- > Belarus
- > Ukraine
- > UAE
- > Turkey
- > Switzerland
- > Egypt
- > more...

# OUR HQ

**ZIGLER POLSKA Sp. z o.o.**  
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43-600 Jaworzno – Poland





AEROSOL & FILLING TECHNOLOGY

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