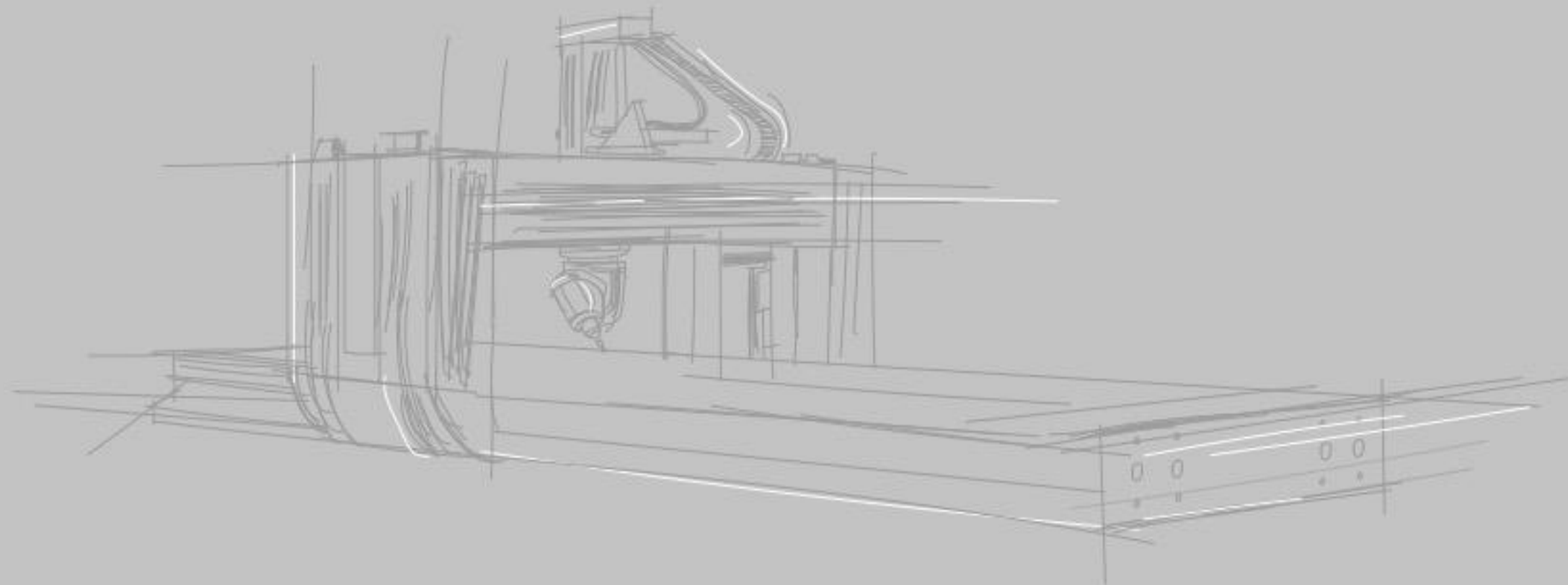


# BLACK CIRCLE

## COMPANY PROFILE



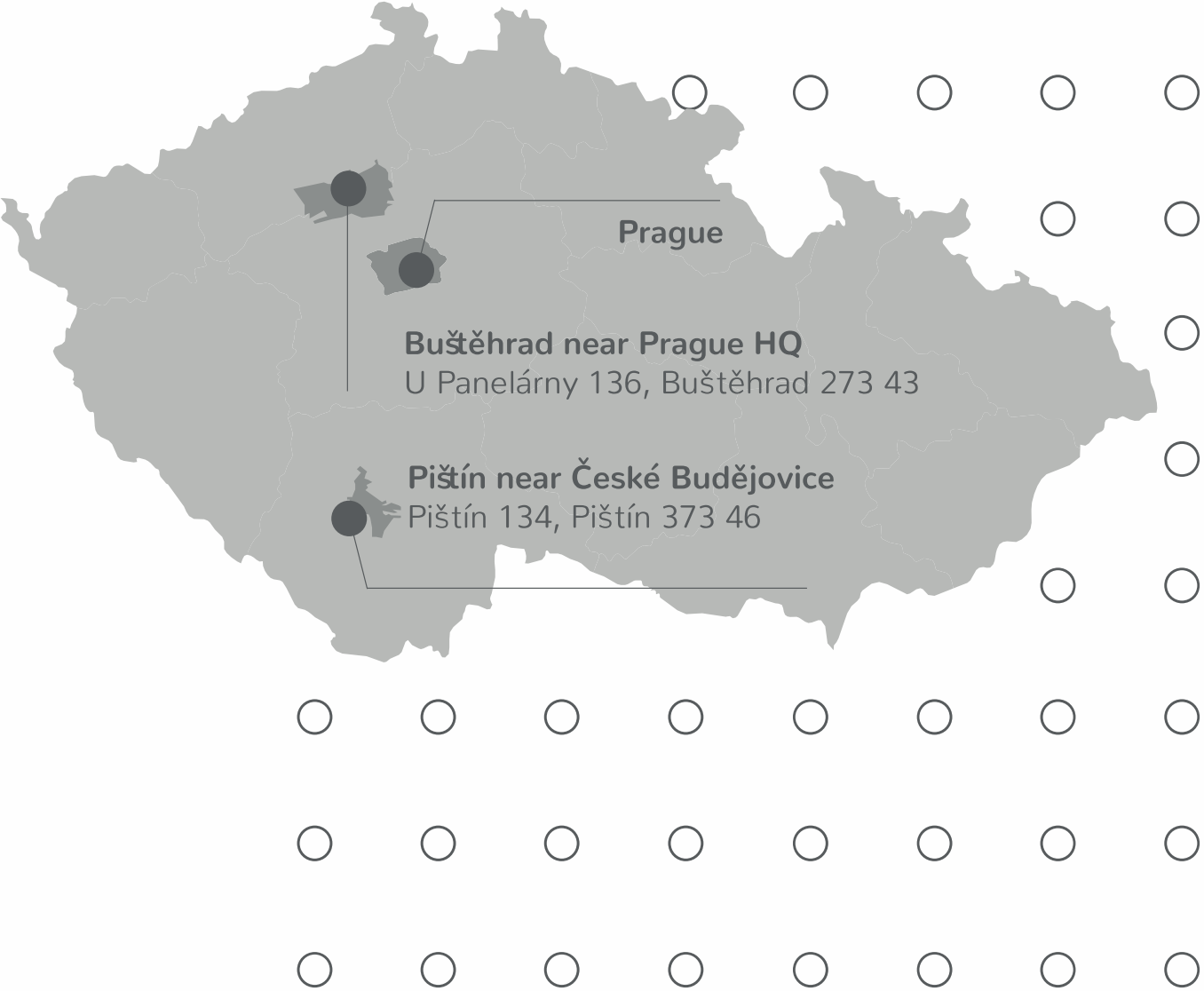
# WHO WE ARE

BLACK CIRCLE is a well-established manufacturer with a strong heritage and a bright strategy for future development in production of complex CNC machining solutions. Ever since we started the company in 1995, our main goal has been to provide comprehensive services and excellent customer care together with the production of our own CNC machining centres.

BLACK CIRCLE (in former times as SAHOS, TOOL TRADE) has developed into one of the major European producers of outstanding, efficient CNC machining centres that are constantly undergoing new technological improvements.

The core of our product portfolio consists of the well-known and highly regarded brand BRAY CNC Machining Centres® - designed for machining of aluminium alloys, composites, plastics, honeycombs and other materials. Our machining centres are suitable for use in the production of moulds, tools, models, prototypes in the automotive, aerospace, rolling stock, shipbuilding industries, and wherever precise machining is required. Our offered portfolio covers the needs of machining from the smallest workpieces to complex-shaped parts exceeding tens of meters in length. In addition to the basic configuration and options, every machine can be modified to meet the specific needs of our customers. BRAY CNC Machining Centres® offer the right technical and economical solution at the highest level of precision.

# BLACK CIRCLE



# CONTINUOUS GROWTH

Foundation of the company as a producer of machines used mainly in the woodworking industry.

Expansion of our partnership network enabling us to bring our BRAY CNC Machining Centre® to many new territories.

Achieving a record turnover and acquiring over 70% in export share.

Proud announcement of a new era of global development of our company and establishment of BLACK CIRCLE, the producer of BRAY CNC Machining Centres® with the heritage of over 700 successfully delivered machines.



# PORTFOLIO



BRAY **S**

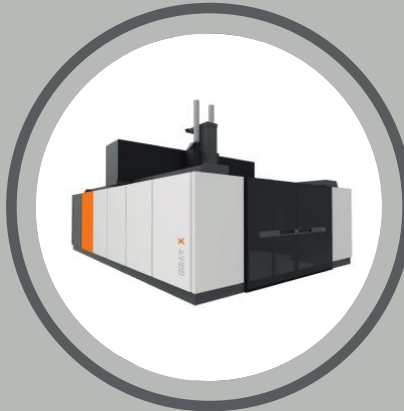
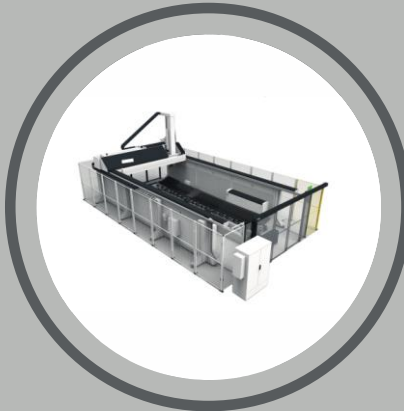
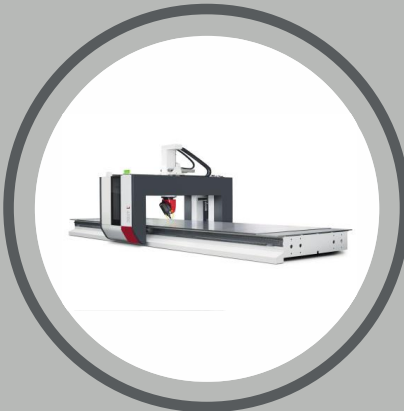
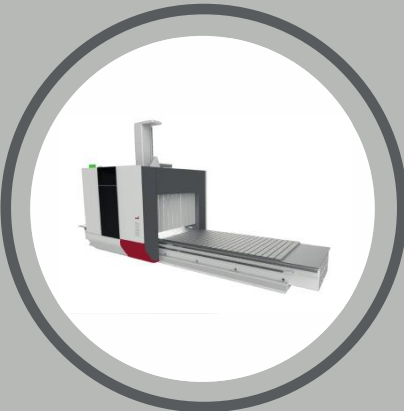
BRAY **L**

BRAY **L+**

BRAY **M**

BRAY **T**

BRAY **X**



**SMART LINE**

**CORE LINE**

**CORE LINE+**

**COMPACT LINE**

**DYNAMIC LINE**

**POWER LINE**

# BRAY S

Smart, compact 3-axis machining centre designed for surface machining by milling and drilling. Its principal use is wherever precise and productive machining of plastics, composite materials, aluminium alloys and similar materials is necessary. BRAY S, and its previous versions, has reached global deliveries of over 100 machining centres.

## SMART LINE

#COMPACT

#RIGID

#EFFICIENT



<b>X Axis</b>	mm	1900 - 2500
<b>Y Axis</b>	mm	1280, 1500
<b>Z Axis</b>	mm	500
<b>Max. speed XYZ</b>	m/min	45 / 20 / 20
<b>Spindle output</b>	kW	9 (7.5)
<b>Control system</b>		Heidenhain TNC620



## BRAY L

Core product of our portfolio. Versatile, highly adaptable 5-axis machining centre with two driven x- axis gantries designed for surface machining by milling and drilling. Its modular design, technical parameters, abundant accessories and equipment make for a quickly adaptable machine with a wide range of applications. Over 215 BRAY L machines have already been delivered.

### CORE LINE

<b>X Axis</b>	mm	3000 - 30000
<b>Y Axis</b>	mm	1500, 2200, 2500
<b>Z Axis</b>	mm	700, 1100, 1500
<b>Max. speed XYZ</b>	m/min	60 / 30 / 30
<b>Spindle output</b>	kW	12 - 25
<b>Control system</b>		Siemens, Heidenhein

#FLEXIBLE

#PRECISE

#MODULAR



# BRAY L<sup>+</sup>

Newly developed, enhanced version of our BRAY L machining centre. Major improvements can be seen in its geometry and rigidity – increased static and dynamic stiffness by 40%, productivity by 30% and reduced vibration during machining process. This variant allows for machining of sizeable profiles (up to 30 metres) of aluminium alloys.

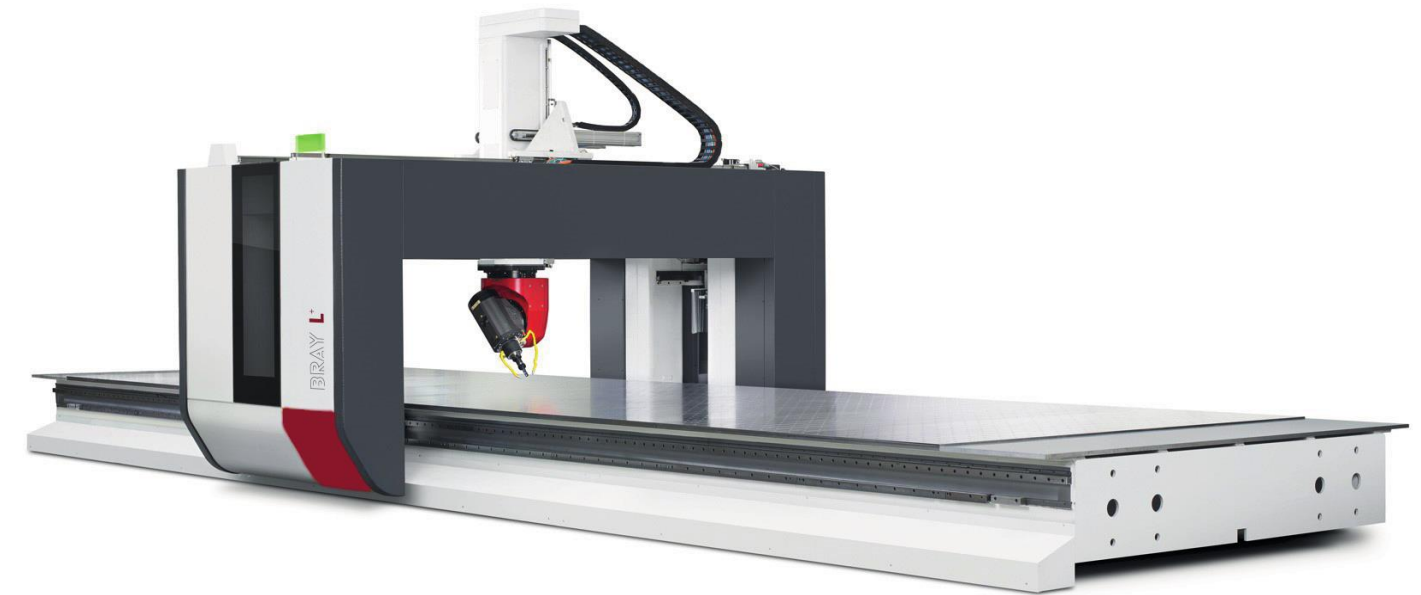
## CORE LINE<sup>+</sup>



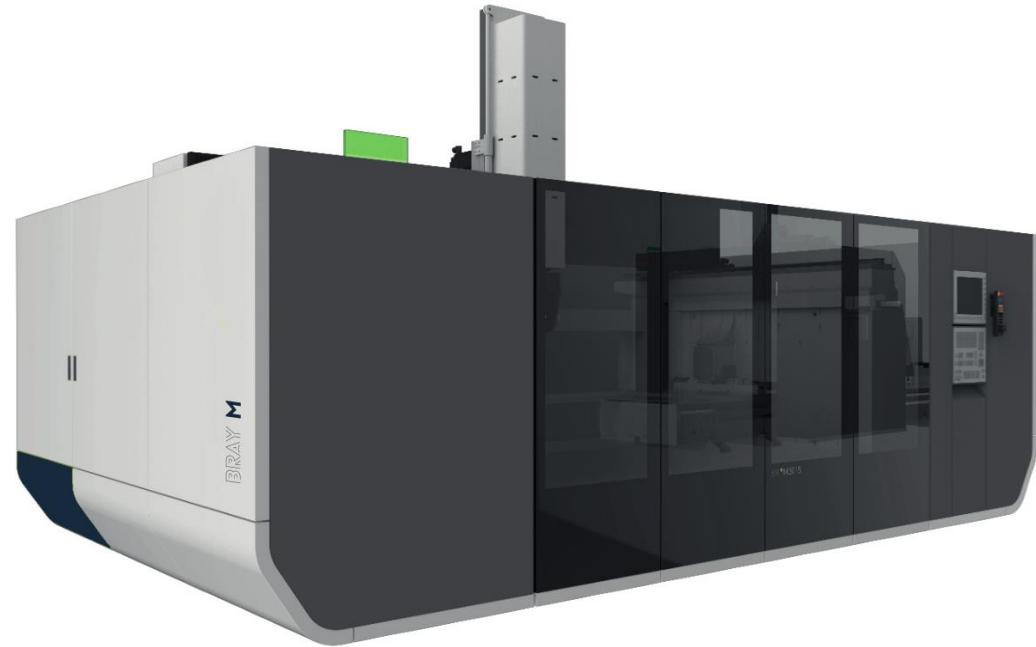
#UNIQUE

#PRECISE

#MODULAR



<b>X Axis</b>	mm	3000 - 30000
<b>Y Axis</b>	mm	1500, 2200, 2500
<b>Z Axis</b>	mm	700, 1100, 1500
<b>Max. speed XYZ</b>	m/min	60 / 30 / 30
<b>Spindle output</b>	kW	12 - 25
<b>Control system</b>		Siemens, Heidenhein



## BRAY M

BRAY M offers high productivity and precise machining guaranteed by increased rigidity, high acceleration in all axes and overall dynamics of the machining centre. It is designed to work with abrasive materials and high-productivity light alloys. For cutting and machining of dusty materials, you can choose to completely cover the ceiling with a roller shutter system.

### COMPACT LINE

<b>X Axis</b>	mm	3000 - 4000
<b>Y Axis</b>	mm	1500 - 2200
<b>Z Axis</b>	mm	800, 1200, 1600
<b>Max. speed XYZ</b>	m/min	80 / 80 / 80
<b>Spindle output</b>	kW	29
<b>Control system</b>		Siemens, Heidenhein

#TOUGH

#RAPID

#AGILE

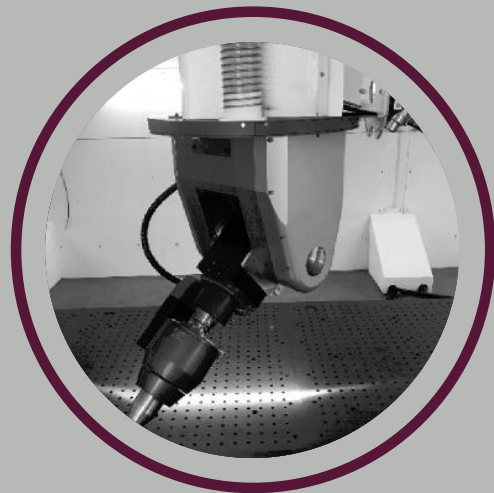




# BRAY T

High speed 5-axis gantry milling machine based on the latest research and development. With the use of progressive technology in machining honeycomb parts and its use of oscillating knife that allows for cutting in space, BRAY T is ideal for use in aerospace. Exceptional motion dynamics and accuracy ensure suitability for the most demanding operations.

## DYNAMIC LINE



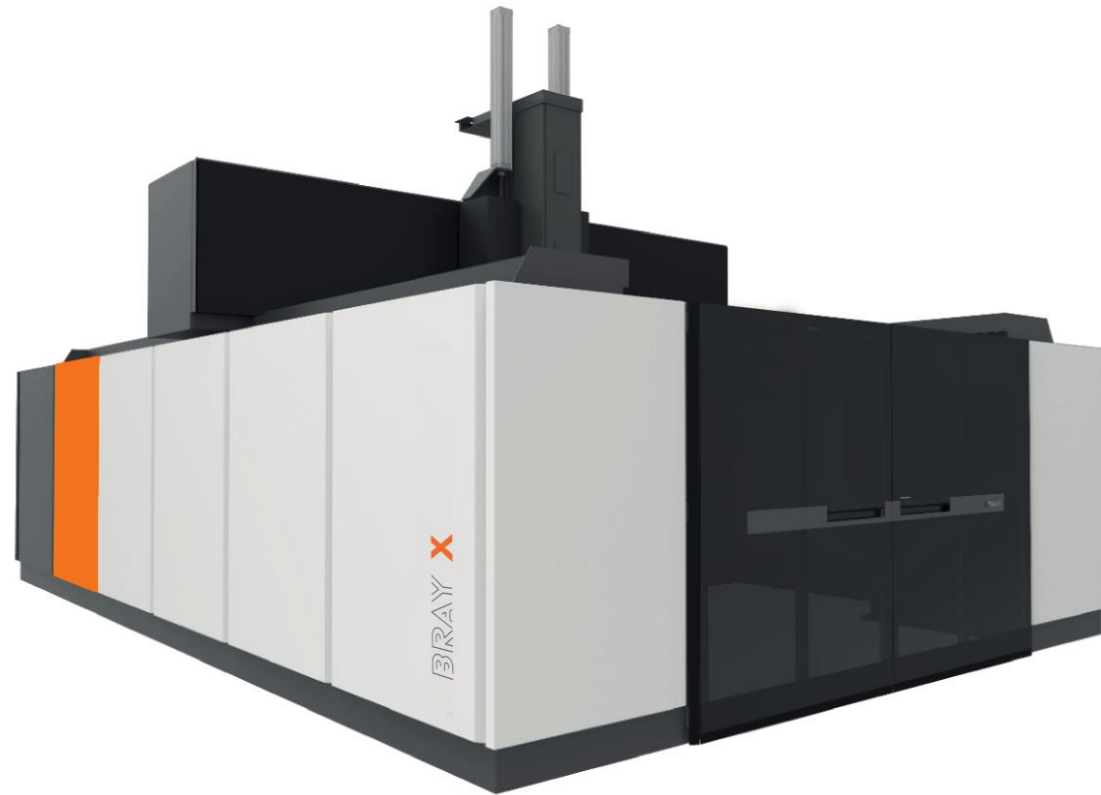
#VARIABLE

#DYNAMIC

#PROGRESSIVE



<b>X Axis</b>	mm	1500 - 30000
<b>Y Axis</b>	mm	3000 - 5000
<b>Z Axis</b>	mm	800 - 2500
<b>Max. speed XYZ</b>	m/min	80 / 80 / 80
<b>Spindle output</b>	kW	12 - 25
<b>Control system</b>		Siemens, Heidenhein



## BRAY X

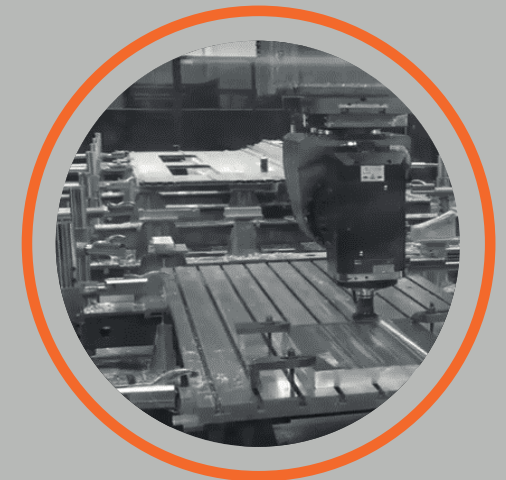
Powerful portal centre with a rigid construction in the upper gantry that ensures high dynamics machining accuracy. Due to its size and modularity that allows customization for a large variety of operations, BRAY X is particularly well-established in aerospace, in the construction of rolling stock and in the production of large format models and moulds.

### POWER LINE

#UNIQUE

#ACCURATE

#POWERFUL



<b>X Axis</b>	mm	3000 - 50000
<b>Y Axis</b>	mm	2000 - 6000
<b>Z Axis</b>	mm	1000 - 3000
<b>Max. speed XYZ</b>	m/min	60 / 60 / 30
<b>Spindle output</b>	kW	18 - 55
<b>Control system</b>		Siemens, Heidenhein

# TECHNOLOGY

The most significant role in our success story play our customers. They put their trust in us, challenge us and are key components in our growth.

We never stop improving – cooperation with the best suppliers of equipment, tools, software and our own research and development enables us to maximally benefit from the latest, up to date technology. We have established partnerships with leading universities, institutes, skilled technical consultants and most importantly, you, our customers. We strive to provide our customers with comprehensive services, that ensure not only a world-class product, but also a worry-free operation of our BRAY CNC Machining Centres® through-out their entire service life.

All of BRAY CNC Machining Centres® are highly customizable and allow for custom-made solutions to ensure that our customers are able to work with the equipment they need.

# CUSTOMER CARE

The BLACK CIRCLE Service and Technology Team is a balanced combination of engineers and professionals with many years of industry experience. Our team is constantly trained and is skilled to provide competent and reliable customer service worldwide.

We use a highly efficient integrated diagnostics system that enables our customers, you, to communicate and solve any needs immediately – remotely and online. The advantage of our 24/7 service support is in the speed and effectivity of the solutions we provide. To ensure global reach, quick resolution of the needs of our customers and the ease of use of our BRAY CNC Machining Centres® we also provide services through a network of trained global partners.

Alongside, we also carry out regular training of machine operators, technologists and service technicians to increase efficiency, productivity and smooth running of your BRAY CNC Machining Centres®.

# EXPERIENCE

## **AUTOMOTIVE INDUSTRY**

BELAZ | BENET AUTOMOTIVE | BOSMAL | C2I | COMPOSITE COMPONENTS | FUTURA COMPOSITES | INDIKAR | LENTUS COMPOSITES | NYLACAST | SKORPION ENGINEERING | T DESIGN | TOYOTA | 3D TECH

## **ROLLING STOCK INDUSTRY**

ALSTOM | HUBNER GROUP | MV ENGINEERING | SIEMENS MOBILITY | RAWAG | SCHALTBAU

## **AEROSPACE INDUSTRY**

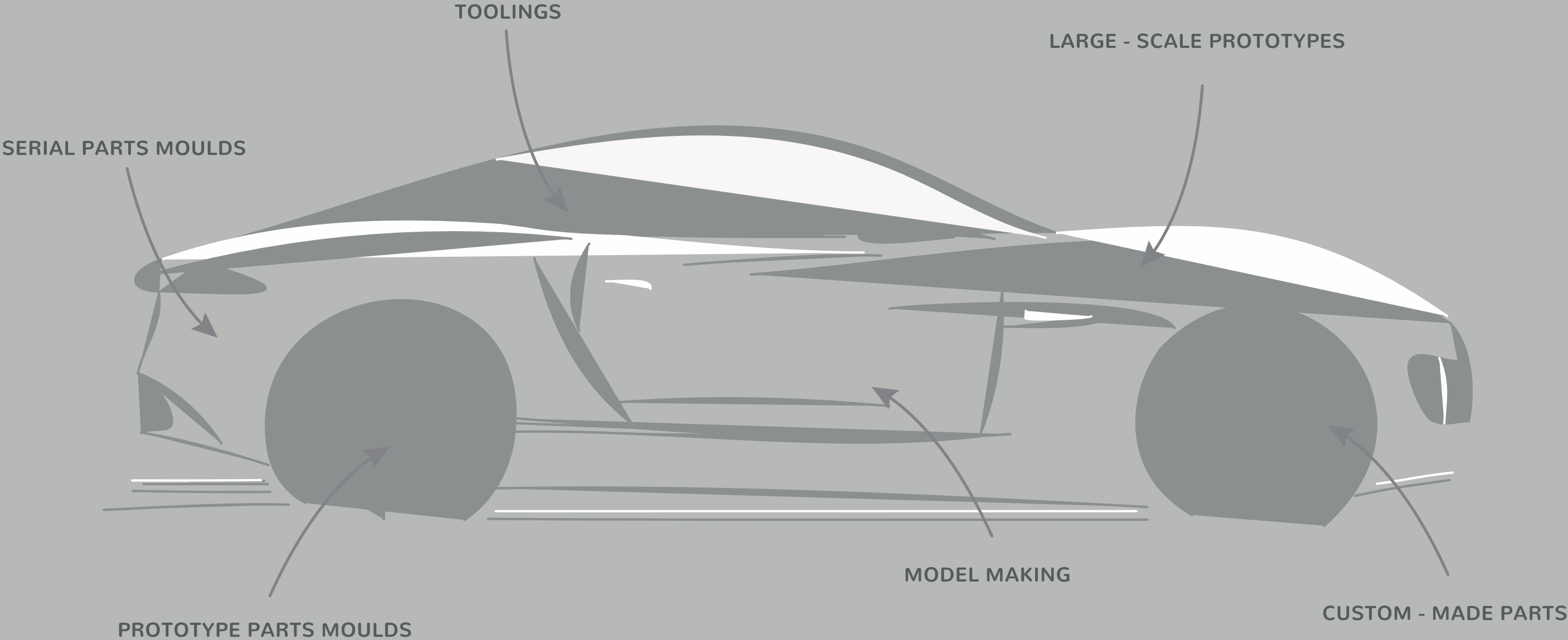
AEROTECNIC | AP AIRCRAFTS | DENEL AEROSTRUCTURES | ETEZAZZI INDUSTRIES | GKN | GPARKERENG | HPH | IBER ESPACIO | LATE COERE | LA COMPOSITE | LA SPACE | KAI | MIGAVIA | RUSSIAN HELICOPTERS | SAAB GROUP | TL ULTRALIGHT | 5M

## **SHIPBUILDING INDUSTRY**

CTO GDA | KRONSHADT | QINETIQ | SEVMASH



# APPLICATIONS



# CONTACTS

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## WHERE TO SERVICE

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# WWW.BLACKCIRCLE.CZ

#BLACKCIRCLECNC #BRAYCNCMACHININGCENTRES

BLACK CIRCLE s.r.o. is a company registered in the Commercial Register kept at the Municipal Court in Prague, Section C, 220195 under identification number 02499100 with registered address at Voroněžská 172/24, 101 00 Prague 10, Czech Republic.

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