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1.2 BioTectum

NEW GENERATION OF LAMINAR FLOW CABINETS

Class II microbiological safety cabinet, Biohazard,
made according to the EN12469 norm

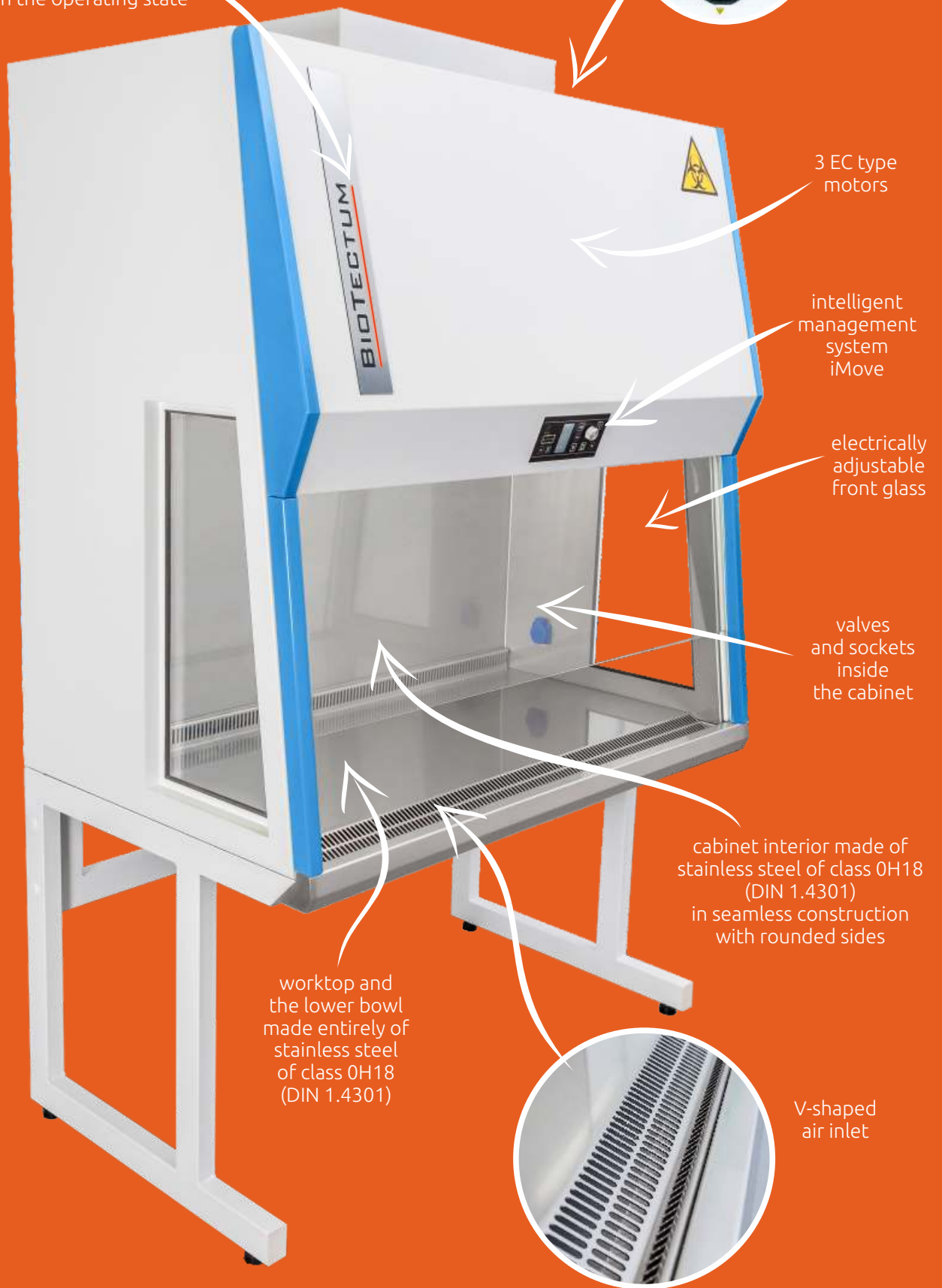
eco

made in
POLAND


BioTectum

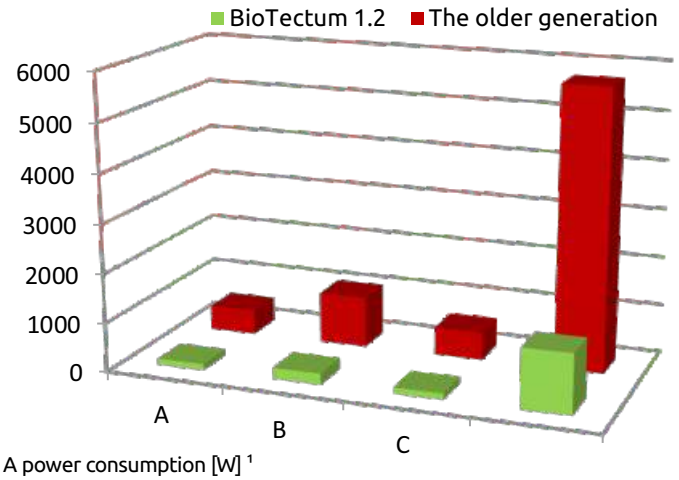
BioTectum 1.2

New generation of laminar flow cabinets



CLASS II MICROBIOLOGICAL SAFETY CABINET, BIOHAZARD, ACCORDING TO THE EN12469 STANDARD, WITH VERTICAL LAMINAR FLOW

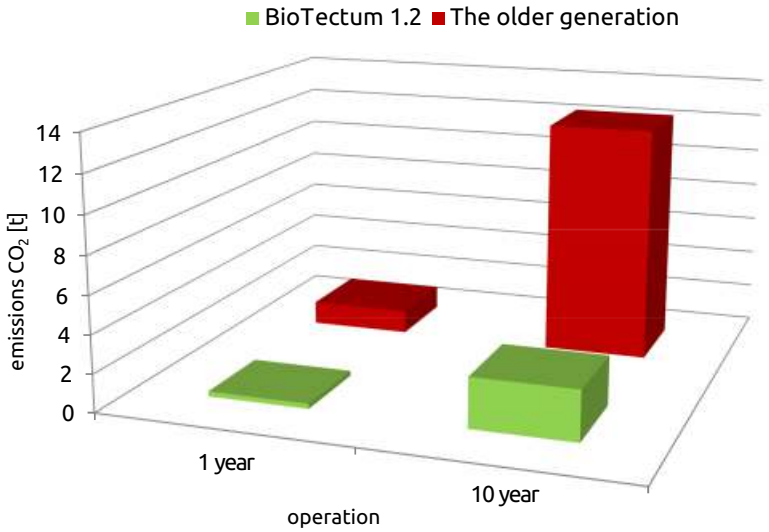
Energy demand reduced by more than 78 %



A power consumption [W] [1]
B power consumption on an annual basis [kWh] [2]
C charges for electricity on an annual basis [PLN] [3]
D charges for electricity in terms of 10 years [PLN] [3], reduction of electricity costs by an amount of ~1000 EUR

1) *In the safe work mode according to EN 12469 norm*
2) *Based on operation for 8 h/day, 5 days during the week, 52 weeks. An additional assumption has been made for BioTectum, that 20 % of cabinet operation will be realized in the SUSPEND mode*
3) *average cost of 1 kWh = PLN 0.55, data source: http://ure. gov.pl / ftp/ure-kalkulator/ure/formularz_kalkulator_html.php*

CO_2 emissions reduced by more than 75 %

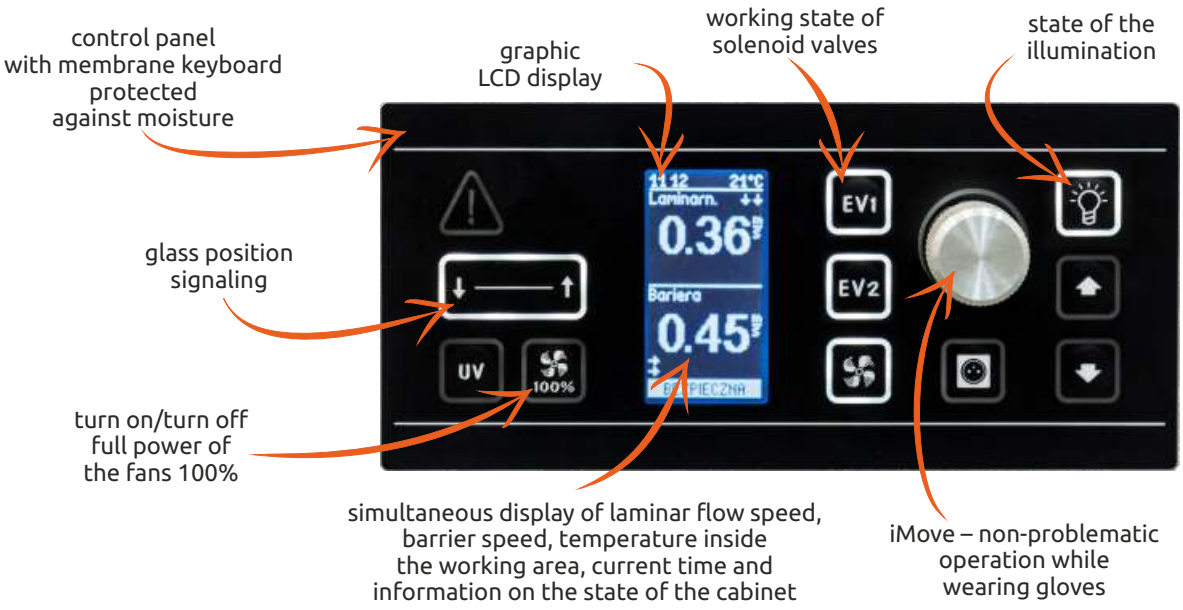


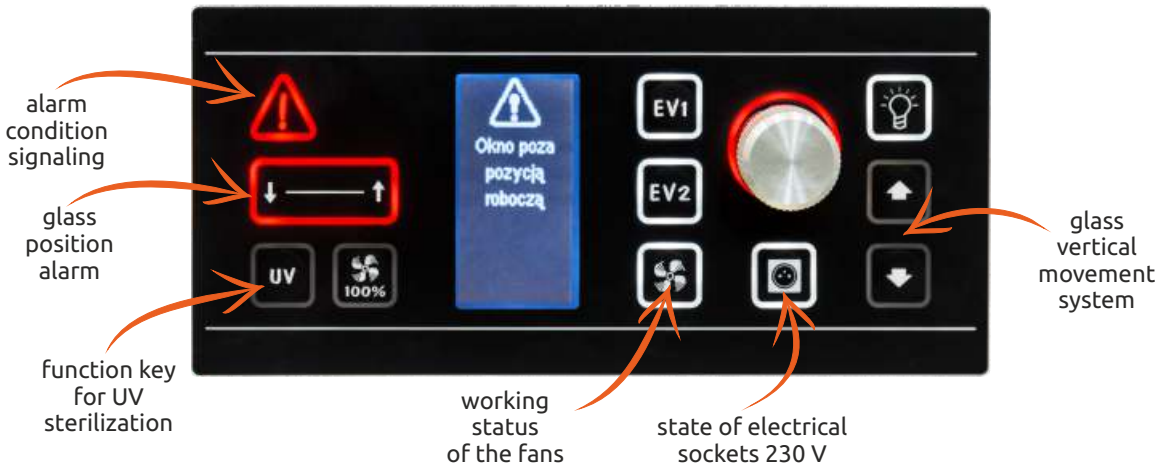
ecoMove TECHNOLOGY

During production of the new generation laminar flow cabinets a special emphasis was placed on improving the work safety, comfort and maximum reduction of energy demand. Thanks to applying three electronically commutated motors and a precise control, we gained an environment- and user-friendly product (low power consumption, low noise level and heat emission).

- 3 EC-type motors (electronically commutated)
- low power consumption < 120 W
- low noise level < 48 dB
- increased energy savings SUSPEND mode
- auto compensation of air flow velocity
- intelligent, dedicated, microprocessor based control system
- rigid construction based on an aluminum frame


BIOTECTUM





ALARM SYSTEMS

The maximum safety is provided by acoustic and visual alarm messages with the possibility of approving the acoustic alerts by the operator of the laminar cabinet.

TYPES OF ALARM MESSAGES

- exceeded working time of UV lamp
- exceeded working time of filters
- exceeded working time without service inspection
- glass outside the working position
- exceeded air temperature in the cabinet
- interrupted sterilization process
- BEZPIECZNA mode inactive
- detected power outage
- operation on the UPS
- fans working on the peak performance
- barrier air velocity is too low
- air velocity in the laminar curtain is too low
- exceeded maximum air velocity in the laminar curtain

SELF-DIAGNOSIS SYSTEMS

Fast verification of the failure enables rapid response service.

TYPES OF DIAGNOSTIC MESSAGES

- sensor failure - air velocity in the laminar curtain
- sensor failure - barrier air velocity
- temperature sensor failure
- glass failure w kurtynie laminarnej

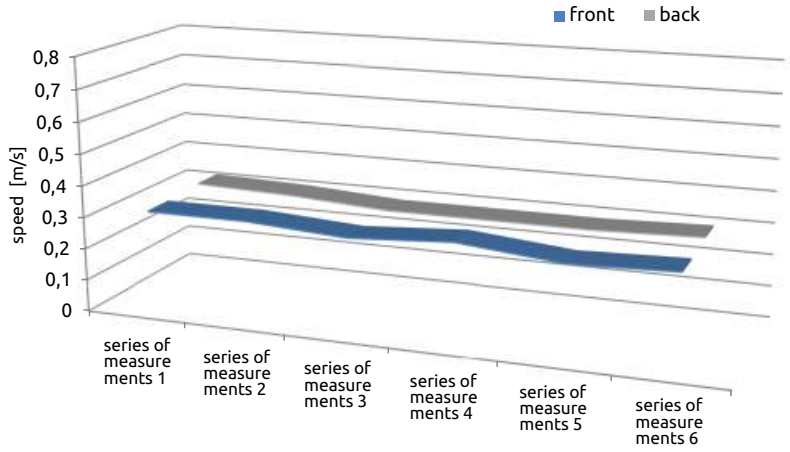
The type of displayed messages depends on the equipment options of the laminar cabinet.

EQUIPMENT / VERSION	COMFORT	ADVANTAGE	AUTOPROTECT
ull worktop, non-sectioned, removable	●	●	●
stylistic elements in orange RAL 2000	●	●	●
permanently mounted UV lamp	●	●	●
driver equipped with decontamination program	●	●	●
3 electrical sockets (2 on the left, 1 on the right-hand side of working chamber)	●	●	●
port for the DOP test of HEPA filters	●	●	●
MODBUS RTU communication protocol	●	●	●
cooperation with BMS (Building Management System)	●	●	●
RS-485 port USB port	●	●	●
clock/date	●	●	●
adjustment of the display contrast	●	●	●
frame for the cabinet made of closed profiles	○	●	●
valve for combustible gases	○	●	●
valve for technical gases	○	●	●
temperature sensor in the working chamber	○	●	●
adjustable illumination of the working area	○	●	●
AutoProtect mode	○	○	●
worktop, removable, sectioned	○	○	○
valve for combustible gases with solenoid valve (activated from the control panel)	○	○	○
valve for technical gases with solenoid valve (activated from the control panel)	○	○	○
control of an external exhaust fan	○	○	○
stylistic elements in other colour	○	○	○

● *standard* ○ *option*

Linear speed of the air in the working area (under the supply filter)

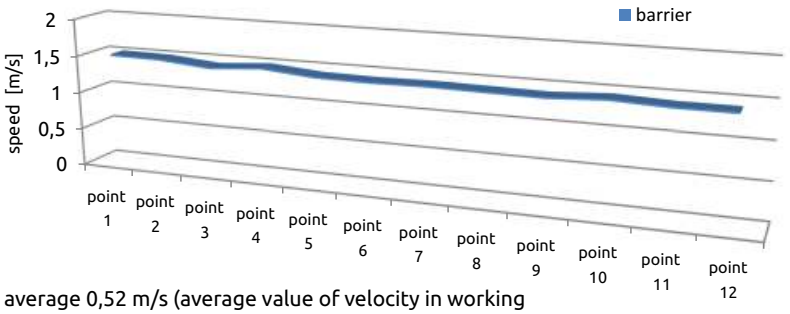
the test was made 0,10 m above the glass edge in 12 points in the horizontal plane *



average 0,30 m/s

Linear speed of the air barrier (access window)

Velocity in reduced cross-section 60 mm in 12 measuring points *



average 0,52 m/s (average value of velocity in working cross-section of the glass 200 mm)

** presented data relate to the measurement results of 12-02-2016 for cabinet BioTectum 1.2 with serial number 91512, Class II, made by an accredited laboratory*

The structure of the cabinet was created with highest quality materials with strict requirements for ergonomics, design and installation

- dtwo absolute HEPA filters with effectiveness 99.995 % for molecules ≥ 0.3um
- interior of the working area made entirely of stainless steel of class 0H18 (DIN 1.4301) in the seamless construction with rounded sides, which reduces to a minimum the number of surfaces presenting a risk of contamination
- V- shaped air inlet on the air curtain, which reduces the risk of blocking the curtain
- electrically actuated front glass, disposed at an angle relative to the worktop
- glassed sides of the cabinet
- armrest fixed along the whole length of working space, made of stainless steel
- bowl made of stainless steel put under the worktop, enables the collection of split liquids
- housing - electrostatically painted steel sheet in RAL9003 colour
- stylistic elements - orange colour RAL2000
- connections: combustible gas, inert gas or vacuum, power supply are placed on the top of the cabinet so there are no wires protruding beyond the contour of the cabinet. This design allows maximum use of laboratory space
- height of the working hole of the cabinet - 200 mm

Technical data

sound pressure level PN-EN ISO 11201	**47,2 dB****
number of motors, type	**3 electronically commutated motors**
illuminance	**800-1700 lx**
mechanical vibrations PN-EN ISO 5349	**≤ 0,005 mm**
interior of the working area	**stainless steel 0H18 (DIN 1.4301)**
main filter and exhaust filter	**type: H14 E ≥ 99,995 % according to EN 1822:2009 norm**

Electrical specification

power supply	**1N 230 V / 50 Hz**
electrical sockets protection	**10 A**
power consumption in safe work mode	**119 W**
power consumption in SUSPEND mode	**68 W**

External dimensions

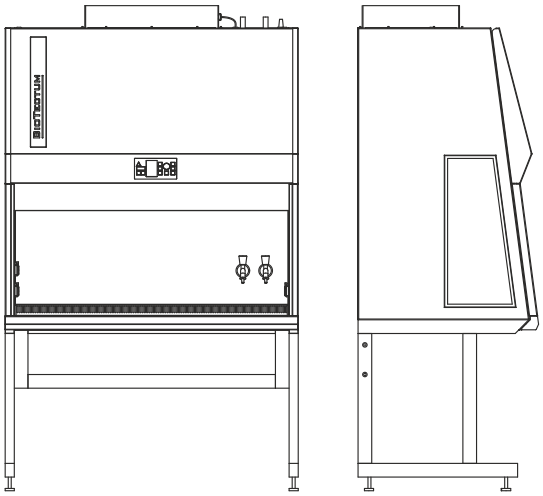
width	**1286 mm**
depth	**795 mm**
height with the frame	**2100 mm + 30 mm**

Dimensions of the working area

width	**1200 mm**
depth	**600 mm**
height	**710 mm**

*** the measurement was taken using the following parameters: laminar air flow velocity 0,25 m/s; air flow velocity in the barrier 0,4 m/s; height of the cabinet hole 160 mm*

For your safety the construction of the cabinet was designed to easily clean both sides of the glass closing the working area



- *possibility of automatic and semi-automatic UV sterilization*
- *possibility of setting the sterilization with time delay from 0... to 1440 minutes*
- *UV sterilization programming in a weekly cycle*
- *programmable sterilization time: from 1...to 360 minutes*

AutoProtect mode

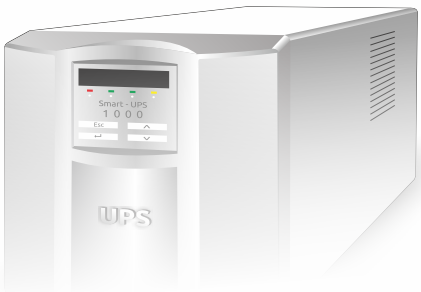
Connecting the cabinet with emergency power generator UPS and activation of AutoProtect program allows you to continue work with the cabinet after power supply failure and gives the necessary time to properly secure the material. The power supply to the electrical sockets and solenoid valves is cut off in a split second whilst the proper, safe working conditions are maintained.

The program works in two variants:

1. Alerts the operator in case of power failure (default settings) and leaves the decision to continue work with the cabinet to the operator, including the decision to close the glass and turn off the unit.

2. Automatic mode - works according to the predefined settings:

- working time on emergency power supply UPS
- time after which the glass is automatically closed and the unit is turned off
- each step is signaled by an appropriate alarm message



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Alchem Grupa Sp. z o.o

CENTRAL REGION
warszawa@alchem.com.pl
Warszawa, ul. Sokratesa 17A
tel. 22 632 99 54

SUBCARPATHIA REGION
rzeszow@alchem.com.pl
Rzeszów, ul. Boya Żeleńskiego 25B
tel. 17 850 50 60

PODLASIE-WARMIA REGION
bialystok@alchem.com.pl
Białystok, ul. Włościańska 58
tel. 85 653 87 65

KUYAVIAN - POMERANIAN REGION
torun@alchem.com.pl
Toruń, ul. Polna 21
tel. 56 658 90 40

LOWER SILESIAN REGION
wroclaw@alchem.com.pl
Wrocław, ul. Giżycka 62
tel. 71 372 66 39

WEST POMERANIAN REGION
stargard@alchem.com.pl
Stargard, ul. 1-ej Brygady 35
tel. 91 573 00 34

GREATER POLAND REGION
wielkopolska@alchem.com.pl
Ostrów Wielkopolski, ul. Długa 19
tel. 62 736 80 81

SILESIAN REGION
bielskobiala@alchem.com.pl
Bielsko-Biała, ul. Kasprowicza 9/2
tel. 33 828 55 00

COMPANY'S HEADQUARTERS
alchem@alchem.com.pl
Toruń, ul. Polna 21
tel. 56 655 05 49

www.biotectum.pl