

# USER MANUAL



**Laboratory centrifuge MPW M-UNIVERSAL**  
**Laboratory centrifuge MPW M-DIAGNOSTIC**  
**Laboratory centrifuge MPW M-SCIENCE**

**Read before use!**

Serial number of the centrifuge: .....

For centrifuges with serial no (SN):  
MPW M-UNIVERSAL: from 102MU058122  
MPW M-DIAGNOSTIC: from 102MD125922  
MPW M-SCIENCE: from 102MS027722



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# Content

<b>1</b>	<b>Symbols used in the manual and on the device.....</b>	<b>5</b>
<b>2</b>	<b>Application.....</b>	<b>5</b>
<b>3</b>	<b>Technical specification .....</b>	<b>6</b>
3.1	Environmental conditions.....	6
<b>4</b>	<b>Installation.....</b>	<b>7</b>
4.1	Content of the package .....	7
4.2	Location .....	7
4.3	Current protection .....	8
<b>5</b>	<b>Safety notes.....</b>	<b>8</b>
5.1	General remarks.....	8
5.2	Placing the rotor and accessories in the centrifuge .....	8
5.3	Filling tubes.....	9
5.4	Filling the rotor.....	9
5.4.1	Angular rotors.....	9
5.4.2	Horizontal rotors .....	10
5.5	Safety hints .....	11
5.6	Operating conditions.....	12
5.7	Equipment life.....	12
5.8	Work safety.....	13
5.9	Unbalance .....	13
5.10	Emergency stop.....	14
5.11	Residual risk.....	14
<b>6</b>	<b>Operating.....</b>	<b>14</b>
6.1	Centrifuge description .....	14
6.2	Centrifuge overview .....	14
6.3	Name plate .....	15
6.4	Control device.....	15
6.5	Setting parameters.....	15
6.6	Safety features.....	16
6.7	Increase in temperature .....	16
<b>7</b>	<b>Centrifuging .....</b>	<b>16</b>
7.1	Control panel .....	16
7.2	Display .....	17
7.2.1	Setting up RPM, RCF, TIME, temperature on the SIMPLIFIED DISPLAY.....	17
7.2.2	Switching between the screens.....	18
7.2.3	Setting up RPM, RCF, TIME, temperature on the NORMAL DISPLAY.....	19
7.3	Users programs .....	20
7.3.1	Program selection (Simplified display) .....	20
7.3.2	Program selection (Basic display).....	20
7.4	Creator of acceleration and deceleration curves .....	21
7.4.1	Acceleration characteristic, creation of episode 1.....	22
7.4.2	Adding and editing sections - acceleration .....	22
7.4.3	Acceleration graph.....	23
7.4.4	Deceleration characteristic, creation of episode 1 .....	23
7.4.5	Adding and editing sections - deceleration.....	24
7.4.6	Deceleration graph.....	24
7.4.7	Deleting sections.....	25
7.5	Programs with user characteristics .....	25
7.6	Choosing rotors and container.....	25
7.6.1	Choosing rotors and container on the SIMPLIFIED SCREEN .....	25
7.6.2	Choosing rotors and container on the BASIC DISPLAY .....	25
7.7	SHORT mode.....	26
7.8	Terminating centrifugation .....	26
<b>8</b>	<b>Parameters of centrifugation .....</b>	<b>26</b>

8.1	Choosing parameters on the SIMPLIFIED SCREEN.....	26
8.2	Choosing parameters on the BASIC DISPLAY.....	26
8.3	Choosing centrifugation parameters.....	27
8.3.1	<i>Accelerating/decelerating – changing characteristics</i> .....	27
8.3.2	<i>Radius</i> .....	27
8.3.3	<i>Density</i> .....	28
8.3.4	<i>Automatic lid open</i> .....	28
8.3.5	<i>STARY DELAY-OF TIME</i> .....	28
8.3.6	<i>Screen messages</i> .....	29
<b>9</b>	<b>Screen menu .....</b>	<b>30</b>
9.1	Starting MENU on the SIMPLIFIED DISPLAY .....	30
9.2	Starting MENU on the NORMAL DISPLAY .....	30
9.3	MENU navigation.....	30
9.4	Configuration .....	31
9.4.1	<i>Screen saver</i> .....	31
9.4.2	<i>Visual alarm</i> .....	31
9.4.3	<i>Counting time</i> .....	31
9.4.4	<i>Buzzer</i> .....	31
9.4.5	<i>Language</i> .....	32
9.4.6	<i>Rotor automatic identification</i> .....	32
9.4.7	<i>Service inspection</i> .....	32
9.5	Password.....	33
9.6	10 cycles.....	34
9.7	Work time .....	34
9.8	Rotor cycles.....	34
9.9	Manufacturer’s details.....	34
9.10	Diagnostics.....	34
9.11	Factory settings.....	35
<b>10</b>	<b>Report printout – USB (M-UNIVERSAL only).....</b>	<b>35</b>
<b>11</b>	<b>Maintenance.....</b>	<b>37</b>
11.1	Cleaning of the centrifuge.....	37
11.2	Maintenance of centrifuge elements .....	37
11.3	Sterilization .....	38
11.4	Autoclaving .....	39
11.5	Chemical resistance.....	40
<b>12</b>	<b>Troubleshooting.....</b>	<b>41</b>
12.1	Emergency cover release.....	41
<b>13</b>	<b>Guarantee.....</b>	<b>42</b>
<b>14</b>	<b>Transport and storage.....</b>	<b>42</b>
<b>15</b>	<b>Disposal.....</b>	<b>43</b>
<b>16</b>	<b>Manufacturer’s info .....</b>	<b>43</b>
	<b>Distributor’s info.....</b>	<b>43</b>
<b>17</b>	<b>Annexes .....</b>	<b>43</b>
A.	Additional accessories	
B.	Declaration of conformity (CE, ROHS 2)	
C.	Declaration of decontamination (repair / return)	
D.	Nomogram RPM / RCF	

## 1 Symbols used in the manual and on the device

Symbol	Explanation
	<b>WARNING!</b> Warning of potential injury or health risk
	<b>DANGER!</b> Risk of electric shock with potential for severe injury or death as a consequence
	<b>DANGER!</b> Biohazard with potential for risk to health or death as a consequence
	<b>DANGER!</b> Risk of explosion with potential for severe injury or death as a consequence
	Symbol identifying a medical device for in vitro diagnostic use
	CE mark
	Symbol informing about the method of disposal
	Please read the instruction manual before you start working with the device
	Manufacturer's data

## 2 Application

Centrifuges **MPW M-UNIVERSAL**, **MPW M-DIAGNOSTIC**, **MPW M-SCIENCE** are a family of ventilated, non-automatic tabletop laboratory centrifuges. The devices are intended for use as additional equipment for In Vitro Diagnostics (IVD), they are used to separate samples taken from human, animal, and plant organisms into components of different densities under the influence of centrifugal force, in order to provide information about their biological state and to other analytical work.

The design of the centrifuge ensures ease of use, safe operation, and a wide range of applications in laboratories for medical, biochemical, and other analyses.

Centrifuges are not biotight, therefore, when centrifuging preparations requiring biotightness, containers and closed and sealed rotors should be used. It is not allowed to centrifuge caustic, inflammable, and explosive preparations in the centrifuges.

### 3 Technical specification

manufacturer	"MPW MED. INSTRUMENTS" SPÓŁDZIELNIA PRACY, Boremłowska 46 Street, 04-347 Warszawa														
type	MPW M-DIAGNOSTIC					MPW M-SCIENCE					MPW M-UNIVERSAL				
mains voltage (L1+N+PE)	230V	100V	110V	120V	127V	230V	100V	110V	120V	127V	230V	100V	110V	120V	127V
	±10%		±5%			±10%		±5%			±10%		±5%		
mains frequency	50Hz		60Hz			50Hz		60Hz			50Hz		60Hz		
connected load (max.)	190W					230W									
current protection [A]						T 8A									
capacity (max.)	500 ml					100ml					500ml				
speed – RPM	90 ÷ 6000 rpm (step 1 rpm)					90 ÷ 18000 rpm (step 1 rpm)									
force – RCF	4830 x g (step 1 x g)					24270 x g (step 1 x g)									
running time	00:00:01 ÷ 99:59:59 – [h. : min : s] (1s step)														
time counting	since start button is pressed / since preselected speed is reached														
short-time operation mode – SHORT	yes														
continuous operation mode – HOLD	yes														
menu languages	Polish, English, German, Spanish, Italian, Portuguese, Russian, Swedish, French, Czech														
user programs	100														
acceleration (ACCEL)	10 linear curves														
deceleration (DECEL)	10 linear curves														
USB communication	no					no					yes				
Electromagnetic compatibility	according to EN 61326-1:2006														
degree of protection	IP20														
dimensions:															
height (H)	299 mm														
width (W)	357 mm														
depth (D)	451 mm														
height with open cover (H <sub>oc</sub> )	572 mm														
noise level	≤60dB														
weight 230V	approx. 22 kg					approx. 20 kg					approx. 22 kg				
weight 120V	approx. 23,7 kg					approx. 21,5 kg					approx. 24,2 kg				

#### 3.1 Environmental conditions

- The device may only be used indoors.
- The permissible ambient temperature is 2°C to 40°C.
- Maximum allowed relative humidity 80% at temperature up to 31°C decreasing linearly to 50% relative humidity at 40°C.
- The mains voltage fluctuations must not exceed ± 10% of the nominal voltage.
- Maximum altitude 2,000 m above sea level.
- Overvoltage category II.
- Pollution degree 2.

## 4 Installation


Open the package. Remove the box containing the accessories. Take out centrifuge from the container. Keep the box and packing materials in case of service shipping.

### 4.1 Content of the package

name	pcs.	cat no.
centrifuge MPW M-UNIVERSAL/MPW M-DIAGNOSTIC / MPW M-SCIENCE /	1	102MU/2-56 102MU/1-56 102MD/2-56 102MD/1-56 102MS/2-56 102MS/1-56 (Type and supply version dependent)
complete clamp	1	17142
spanner for the rotor	1	17099T
spanner for emergency opening of the cover	1	18640
power cord 230V / 120V	1	17866/17867
fuse WTA T8A 1150V	2	17865
vaseline 20ml	1	17201
USB A-A cable	1	16655*
user manual	1	See page 1

\*- only MPW M-UNIVERSAL

### 4.2 Location

	<ul style="list-style-type: none"> <li>▪ The device is heavy, so lifting and carrying the centrifuge can lead to back injuries. Risk of injury while lifting and carrying heavy loads.</li> <li>▪ Lifting and transporting of the centrifuge should be done with a sufficient number of helpers. Use a transport aid for transporting the centrifuge.</li> <li>▪ The device should be lifted by the underside in the vicinity of the its feet and placed directly on a suitable lab table.</li> <li>▪ Ensure safe location.</li> <li>▪ The centrifuge shall not be located near source of heat and shall not be subjected to direct sunlight.</li> <li>▪ The table for the centrifuge shall be stable and shall have flat-levelled table top.</li> <li>▪ Centrifuge should be set horizontally on a rigid base.</li> <li>▪ It is necessary to ensure a safety zone of the minimum 30cm round the centrifuge from every direction (for ventilation needs). Do not veil ventilation holes !</li> <li>▪ Passed parameters of the centrifuge are referring to the above named temperatures (see <b>Technical specification</b>).</li> <li>▪ At the change of the place from cold to warm one, condensation of water will occur inside the centrifuge. It is important then that sufficient time be provided for drying the centrifuge prior to starting the centrifuge again (min. 4 hours).</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Do not position the centrifuge so that it is difficult to operate the power switch</li> <li>▪ Supply voltage given on the rating plate has to be consistent with local supply voltage. MPW MED INSTRUMENTS laboratory centrifuges are 1st safety class devices and they are provided with the three-core cable with the plug resistant to dynamic loadings. Mains socket shall be provided with the safety pin - protective earth (PE).</li> <li>▪ It is recommended to install emergency cut-out that shall be located far from the centrifuge, near the exit or beyond the room.</li> </ul>



- Before switching on, check whether the centrifuge is connected to power supply correctly. It is obligatory to use only power cord recommended by manufacturer.
- Before using the device, check that it is properly installed.

### 4.3 Current protection



The centrifuge is equipped with thermal current protection. Fuse is situated in the plug-in socket unit at back wall of the centrifuge.

## 5 Safety notes

### 5.1 General remarks



- The laboratory centrifuge may be operated only by qualified laboratory personnel, after reading the operating manual.
- The operating instructions are part of the product.
- The operating manual should always be kept in the vicinity of the centrifuge.
- The centrifuge cannot be operated contrary to its purpose.
- If the centrifuge is used in a manner inconsistent with the manufacturer's guidelines, the safety of its use may be impaired.
- For centrifugation in the centrifuge, only containers and inserts provided in the list of equipment and centrifuge tubes, the diameter, length and strength of which are appropriate, should be used. The use of test tubes not included in the list should be agreed with MPW MED. INSTRUMENTS or its authorized representatives.
- Pay attention to the quality and appropriate thickness of the glass test tubes walls. Glass tubes should be centrifuge tubes, and their use in the centrifuge should be made dependent on the following guidelines:

glass tubes	max RCF in angular rotors	max RCF in horizontal rotors
5-10 ml	3000 x g	4000 x g
30-100 ml	spinning not allowed	4000 x g

- Weighing the filled test tubes into the rotor is recommended. When centrifuging in horizontal rotors, it is recommended to weigh the filled containers / hangers. This will allow to minimize the differences in mass between them, and as a result to avoid the negative impact of vibrations on the engine suspension and to reduce noise levels during the operation of the centrifuge.

### 5.2 Placing the rotor and accessories in the centrifuge


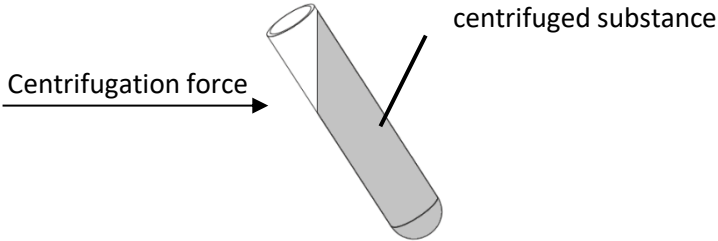
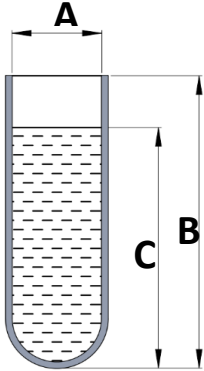


- Connect the centrifuge to the power supply (mains socket at the back of the centrifuge).
- Turn on the centrifuge (switch on the side of the centrifuge).
- Open the cover of the centrifuge by pressing the COVER key. Before installing the rotor, check that the rotating chamber is free from any contamination. If there is dust, glass splinters, liquid residues, etc., remove them.
- The rotor can fall if not handled properly, therefore it should always be handled and placed in the centrifuge using both hands.
- Place the rotor on the motor axis by sliding it onto the cone as far as it will go (keeping the coaxiality between the rotor and the motor axis).
- Thread the clamp into the motor shaft (clockwise), then tighten it securely with the rotor wrench.




	<ul style="list-style-type: none"> <li>▪ Fill the rotor with containers / hangers / test tubes according to recommendations in section <b>Filling the rotor</b>.</li> <li>▪ In order to replace the rotor, first remove the tubes and containers from it, unscrew the rotor clamp with the provided wrench, counterclockwise, and then use both hands to grasp the rotor on the opposite sides and remove it from the motor shaft.</li> <li>▪ Install another rotor as described above.</li> </ul>
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### 5.3 Filling tubes

	<ul style="list-style-type: none"> <li>▪ Fill test tubes outside the centrifuge.</li> </ul>
	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>▪ If the manufacturer of the test tube has not specified the maximum level, fill the test tubes so that the centrifuged substance does not run out of the vessel during centrifugation. To do this, use the formula below:</li> </ul> <div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;"> <math display="block">C &lt; B - \frac{A}{2}</math> <p> <b>A</b> – internal tube diameter  <b>B</b> – tube height  <b>C</b> – max liquid level </p> </div>

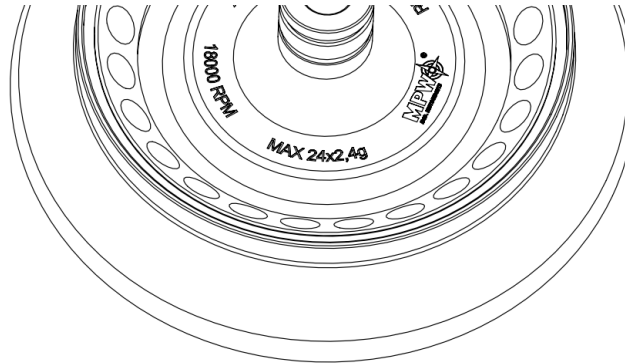
### 5.4 Filling the rotor

#### 5.4.1 Angular rotors

	<p><b>CAUTION!</b></p> <ul style="list-style-type: none"> <li>▪ Angle rotors must be used with a suitable cover which must be screwed securely onto the rotor. The rotor and the cover are marked with the same catalog number (REF) to eliminate the risk of incorrect selection when you have several types of rotors.</li> </ul>
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- Check that the impeller is seated correctly and firmly bolted to the motor shaft.
- Do not exceed the maximum rotor load (information is provided on the rotor).

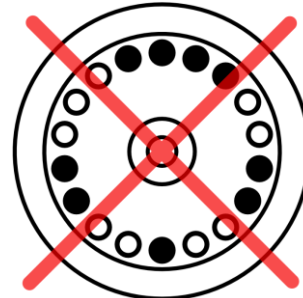
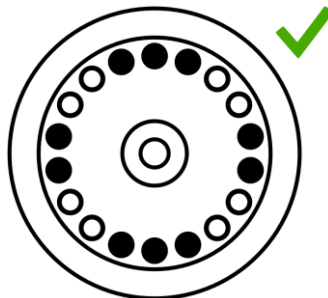
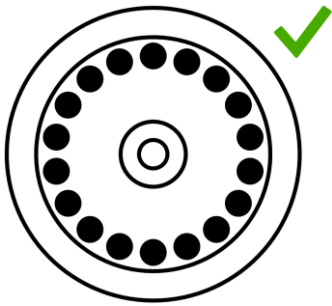
An example of the marking on the angular rotor:



**MAX. 24x2,4g** - means the possibility of placing 24 test tubes in the rotor, each weighing 2.4 g.

- To ensure symmetrical loading, insert test tubes of the same type and weight in pairs into opposite openings of the rotor. If reduction inserts are used, they should also be placed in the holes opposite to each other in pairs of the same type.

Examples of correct and incorrect arrangement of test tubes in the rotor:

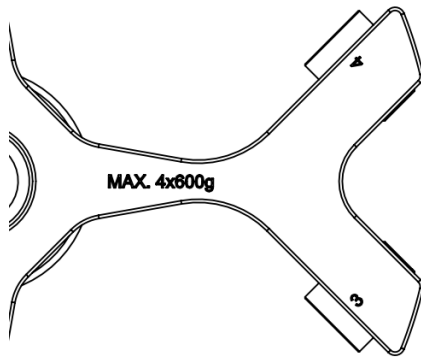


#### 5.4.2 Horizontal rotors

- Check that the impeller is seated correctly and firmly bolted to the motor shaft.
- Make sure that the rotor pins and grooves of the containers / hangers are clean, and then it is necessary to lubricate them with the technical petroleum jelly supplied with the device (catalog number 17201).
- Place the containers / hangers in the rotor.
- Horizontal rotors must be filled with a set of containers / hangers.
- Observe the limitations for the permissible centrifugal mass stated on the rotor and container. If the marking appears on the rotor, it refers to the mass of the substance to be centrifuged, and if on the container it refers to the mass of the contents of the container, i.e. insert, test tube and the substance contained in it.

**Examples of markings on horizontal rotors and containers:**

**Marking on the rotor**



**Marking on the container**

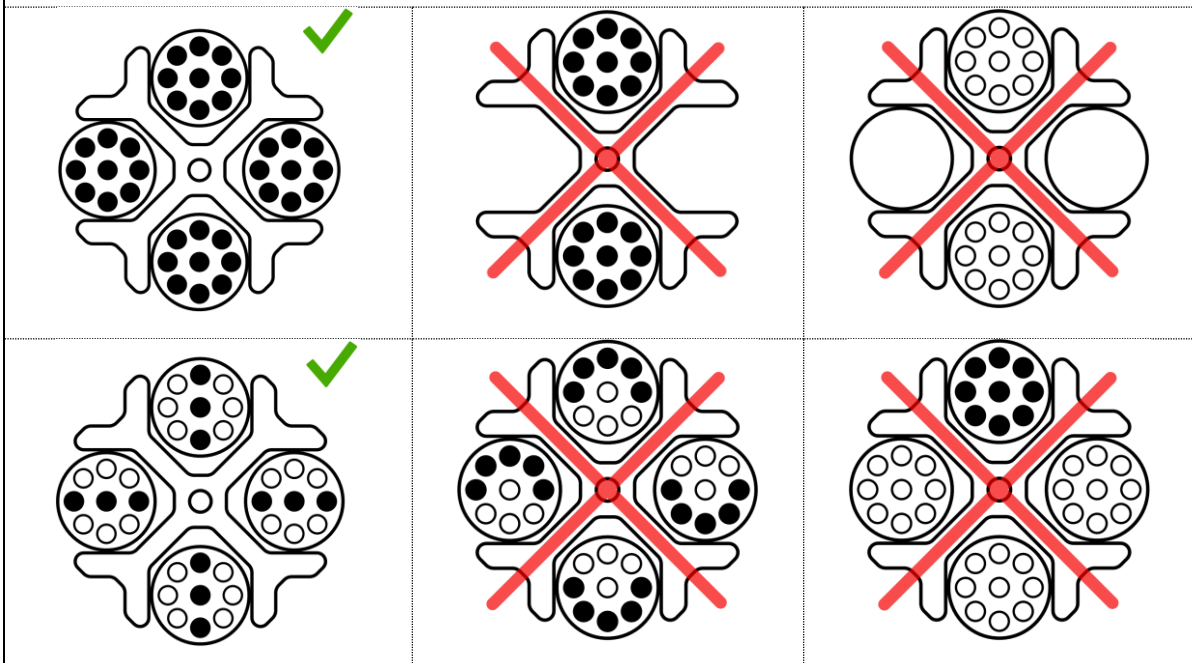


**MAX. 4x600g** – permissible weight of the contents of the test tubes placed in each of the 4 containers

**MAX. 290g** – maximum weight of the contents of the container

- In order to ensure symmetrical and even rotor load, try to fill opposite seats with containers / hangers of the same type and weight.
- Tubes should be placed symmetrically facing each other.
- Before starting the centrifugation, check that all containers / hangers are properly placed in the rotor and can swing freely.
- For this purpose, empty test tubes should be placed in containers. Manually tilt the containers to the horizontal position and check that there are no collisions between the tubes, containers / hangers and the rotor.

**Examples of correct and incorrect arrangement of test tubes in the rotor:**






**5.5 Safety hints**


**ROTOR MAINTENANCE**





- In order to increase the durability of gaskets, threaded places, rotor pins, undercuts for pins in containers, they must be cleaned, and then it is necessary to lubricate them with the technical petroleum jelly supplied with the device (catalog number 17201).
- Use only accessories that are in good technical condition.

	<p><b>HU EQUIPMENT MAINTENANCE</b></p> <ul style="list-style-type: none"> <li>Make sure the sealing rings (rubber) are lightly coated with grease to maintain tightness. Use high vacuum silicone grease, eg type "C" by LUBRINA.</li> </ul>
	<p><b>HAZARDOUS MATERIALS</b></p> <ul style="list-style-type: none"> <li>Infectious materials should be centrifuged only in containers / rotors with covers.</li> <li>It is not allowed to centrifuge toxic or infectious materials if the rotor or test tube seal is damaged.</li> <li>Appropriate disinfection procedures should always be carried out, if hazardous substances have contaminated the centrifuge or its accessories.</li> </ul>
	<p><b>EXPLOSIVE, FLAMMABLE MATERIALS</b></p> <ul style="list-style-type: none"> <li>It is not allowed to centrifuge explosive and inflammable materials.</li> <li>Do not centrifuge substances that could create a potentially explosive atmosphere as a result of the high energy supply during centrifugation.</li> <li>The centrifuge must not be used in an explosive atmosphere.</li> <li>It is not allowed to centrifuge materials that may generate flammable or explosive mixtures when exposed to air.</li> </ul>

## 5.6 Operating conditions

	<p><b>GENERAL REMARKS</b></p> <ul style="list-style-type: none"> <li>Only original equipment of centrifuges and spare parts should be used.</li> <li>In case of a malfunction of the centrifuge, the MPW MED factory service should be used. INSTRUMENTS or its authorized representatives.</li> <li>It is not allowed to start the centrifuge if it is not installed correctly or the rotor and accessories are not properly mounted.</li> <li>The centrifuge must not be transported with the rotor installed on the motor shaft.</li> <li>Fill the rotor equipment to the same weight in order to prevent unbalance of the centrifuge (point <b>Filling the rotor</b>).</li> </ul>
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	<p><b>START-UP</b></p> <ul style="list-style-type: none"> <li>Before switching on the device, carefully read all sections of this manual in order to ensure the correct operation of the device and to avoid damage to the device or its accessories.</li> </ul>
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	<p><b>CENTRIFUGAL SUBSTANCES</b></p> <ul style="list-style-type: none"> <li>Rotors are designed for centrifuging liquids with an average density of 1.2 g / cm<sup>3</sup> or less. This applies to centrifugation at maximum speed. If liquids with a higher density are to be used, be sure to enter the density value in the <b>PARAM / DENSITY</b> tab in order to reduce the available spin speed.</li> </ul>
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## 5.7 Equipment life




	<ul style="list-style-type: none"> <li>Each spin cycle in which the rotor has accelerated and decelerated is considered a duty cycle, independent of speed and duration.</li> <li>Do not use the equipment after the allowable number of cycles or after the</li> </ul>
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	<p>maximum service life has passed, whichever comes first.</p> <ul style="list-style-type: none"> <li>▪ The number of permissible cycles for a given rotor can be found in Menu / Rotor cycles (see the <b>Rotor cycles</b> section).</li> </ul>
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## 5.8 Work safety

The centrifuge should be inspected by an authorized service at least once a year (after the warranty period). Special circumstances, e.g., corrosive environment, may be the reason for more frequent checks. Tests should end with issuing a validation protocol, which specifies checking the technical condition of a laboratory centrifuge.

It is recommended to create a document that records all repairs and inspections. This document should be kept in the place where the centrifuge is used.

	<p><b>CONTROLS CONDUCTED BY THE OPERATOR</b></p> <ul style="list-style-type: none"> <li>▪ The operator must pay attention to the fact that the parts of the centrifuge, important from the safety point of view, are not damaged. This remark applies to: <ul style="list-style-type: none"> <li>▪ Centrifuge accessories, especially structural changes, corrosion, initial cracks, abrasion of metal parts.</li> <li>▪ Bolted connections.</li> <li>▪ Inspection of rotor and container seals, if any. Particular attention should be paid to rubber elements (seals). In the event of any damage or visible structural changes, they should be immediately replaced with new ones.</li> <li>▪ Control of the performance of annual post-warranty inspections of the technical condition of the centrifuge.</li> </ul> </li> <li>▪ During centrifugation, it is not allowed to lift, shift the centrifuge or rest on it.</li> <li>▪ During centrifugation one must not stay in the safety zone, i.e., 30 cm distance around the centrifuge, nor leave any objects, e.g., glass vessels, inside this zone.</li> <li>▪ It is not allowed to put any objects on the centrifuge.</li> </ul>
	<p><b>OPENING THE COVER DURING SPINNING</b></p> <ul style="list-style-type: none"> <li>▪ It is not allowed to use the emergency cover opening during centrifuging, because it may result in loss of health or life.</li> </ul>
	<p><b>HANDLING OF ROTORS</b></p> <ul style="list-style-type: none"> <li>▪ It is not allowed to use accessories (rotors, lids, containers, hangers and round carriers) with signs of corrosion or other mechanical damage.</li> <li>▪ It is not allowed to centrifuge substances of high corrosive aggressiveness, which may damage the materials and reduce the mechanical properties of rotors, buckets and round carriers.</li> <li>▪ It is not allowed to centrifuge rotors with removed or loose covers.</li> </ul>

## 5.9 Unbalance

	<p>Unbalance causes noise, vibration during operation and has a negative effect on the driveline (engine and suspension). The more precisely the process of balancing the feed to the rotor is carried out, the smoother the centrifuge will run and the longer the useful life of the drive system will be. Moreover, thanks to the correct balancing, an excellent level of separation of the centrifuged substance is achieved since the separated components will not be picked up again by vibrations.</p>
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The centrifuge is equipped with a rotor imbalance sensor. In the event of its activation, the centrifugation process is stopped by quick braking and an error message is displayed. Erasing the error message is possible by pressing one of the following buttons: **BACK, STOP, COVER, SET** and **▲ ▼ ◀ ▶**.

Make sure that the rotor has been properly loaded - places in the rotor must be equipped with identically filled containers, inserts and test tubes so as to obtain the best possible weight balance (see chapter **Filling the rotor**). If necessary, correct the load distribution and / or, in the case of horizontal rotors, clean and lubricate the rotor pins, then restart the spin.

### 5.10 Emergency stop

At any time during centrifugation, it is possible to interrupt the process and stop the centrifugation with the fastest rotor characteristics. This is done by pressing the stop button twice (**2x STOP**).

Pressing the **STOP** key once will stop the spinning with the braking characteristics set in the program. The message about interrupted centrifuging can be canceled with the following buttons: **BACK, STOP, COVER, SET** and **▲ ▼ ◀ ▶**.

### 5.11 Residual risk

The centrifuge is built according to the state-of-the-art and the recognized safety regulations. Nevertheless, still remain some level of residual risk due to improper operation and malfunctions. It is possible to decrease residual risk by strictly applying user manual conditions and correcting malfunction which could threaten safety, immediately.

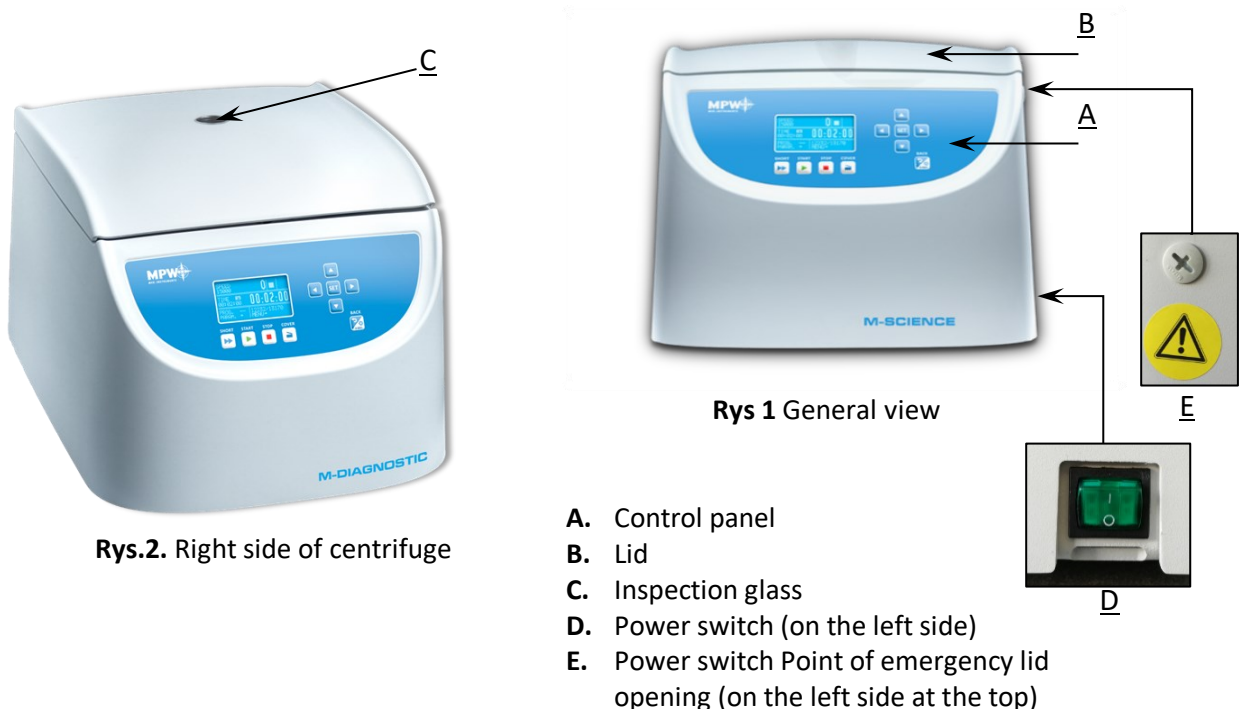
## 6 Operating

### 6.1 Centrifuge description

A new generation of MPW MED laboratory centrifuges. INSTRUMENTS is equipped with modern microprocessor controllers, very durable and quiet brushless induction motors and equipment that meets modern user requirements.

The centrifuge has a rigid self-supporting structure. The housing and cover are made of ABS plastic, the base is made of steel sheet, and the centrifugation chamber is made of stainless steel. The cover is mounted on steel hinges, and from the front it is secured against opening it during rotation with an electromagnetic lock.

### 6.2 Centrifuge overview

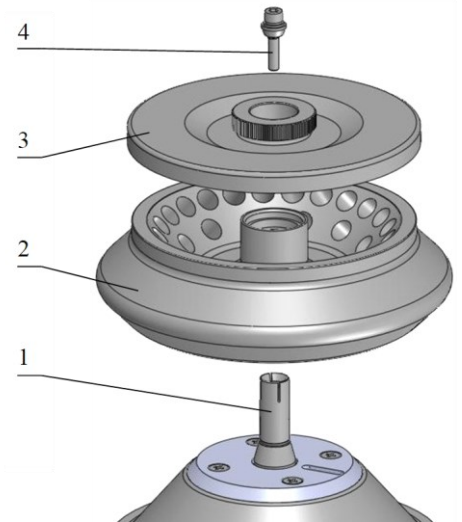


**Rys.4.** Back of the centrifuge



- I. Main socket
- II. Fuse socket
- III. USB [M-UNIVERSAL only]

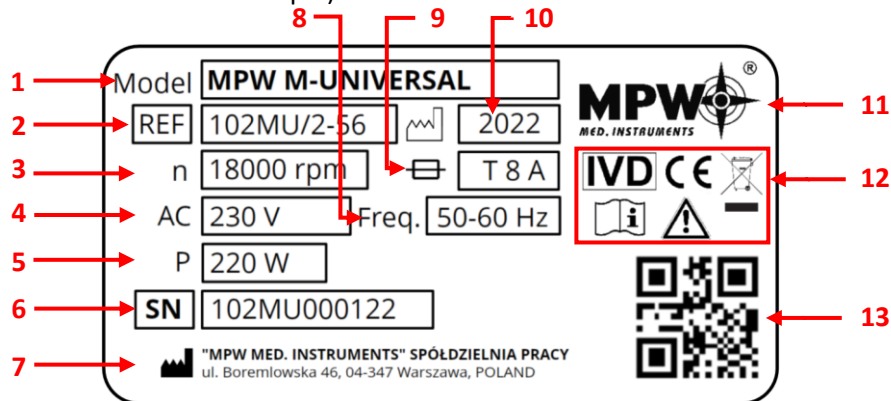
**Rys.3.** Assembly of angle rotor



- 1. Motor axle
- 2. Rotor
- 3. Rotor lid
- 4. Complete clamp

### 6.3 Name plate

The data concerning the device should be read from the rating plate located on the rear wall of the centrifuge (the picture below is an example).



- 1 Centrifuge model
- 2 Catalog number
- 3 Maximum speed
- 4 Rated voltage
- 5 Maximum rated power
- 6 Serial number
- 7 Manufacturer's information
- 8 Rated frequency
- 9 Current protection
- 10 Year of production
- 11 Manufacturer's logo
- 12 Approval marks and symbols (explained in chapter 1)
- 13 QR code for serial number

### 6.4 Control device

The microprocessor control unit of the centrifuge ensures broad possibilities of providing, realization and reading of work parameters.

### 6.5 Setting parameters

Data setting and read-out system forms hermetically closed keyboard with distinctly accessible operation points. Easily readable displays signalling individual performed operations facilitate operator's programming and recording of parameters and condition of the centrifuge.

The centrifuge is provided with the USB (only MPW M-UNIVERSAL) interface that enables connection of the centrifuge to external PC unit with the printer and recording the centrifugation parameters.

## 6.6 Safety features

### Cover lock

The centrifuge can be started only with properly closed cover. While the cover can be opened only after stopping the rotor. In case of emergency opening of the cover during operation, the centrifuge will be immediately switched-off and the rotor will brake till complete stopping

### Unbalance detecting

When loads of opposite buckets or carriers in rotors are unbalanced, the drive will be switched-off during acceleration or operation of the centrifuge – and the error message will be displayed.

### Rotor verification and checking compatibility with loaded program

Directly after starting centrifuging, a unit verifies the type of the rotor applied and in the case of its incompatibility with the type indicated in the application or absence of the rotor, the spinning process shall be stopped with simultaneous displaying the error message. The conformity of the type of the rotor is signalled with a single audible signal. In case auto identification (see 9.8 Other) option is checked, proper rotor will be automatically chosen, without user engagement.

### Rest state inspection

Opening of the centrifuge's cover is possible only with the rotor in the state of rest. When the rotor is being stopped, the STOP diode is on and goes off when it is stopped. (Excepting emergency cover opening) – see p. TROUBLESHOOTING.

## 6.7 Increase in temperature

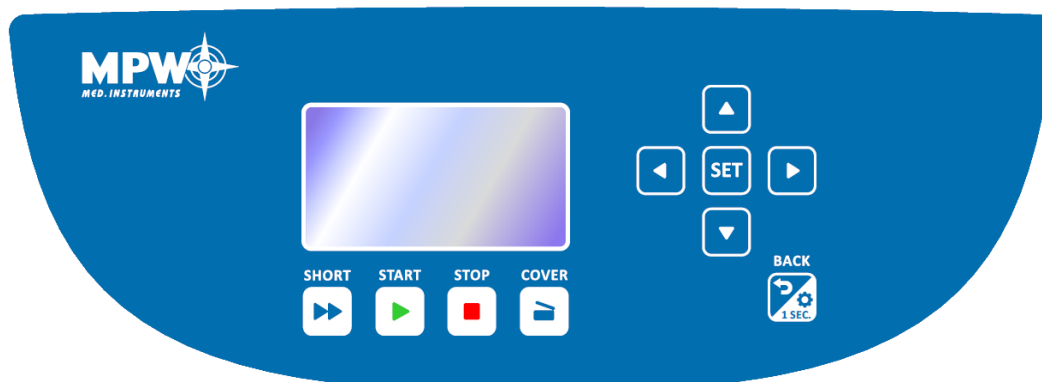
In uncooled centrifuges, the temperature in the rotor chamber, rotor and sample can increase to above 40°C, based on the run time, g-force (RCF)/speed and ambient temperature.

# 7 Centrifuging

Power switching ON/OFF is carried out with master switch situated on the side wall of the centrifuge. All settings on the centrifuge are done by means of the control panel.

## 7.1 Control panel





The control panel placed on the front casing serves the purpose of controlling centrifuge operation.



Control panel

	<b>SHORT<sup>1</sup></b>	short-time centrifuging
	<b>START</b>	start centrifugation run
	<b>STOP<sup>2</sup></b>	end centrifugation run
	<b>COVER</b>	cover opening
	<b>BACK/OPTIONS</b>	exit the current menu / cancelling switching between rpm display mode and RCF display mode
	<b>UP</b>	navigation in menu / increasing values



	<b>DOWN</b>	navigation in menu / decreasing values
	<b>LEFT</b>	navigation in menu
	<b>RIGHT</b>	navigation in menu
	<b>SET</b>	changing parameters / confirming changes

<sup>1</sup> the centrifuge is working as long as the key is pressed

<sup>2</sup> first-time pressing press – will make stopping centrifuging with acceleration characteristics set in the current program (confirm message with pressing **STOP** or **BACK** key),  
second-time pressing – will make the centrifuging as fast as possible

## 7.2 Display

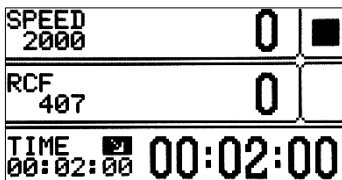
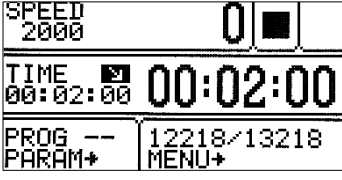
The display is located in the centre of the control panel. The main screen variants are presented below.



After switching on Centrifuge, welcome screen appears. When welcome screen disappears, it is possible to setting up parameters.

The user can choose between two types of screen.

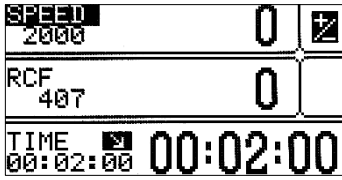
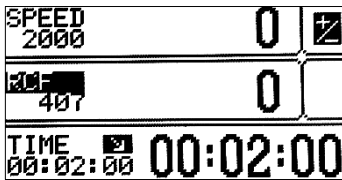


The **SIMPLIFIED SCREEN** is set by default.

TYPES OF MAIN SCREEN	
SIMPLIFIED DISPLAY (setting default)	NORMAL DISPLAY
	

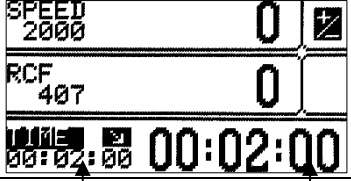


### 7.2.1 Setting up RPM, RCF, TIME, temperature on the SIMPLIFIED DISPLAY

On the screen, it is possible to set:

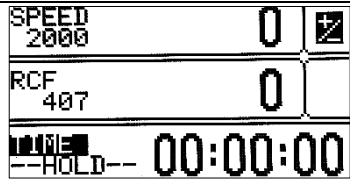
ROTATING SPEED - RPM	<b>SPEED</b>
RELATIVE CENTRIFUGAL FORCE	<b>RCF</b>
CENTRIFUGING TIME	<b>TIME</b>

Exemplary change of <b>SPEED</b> or <b>RCF</b> setting:	
 <p>or</p> 	<ul style="list-style-type: none"> <li>Press <b>SET</b> (to enter edit mode ).</li> <li>With <b>▲▼</b> keys mark <b>SPEED</b> or <b>RCF</b> (the selected tab will be highlighted).</li> <li>Press <b>SET</b> ( - blinking).</li> <li>Choose demanded order of magnitude by pressing <b>◀▶</b>.</li> <li>Set demanded value by pressing <b>▲▼</b>. Repeat above two steps for other orders of magnitude.</li> <li>Confirm set value by pressing <b>SET</b>.</li> <li>Leave edit mode by pressing <b>BACK</b>.</li> </ul>
<b>When RPM is changed, RCF is automatically corrected, and vice versa.</b>	

Exemplary change of **TIME** setting:


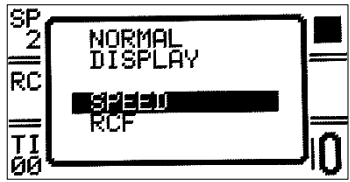
	<ul style="list-style-type: none"> <li>Press <b>SET</b> (to enter edit mode ).</li> <li>With <b>▲▼◀▶</b> keys mark <b>TIME</b>.</li> <li>Press <b>SET</b> ( - blinking).</li> <li>Set demanded value by pressing <b>▲▼</b>.</li> <li>Choose "hours", "minutes" or "seconds" by pressing <b>◀▶</b>, e.g.: <b>00:02:00</b>.</li> </ul>
<p>(set value) [hour : min : sec]</p>	<ul style="list-style-type: none"> <li>Repeat above two steps for other orders of magnitude.</li> <li>Confirm set value by pressing <b>SET</b>.</li> <li>Leave edit mode by pressing <b>BACK</b>.</li> </ul>
<p>current value (most significant digits)</p>	

**HOLD mode** - Continuous operation mode .To end centrifuging in HOLD mode press **STOP**.

	<ul style="list-style-type: none"> <li>To run centrifuging in <b>HOLD</b> mode set <b>00:00:00</b> time.</li> </ul>
---	---

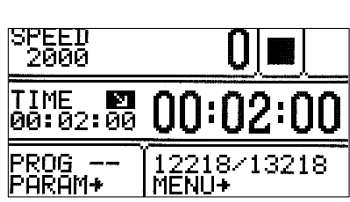


### 7.2.2 Switching between the screens

Switching the **SIMPLIFIED** display to **NORMAL** display:


	<p>Press the <b>BACK</b> button for <b>1 sec.</b> to return to the basic display (a short menu is displayed on the screen)</p> <ul style="list-style-type: none"> <li>Via <b>▲▼</b> keys select <b>DISPLAY</b>.</li> </ul>
	<ul style="list-style-type: none"> <li>Via <b>▲▼</b> keys select <b>SPEED/RCF</b>.</li> </ul> <p>Depending on what you want it to appear on the <b>NORMAL</b> display.</p> <ul style="list-style-type: none"> <li>Press <b>SET</b></li> </ul>

Switching the **NORMAL** display to **SIMPLIFIED** display:

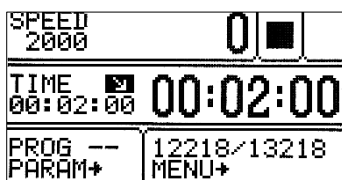
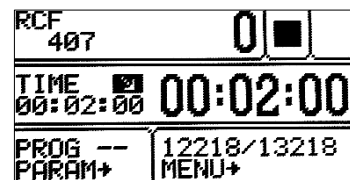
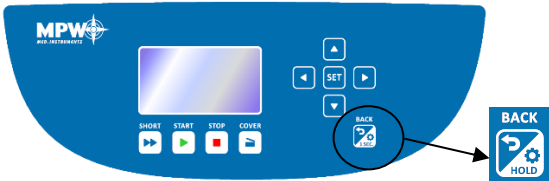
**Method I.**

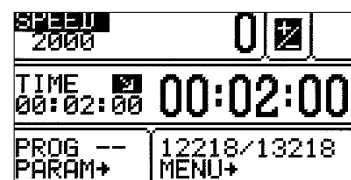



	<ul style="list-style-type: none"> <li>Press <b>SET</b> (to enter edit mode ).</li> <li>Via <b>▲▼◀▶</b> keys select <b>MENU</b>.</li> <li>Press <b>SET</b>.</li> <li>Via <b>◀▶</b> keys select <b>CONFIGURATION</b> tab.</li> <li>Press <b>SET</b>.</li> </ul>
	<ul style="list-style-type: none"> <li>Via <b>▲▼</b> keys select <b>SIMPLIFIED DISPLAY</b> tab.</li> <li>Press <b>SET</b>.</li> <li>Leave menu via <b>BACK</b> key x2.</li> </ul>




**Method II.**

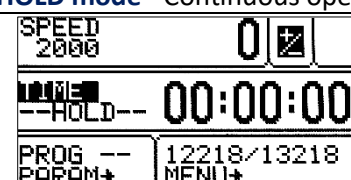
	<p>Press the <b>BACK</b> button for <b>1 sec.</b> to return to the basic display (a short menu is displayed on the screen)</p> <ul style="list-style-type: none"> <li>Via <b>▲▼</b> keys select <b>SIMPLIFIED DISPLAY</b> tab.</li> <li>Press <b>SET</b>.</li> </ul>
---	--

### 7.2.3 Setting up RPM, RCF, TIME, temperature on the NORMAL DISPLAY

NORMAL DISPLAY	
Display mode SPEED	Display mode RCF
	
Switching between display <b>SPEED</b> and <b>RCF</b> :	
	Switching between <b>RPM</b> and <b>RCF</b> display mode may be obtained by pressing and keeping key by <b>1s</b> :

Exemplary change of <b>SPEED</b> or <b>RCF</b> setting:	
 <p style="text-align: center;">or</p> 	<ul style="list-style-type: none"> <li>▪ Press <b>SET</b> (to enter edit mode )</li> <li>▪ With <b>▲▼◀▶</b> keys mark <b>SPEED</b> or <b>RCF</b> (wybrana zakładka podświetli się).</li> <li>▪ Press <b>SET</b> ( - blinking).</li> <li>▪ Choose demanded order of magnitude by pressing <b>◀▶</b>.</li> <li>▪ Set demanded value by pressing <b>▲▼</b>. Repeat above two steps for other orders of magnitude.</li> <li>▪ Confirm set value by pressing <b>SET</b>.</li> <li>▪ Leave edit mode by pressing <b>BACK</b>.</li> </ul>
<b>When RPM is changed, RCF is automatically corrected, and vice versa.</b>	

Exemplary change of <b>TIME</b> setting:	
	<ul style="list-style-type: none"> <li>▪ Press <b>SET</b> (to enter edit mode )</li> <li>▪ With <b>▲▼◀▶</b> keys mark <b>TIME</b>.</li> <li>▪ Press <b>SET</b> ( - blinking).</li> <li>▪ Choose "hours", "minutes" or "seconds" by pressing <b>◀▶</b>, e.g.: <b>00:02:00</b>.</li> <li>▪ Set demanded value by pressing <b>▲▼</b>. Repeat above two steps for other orders of magnitude.</li> <li>▪ Confirm set value by pressing <b>SET</b>.</li> <li>▪ Leave edit mode by pressing <b>BACK</b>.</li> </ul>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">(set value) [hh : mm : ss]</div> <div style="border: 1px solid black; padding: 5px;">current value (most significant digits)</div>	

<b>HOLD mode</b> - Continuous operation mode (To end centrifuging in HOLD mode press <b>STOP</b> ).	
	To run centrifuging in <b>HOLD</b> mode set <b>00:00:00</b> time.

### 7.3 Users programs


	<p>After switching centrifuge on, program that was used in previous session is being loaded.</p>
	<p>Modification during run is represented by <b>PROG --</b> symbol.</p>

#### 7.3.1 Program selection (Simplified display)

	<p>Press the <b>BACK</b> button for <b>1 sec.</b> to return to the basic display (a short menu is displayed on the screen)</p> <ul style="list-style-type: none"> <li>With <b>▲▼</b> keys mark <b>PROG.</b></li> <li>Press <b>SET.</b></li> </ul>
--	---

Next, you should proceed in accordance with point. [Choosing program.](#)

#### 7.3.2 Program selection (Basic display)

	<ul style="list-style-type: none"> <li>Press <b>SET</b> (to enter edit mode )</li> <li>With <b>▲▼◀▶</b> keys mark <b>PROG.</b></li> <li>Press <b>SET.</b></li> </ul>
--	--

##### 7.3.2.1 Choosing program

	<p>The program list is displayed</p> <ul style="list-style-type: none"> <li>With <b>▲▼</b> keys choose demanded program number.</li> <li>Press <b>SET</b> - the selection frame will appear.</li> </ul>
	<p>With <b>▲▼</b> keys choose one of four possibilities <b>LOAD, SAVE, DELETE:</b></p> <p><b>&gt;</b> – currently loaded program.</p>
	<p>Use the <b>▲▼</b> buttons to select:</p> <p><b>LOAD</b> – load program,  <b>SAVE</b> – save settings as a program (confirm by selecting <b>YES</b> and pressing <b>SET</b>).  <b>DELETE</b> – delete program (confirm by selecting <b>YES</b>).</p>
	<p><b>NEW PROGRAM</b>– enter to create new program mode (as below).</p> <ul style="list-style-type: none"> <li>Press <b>SET.</b></li> </ul> <p>Press <b>BACK.</b></p>

### 7.3.2.2 Creating a new program

	<ul style="list-style-type: none"> <li>Press <b>SET</b> (to enter edit mode ).</li> <li>Via <b>▲▼◀▶</b> keys mark <b>PROG.</b> field.</li> <li>Press <b>SET</b>.</li> </ul> <p>The program list appears.</p>
	<ul style="list-style-type: none"> <li>Press <b>SET</b>.</li> </ul> <p>Selection frame appears.</p> <ul style="list-style-type: none"> <li>Via <b>▲▼</b> keys mark <b>NEW PROGRAM</b> field.</li> <li>Press <b>SET</b>.</li> <li>Set demanded parameters of centrifuging (look Screen).</li> <li>Via <b>▲▼◀▶</b> keys mark <b>PROG</b> field.</li> <li>Press <b>SET</b>.</li> </ul>
	<p>The program list appears.</p> <ul style="list-style-type: none"> <li>Via <b>▲▼</b> choose demanded program number (0-99)</li> <li>Confirm by <b>SET</b> pressing.</li> <li>Via <b>▲▼◀▶</b> keys mark <b>SAVE</b> field.</li> <li>Press <b>SET</b>.</li> </ul>
	<p>Choose <b>SAVE</b>, a confirmation ask will appear, one should choose <b>YES</b>. The new program was created. To set it to work, one should choose <b>LOAD</b>.</p> <ul style="list-style-type: none"> <li>Press <b>SET</b>.</li> <li>Via <b>▲▼</b> keys mark <b>LOAD</b> field.</li> <li>Press <b>SET</b>.</li> </ul>

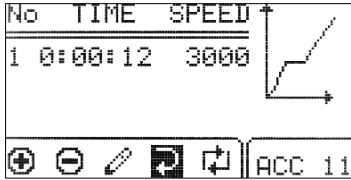
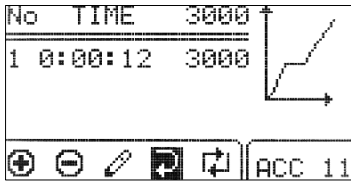






#### Changing parameters during run



There is a possibility to change parameters: **SPEED, RCF, TIME, and PARAM.** during centrifuging. Such modifications give in currently running program. Modification during run is represented by **PROG --** symbol (instead of the program number).

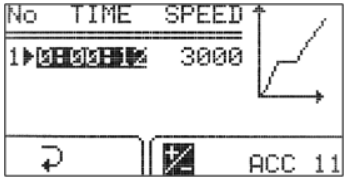


### 7.4 Creator of acceleration and deceleration curves

	<b>PROG/CURVES</b>
 	<ul style="list-style-type: none"> <li>With <b>▲▼</b> keys choose saved program for which you intend to create the acceleration or deceleration characteristics (marked with symbol ).</li> <li>Press <b>SET</b>.</li> <li>With <b>▲▼</b> keys choose <b>CURVES</b>.</li> <li>Press <b>SET</b> - the selection frame is displayed.</li> </ul>
	<ul style="list-style-type: none"> <li>With <b>▲▼</b> keys choose <b>ACCELERATION</b> to create acceleration characteristics or <b>DECELERATION</b> to create deceleration characteristics</li> <li>Confirm selection by pressing <b>SET</b>.</li> </ul>


### 7.4.1 Acceleration characteristic, creation of episode 1


<p>Displayed alternately <b>SPEED</b> and <b>3000</b> (example):</p>  	<b>No</b>	section no. (max. 4)
	<b>TIME</b>	total acceleration time
	<b>SPEED</b>	final RPM
	<b>ACC</b>	characteristic's no. (10-19)
		adding a new section
		deleting last section
		editing sections
		exiting from characteristics wizard
		switching RPM/RCF
		entering graph view

After entering the curve wizard, the symbol  is highlighted. Pressing **SET** and selecting "NO" in response to the question "SAVE?" will return to the **PROG → CURVES** menu without making changes to the starting characteristics. To start editing the one-segment characteristics, select the icon  with the **◀▶** keys and press the **SET** key.

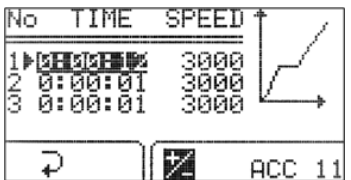
		editing value (flashing means editing the given value)
	<ul style="list-style-type: none"> <li>▪ Press <b>SET</b></li> <li>▪ With <b>▲▼◀▶</b> choose time for section</li> <li>▪ Press <b>SET</b></li> <li>▪ It is not possible to edit the maximum speed value. To do this, more sections have to be created, but the last section will always have the maximum set speed and cannot be changed.</li> <li>▪ Select  with <b>▼◀</b> buttons and press <b>SET</b> to finish editing characteristics.</li> </ul>	

### 7.4.2 Adding and editing sections - acceleration

To program next sections, select the  icon with the **◀▶** buttons and press **SET**. A new section (sections) will appear with a time of 1 second and a speed equal to the maximum speed.

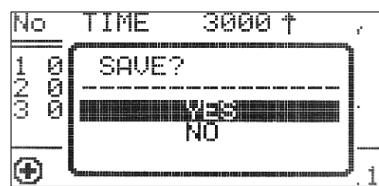
To start editing a newly added section (sections), select the  icon with the **◀▶** buttons and press **SET**, and follow the instructions given below.

After entering the profile section editing menu, the time value of the first section will be highlighted (see the picture below).

	<p>The maximum speed value for the section cannot be higher than the maximum speed value for the characteristic (for the last section).</p>	
	<ul style="list-style-type: none"> <li>▪ With <b>▲▼◀▶</b> highlight time or speed for desired section</li> <li>▪ Press <b>SET</b></li> <li>▪ With <b>▲▼◀▶</b> choose value</li> <li>▪ Press <b>SET</b></li> <li>▪ Repeat until setting all the sections</li> </ul>	

- To finish editing characteristic with ▲▼◀▶ choose ↻ and press **SET**. Finishing edition can be also done by pressing **BACK** button.

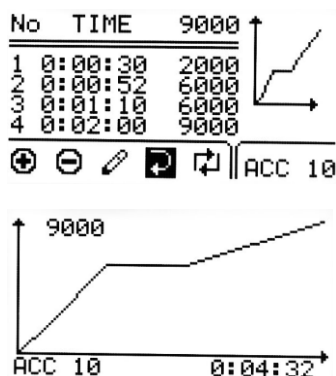
### Saving created characteristic




- Select the ↻ icon with the ◀▶ buttons and press **SET**
- In the "Save?" window, use ▲▼ buttons to select YES to confirm saving the characteristic or NO, to exit without saving
- Press **SET**

### 7.4.3 Acceleration graph

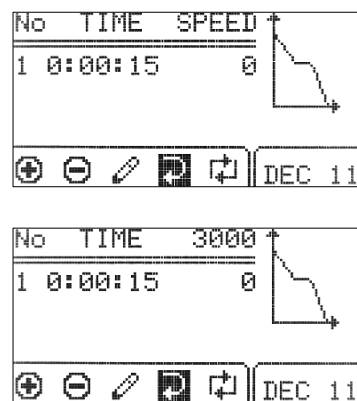
An example of given parameters and a diagram:











After the time value programming is completed, the **TIME + SPEED** segment of the user's startup characteristic can be displayed graphically. The set section of the characteristic curve is illustrated on the graph, which can be displayed by selecting the icon  with the ◀▶ keys and pressing the **SET** key.

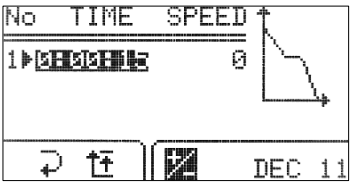

### 7.4.4 Deceleration characteristic, creation of episode 1

**SPEED** or **3000** displayed (example):



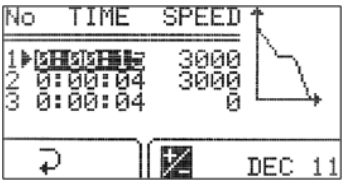


<b>No</b>	section no. (max. 4)
<b>TIME</b>	total acceleration time
<b>SPEED</b>	final RPM
<b>DEC</b>	characteristic's no. (10-19)
	adding a new section
	deleting last section
	editing sections
	exiting from characteristics menu
	switching RPM/RCF
	entering graph view

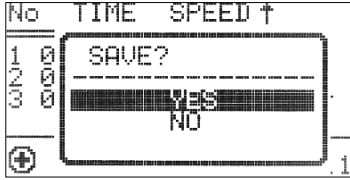
After entering the curve wizard, the symbol  is highlighted. Pressing **SET** and selecting "NO" in response to the question "SAVE?" will return to the **PROG → CURVES** menu without making changes to the starting characteristics. To start editing the one-segment characteristics, select the icon  with the ◀▶ keys and press the **SET** key.

	<div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>editing value (flashing means editing the given value)</p> </div> </div> <ul style="list-style-type: none"> <li>▪ Press <b>SET</b></li> <li>▪ With <b>▲▼◀▶</b> choose time for section</li> <li>▪ Press <b>SET</b></li> <li>▪ To edit speed</li> <li>▪ It is not possible to edit the minimum speed value. To do this, more legends must be created, but the last leg will always be "0".</li> <li>▪ Select <b>↻</b> with <b>▼◀</b> buttons and press <b>SET</b> to finish editing characteristics</li> </ul>
---	---

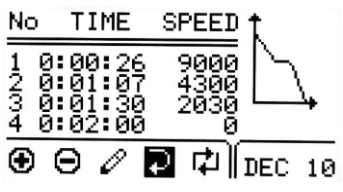

#### 7.4.5 Adding and editing sections - deceleration

<p>In order to program successive periods, select the icon  with the <b>◀▶</b> keys and press the <b>SET</b> key. A new segment (or segments - after successive presses of SET) will appear with the time and speed equal to the minimum speed - "0".</p> <p>To start editing the newly added sections, select the icon  with the <b>◀▶</b> buttons, press <b>SET</b> and make the settings as described below.</p> <p>After entering the profile section editing menu, the time value of the first section will be highlighted (see the picture below).</p>	
	<p>The speed value of the last segment will always be "0".</p> <ul style="list-style-type: none"> <li>▪ With <b>▲▼◀▶</b> highlight time or speed for desired section</li> <li>▪ Press <b>SET</b></li> <li>▪ With <b>▲▼◀▶</b> choose value</li> <li>▪ Press <b>SET</b></li> <li>▪ Repeat until setting all the sections</li> <li>▪ To finish editing characteristic with <b>▲▼◀▶</b> choose <b>↻</b> and press <b>SET</b>. Finishing edition can be also done by pressing <b>BACK</b> button</li> </ul>

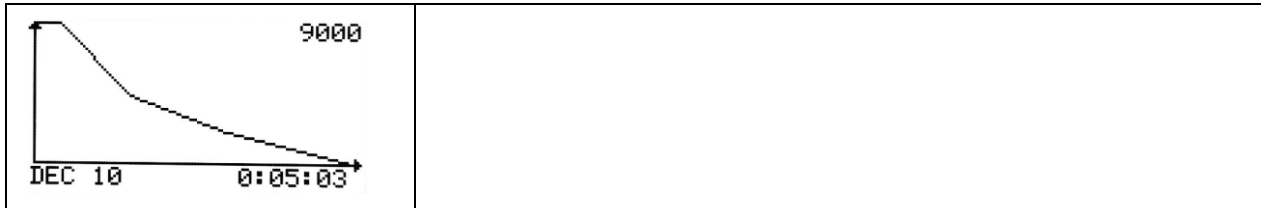
#### SAVING CREATED CHARACTERISTIC

	<ul style="list-style-type: none"> <li>▪ Select the <b>↻</b> icon with the <b>◀▶</b> buttons and press <b>SET</b></li> <li>▪ In the "Save?" window, use <b>▲▼</b> buttons to select YES to confirm saving the characteristic or NO, to exit without saving</li> <li>▪ Press <b>SET</b></li> </ul>
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#### 7.4.6 Deceleration graph

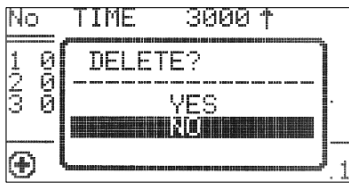
<p>An example of given parameters and a diagram:</p>	
	<p>After programming the time value, you can graphically display the <b>TIME + SPEED</b> segment of the user's braking characteristic. The set section of the characteristic curve is illustrated on the graph, which can be displayed by selecting the icon  with the <b>◀▶</b> keys and pressing the <b>SET</b> key.</p>





### 7.4.7 Deleting sections

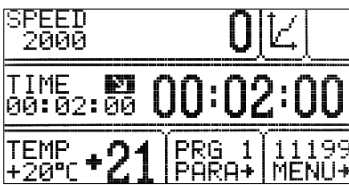
In the characteristic's wizard:



- Select the icon with the buttons and press **SET**
- In the "Delete?" window, use buttons to select YES to confirm deleting the characteristic section or NO to cancel
- Press **SET**

### 7.5 Programs with user characteristics

Loading a modified program in the **CURVES** fold is signaled by the icon on the main screen:

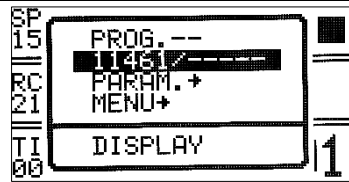


Icon signals that program with user acceleration/deceleration characteristics are loaded.

A change in any parameter entails the deactivation of the multi-section's curves mode.

### 7.6 Choosing rotors and container

#### 7.6.1 Choosing rotors and container on the SIMPLIFIED SCREEN

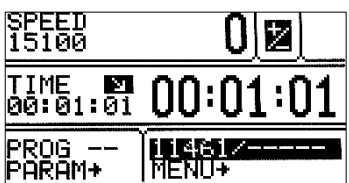


Press the **BACK** button for **1 sec.** to return to the basic display (a short menu is displayed on the screen)

- With keys mark **11213 / 13276** zone (rotor no. / container no.).
- Press **SET**

Next, you should proceed in accordance with point Choosing rotors and container.

#### 7.6.2 Choosing rotors and container on the BASIC DISPLAY



- Press **SET** (to enter edit mode ).
- With keys mark **11213/13276** zone (rotor no. / container no.).
- Press **SET**.

##### 7.6.2.1 Choosing rotors and container

ROTOR	BUCKET	SPEED
11199	-----	18000
11213	13276#U	5000
11216	-----	14000
11217	13080#U	6000
>11461	-----	15100
11462	-----	14000

- 1) **Selection of the rotor with a container marked U:**
  - Use the keys to select the desired rotor or rotor number and the container marked .
  - Confirm the selection by pressing the **SET** key.
  - Press **BACK**.
- 2) **Selection of the rotor with a container marked U:**

RCF	RMAX	RMIN
24270	67	35
3494	125	79
19064	87	35
4226	105	40
> 21158	83	50
18188	83	40



- the ability to change the container.

- Use the ▲▼ keys to select the desired rotor or rotor number and the container marked .
  - Press **SET**.
  - Use the ▲▼ to select the desired container.
  - Confirm the selection by pressing the **SET** key.
  - Press **BACK**.
  - You can move between screens with rotor parameters using the ◀▶ keys.
- 3) Selection of the rotor without container:**
- Use the ▲▼ keys to select the desired rotor.
  - Press **SET**.

It is possible to set **ROTOR AUTOIDENTIFICATION**.

The procedure is described in the *Rotor automatic identification* chapter.

## 7.7 SHORT mode



In **SHORT** mode the centrifuge is working as long as the ▶▶ (SHORT) key is pressed or when set time is over. Centrifuging ends when the **SHORT** key is released.

## 7.8 Terminating centrifugation

### STOPPING CENTRIFUGATION CYCLE

When preselected time is reached, centrifugation will end automatically.



x1

Pressing **STOP** for the first time will stop centrifuging with the characteristic set in loaded program. Confirm message by pressing **STOP**.



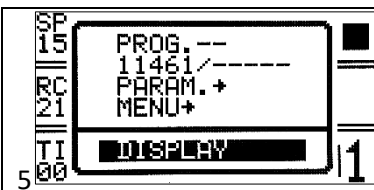
x2

Pressing **STOP** second time will stop centrifuging with the fastest characteristic.

The message may be extinguished with **STOP**, **SET**, **COVER**, ▲▼◀▶ lub **BACK** button.

## 8 Parameters of centrifugation

### 8.1 Choosing parameters on the SIMPLIFIED SCREEN

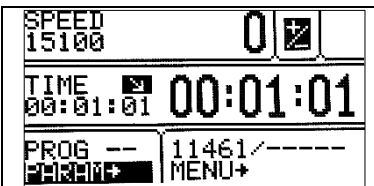


Press the **BACK** button for **1 sec.** to return to the basic display (a short menu is displayed on the screen)

- With ▲▼◀▶ keys mark **PARAM.** field.
- Press **SET**.

After that follow instructions described in *Choosing centrifugation parameters*.

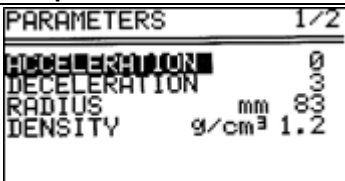

### 8.2 Choosing parameters on the BASIC DISPLAY



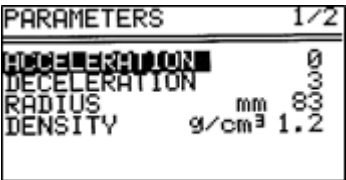

- Press **SET** (to enter edit mode ).
- With ▲▼◀▶ keys mark **PARAM.** field.
- Press **SET**.

### 8.3 Choosing centrifugation parameters

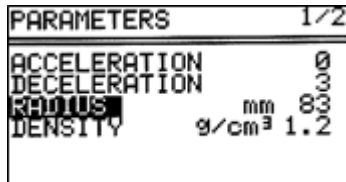


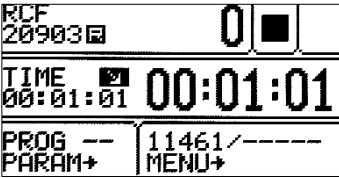
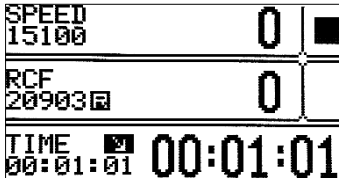
It is possible to switch between two different screens Via ◀▶ keys.

	▲ ▼	
<b>ACCELERATION</b>	chosen acc. characteristic (0-the fastest, 9-the slowest)	
<b>DECELERATION</b>	chosen dec. characteristic (0-the fastest, 9-the slowest)	
<b>RADIUS [mm]</b>	current rotor radius [mm]	
<b>DENSITY (g/cm<sup>3</sup>)</b>	sample density [g/cm <sup>3</sup> ]	
<b>AUT. LID OPEN</b>	opening cover after centrifuging automatically	
<b>START DELAY</b>	starting delayed (after pressing START)	


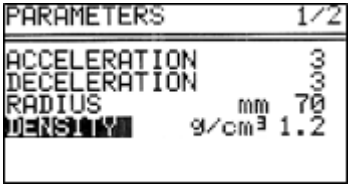


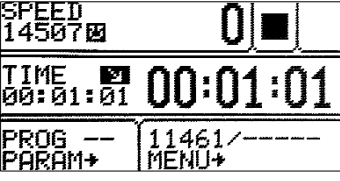
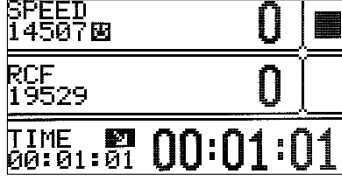
#### 8.3.1 Accelerating/decelerating – changing characteristics

ACCELERATION / DECELERATION	PARAM./ ACCELERATION / DECELERATION
	<p>ACCELERATION – 10 linear accelerating characteristics assigned to every rotor. <b>(0-the fastest, 9-the slowest)</b></p> <p>DECELERATION – 10 linear decelerating characteristics assigned to every rotor (0 ÷ 9). <b>(0-the fastest, 9-the slowest)</b></p> <ul style="list-style-type: none"> <li>▪ With ▲▼◀▶ keys mark <b>ACCELERATION / DECELERATION</b> fold</li> <li>▪ Press <b>SET</b> (to enter edit mode .</li> <li>▪ Set demanded value by pressing ▲▼.</li> <li>▪ Press <b>SET</b>.</li> <li>▪ Press <b>BACKx2</b>.</li> </ul>


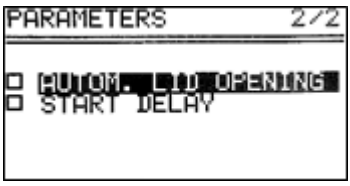

#### 8.3.2 Radius

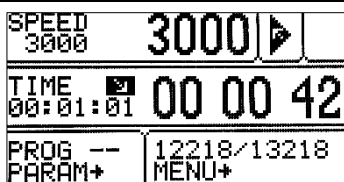
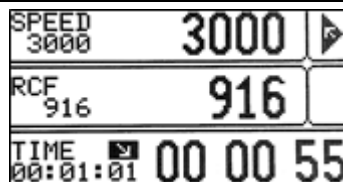
RADIUS [mm]	PARAM./ RADIUS
	<p>Control of the radius of the rotor within the range from <math>R_{min}</math> to <math>R_{max}</math>. Available values depends on chosen rotor, see — / — (rotor number / container number)</p> <ul style="list-style-type: none"> <li>▪ With ▲▼◀▶ keys mark <b>RADIUS</b> fold</li> <li>▪ Press <b>SET</b> (to enter edit mode .</li> <li>▪ Set demanded value by pressing ▲▼.</li> <li>▪ Press <b>SET</b>.</li> <li>▪ Press <b>BACKx2</b>.</li> </ul>
<p>When radius is changed is activated,  symbol is visible on the screen. Displayed <b>RCF</b> will be computed in accordance with changed value of radius.</p>	
BASIC DISPLAY	SIMPLIFIED DISPLAY
	

### 8.3.3 Density


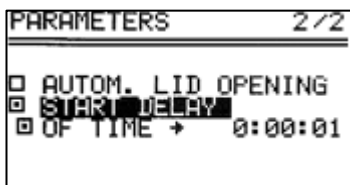


	<b>DENSITY (g/cm<sup>3</sup>)</b>	<b>PARAM./ DENSITY</b>
	<p>Default density is set to <b>1,2 g/cm<sup>3</sup></b> (possible values <b>1,2 ÷ 9,9 g/cm<sup>3</sup></b>).</p> <ul style="list-style-type: none"> <li>With ▲▼ keys mark <b>DENSITY</b>.</li> <li>Press <b>SET</b> -  appears.</li> <li>Via ▲▼ keys choose demanded values.</li> <li>Press <b>SET</b>.</li> <li>Press <b>BACKx2</b>.</li> </ul>	
<p>When density is changed, symbol  is visible on the screen. Increasing density of the sample above <b>1,2 g/cm<sup>3</sup></b> (and limiting of the maximum speed of centrifuging resulting from it) applies until switching off power supply of the centrifuge or setting the device back to <b>1,2 g/cm<sup>3</sup></b>.</p> <p><b>Increasing the density reduces the maximum speed of the rotor.</b></p>		
<b>BASIC DISPLAY</b>		<b>SIMPLIFIED DISPLAY</b>
		

### 8.3.4 Automatic lid open

	<b>Automatic lid open</b>	<b>PARAM. / AUTOM. LID OPENING</b>
	<ul style="list-style-type: none"> <li>Via ▲▼◀▶ keys choose <b>AUTOM. LID OPENING</b>.</li> <li>Press <b>SET</b> (to switch off/on).</li> <li>Press <b>BACKx2</b>.</li> </ul> <p>When centrifuge process is finished, cover will be opened automatically. When centrifuging is terminated by pressing <b>STOP</b>, opening cover is possible by pressing <b>COVER</b>.</p>	
<p> symbol means that <b>OPEN LID AFTER RUN</b> is active.</p>		

<b>BASIC DISPLAY</b>	<b>SIMPLIFIED DISPLAY</b>
	

### 8.3.5 START DELAY-OF TIME

	<b>Start centrifuging since preselected delay is reached.</b>	<b>PARAM.2/2/ START DELAY/OF TIME</b>
	<ul style="list-style-type: none"> <li>Via ▲▼ keys mark <b>START DELAY</b>.</li> <li>Press <b>SET</b>.</li> <li>Via ▼ keys mark <b>OF TIME</b>.</li> <li>Via ▶ keys mark field 0 : 0 0 : 05 (for example).</li> <li>Press <b>SET</b> -  appears.</li> <li>Via ▲▼ keys <b>SET</b> demanded values.</li> <li>Press <b>SET</b>.</li> <li><b>Confirm</b> by pressing <b>SET</b>.</li> <li>Start delay can be set from 0 : 0 0 : 0 1 to 9 : 5 9 : 5 9.</li> <li>Press <b>BACKx2</b>.</li> </ul>	
<p>When <b>START DELAY-OF TIME</b> function is activated,  symbol is visible on the screen.</p>		

BASIC DISPLAY	SIMPLIFIED DISPLAY

### 8.3.6 Screen messages

End of centrifuging – manual mode	
	Centrifuging may be stopped at the any moment via the <b>STOP</b> key. The information message: <b>CYCLE CANCELLED</b> will be displayed
End of centrifuging – manual mode	
	Stopping centrifuging in accordance the set time causes generating <b>multiton audible signals</b> (after stopping the rotor) and displaying the message <b>FINISH OF CENTRIFUGING</b>
Additional messages	
	In case of power shortage while centrifuging, after repeated switching it on, the following error screen will be displayed: <b>SUPPLY DECAY WHILE CENTRIFUGING</b>
	Identified number of the installed rotor is not compatible with the number of rotor remembered in program.
	The rotor is automatically updated (when auto-identification is enabled).
	Rotor is braking (only when centrifuge was switched off during rotor running).
After pressing the <b>STOP, SET, COVER, ▲▼◀▶</b> or <b>BACK</b> key, the device returns to the main screen.	

### Screen messages that may occur during operation.

MESSAGE	EXPLANATION
"SPEED OF ROTOR" "IDENTIFICATION <> 90 RPM"	SPEED OF ROTOR IDENTIFICATION <> 90 RPM
"IMBALANCE FAST STOP!" "PLEASE REMOVE CAUSE" "THEN RESTART"	UNBALANCE DETECTED
"NO ROTOR OR IDENTIFICATION" "SENSOR DAMAGED!"	ERROR OF ROTOR IDENTIFICATION {LIMIT OF 6SEC. IS OVER}
"INCORRECT ROTOR NUMBER!"	ROTOR'S IDNOT CORRECT
"WRONG DIRECTION OF ROTATION"	WRONG DIRECTION OF ROTATION / UNKNOWN ROTOR

"OR UNKNOWN ROTOR!"	
"PLEASE CLOSE THE LID" "HAND!"	CLOSING THE LID MANUALLY
"ROTOR STOPPING!" "Please wait..."	INITIALIZING AFTER MAINS FAILURE WITH ROTATING ROTOR
"CYCLE'S ABORTED!"	CENTRIFUGING ENDED BECAUSE OF PRESSING STOP
"CYCLE'S FINISHED"	CENTRIFUGING ENDED {WITHOUT ERRORS}


### Emergency messages.

In case of emergency messages (centrifuge is not working properly) contact the manufacturer's authorized service centre.

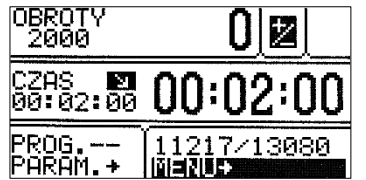

MESSAGE
"OVERHEATING MOTOR!"
"INVERTER ERROR!"
"INVERTER SERIAL BUS ERROR!"
"OPENING COVER in RUN!"
"SPEED METER ERROR"
"I2C BUS ERROR"
"ROTOR OVERSPEED!"
"COVER LOCK MALFUNCTION!"

## 9 Screen menu



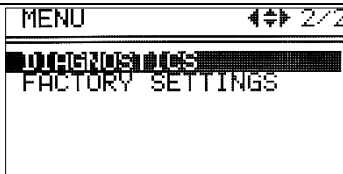
### 9.1 Starting MENU on the SIMPLIFIED DISPLAY

	<p>Press the <b>BACK</b> button for <b>1 sec.</b> to return to the basic display (a short menu is displayed on the screen)</p> <ul style="list-style-type: none"> <li>Via ▲▼ keys select <b>MENU</b>.</li> <li>Presss <b>SET</b>.</li> </ul>
<p>Next, you should proceed in accordance with point. <u>MENU navigation</u>.</p>	

### 9.2 Starting MENU on the NORMAL DISPLAY

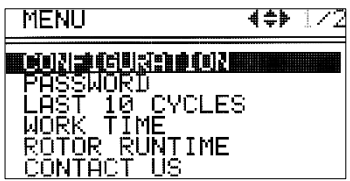
	<ul style="list-style-type: none"> <li>Press <b>SET</b> (to enter edit mode ).</li> <li>Via ▲▼◀▶ keys select <b>MENU</b>.</li> <li>Presss <b>SET</b>.</li> </ul>
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### 9.3 MENU navigation

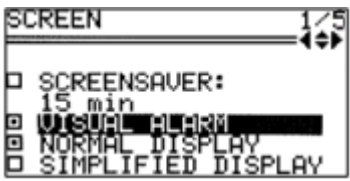
<ul style="list-style-type: none"> <li>Moving in the <b>MENU</b> is possible via ▲▼◀▶ keys.</li> <li>To open demanded field one should mark it and press <b>SET</b>.</li> </ul>		
		

<b>CONFIGURATION</b>	centrifuge configuration
<b>PASSWORD</b>	password protection
<b>LAST 10 CYCLES</b>	10 last centrifugation cycles history
<b>WORK TIME</b>	total working time, working cycles counter
<b>ROTOR RUNTIME</b>	counting time mode
<b>CONTACT US</b>	manufacturer's details
<b>DIAGNOSTICS</b>	error codes (service field)
<b>FACTORY SETTINGS</b>	restore factory settings

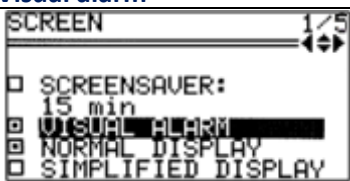
## 9.4 Configuration

		MENU/CONFIGURATION
	<ul style="list-style-type: none"> <li>With ▲▼ keys select <b>CONFIGURATION</b>.</li> <li>Press <b>SET</b>.</li> </ul>	

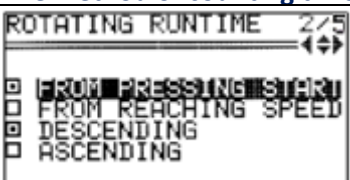
### 9.4.1 Screen saver

Setting time of screen saver	MENU / CONFIGURATION / SCREEN
	<ul style="list-style-type: none"> <li>With ◀▶ keys select <b>SCREEN</b>.</li> <li>With ▲▼ keys select <b>SCREENSAVER</b>.</li> <li>Press <b>SET</b>.</li> <li>With ▲▼ keys choose <b>15 min</b>.</li> <li>Press <b>SET</b> (+/- - activates the editing mode).</li> <li>With ▲▼ keys select demanded value from 1 to 60 minutes.</li> <li>Mark selection by pressing <b>SET</b>.</li> <li>Leave the menu by pressing <b>BACK</b> two times.</li> </ul>

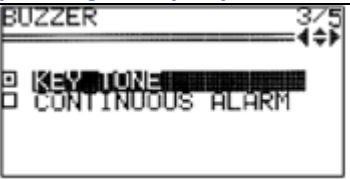
### 9.4.2 Visual alarm

Visual alarm	MENU / CONFIGURATION / SCREEN
	<ul style="list-style-type: none"> <li>With ◀▶ keys select <b>SCREEN</b>.</li> <li>Via ▲▼ keys choose <b>VISUAL ALARM</b>.</li> <li>Mark it by pressing <b>SET</b>.</li> <li>Leave the menu by pressing <b>BACKx2</b>.</li> </ul> <p><b>VISUAL ALARM</b> cause blinking screen after ending of centrifuging or after error occurring.</p>



### 9.4.3 Counting time

The method of counting time	MENU/CONFIGURATION/ ROTATING RUNTIME
	<ul style="list-style-type: none"> <li>With ◀▶ keys select <b>ROTATING RUNTIME</b>.</li> <li>Via ▲▼ choose demanded option.</li> <li>Mark it by pressing <b>SET</b>.</li> <li>Leave menu via <b>BACK</b> keyx2.</li> </ul>
<b>Counting since:</b>	
FROM PRESSING START	Counting since rotor is identified
FROM REACHING SPEED	Counting from assigned speed
<b>Presenting mode:</b>	
DESCENDING	Counting down
ASCENDING	Counting up


### 9.4.4 Buzzer

Switching ON/OFF short audible signals accompanying every pressing of any key.	MENU/ CONFIGURATION /BUZZER
	<ul style="list-style-type: none"> <li>With ◀▶ keys select <b>BUZZER</b>.</li> <li>With ▲▼ keys select demanded option.</li> <li>Mark selection by pressing <b>SET</b>.</li> <li>Leave menu via <b>BACK</b> key x2.</li> </ul>
<b>Warning signals are always switched on.</b>	




### 9.4.5 Language

Changing menu language	MENU / CONFIGURATION / LANGUAGE
<ul style="list-style-type: none"> <li>With ◀▶ keys select <b>LANGUAGE</b>.</li> <li>Via ▲▼ keys choose demanded menu language.</li> <li>Mark it by pressing <b>SET</b>.</li> <li>Press <b>BACKx2</b>.</li> </ul>	
	

### 9.4.6 Rotor automatic identification



Rotor automatic identification	MENU / CONFIGURATION / OTHER
<p>Thanks to the <b>AUTOMATIC IDENTIFICATION</b>, the centrifuge automatically identifies the rotor in the chamber. Rotor identification is indicated by the message.</p> <p>When the function is deactivated, it is necessary to manually select the desired rotor as described in <i>Choosing rotors</i>.</p>	
	<p><b>The AUTOMATIC IDENTIF. is turned on by default.</b></p> <p>Aby włączyć funkcję należy:</p> <ul style="list-style-type: none"> <li>With ◀▶ keys select <b>OTHER</b>.</li> <li>Via ▲▼ keys choose.</li> <li><input type="checkbox"/> <b>AUTOMATIC IDENTIF.</b></li> <li>Press <b>SET</b> (<input type="checkbox"/> change to <input checked="" type="checkbox"/>).</li> <li>Press <b>BACKx2</b>.</li> </ul>
<p><b>Warning!</b></p> <p>After automatic detection of the rotor, check that the container number is correct, for example <b>11213/13276</b> (rotor number / container number).</p> <p>In the AUTOIDENTIFICATION process, the rotor is automatically detected.</p> <p>It is necessary to set the container manually in accordance with section <i>Choosing rotors and container</i>.</p>	

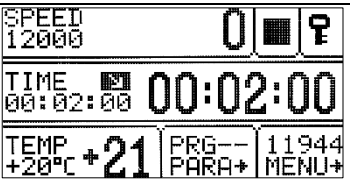
### 9.4.7 Service inspection


	MENU / CONFIGURATION / OTHER
	<p>There is a possibility to turn on a message reminding user to perform the inspection, with the option to define the date of the inspection when the message will be displayed.</p> <p>To enable/unable the function:</p> <ul style="list-style-type: none"> <li>Via ▲▼ keys choose</li> <li><input type="checkbox"/> <b>SERVICE INSPECTION</b>.</li> <li>Press <b>SET</b> (<input type="checkbox"/> change to <input checked="" type="checkbox"/> or conversely).</li> </ul> <p>A new field will appear with the date of the inspection (on that day message will be displayed).</p> <p>To edit the date:</p> <ul style="list-style-type: none"> <li>Via ▲▼ keys select date field.</li> <li>Press <b>SET</b>.</li> <li>Via ▲▼◀▶ keys choose value.</li> <li>Confirm by pressing <b>SET</b>.</li> </ul>
	
	



## 9.5 Password

Setting up password	MENU / PASSWORD
<p>To prevent from an unauthorized use, a PASSWORD can be set.  <b>Note:</b> No PASSWORD is set by default.                      The PASSWORD can be set as follows when the rotor is at a standstill.</p>	
	<ul style="list-style-type: none"> <li>Press the ▲▼ keys until <b>PASSWORD</b>.</li> <li>Press <b>SETx2</b>.</li> <li>With ▲▼ keys set the valid 1000s place of the PASSWORD. e.g.: <b>1xxx</b>.</li> </ul>
	<ul style="list-style-type: none"> <li>Press ►.</li> <li>With ▲▼ keys set correct value.</li> <li>Repeat above steps for all places.</li> <li>Press <b>SET</b>.</li> </ul> <p>As a confirmation repeat instructions described above.</p>
<p>When the <b>PASSWORD</b> is set, the Key sign is displayed in the <b>CODE</b> zone.                      It is also displayed in the main menu (in the upper right corner of the screen).</p>	


	<p>From then on, access to the <b>MENU</b> is possible after entering the password. In case of incorrect password, it will show message:  <b>ACCESS DENIED</b></p>
<p>To delete the PASSWORD, “0000” must be set.                      If the <b>PASSWORD</b> is forgotten, the emergency code “7654” should be used to clear password and remove all locks.</p>	

Setting up locks	
	<ul style="list-style-type: none"> <li>With ▲▼ keys choose a lock.</li> <li>Mark a lock by pressing <b>SET</b>.</li> <li>Repeat above steps for desired locks.</li> <li>Leave menu with <b>BACK</b> key x2.</li> </ul>

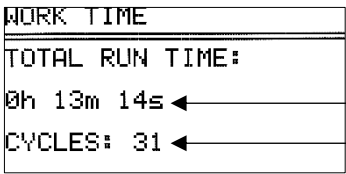
LOCKS*	DESCRIPTION
<b>SAVE PROGRAM</b>	<ul style="list-style-type: none"> <li>no programs can be saved.</li> </ul>
<b>DELETE PROGRAM</b>	<ul style="list-style-type: none"> <li>no programs can be deleted.</li> <li>saving programs on position where one was already stored is disabled.</li> </ul>
<b>CHANGE PARMETERS</b> Fields: 1. SPEED 2. RCF 3. TIME 4. PROG 5. —/— 6. PARAM	<ul style="list-style-type: none"> <li>parameters can not be modified.</li> </ul>
<b>LOAD PROGRAM</b>	<ul style="list-style-type: none"> <li>no programs can be called up.</li> </ul>
<b>START KEY</b>	<ul style="list-style-type: none"> <li>centrifugation can not be started.</li> </ul>

\* Executing disabled procedures is only possible after entering the correct.

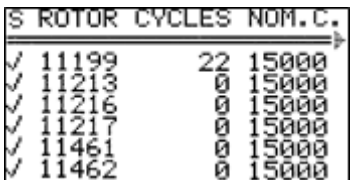
## 9.6 10 cycles

Information concerning parameters of last 10 centrifuging cycles.	MENU / LAST 10 CYCLES
	<ul style="list-style-type: none"> <li>Press the ▲▼ keys until <b>10 CYCLES</b>.</li> <li>Press <b>SET</b>.</li> <li>Number of cycle can be changed by ◀▶ keys.</li> <li>The list can be scrolled using ▲▼ keys.</li> <li>To exit press <b>BACK</b> key x3.</li> </ul>

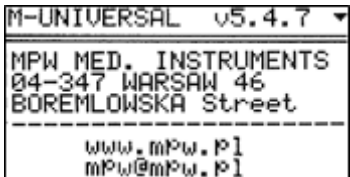
## 9.7 Work time

Total working time of centrifuge	MENU/ WORK TIME
	<ul style="list-style-type: none"> <li>Press the ▲▼ keys until <b>WORK TIME</b>.</li> <li>Press <b>SET</b>.</li> </ul> <p>The tab informs about the total working time of the centrifuge and number of cycles.</p> <p><b>total working (centrifugation) time</b></p> <p><b>working cycles counter</b></p> <ul style="list-style-type: none"> <li>Press <b>BACKx3</b>.</li> </ul>

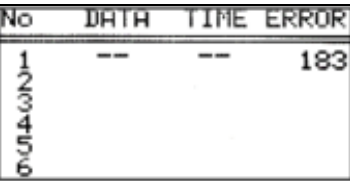
## 9.8 Rotor cycles

Information about the time of centrifuging and of the quantity of the working cycles of each rotor. The table also contains icons warning of the duty of execution of validation.	MENU / ROTOR RUNTIME
	<ul style="list-style-type: none"> <li>Press the ▲▼ keys until <b>ROTOR RUNTIME</b>.</li> <li>Press <b>SET</b>.</li> <li>The list can be scrolled using ▲▼ keys.</li> <li>To exit press <b>BACK</b> key x2.</li> </ul> <p>Symbols:</p> <ul style="list-style-type: none"> <li>✓ – more than 100 cycles left</li> <li>! – less than 100 cycles left</li> <li>■ – worn rotor -&gt; <b>Rotors marked as worn must not be used.</b></li> </ul>

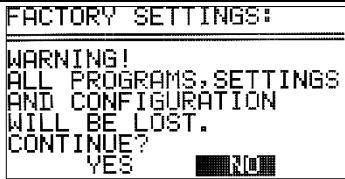
## 9.9 Manufacturer's details

Information about the type of the centrifuge, firmware version, and contact details.	MENU / CONTACT US
	<ul style="list-style-type: none"> <li>Press the ▲▼ keys until <b>CONTACT US</b>.</li> <li>Press <b>SET</b>.</li> <li>The list can be scrolled using ▼► keys.</li> <li>To exit press <b>BACK</b> key x2.</li> </ul>

## 9.10 Diagnostics

Information about errors arisen in working of the centrifuge.	MENU / DIAGNOSTICS
	<ul style="list-style-type: none"> <li>Press the ▲▼ keys until <b>DIAGNOSTICS</b>.</li> <li>Press <b>SET</b>.</li> </ul> <p><b>For service staff!</b></p>

## 9.11 Factory settings

Restoring factory settings.	MENU / FACTORY SETTINGS
<b>All settings of user programs will be deleted.</b>	
	<ul style="list-style-type: none"> <li>Press the ▲▼ keys until <b>FACTORY SETTINGS</b>.</li> <li>Press <b>SET</b>.</li> <li>Via ◀▶ keys choose <b>YES</b> or <b>NO</b>.</li> <li>Confirm by pressing <b>SET</b>.</li> </ul>

## 10 Report printout – USB (M-UNIVERSAL only)

When the centrifuging process is finished there is a possibility to obtain report. Report can be transferred to PC or printed.

### PC (USB)

The elements needed to make connecting your computer via USB:

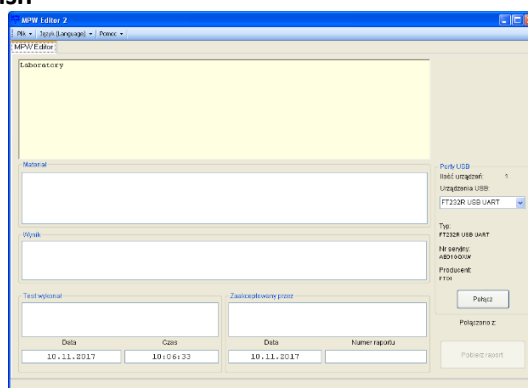
name	quantity (pcs.)	cat. No.
USB A-A cable	1	16655
<b>MPW Editor 2</b> application	1	to downloaded from the website: <a href="http://www.mpw.pl">www.mpw.pl</a> <u>Tab: DOWNLOAD/OTHER</u>

### Preparation

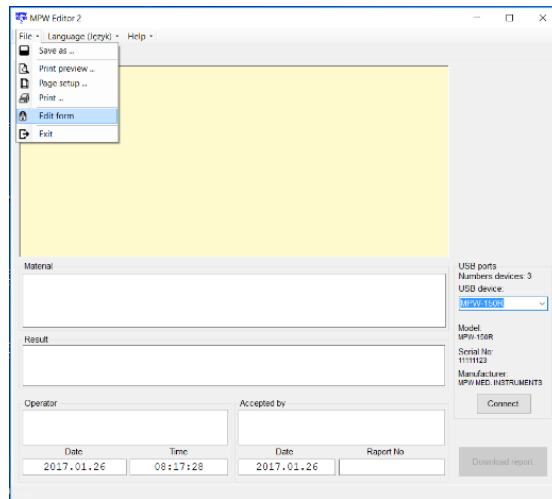
- Install **MPW Editor 2** application on the computer. Program is available for download from our website at [www.mpw.pl](http://www.mpw.pl). Operating System Requirements: **Microsoft Windows 10 (64bit)**. The Manufacturer does not guarantee that the program will work correctly with other operating systems.
- If necessary install **FTDI USB drivers** and **.NET Framework 4.0** library (download with manufacturer's website: [www.mpw.pl](http://www.mpw.pl))

### Centrifuging and printing

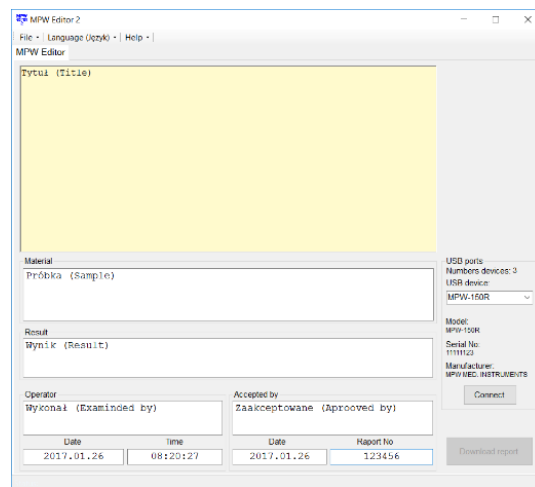
- Run **MPW Editor 2** application.
- Choose **Language\English**



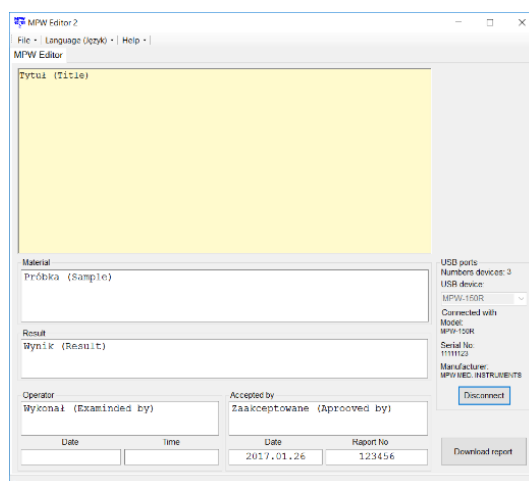
- Connect centrifuge to the PC in accordance with the „**Connection scheme**”
- Choose port assigned to the centrifuge (it will appear after connecting USB cable). Attention: If the interface has not been programmed: name, serial number and manufacturer’s name, the device will be identified by Windows and MPW Editor 2 with the data programmed by FTDI (manufacturer USB integrated circuit) for example FT232R USB UART.
- Choose **File\Edit form**



In the „Tytuł (Title)” field, you can place any text, for example name of the laboratory, for later use in the report template.



- Choose **File\Save form**.
- Ensure that USB device is selected from the list of devices.
- Press **Connect**. After successful communication, "PC" appears in the display.




- Fill folds: „Material”, „Result”, „Operator”, „Accepted by”, „Raport no” (optionally).
- When the centrifuging process is finished, press **Download the report**.
- When centrifuging process is completed, report will appear.
- Save report (**File/Save as**) or print it (**File/Print**).
- In order to get another report, press New test and press Download the report.
- After finishing the work, press **Disconnect** button (the "PC" disappears from the display of the centrifuge) and then closes MPW Editor 2.

## Connection diagram




## 11 Maintenance


### 11.1 Cleaning of the centrifuge

	<p>For cleaning, water with soap or other water soluble mild detergent shall be used. One should avoid corrosive and aggressive substances. It is prohibited to use alkaline solutions, inflammable solvents or agents containing abrasive particles.</p> <ul style="list-style-type: none"><li>▪ Do not lubricate the centrifuge motor shaft.</li><li>▪ The unused centrifuge should have cover opened.</li></ul> <p><b>Once a week</b> Using wiping cloth, remove condensate or residues of the products from the rotor chamber.</p> <p><b>Once a month</b> Check the rotor clamping thread. In case of damage, replaced it. Check the centrifuging chamber whether it is damaged. In case of damage it can not be longer put into operation. Notify authorized service workshop.</p>
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### 11.2 Maintenance of centrifuge elements


	<p>In order to increase the durability of threaded places in containers, lids and horizontal rotor suspension pins, lubricate with technical petroleum jelly.</p> <p>Make sure that the sealing rings (rubber) of the containers are thinly coated with silicone grease for vacuum in order to maintain tightness (catalog number 17201 - element of basic equipment).</p>
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### Cleaning of the accessories

	<ul style="list-style-type: none"><li>▪ In order to ensure safe operation, one shall carry out in regular way periodical maintenance of the accessories.</li><li>▪ Rotors, buckets, and round carriers have to withstand high stresses originating from the centrifugal force. Chemical reactions as well as corrosion (combination of variable pressure and chemical reactions) can cause destruction of metals.</li><li>▪ Hard to observe surface cracks increase gradually and weaken material without visible symptoms.</li></ul> <p>Wipe rotor's pins clean and dry with a paper towel after approx. 400 uses, cleaning or/and autoclaving and then lubricate socket with the petroleum jelly (catalogue no. 17201).</p> <ul style="list-style-type: none"><li>▪ In case of observation of surface damage, crevice, or other change, as well as the corrosion, the given part (rotor, bucket, etc.) shall be immediately replaced.</li><li>▪ Clamping rotor, containers and reducer inserts must be cleaned regularly to prevent corrosion.</li><li>▪ Cleaning of the accessories shall be carried out outside of the centrifuge once every week or still better after each use. For cleaning them one should use neutral agent of pH value 6÷8. It is forbidden to use alkaline agent of pH &gt; 8. Then, those parts shall be dried using soft fabric or in the chamber drier at ca. 50°C.</li></ul>
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	<ul style="list-style-type: none"> <li>▪ Angle rotor should be placed on a fabric with holes facing down, for effective drying.</li> <li>▪ Do not use bleach on plastic parts of the rotor.</li> <li>▪ In this way, the useful service life of the device is substantially increased and susceptibility to corrosion is diminished. Accurate maintenance increases the service life as well and protects against premature rotor failures.</li> </ul> <p>Does not use bleach on plastic parts of the rotor.</p> <p>According to laboratory standards, minimize the immersion time in each solution.</p> <ul style="list-style-type: none"> <li>▪ Especially prone to the corrosion are parts made of aluminium.</li> <li>▪ Corrosion and damages resulting from insufficient maintenance could not be subject of claims lodged against the manufacturer.</li> <li>▪ The unused rotor should have the lid removed.</li> </ul>
--	--

**HS accessories maintenance:**

	<ul style="list-style-type: none"> <li>▪ Check the general condition of seals.</li> <li>▪ Make sure that rubber O-rings are lightly coated with silicone grease. Use high vacuum grease, e.g., type „C“ by LUBRINA.</li> <li>▪ The rotor pins shall be always lubricated with <b>petroleum jelly</b>.</li> </ul>
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**11.3 Sterilization**

Plastics - legend to abbreviations

<b>PS</b>	-	polystyrene	<b>ECTFE</b>	-	ethylene/chlorotrifluoroethylene
<b>SAN</b>	-	styrene-acrylonitrile	<b>ETFE</b>	-	ethylene/tetrafluoroethylene
<b>PMMA</b>	-	polymethyl methacrylate	<b>PTFE</b>	-	polytetrafluoroethylene
<b>PC</b>	-	polycarbonate	<b>FEP</b>	-	tetrafluoroethylene/perfluoro propylene
<b>PVC</b>	-	polyvinyl chloride	<b>PFA</b>	-	tetrafluoroethylene/perfluoroalkylvinylether
<b>POM</b>	-	acetal polyoxymethylene	<b>FKM</b>	-	fluorocarbon rubber
<b>PE-LD</b>	-	low density polyethylene	<b>EPDM</b>	-	ethylene propylene diene
<b>PE-HD</b>	-	high density polyethylene	<b>NR</b>	-	natural rubber
<b>PP</b>	-	polypropylene	<b>SI</b>	-	silicon rubber
<b>PMP</b>	-	polymethyl pentene			

One can use all standard disinfectants. Centrifuges and devices are made of different materials, one should consider their variety.

	radiation $\beta$ radiation $\gamma$ 25 kGy	C <sub>2</sub> H <sub>4</sub> O (ethylene oxide)	formalin, ethanol
<b>PS</b>	●	○	●
<b>SAN</b>	○	●	●
<b>PMMA</b>	●	○	●
<b>PC</b>	●	●	●
<b>PVC</b>	○	●	●
<b>POM</b>	●	●	●
<b>PE-LD</b>	●	●	●
<b>PE-HD</b>	●	●	●
<b>PP</b>	●	●	●
<b>PMP</b>	●	●	●
<b>ECTFE, ETFE</b>	○	●	●
<b>PTFE</b>	○	●	●
<b>FEP, PFA</b>	○	●	●

<b>FKM</b>	○	●	●
<b>EPDM</b>	○	●	●
<b>NR</b>	○	●	●
<b>SI</b>	○	●	●

- can be used
- do not use

In the centrifuge, disinfectants and cleaning agents generally used in medical care should be used (e.g., Aerodesina-2000, Lysoformin 3000, Melseptol, Melsept SF, Sanepidex, Cutasept F).

#### 11.4 Autoclaving

- Rotors, buckets, and inserts may be autoclaved at 121 ° C for 20 minutes (215kPa), unless otherwise stated in the ADDITIONAL EQUIPMENT.
- When sterilizing with steam (autoclaving), take the temperature resistance of the individual materials into account.
- During autoclaving, deformation of plastic accessories, such as inserts and covers, cannot be ruled out.
- It is not planned to autoclave disposable materials, e.g., test tubes, Cyto inserts.
- The service life of the accessories depends essentially on the frequency of autoclaving and use.
- Frequent, repeated autoclaving reduces the service life of plastic components. They should be replaced when there is any sign of damage, including a change in colour or shape, or if leakage occurs etc.
- Frequent steam sterilization (autoclaving) reduces the mechanical strength! PC tubes may become unusable.
- Pressure in closed containers etc. may deform the plastic parts or cause an explosion.
- Before autoclaving impellers and accessories, wash them thoroughly and rinse with distilled water.
- Never exceed the permissible autoclaving temperature and time.
- In order to maintain hermetic seals, it is recommended to replace the sealing rings after each autoclaving.

#### The resistance of plastics to autoclaving

	autoclaving 121 °C, 20 min		autoclaving 121 °C, 20 min
<b>PS</b>	○	<b>PMP</b>	●
<b>SAN</b>	○	<b>ECTFE, ETFE</b>	●
<b>PMMA</b>	○	<b>PTFE</b>	●
<b>PC</b>	●	<b>FEP, PFA</b>	●
<b>PVC</b>	○ <sup>1)</sup>	<b>FKM</b>	●
<b>POM</b>	●	<b>EPDM</b>	●
<b>PE-LD</b>	○	<b>NR</b>	○
<b>PE-HD</b>	○	<b>SI</b>	●
<b>PP</b>	●		

● may be used

○ cannot be used

<sup>1</sup> Except PVC hoses which are resistant to the steam sterilization in the temperature 121 °C.

## 11.5 Chemical resistance

### Chemical resistance of plastics

	aldehydes	cyclic alcohols	esters	ether	ketones	strong or concentrated acids	weak or diluted acids	oxidizing substances	cyclic hydrocarbons	ahs	haloid hydrocarbons	alkalis
PS	○	●	○	○	○	○/●	○/●	○	○	○	○	●
SAN	○	●	○	○	○	○	○/●	○	○	○	○	●
PMMA	○/●	●	○	○	○	○	○/●	○	○/●	○	○	○
PC	○/●	●	○	○	○	○	○/●	○	○/●	○	○	○
PVC	○	●	○	○	○	●	●	○	●	○	○	●
POM	○/●	●	○	●	●	○	○	○	●	●	●	●
PE-LD		●	●	●	○/●	●	●	○	●	●	●	●
PE-HD	●	●	○/●	○/●	○/●	●	●	○	●	○/●	○/●	●
PP	●	●	○/●	○/●	○/●	●	●	○	●	○/●	○/●	●
PMP	○/●	●	○/●		○/●	●	●	○	○/●	○	○	●
ECTFE, ETFE	●	●	●	●	○	●	●	●	●	●	●	●
PTFE, FEP, PFA	●	●	●	●	●	●	●	●	●	●	●	●
FKM	●	○	○	○	○	○	●	○/●	○/●	○/●	○/●	○/●
EPDM	●	●	○/●	○	○/●	●	●	○/●	○	○	○	●
NR	○/●	●	○/●	○	○	○	○/●	○	○	○	○	●
SI	○/●	●	○/●	○	○	○	○/●	○	○	○	○	○/●

● very good

Permanent action of the substance does not cause damage through 30 days. The material is able to be resistant through years



○/● good to limited

Continuous action of the substance causes insignificant and partly reversible damage through the period of 7-30 days (e.g., puffing up, softening, reduced mechanical durability, discolouring).

○ limited

The material should not have the continuous contact with the substance. The immediate occurrence of damage is possible (e.g., the loss of mechanical durability, deformation, discolouring, bursting, and dissolving).








Standard disinfectants can be used. Centrifuges and accessories are made of a variety of materials, the diversity of which should be considered. Do not use chlorine bleach to clean the aluminium impellers.

<b>DANGER!</b>	
	MPW accessories are not biotight. For centrifuging infectious materials it is necessary to use hermetically closed tubes meeting demands of biotightness, in order to prevent germs migration into the centrifuge and beyond it.
	User is responsible for proper disinfections of the centrifuge, if some dangerous material was spilled inside or outside of the centrifuge. During the above mentioned works one must wear safety gloves.




## 12 Troubleshooting

Majority of faults could be removed by restart the centrifuge. After switching the centrifuge ON, there shall be displayed parameters of the recently implemented program and sound signals comprising four successive tones shall be generated. In case of short-duration power failure the centrifuge terminates the cycle and displays PROGRAM ERROR code.

PROBLEM	QUESTION	ANSWER
<b>Centrifuge does not start</b>	<i>Is supply cable plugged into mains?</i>	<i>Plugs supply cable correctly.</i>
	<i>Is main switch ON?</i>	<i>Switch ON power supply.</i>
<b>Motor error is displayed</b>		Call service.
<b>Centrifuge does not start</b>  (indications are proof for cycle in progress and motor does not start)	<i>Is  symbol displayed?</i>	Wait till rotor stops and the  symbol goes off.
	<i>Is  symbol displayed?</i>	Close cover  symbol must switch off.
	<i>Is  symbol blinking?</i>	Centrifugation cycle in progress, press <b>STOP</b> key or wait till cycle ends.
<b>Centrifuge does not accelerate</b>  (unbalance error)	<i>Unequal rotor load.</i>	Centrifuge load shall be balanced.
	<i>Inclined centrifuge.</i>	Centrifuge shall be levelled.
	<i>Faulty drive (mechanical damage).</i>	Call service.
	<i>Was centrifuge displaced during operation?</i>	Switch ON the centrifuge again after opening and closing the cover.
<b>(rotor error)</b>	<i>After stopping error rotor message is displayed</i>	Check if rotor number in started program is consistent with the number of the rotor installed in the centrifuge.  Check rotor status (if there are coding magnets inserted)
	<i>Centrifuge does not recognize the rotor and does not stop.</i>	Switch the centrifuge OFF, then ON and check correctness of loaded program
<b>It is not possible to open the cover</b>	<i> symbol on the display is blinking, after pressing COVER key single tone is audible</i>	Rotor is still rotating. Wait for stopping of the rotor and displaying of the  symbol.
	<i>The sensor is connected correctly, and the error is still applying.</i>	Call service.
<b>Mains failure during run</b>	<i>The message will be displayed on the display about the decay of tension.</i>	Wait for stopping of the rotor, clear the error by pressing the SET key.

### 12.1 Emergency cover release


	<b>EMERGENCY COVER RELEASE</b>
	<p><b>Attention!</b> <i>The cover may be opened in emergency only when the rotor is at rest. Before emergency opening the cover, switch off the mains power switch and disconnect the power cord. Wait 10 min and/or looking through the sight glass, make sure that the rotor is not rotating.</i></p> <p>There is a plug on the right-hand side, which must be unscrewed counterclockwise using the emergency lid release key (catalog no. 18640). Then pull on the cap until the cover is open. The emergency opening of the cover can be used, for example, in the event of a power failure, failure of the control panel, etc.</p>

## 13 Guarantee


Manufacturer grants to the Buyer the guarantee on conditions specified in the Guarantee Certificate. Buyer forfeits the right to guarantee repair when using the device inconsistently with the User manual provisions, when damage results from the User's fault.

Repairs should be carried out in authorized service workshops, granted with the MPW Certificate.

The centrifuge shall be sent to repair after decontaminating disinfections. Information about authorized service workshops could be obtained from the Manufacturer.

	<ul style="list-style-type: none"> <li>▪ Guarantee period amounts to 24 months (unless otherwise specified in the purchase documents).</li> <li>▪ Guarantee conditions are described in guaranteed card.</li> <li>▪ The service life of the centrifuge specified by the manufacturer amounts to 10 years.</li> <li>▪ After 24 months from the start of the warranty period (date of purchase), a technical inspection of the centrifuge should be conducted (validation) by an authorized service of the manufacturer. Subsequent inspections should be conducted at annual intervals.</li> <li>▪ Maximum period of storage of not used centrifuge amounts to 1 year. After this period, a service authorized by manufacturer should conduct technical inspection of the centrifuge.</li> <li>▪ Manufacturer reserves the right to make technical changes in manufactured products.</li> </ul>
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## 14 Transport and storage

	<p><b>CAUTION!</b> Due to the heavy weight of the device, lifting and carrying it may cause injury to the spine.</p>
<ul style="list-style-type: none"> <li>▪ Store the device only in a closed and dry room.</li> <li>▪ Remove rotor from centrifuge before transport.</li> <li>▪ Lift and carry with the adequate number of people.</li> <li>▪ Use transport equipment.</li> <li>▪ Use the original packaging and transport protection for transport.</li> </ul>	

### Transport and storage conditions.

	Storage (in the package)	Storage (without the package)	Transport
Temperature	-25 ÷ +55 °C	-5 ÷ +45 °C	-25 ÷ +60 °C (general) -20 ÷ +55 °C (air)
Relative humidity	10 ÷ 75 %	10 ÷ 75 %	10 ÷ 75 %
Pressure	70 ÷ 106 kPa	70 ÷ 106 kPa	30 ÷ 106 kPa

## 15 Disposal



- When you are disposing the device, the respective statutory rules must be observed.
- Pursuant to guideline 2002/96/EC (WEEE).
- The device belongs to 8th group (medical devices) and is categorized in business-to-business field.
- The icon of the crossed-out waste container show that the device may not be disposed as part of domestic waste. The waste disposal guidelines of the individual EC countries might vary. If necessary, contact your supplier.

## 16 Manufacturer's info

"MPW MED. INSTRUMENTS" SPÓŁDZIELNIA PRACY

Boremlowska 46 Street

04-347 Warsaw

tel. (+48) 22 610 56 67 (sales department - POLAND)

(+48) 22 879 70 46 (sales department - outside POLAND)

(+48) 22 610 81 07 (service)

fax: (+48) 22 610 55 36

e-mail: mpw@mpw.pl

website: www.mpw.pl

000042924 - number of entry in the Waste Database

PL/CA01-01782 - identification number given by Office for Registration of Medicinal Products, Medical Devices and Biocidal Products.

## Distributor's info

**DISTRIBUTOR:**

## 17 Annexes

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-DIAGNOSTIC****WIRNIK / ROTOR**PARAMETRY WIRNIKA / ROTOR PARAMETERS (RCF [x g], Rmax [mm],  $\alpha$  [°])

POJEMNIK/BUCKET

WKŁADKA / ADAPTER

[liczba probówek na wirnik/tubes per rotor] PROBÓWKA / TUBE

**11501****RPM 4500 RCF 2717 Rmax 120  $\alpha$  30**

13080

14082+14815 Rmax 120 RCF 2717

[30] \* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)

[30] \* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)

[30] \* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)

[30] \* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)

[30] \* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)

[30] 15120 5 ml probówka szklana (12 x 75 mm)

5 ml glass tube (12 x 75 mm)

14815 Rmax 120 RCF 2717

[30] \* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)

[30] \* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)

[30] 15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm)

10 ml tube, round bottom, with cap (17 x 70 mm)

**11720****RPM 5000 RCF 3634 Rmax 130  $\alpha$  45**

13721

bez wkładki/without adapter

[4] \* Orthokine®vet 60ml

**11740****RPM 5500 RCF 4058 Rmax 120  $\alpha$  30**

13080

14082

[12] \* BD Vacutainer® (13 x 100 mm), (4-7 ml)

[12] \* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)

[12] \* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)

[12] 15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt®

6 ml tube with cap (11,5 x 92 mm), Sarstedt®

[12] 15119 7 ml probówka szklana (12 x 100 mm)

7 ml glass tube (12 x 100 mm)

bez wkładki/without adapter

[12] \* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)

[12] \* Greiner Vacuette® (16 x 100 mm), (7-9 ml)

[12] \* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)

[12] \* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)

[12] 15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt®

14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®

[12] 15048 15 ml Thermo Nalgene® (16 x 113 mm)

15 ml Thermo Nalgene® (16 x 113 mm)

[12] 15053 10 ml probówka z pokrywką (16 x 106 mm)

10 ml tube with cap (16 x 106 mm)

[12] 15118 10 ml probówka szklana (16 x 100 mm)

10 ml glass tube (16 x 100 mm)

[12] \* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm)

15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)

**11740****RPM 5500 RCF 3416 Rmax 101  $\alpha$  30**

13080

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-DIAGNOSTIC</b>	
<b>14082+14815</b>	
[12]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
<b>14082+14815 Rmax 101 RCF 3416</b>	
[12]	* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[12]	* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[12]	* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[12]	* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[12]	* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
<b>14815 Rmax 101 RCF 3416</b>	
[12]	* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[12]	* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[12]	15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)
<b>11741</b>	
<b>RPM 6000 RCF 4226 Rmax 105 ± 30</b>	
13080	
14082	
[8]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[8]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[8]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[8]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[8]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
bez wkładki/without adapter	
[8]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[8]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[8]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[8]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[8]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[8]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[8]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[8]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>11741</b>	
<b>RPM 6000 RCF 3502 Rmax 87 ± 30</b>	
13080	
14082+14815	
[8]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
<b>14082+14815 Rmax 87 RCF 3502</b>	
[8]	* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[8]	* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[8]	* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[8]	* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[8]	* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
<b>14815 Rmax 87 RCF 3502</b>	
[8]	* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[8]	* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[8]	15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)
<b>11744</b>	
<b>RPM 4500 RCF 2830 Rmax 125 ± 30</b>	
13276	
bez wkładki/without adapter	
[10]	15051 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-DIAGNOSTIC**

[10]	*	50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[10]	*	50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[10]	*	50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
14035		
[10]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[10]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[10]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[10]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
14036		
[10]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[10]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[10]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[10]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
14043		
[10]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[10]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[10]	*	Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)
[10]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[10]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
14071		
[10]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[10]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[10]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[10]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
14073		
[10]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[10]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[10]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[10]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[10]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[10]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[10]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[10]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
14089		
[10]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
14248		
[10]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
14089+14868		
[10]	*	5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®
[10]	*	5 ml probówka z korkiem zakręcany (17 x 66 mm), Eppendorf® 5 ml tube with screw cap (17 x 66 mm), Eppendorf®

**11745****RPM 5000 RCF 3354 Rmax 120  $\pm$  30**

13080

14082

[24]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[24]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[24]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)

\* probówka niedostępna w ofercie MPW lub dostępny odpowiednik (np:[15050]), patrz kolumna z prawej  
tube is not offered by MPW or equivalent is available (e.g. [15050]), see column on the right

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-DIAGNOSTIC**

[24]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[24]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
bez wkładki/without adapter		
[24]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[24]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[24]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[24]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[24]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[24]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[24]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[24]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[24]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)

**11745****RPM 5000 RCF 2935 Rmax 105  $\alpha$  30**

13080

14082+14815 Rmax 105 RCF 2935

[24]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[24]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[24]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[24]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[24]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[24]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)

14815 Rmax 105 RCF 2935

[24]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[24]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[24]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)

**11746****RPM 6000 RCF 4427 Rmax 110  $\alpha$  30**

13276

bez wkładki/without adapter

[6]	*	50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[6]	*	50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[6]	15051	50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[6]	*	50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11

14035

[6]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[6]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[6]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[6]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)

14036

[6]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[6]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[6]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[6]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)

14043

[6]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[6]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[6]	*	Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)

\* probówka niedostępna w ofercie MPW lub dostępny odpowiednik (np:[15050]), patrz kolumna z prawej  
tube is not offered by MPW or equivalent is available (e.g. [15050]), see column on the right

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-DIAGNOSTIC</b>	
[6]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[6]	15419 5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
	14071
[6]	* 28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[6]	15055 30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[6]	15056 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[6]	15424 30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
	14073
[6]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[6]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[6]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[6]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[6]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[6]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[6]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
	14089
[6]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
	14248
[6]	15055 30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
	14089+14868
[6]	* 5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®
[6]	* 5 ml probówka z korkiem zakręcany (17 x 66 mm), Eppendorf® 5 ml tube with screw cap (17 x 66 mm), Eppendorf®
<b>12193</b>	
<b>RPM 4000 RCF 2504 Rmax 140 <math>\pm</math> 90</b>	
	13080
	14082
[8]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[8]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[8]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[8]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[8]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
	bez wkładki/without adapter
[8]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[8]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[8]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[8]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[8]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[8]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[8]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[8]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>12193</b>	
<b>RPM 4000 RCF 1968 Rmax 110 <math>\pm</math> 90</b>	
	13080
	14082+14815 Rmax 110 RCF 1968
[8]	* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[8]	* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[8]	* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)

\* probówka niedostępna w ofercie MPW lub dostępny odpowiednik (np.[15050]), patrz kolumna z prawej  
tube is not offered by MPW or equivalent is available (e.g. [15050]), see column on the right



<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-DIAGNOSTIC</b>	
[8]	* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[8]	* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[8]	* Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)
[8]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
<b>14815 Rmax 110 RCF 1968</b>	
[8]	* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[8]	* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[8]	15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)
<b>12218</b>	
<b>RPM 3000 RCF 916 Rmax 91 <math>\phi</math> 90</b>	
13219	
bez wkładki/without adapter	
[2]	15102 płytka titracyjna MTP 28,8ml (86x128x15/17,5 mm) microtiter plate MTP 28,8 ml (86 x 128 x 15/17,5 mm)
<b>12452</b>	
<b>RPM 2500 RCF 769 Rmax 110 <math>\phi</math> 90</b>	
13606	
bez wkładki/without adapter	
[4]	16610 system cytologiczny MPW® 2,2ml cytological system MPW® 2,2 ml
<b>12200</b>	
<b>RPM 4000 RCF 2164 Rmax 121 <math>\phi</math> 90</b>	
13113 R max 121 RCF 2164 x g	
bez wkładki/without adapter Rmax 121 RCF 2164	
[48]	* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[48]	* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[48]	* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[48]	* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
<b>12200</b>	
<b>RPM 4000 RCF 2504 Rmax 140 <math>\phi</math> 90</b>	
13200	
14013	
[32]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[32]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[32]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[32]	* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[32]	* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[32]	* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[32]	* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[32]	* Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)
[32]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[32]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
[32]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[32]	15419 5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
<b>14016</b>	
[28]	* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[28]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[28]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[28]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[28]	* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[28]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[28]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[28]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-DIAGNOSTIC****14020**

[20]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[20]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[20]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[20]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[20]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[20]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[20]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[20]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[20]	*	13 ml probówka (ø16x100mm), Sarstedt® nr 62.515.006 13 ml tube (ø16 x 100 mm), Sarstedt® no. 62.515.006
[20]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[20]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)

**14021**

[40]	*	2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[40]	*	2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)

**14023**

[4]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[4]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[4]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[4]	15222	30 ml probówka z pokrywką (25 x 94mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15223	30 ml probówka z pokrywką (25 x 94 mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15117	25 ml probówka szklana (25 x 100 mm) 25 ml glass tube (25 x 100 mm)
[4]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®

**14026**

[4]	*	50 ml probówka z dnem stożkowym z rantem (30 x 115 mm), Greiner® 50 ml tube, conical bottom, skirted (30 x 115 mm), Greiner®
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**14026+14188**

[4]	15051	50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[4]	*	50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[4]	*	50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[4]	*	50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11

**14028**

[4]	15116	50 ml probówka szklana (35 x 100 mm) 50 ml glass tube (35 x 100 mm)
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**14029**

[48]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[48]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[48]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[48]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
[48]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[48]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®

**14100+14196**

[4]	15040	100 ml probówka z pokrywką (45,2 x 103,7 mm) 100 ml tube with cap (45,2 x 103,7 mm)
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**14100+14188**

[4]	15115	100 ml probówka szklana (44 x 100 mm) 100 ml glass tube (44 x 100 mm)
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**14027**

[4]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
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**A. Wyposażenie dodatkowe/Optional accessories****MPW M-DIAGNOSTIC**

13201+17202

14013

[32]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[32]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[32]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[32]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[32]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[32]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[32]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[32]	*	Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)
[32]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[32]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
[32]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[32]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®

14016

[28]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[28]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[28]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[28]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[28]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[28]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[28]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®

14020

[20]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[20]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[20]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[20]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[20]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[20]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[20]	*	13 ml probówka (ø16x100mm), Sarstedt® nr 62.515.006 13 ml tube (ø16 x 100 mm), Sarstedt® no. 62.515.006
[20]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[20]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)

14021

[40]	*	2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[40]	*	2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)

14023

[4]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[4]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[4]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[4]	15222	30 ml probówka z pokrywką (25 x 94mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15223	30 ml probówka z pokrywką (25 x 94 mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15117	25 ml probówka szklana (25 x 100 mm) 25 ml glass tube (25 x 100 mm)
[4]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®

14026+14188

[4]	15051	50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
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14028

[4]	15116	50 ml probówka szklana (35 x 100 mm) 50 ml glass tube (35 x 100 mm)
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<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-DIAGNOSTIC</b>	
<b>14029</b>	
[48]	* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[48]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[48]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
[48]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[48]	15419 5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
<b>14100+14196</b>	
[4]	15040 100 ml probówka z pokrywką (45,2 x 103,7 mm) 100 ml tube with cap (45,2 x 103,7 mm)
<b>14100+14188</b>	
[4]	15115 100 ml probówka szklana (44 x 100 mm) 100 ml glass tube (44 x 100 mm)
<b>13201+17203</b>	
<b>14021</b>	
[40]	* 2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[40]	* 2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
<b>14026</b>	
[4]	* 50 ml probówka z dnem stożkowym z rantem (30 x 115 mm), Greiner® 50 ml tube, conical bottom, skirted (30 x 115 mm), Greiner®
<b>14026+14188</b>	
[4]	15051 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[4]	* 50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[4]	* 50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[4]	* 50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
<b>14028</b>	
[4]	15116 50 ml probówka szklana (35 x 100 mm) 50 ml glass tube (35 x 100 mm)
<b>14100+14196</b>	
[4]	15040 100 ml probówka z pokrywką (45,2 x 103,7 mm) 100 ml tube with cap (45,2 x 103,7 mm)
<b>14100+14188</b>	
[4]	15115 100 ml probówka szklana (44 x 100 mm) 100 ml glass tube (44 x 100 mm)
<b>14027</b>	
[4]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>12200</b>	
<b>RPM 4000 RCF 2469 Rmax 138 <math>\alpha</math> 90</b>	
<b>13215 R max 138 RCF 2469 x g</b>	
<b>bez wkładki/without adapter Rmax 138 RCF 2469</b>	
[8]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[8]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[8]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[8]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[8]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[8]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[8]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[8]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>14082 Rmax 138 RCF 2469</b>	
[8]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[8]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[8]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)

\* probówka niedostępna w ofercie MPW lub dostępny odpowiednik (np:[15050]), patrz kolumna z prawej  
tube is not offered by MPW or equivalent is available (e.g. [15050]), see column on the right

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-DIAGNOSTIC</b>	
[8]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[8]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
<b>11501</b>	
<b>RPM 4500 RCF 2966 Rmax 131 <math>\pm</math> 30</b>	
13080 R max 131 RCF 2966 x g	
14082 Rmax 131 RCF 2966	
[30]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[30]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[30]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[30]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[30]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
bez wkładki/without adapter Rmax 131 RCF 2966	
[30]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[30]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[30]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[30]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[30]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[30]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[30]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[30]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[30]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>11743</b>	
<b>RPM 5500 RCF 3889 Rmax 115 <math>\pm</math> 30</b>	
13329	
bez wkładki/without adapter	
[12]	15055 30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[12]	15424 30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
[12]	15222 30 ml probówka z pokrywką (25 x 94mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[12]	15223 30 ml probówka z pokrywką (25 x 94 mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
14256	
[12]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[12]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[12]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[12]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
14255	
[12]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[12]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
<b>Suma końcowa</b>	

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-SCIENCE****WIRNIK / ROTOR**PARAMETRY WIRNIKA / ROTOR PARAMETERS (RCF [x g], Rmax [mm],  $\alpha$  [°])

POJEMNIK/BUCKET

WKŁADKA / ADAPTER

[liczba probówek na wirnik/tubes per rotor] PROBÓWKA / TUBE

**11199****RPM 18000 RCF 24270 Rmax 67  $\alpha$  45**

bez pojemnika/without bucket

bez wkładki/without adapter

[12] \* 2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)  
2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)

14084

[12] 15127 0,5 ml probówka PCR (7,8 x 31 mm)  
0,5 ml PCR tube (7,8 x 31 mm)

14126

[12] 15124 0,4 ml probówka PCR (5,7 x 48,6 mm)  
0,4 ml PCR tube (5,7 x 48,6 mm)

14133

[12] 15125 0,2 ml probówka PCR (6 x 21,6 mm)  
0,2 ml PCR tube (6 x 21,6 mm)**11461****RPM 15100 RCF 21158 Rmax 83  $\alpha$  45**

bez pojemnika/without bucket R max 83 RCF 21158 x g

14084 Rmax 83 RCF 21158

[24] 15127 0,5 ml probówka PCR (7,8 x 31 mm)  
0,5 ml PCR tube (7,8 x 31 mm)

14126 Rmax 83 RCF 21158

[24] 15124 0,4 ml probówka PCR (5,7 x 48,6 mm)  
0,4 ml PCR tube (5,7 x 48,6 mm)

14133 Rmax 83 RCF 21158

[24] 15125 0,2 ml probówka PCR (6 x 21,6 mm)  
0,2 ml PCR tube (6 x 21,6 mm)

bez wkładki/without adapter Rmax 83 RCF 21158

[24] \* 2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)  
2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)**11462****RPM 14000 RCF 18188 Rmax 83  $\alpha$  45**

bez pojemnika/without bucket R max 83 RCF 18188 x g

14084 Rmax 83 RCF 18188

[36] 15127 0,5 ml probówka PCR (7,8 x 31 mm)  
0,5 ml PCR tube (7,8 x 31 mm)

14126 Rmax 83 RCF 18188

[36] 15124 0,4 ml probówka PCR (5,7 x 48,6 mm)  
0,4 ml PCR tube (5,7 x 48,6 mm)

14133 Rmax 83 RCF 18188

[36] 15125 0,2 ml probówka PCR (6 x 21,6 mm)  
0,2 ml PCR tube (6 x 21,6 mm)

bez wkładki/without adapter Rmax 83 RCF 18188

[36] \* 2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)  
2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)**11715****RPM 14000 RCF 15558 Rmax 71  $\alpha$  30**

bez pojemnika/without bucket

bez wkładki/without adapter

[10] 15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm)  
10 ml tube, round bottom, with cap (17 x 70 mm)

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-SCIENCE</b>	
<b>11716</b>	
<b>RPM 14000 RCF 15339 Rmax 70 <math>\neq</math> 45</b>	
bez pojemnika/without bucket R max 70 RCF 15339 x g	
bez wkładki/without adapter Rmax 70 RCF 15339	
[4]	15131 4 x 0,2 ml probówki szeregowo PCR-strip (10,2 x 37,2 mm) 4 x 0,2 ml PCR strip (10,2 x 37,2 mm)
[4]	15122 8 x 0,2 ml probówki szeregowo PCR-strip (10,2 x 72,4 mm) 8 x 0,2 ml PCR strip (10,2 x 72,4 mm)
[32]	15125 0,2 ml probówka PCR (6 x 21,6 mm) 0,2 ml PCR tube (6 x 21,6 mm)
[4]	15130 8 x 0,2 ml probówki szeregowo PCR strip (7,3 x 77,2 mm) 8 x 0,2 ml PCR strip (7,3 x 77,2 mm)
<b>11760</b>	
<b>RPM 13500 RCF 17319 Rmax 85 <math>\neq</math> 45</b>	
bez pojemnika/without bucket R max 85 RCF 17319 x g	
14084 Rmax 85 RCF 17319	
[24]	15127 0,5 ml probówka PCR (7,8 x 31 mm) 0,5 ml PCR tube (7,8 x 31 mm)
14126 Rmax 85 RCF 17319	
[24]	15124 0,4 ml probówka PCR (5,7 x 48,6 mm) 0,4 ml PCR tube (5,7 x 48,6 mm)
14133 Rmax 85 RCF 17319	
[24]	15125 0,2 ml probówka PCR (6 x 21,6 mm) 0,2 ml PCR tube (6 x 21,6 mm)
bez wkładki/without adapter Rmax 85 RCF 17319	
[24]	* 2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[24]	* 2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
<b>11943</b>	
<b>RPM 12000 RCF 13684 Rmax 85 <math>\neq</math> 45</b>	
bez pojemnika/without bucket R max 85 RCF 13684 x g	
bez wkładki/without adapter Rmax 85 RCF 13684	
[20]	* 1,6 ml probówka Cryo (12,3 x 46,5 mm) 1,6 ml Cryo tube (12,3 x 46,5 mm)
[20]	* 1,8 ml probówka Cryo (12,3 x 46,5 mm) 1,8 ml Cryo tube (12,3 x 46,5 mm)
<b>11944</b>	
<b>RPM 12000 RCF 13684 Rmax 85 <math>\neq</math> 45</b>	
bez pojemnika/without bucket R max 85 RCF 13684 x g	
bez wkładki/without adapter Rmax 85 RCF 13684	
[6]	* 5 ml probówka z korkiem zakręcanym (17 x 66 mm), Eppendorf® 5 ml tube with screw cap (17 x 66 mm), Eppendorf®
[12]	* 5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®
<b>12300</b>	
<b>RPM 13000 RCF 16816 Rmax 89 <math>\neq</math> 90</b>	
bez pojemnika/without bucket	
bez wkładki/without adapter	
[24]	15100 37 $\mu$ l kapilarna hematocrytowa (1,4 x 75 mm) 37 $\mu$ l micro-hematocrit capillary tube (1,4 x 75 mm)
<b>Suma końcowa</b>	

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-UNIVERSAL****WIRNIK / ROTOR**PARAMETRY WIRNIKA / ROTOR PARAMETERS (RCF [x g], Rmax [mm],  $\phi$  [°])

POJEMNIK/BUCKET

WKŁADKA / ADAPTER

[liczba probówek na wirnik/tubes per rotor] PROBÓWKA / TUBE

**11199****RPM 18000 RCF 24270 Rmax 67  $\phi$  45**

bez pojemnika/without bucket

bez wkładki/without adapter

[12] \* 2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)  
2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)

14084

[12] 15127 0,5 ml probówka PCR (7,8 x 31 mm)  
0,5 ml PCR tube (7,8 x 31 mm)

14126

[12] 15124 0,4 ml probówka PCR (5,7 x 48,6 mm)  
0,4 ml PCR tube (5,7 x 48,6 mm)

14133

[12] 15125 0,2 ml probówka PCR (6 x 21,6 mm)  
0,2 ml PCR tube (6 x 21,6 mm)**11213****RPM 5000 RCF 3494 Rmax 125  $\phi$  30**

13276

14035

[8] 15118 10 ml probówka szklana (16 x 100 mm)  
10 ml glass tube (16 x 100 mm)

14036

[8] 15119 7 ml probówka szklana (12 x 100 mm)  
7 ml glass tube (12 x 100 mm)

14043

[8] 15120 5 ml probówka szklana (12 x 75 mm)  
5 ml glass tube (12 x 75 mm)

14073

[8] 15118 10 ml probówka szklana (16 x 100 mm)  
10 ml glass tube (16 x 100 mm)

13276 R max 125 RCF 3494 x g

14035 Rmax 125 RCF 3494

[8] 15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt®  
14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®[8] 15048 15 ml Thermo Nalgene® (16 x 113 mm)  
15 ml Thermo Nalgene® (16 x 113 mm)[8] 15053 10 ml probówka z pokrywką (16 x 106 mm)  
10 ml tube with cap (16 x 106 mm)

14036 Rmax 125 RCF 3494

[8] \* BD Vacutainer® (13 x 100 mm), (4-7 ml)

[8] \* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)

[8] 15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt®  
6 ml tube with cap (11,5 x 92 mm), Sarstedt®

14043 Rmax 125 RCF 3494

[8] \* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)

[8] \* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)

[8] \* Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)

[8] 15419 5 ml probówka z korkiem (12 x 85 mm), Sarstedt®  
5 ml tube with cap (12 x 85 mm), Sarstedt®

14071 Rmax 125 RCF 3494

[8] \* 28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)

[8] 15055 30 ml probówka z pokrywką (25,4 x 103,2 mm)  
30 ml tube with cap (25,4 x 103,2 mm)



**A. Wyposażenie dodatkowe/Optional accessories**
**MPW M-UNIVERSAL**

[8]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[8]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
		<b>14073 Rmax 125 RCF 3494</b>
[8]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[8]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[8]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[8]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[8]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
		<b>14089 Rmax 125 RCF 3494</b>
[8]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
		<b>14248 Rmax 125 RCF 3494</b>
[8]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
		<b>bez wkładki/without adapter Rmax 125 RCF 3494</b>
[8]	15051	50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[8]	*	50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[8]	*	50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[8]	*	50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
		<b>14089+14868 Rmax 125 RCF 3494</b>
[8]	*	5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®
[8]	*	5 ml probówka z korkiem zakręcany (17 x 66 mm), Eppendorf® 5 ml tube with screw cap (17 x 66 mm), Eppendorf®
		<b>13278+17151</b>
		<b>14035</b>
[8]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
		<b>14036</b>
[8]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
		<b>14043</b>
[8]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
		<b>14073</b>
[8]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
		<b>13278+17151 R max 125 RCF 3494 x g</b>
		<b>14035 Rmax 125 RCF 3494</b>
[8]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[8]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
		<b>14036 Rmax 125 RCF 3494</b>
[8]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
		<b>14043 Rmax 125 RCF 3494</b>
[8]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[8]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
		<b>14071 Rmax 125 RCF 3494</b>
[8]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[8]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[8]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[8]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-UNIVERSAL</b>	
<b>14073 Rmax 125 RCF 3494</b>	
[8]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[8]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[8]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[8]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[8]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
<b>14089 Rmax 125 RCF 3494</b>	
[8]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>14248 Rmax 125 RCF 3494</b>	
[8]	15055 30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
<b>bez wkładki/without adapter Rmax 125 RCF 3494</b>	
[8]	15051 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[8]	* 50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[8]	* 50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[8]	* 50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
<b>14089+14868 Rmax 125 RCF 3494</b>	
[8]	* 5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®
<b>11216</b>	
<b>RPM 14000 RCF 19064 Rmax 87 ± 45</b>	
bez pojemnika/without bucket	
bez wkładki/without adapter	
[12]	15419 5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
<b>11217</b>	
<b>RPM 6000 RCF 4226 Rmax 105 ± 30</b>	
<b>13080</b>	
<b>14082</b>	
[10]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[10]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[10]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[10]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[10]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
bez wkładki/without adapter	
[10]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[10]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[10]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[10]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[10]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[10]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[10]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[10]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[10]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>11217</b>	
<b>RPM 6000 RCF 3502 Rmax 87 ± 30</b>	
<b>13080</b>	
<b>14082+14815</b>	
[10]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)

<b>A. Wyposażenie dodatkowe/Optional accessories</b>			
<b>MPW M-UNIVERSAL</b>			
<b>14082+14815 Rmax 87 RCF 3502</b>			
[10]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)	
[10]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)	
[10]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)	
[10]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)	
[10]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)	
<b>14815 Rmax 87 RCF 3502</b>			
[10]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)	
[10]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)	
[10]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)	
<b>11461</b>			
<b>RPM 15100 RCF 21158 Rmax 83 <math>\neq</math> 45</b>			
bez pojemnika/without bucket R max 83 RCF 21158 x g			
<b>14084 Rmax 83 RCF 21158</b>			
[24]	15127	0,5 ml probówka PCR (7,8 x 31 mm) 0,5 ml PCR tube (7,8 x 31 mm)	
<b>14126 Rmax 83 RCF 21158</b>			
[24]	15124	0,4 ml probówka PCR (5,7 x 48,6 mm) 0,4 ml PCR tube (5,7 x 48,6 mm)	
<b>14133 Rmax 83 RCF 21158</b>			
[24]	15125	0,2 ml probówka PCR (6 x 21,6 mm) 0,2 ml PCR tube (6 x 21,6 mm)	
bez wkładki/without adapter Rmax 83 RCF 21158			
[24]	*	2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)	
<b>11462</b>			
<b>RPM 14000 RCF 18188 Rmax 83 <math>\neq</math> 45</b>			
bez pojemnika/without bucket R max 83 RCF 18188 x g			
<b>14084 Rmax 83 RCF 18188</b>			
[36]	15127	0,5 ml probówka PCR (7,8 x 31 mm) 0,5 ml PCR tube (7,8 x 31 mm)	
<b>14126 Rmax 83 RCF 18188</b>			
[36]	15124	0,4 ml probówka PCR (5,7 x 48,6 mm) 0,4 ml PCR tube (5,7 x 48,6 mm)	
<b>14133 Rmax 83 RCF 18188</b>			
[36]	15125	0,2 ml probówka PCR (6 x 21,6 mm) 0,2 ml PCR tube (6 x 21,6 mm)	
bez wkładki/without adapter Rmax 83 RCF 18188			
[36]	*	2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)	
<b>11501</b>			
<b>RPM 4500 RCF 2717 Rmax 120 <math>\neq</math> 30</b>			
<b>13080</b>			
<b>14082+14815 Rmax 120 RCF 2717</b>			
[30]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)	
[30]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)	
[30]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)	
[30]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)	
[30]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)	
[30]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)	
<b>14815 Rmax 120 RCF 2717</b>			
[30]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)	
[30]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)	
[30]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)	
<b>11715</b>			
<b>RPM 14000 RCF 15558 Rmax 71 <math>\neq</math> 30</b>			
bez pojemnika/without bucket			
bez wkładki/without adapter			

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-UNIVERSAL</b>	
[10]	15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)
<b>11716</b>	
<b>RPM 14000 RCF 15339 Rmax 70 ɳ 45</b>	
bez pojemnika/without bucket R max 70 RCF 15339 x g	
bez wkładki/without adapter Rmax 70 RCF 15339	
[4]	15131 4 x 0,2 ml probówki szeregowo PCR-strip (10,2 x 37,2 mm) 4 x 0,2 ml PCR strip (10,2 x 37,2 mm)
[4]	15122 8 x 0,2 ml probówki szeregowo PCR-strip (10,2 x 72,4 mm) 8 x 0,2 ml PCR strip (10,2 x 72,4 mm)
[32]	15125 0,2 ml probówka PCR (6 x 21,6 mm) 0,2 ml PCR tube (6 x 21,6 mm)
[4]	15130 8 x 0,2 ml probówki szeregowo PCR strip (7,3 x 77,2 mm) 8 x 0,2 ml PCR strip (7,3 x 77,2 mm)
<b>11718</b>	
<b>RPM 6300 RCF 5014 Rmax 113 ɳ 30</b>	
13719	
14024	
[4]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
14196	
[4]	15040 100 ml probówka z pokrywką (45,2 x 103,7 mm) 100 ml tube with cap (45,2 x 103,7 mm)
14224	
[4]	15056 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[4]	15055 30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[4]	15222 30 ml probówka z pokrywką (25 x 94mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15223 30 ml probówka z pokrywką (25 x 94 mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
14226	
[4]	* 50 ml probówka z dnem stożkowym z rantem (30 x 115 mm), Greiner® 50 ml tube, conical bottom, skirted (30 x 115 mm), Greiner®
14189+14188	
[4]	15051 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[4]	* 50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[4]	* 50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[4]	* 50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
14190+14188	
[4]	15055 30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
<b>11740</b>	
<b>RPM 5500 RCF 4058 Rmax 120 ɳ 30</b>	
13080	
14082	
[12]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[12]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[12]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[12]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[12]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
bez wkładki/without adapter	
[12]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[12]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[12]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[12]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[12]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-UNIVERSAL**

[12]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[12]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[12]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[12]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)

**11740****RPM 5500 RCF 3416 Rmax 101  $\pm$  30**

13080

14082+14815

[12]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
		14082+14815 Rmax 101 RCF 3416
[12]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[12]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[12]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[12]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[12]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
		14815 Rmax 101 RCF 3416
[12]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[12]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[12]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)

**11741****RPM 6000 RCF 4226 Rmax 105  $\pm$  30**

13080

14082

[8]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[8]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[8]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[8]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[8]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
		bez wkładki/without adapter
[8]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[8]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[8]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[8]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[8]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[8]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[8]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[8]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)

**11741****RPM 6000 RCF 3502 Rmax 87  $\pm$  30**

13080

14082+14815

[8]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
		14082+14815 Rmax 87 RCF 3502
[8]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[8]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[8]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[8]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[8]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
		14815 Rmax 87 RCF 3502

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-UNIVERSAL**

[8]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[8]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[8]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)

**11744****RPM 4500 RCF 2830 Rmax 125  $\pm$  30**

13276

bez wkładki/without adapter

[10]	15051	50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[10]	*	50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[10]	*	50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[10]	*	50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11

14035

[10]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[10]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[10]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[10]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)

14036

[10]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[10]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[10]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[10]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)

14043

[10]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[10]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[10]	*	Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)
[10]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[10]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®

14071

[10]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[10]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[10]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[10]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®

14073

[10]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[10]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[10]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[10]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[10]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[10]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[10]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[10]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)

14089

[10]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
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14248

[10]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
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14089+14868

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-UNIVERSAL</b>	
[10]	* 5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®
[10]	* 5 ml probówka z korkiem zakręcany (17 x 66 mm), Eppendorf® 5 ml tube with screw cap (17 x 66 mm), Eppendorf®
<b>11745</b>	
<b>RPM 5000 RCF 3354 Rmax 120 <math>\pm</math> 30</b>	
13080	
14082	
[24]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[24]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[24]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[24]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[24]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
bez wkładki/without adapter	
[24]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[24]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[24]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[24]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[24]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[24]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[24]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[24]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[24]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>11745</b>	
<b>RPM 5000 RCF 2935 Rmax 105 <math>\pm</math> 30</b>	
13080	
14082+14815 Rmax 105 RCF 2935	
[24]	* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[24]	* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[24]	* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[24]	* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[24]	* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[24]	15120 5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
14815 Rmax 105 RCF 2935	
[24]	* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[24]	* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[24]	15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)
<b>11746</b>	
<b>RPM 6000 RCF 4427 Rmax 110 <math>\pm</math> 30</b>	
13276	
bez wkładki/without adapter	
[6]	* 50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[6]	* 50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[6]	15051 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[6]	* 50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
14035	
[6]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[6]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[6]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-UNIVERSAL**

[6]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
		14036
[6]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[6]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[6]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[6]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
		14043
[6]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[6]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[6]	*	Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)
[6]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[6]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
		14071
[6]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[6]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[6]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[6]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
		14073
[6]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[6]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[6]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[6]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[6]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[6]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[6]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
		14089
[6]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
		14248
[6]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
		14089+14868
[6]	*	5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®
[6]	*	5 ml probówka z korkiem zakręcany (17 x 66 mm), Eppendorf® 5 ml tube with screw cap (17 x 66 mm), Eppendorf®

**11760****RPM 14600 RCF 20257 Rmax 85  $\phi$  45**

bez pojemnika/without bucket R max 85 RCF 20257 x g

		14084 Rmax 85 RCF 20257
[24]	15127	0,5 ml probówka PCR (7,8 x 31 mm) 0,5 ml PCR tube (7,8 x 31 mm)
		14126 Rmax 85 RCF 20257
[24]	15124	0,4 ml probówka PCR (5,7 x 48,6 mm) 0,4 ml PCR tube (5,7 x 48,6 mm)
		14133 Rmax 85 RCF 20257
[24]	15125	0,2 ml probówka PCR (6 x 21,6 mm) 0,2 ml PCR tube (6 x 21,6 mm)
		bez wkładki/without adapter Rmax 85 RCF 20257
[24]	*	2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[24]	*	2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)

**11943****RPM 12000 RCF 13684 Rmax 85  $\phi$  45**

bez pojemnika/without bucket R max 85 RCF 13684 x g



<b>A. Wyposażenie dodatkowe/Optional accessories</b>			
<b>MPW M-UNIVERSAL</b>			
bez wkładki/without adapter Rmax 85 RCF 13684			
[20]	*	1,6 ml probówka Cryo (12,3 x 46,5 mm) 1,6 ml Cryo tube (12,3 x 46,5 mm)	
[20]	*	1,8 ml probówka Cryo (12,3 x 46,5 mm) 1,8 ml Cryo tube (12,3 x 46,5 mm)	
<b>11944</b>			
<b>RPM 12000 RCF 13684 Rmax 85 <math>\pm</math> 45</b>			
bez pojemnika/without bucket R max 85 RCF 13684 x g			
bez wkładki/without adapter Rmax 85 RCF 13684			
[6]	*	5 ml probówka z korkiem zakręcany (17 x 66 mm), Eppendorf® 5 ml tube with screw cap (17 x 66 mm), Eppendorf®	
[12]	*	5 ml probówka z korkiem wciskany (17 x 54,2 mm), Eppendorf® 5 ml tube with snap cap (17 x 54,2 mm), Eppendorf®	
<b>12193</b>			
<b>RPM 4000 RCF 2504 Rmax 140 <math>\pm</math> 90</b>			
13080			
14082			
[8]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)	
[8]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)	
[8]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)	
[8]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®	
[8]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)	
bez wkładki/without adapter			
[8]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)	
[8]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)	
[8]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)	
[8]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)	
[8]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®	
[8]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)	
[8]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)	
[8]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)	
[8]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)	
<b>12193</b>			
<b>RPM 4000 RCF 1968 Rmax 110 <math>\pm</math> 90</b>			
13080			
14082+14815 Rmax 110 RCF 1968			
[8]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)	
[8]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)	
[8]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)	
[8]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)	
[8]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)	
[8]	*	Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)	
[8]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)	
14815 Rmax 110 RCF 1968			
[8]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)	
[8]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)	
[8]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)	
<b>12218</b>			
<b>RPM 3000 RCF 916 Rmax 91 <math>\pm</math> 90</b>			
13219			
bez wkładki/without adapter			
[2]	15102	płytki titracyjna MTP 28,8ml (86x128x15/17,5 mm) microtiter plate MTP 28,8 ml (86 x 128 x 15/17,5 mm)	

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-UNIVERSAL****12300****RPM 13000 RCF 16816 Rmax 89  $\alpha$  90**

bez pojemnika/without bucket

bez wkładki/without adapter

[24] 15100 37  $\mu$ l kapilarna hematokrytowa (1,4 x 75 mm)  
37  $\mu$ l micro-hematocrit capillary tube (1,4 x 75 mm)**12200****RPM 4000 RCF 2164 Rmax 121  $\alpha$  90**

13113 R max 121 RCF 2164 x g

bez wkładki/without adapter Rmax 121 RCF 2164

[48] \* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)

[48] \* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)

[48] \* Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)

[48] \* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)

**12200****RPM 4000 RCF 2504 Rmax 140  $\alpha$  90**

13200

14013

[32] \* BD Vacutainer® (13 x 100 mm), (4-7 ml)

[32] \* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)

[32] \* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)

[32] \* BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)

[32] \* Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)

[32] \* Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)

[32] \* Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)

[32] \* Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)

[32] 15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt®  
6 ml tube with cap (11,5 x 92 mm), Sarstedt®[32] 15119 7 ml probówka szklana (12 x 100 mm)  
7 ml glass tube (12 x 100 mm)[32] 15120 5 ml probówka szklana (12 x 75 mm)  
5 ml glass tube (12 x 75 mm)[32] 15419 5 ml probówka z korkiem (12 x 85 mm), Sarstedt®  
5 ml tube with cap (12 x 85 mm), Sarstedt®

14016

[28] \* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)

[28] \* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)

[28] \* Greiner Vacuette® (16 x 100 mm), (7-9 ml)

[28] \* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)

[28] \* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)

[28] 15053 10 ml probówka z pokrywką (16 x 106 mm)  
10 ml tube with cap (16 x 106 mm)[28] 15118 10 ml probówka szklana (16 x 100 mm)  
10 ml glass tube (16 x 100 mm)[28] 15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt®  
14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®

14020

[20] \* Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)

[20] \* 10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)

[20] \* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)

[20] \* Greiner Vacuette® (16 x 100 mm), (7-9 ml)

[20] \* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)

[20] \* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)

[20] 15053 10 ml probówka z pokrywką (16 x 106 mm)  
10 ml tube with cap (16 x 106 mm)[20] 15118 10 ml probówka szklana (16 x 100 mm)  
10 ml glass tube (16 x 100 mm)[20] \* 13 ml probówka ( $\emptyset$ 16x100mm), Sarstedt® nr 62.515.006  
13 ml tube ( $\emptyset$ 16 x 100 mm), Sarstedt® no. 62.515.006[20] 15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt®  
14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®[20] 15121 10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm)  
10 ml tube, round bottom, with cap (17 x 70 mm)

14021

**A. Wyposażenie dodatkowe/Optional accessories**
**MPW M-UNIVERSAL**

[40]	*	2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[40]	*	2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
		<b>14023</b>
[4]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[4]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[4]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[4]	15222	30 ml probówka z pokrywką (25 x 94mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15223	30 ml probówka z pokrywką (25 x 94 mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15117	25 ml probówka szklana (25 x 100 mm) 25 ml glass tube (25 x 100 mm)
[4]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
		<b>14026</b>
[4]	*	50 ml probówka z dnem stożkowym z rantem (30 x 115 mm), Greiner® 50 ml tube, conical bottom, skirted (30 x 115 mm), Greiner®
		<b>14026+14188</b>
[4]	15051	50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[4]	*	50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[4]	*	50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[4]	*	50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
		<b>14028</b>
[4]	15116	50 ml probówka szklana (35 x 100 mm) 50 ml glass tube (35 x 100 mm)
		<b>14029</b>
[48]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[48]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[48]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[48]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
[48]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[48]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
		<b>14100+14196</b>
[4]	15040	100 ml probówka z pokrywką (45,2 x 103,7 mm) 100 ml tube with cap (45,2 x 103,7 mm)
		<b>14100+14188</b>
[4]	15115	100 ml probówka szklana (44 x 100 mm) 100 ml glass tube (44 x 100 mm)
		<b>14027</b>
[4]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
		<b>13201+17202</b>
		<b>14013</b>
[32]	*	BD Vacutainer® (13 x 100 mm), (4-7 ml)
[32]	*	Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[32]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[32]	*	BD Vacutainer® (13 x 75 mm), (1,6-5,3 ml)
[32]	*	Greiner Vacuette® (13 x 75 mm), (1-4,5 ml)
[32]	*	Sarstedt S-Monovette® (13 x 65 mm), (2,6; 2,9; 3,4; 3,8 ml)
[32]	*	Sarstedt S-Monovette® (13 x 75 mm), (2,7; 3; 4,3 ml)
[32]	*	Sarstedt S-Monovette® (13 x 90 mm), (4,9; 5,6 ml)
[32]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[32]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
[32]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-UNIVERSAL**

[32]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
14016		
[28]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[28]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[28]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[28]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[28]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[28]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[28]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
14020		
[20]	*	Sarstedt S-Monovette® (15 x 75 mm), (4; 4,3; 5,5 ml)
[20]	*	10 ml Thermo Nalgene® Oak Ridge (16 x 81,5 mm)
[20]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[20]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[20]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[20]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[20]	*	13 ml probówka (ø16x100mm), Sarstedt® nr 62.515.006 13 ml tube (ø16 x 100 mm), Sarstedt® no. 62.515.006
[20]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[20]	15121	10 ml probówka z dnem okrągłym i pokrywką (17 x 70 mm) 10 ml tube, round bottom, with cap (17 x 70 mm)
14021		
[40]	*	2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[40]	*	2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
14023		
[4]	*	28 ml Thermo Nalgene® Oak Ridge (25,4 x 101,8 mm)
[4]	15056	30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm) 30 ml Thermo Nalgene® Oak Ridge (25,5 x 94,3 mm)
[4]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[4]	15222	30 ml probówka z pokrywką (25 x 94mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15223	30 ml probówka z pokrywką (25 x 94 mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[4]	15117	25 ml probówka szklana (25 x 100 mm) 25 ml glass tube (25 x 100 mm)
[4]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
14026+14188		
[4]	15051	50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
14028		
[4]	15116	50 ml probówka szklana (35 x 100 mm) 50 ml glass tube (35 x 100 mm)
14029		
[48]	*	Sarstedt S-Monovette® (11 x 66 mm), (1,6; 2; 2,7; 3; 3,1 ml)
[48]	15054	6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[48]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
[48]	15120	5 ml probówka szklana (12 x 75 mm) 5 ml glass tube (12 x 75 mm)
[48]	15419	5 ml probówka z korkiem (12 x 85 mm), Sarstedt® 5 ml tube with cap (12 x 85 mm), Sarstedt®
14100+14196		
[4]	15040	100 ml probówka z pokrywką (45,2 x 103,7 mm) 100 ml tube with cap (45,2 x 103,7 mm)
14100+14188		
[4]	15115	100 ml probówka szklana (44 x 100 mm) 100 ml glass tube (44 x 100 mm)
13201+17203		

<b>A. Wyposażenie dodatkowe/Optional accessories</b>	
<b>MPW M-UNIVERSAL</b>	
<b>14021</b>	
[40]	* 2-1,5 ml probówka (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm) 2-1,5 ml tube (10,8x41,8 mm), Eppendorf®; [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
[40]	* 2 ml probówki z filtrem - spin columns (10,8 x 46 mm) 2 ml spin columns (with filter) (10,8 x 46 mm); [15011], 2 ml (10,8x41,8 mm); [15128], 1,5ml (10,8x40,5 mm)
<b>14026</b>	
[4]	* 50 ml probówka z dnem stożkowym z rantem (30 x 115 mm), Greiner® 50 ml tube, conical bottom, skirted (30 x 115 mm), Greiner®
<b>14026+14188</b>	
[4]	15051 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm) 50 ml Thermo Nalgene® Oak Ridge (28,8 x 106,7 mm)
[4]	* 50 ml probówka z dnem stożkowym z zakrętką (30 x 117 mm), Falcon®; [15052] 50ml (30 x 117mm) 50 ml tube, conical bottom, with cap (30 x 117 mm), Falcon®; [15052] 50ml Sarstedt® (30 x 117 mm)
[4]	* 50 ml probówka z dnem stożkowym bez rantu (30 x 115 mm), Greiner® 50 ml tube, conical bottom, without skirt (30 x 115 mm), Greiner®
[4]	* 50 ml probówka Advanced Oak Ridge (29x102 mm), Herolab® nr 25 32 11 50 ml tube, Advanced Oak Ridge (29 x 102 mm), Herolab® no. 25 32 11
<b>14028</b>	
[4]	15116 50 ml probówka szklana (35 x 100 mm) 50 ml glass tube (35 x 100 mm)
<b>14100+14196</b>	
[4]	15040 100 ml probówka z pokrywką (45,2 x 103,7 mm) 100 ml tube with cap (45,2 x 103,7 mm)
<b>14100+14188</b>	
[4]	15115 100 ml probówka szklana (44 x 100 mm) 100 ml glass tube (44 x 100 mm)
<b>14027</b>	
[4]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>12200</b>	
<b>RPM 4000 RCF 2469 Rmax 138 <math>\pm</math> 90</b>	
<b>13215 R max 138 RCF 2469 x g</b>	
<b>bez wkładki/without adapter Rmax 138 RCF 2469</b>	
[8]	* BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[8]	* Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[8]	* Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[8]	* Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[8]	15046 14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[8]	15048 15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[8]	15053 10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[8]	15118 10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[8]	* 15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)
<b>14082 Rmax 138 RCF 2469</b>	
[8]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[8]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[8]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[8]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[8]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
<b>11501</b>	
<b>RPM 4500 RCF 2966 Rmax 131 <math>\pm</math> 30</b>	
<b>13080 R max 131 RCF 2966 x g</b>	
<b>14082 Rmax 131 RCF 2966</b>	
[30]	* BD Vacutainer® (13 x 100 mm), (4-7 ml)
[30]	* Greiner Vacuette® (13 x 100 mm), (3,5-6 ml)
[30]	* Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[30]	15054 6 ml probówka z pokrywką (11,5 x 92 mm), Sarstedt® 6 ml tube with cap (11,5 x 92 mm), Sarstedt®
[30]	15119 7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)
<b>bez wkładki/without adapter Rmax 131 RCF 2966</b>	

\* probówka niedostępna w ofercie MPW lub dostępny odpowiednik (np:[15050]), patrz kolumna z prawej  
tube is not offered by MPW or equivalent is available (e.g. [15050]), see column on the right

**A. Wyposażenie dodatkowe/Optional accessories****MPW M-UNIVERSAL**

[30]	*	BD Vacutainer® (16 x 100 mm), (2,5-11 ml)
[30]	*	Greiner Vacuette® (16 x 100 mm), (7-9 ml)
[30]	*	Sarstedt S-Monovette® (15 x 92 mm), (7,5; 8,2; 8,5 ml)
[30]	*	Sarstedt S-Monovette® (16 x 92 mm), (9; 10 ml)
[30]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[30]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[30]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[30]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
[30]	*	15 ml probówka z dnem stożkowym z zakrętką (17 x 120 mm), Falcon®; [15050], 15ml (17 x 120 mm) 15 ml tube, conical bottom, with cap (17 x 120 mm), Falcon®; [15050] 15ml Sarstedt®(17 x 120 mm)

**11743****RPM 5500 RCF 3889 Rmax 115  $\phi$  30**

13329

bez wkładki/without adapter

[12]	15055	30 ml probówka z pokrywką (25,4 x 103,2 mm) 30 ml tube with cap (25,4 x 103,2 mm)
[12]	15424	30 ml probówka z pokrywką (25,5 x 94 mm), Nalgene® 30 ml tube with cap (25,5 x 94 mm), Nalgene®
[12]	15222	30 ml probówka z pokrywką (25 x 94mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
[12]	15223	30 ml probówka z pokrywką (25 x 94 mm), Sterilin® 30 ml tube with cap (25 x 94 mm), Sterilin®
14256		
[12]	15046	14 ml probówka z pokrywką (16,8 x 113,7 mm), Sarstedt® 14 ml tube with cap (16,8 x 113,7 mm), Sarstedt®
[12]	15048	15 ml Thermo Nalgene® (16 x 113 mm) 15 ml Thermo Nalgene® (16 x 113 mm)
[12]	15053	10 ml probówka z pokrywką (16 x 106 mm) 10 ml tube with cap (16 x 106 mm)
[12]	15118	10 ml probówka szklana (16 x 100 mm) 10 ml glass tube (16 x 100 mm)
14255		
[12]	*	Sarstedt S-Monovette® (11 x 92 mm), (4,5; 5 ml)
[12]	15119	7 ml probówka szklana (12 x 100 mm) 7 ml glass tube (12 x 100 mm)

**Suma końcowa**

## DECLARATION OF CONFORMITY

Product name: **Laboratory centrifuge  
MPW M-DIAGNOSTIC**

Product type: **Laboratory centrifuge**

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product classification on the basis of the Directive 98/79/EC: **Non classified to list A or B and not for self-testing.**

**Product complies with the requirements:**

• **Directive 98/79/EC (IVD), including the requirements of harmonized standards:**

EN 15223-1:2016

EN ISO 18113-3:2011

EN 13612:2002

EN 61326-2-6:2006

EN 13612:2002/AC:2002

EN 61010-2-101:2002

EN 13975:2003

EN 62304:2006

EN ISO 14971:2012

EN 62304:2006/AC:2008

EN ISO 18113-1:2011

EN 62366:2008

• **selected harmonized standards of Directive 2014/35/UE (LVD):**

EN 61010-1:2010

EN 61010-2-020:2006

EN 61010-1:2010/A1:2019

EN 61010-1:2010/A1:2019/AC:2019-04

• **Directive 2014/30/UE (EMC)**

• **Directive 2011/65/UE (RoHS 2)**

**"MPW MED. INSTRUMENTS"**

**SPÓŁDZIELNIA PRACY**

Warsaw, 46 Boremlowska Street

*applies Quality Management System in line with*

*PN-EN ISO 9001:2015, PN-EN ISO 13485:2016*

Z-ca PREZESA ZARZĄDU

Wojciech Anisiewicz



PREZES ZARZĄDU

mgr Łukasz Salański



## DECLARATION OF CONFORMITY

Product name: **Laboratory centrifuge  
MPW M-SCIENCE**

Product type: **Laboratory centrifuge**

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product classification on the basis of the Directive 98/79/EC: **Non classified to list A or B and not for self-testing.**

**Product complies with the requirements:**

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**• Directive 2014/30/UE (EMC)**

**• Directive 2011/65/UE (RoHS 2)**

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**SPÓŁDZIELNIA PRACY**

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Z-ca PREZESA ZARZĄDU

Wojciech Anisiewicz



PREZES ZARZĄDU

mgr Łukasz Salański



ISO 9001



ISO 13485

Warsaw, 2021.10.06

no. 10.2MS.05.en



## DECLARATION OF CONFORMITY

Product name: **Laboratory centrifuge  
MPW M-UNIVERSAL**

Product type: **Laboratory centrifuge**

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product classification on the basis of the Directive 98/79/EC: Non classified to list A or B and not for self-testing.

**Product complies with the requirements:**

• **Directive 98/79/EC (IVD), including the requirements of harmonized standards:**

EN 15223-1:2016

EN ISO 18113-3:2011

EN 13612:2002

EN 61326-2-6:2006

EN 13612:2002/AC:2002

EN 61010-2-101:2002

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EN ISO 18113-1:2011

EN 62366:2008

• **selected harmonized standards of Directive 2014/35/UE (LVD):**

EN 61010-1:2010

EN 61010-2-020:2006

EN 61010-1:2010/A1:2019

EN 61010-1:2010/A1:2019/AC:2019-04

• **Directive 2014/30/UE (EMC)**

• **Directive 2011/65/UE (RoHS 2)**

Z-ca PREZESA ZARZĄDU

Wojciech Anisławicz



PREZES ZARZĄDU

mgr Łukasz Salański



"MPW MED. INSTRUMENTS"

SPÓŁDZIELNIA PRACY

Warsaw, 46 Boremlowska Street

applies Quality Management System in line with

PN-EN ISO 9001:2015, PN-EN ISO 13485:2016



ISO 9001



ISO 13485

# DECLARATION OF DECONTAMINATION

(repair)

In order to protect our employees please fill out the declaration of decontamination completely before sending centrifuge to the manufacturer (repair).

**1. Device:**

– type: .....

– serial No.: .....

**2. Description of decontamination**

(see user manual)

.....

.....

.....

.....

**3. Decontamination carried out by:**

name: .....

**4. Date and signature:**

.....

# DECLARATION OF DECONTAMINATION

(return)

In order to protect our employees please fill out the declaration of decontamination completely before sending centrifuge to the manufacturer (return).

**1. Device:**

– type: .....

– serial No.: .....

**2. Description of decontamination**

(see user manual)

.....

.....

.....

.....

**3. Decontamination carried out by:**

name: .....

**4. Date and signature:**

.....

# NOMOGRAM

