centrifuge No.: MPW-54

user manual - Cat. No.: 20054/.EN

2014-12-09

USER MANUAL

LABORATORY CENTRIFUGE

MPW-54

READ IT BEFORE USE!

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CE IVD

WARNING SIGNS AND HAZARD ICONS

	**WARNING!** Warning of potential injury or health risk.
	**DANGER!** Risk of electric shock with potential for severe injury or death as a consequence.
	**DANGER!** Biohazard with potential for risk to health or death as a consequence.
	**DANGER!** Risk of explosion with potential for severe injury or death as a consequence.

This manual was prepared with special care. MPW MED. INSTRUMENTS may change the manual at any time and without notice because of improvements and inaccuracies of current information.

Content

1 Technical specification

manufacturer	„MPW MED. INSTRUMENTS" SPÓŁDZIELNIA PRACY, Boremlowska 46 Street, 04-347 Warsaw			
type	**MPW - 54**		**MPW – 54s**	
mains voltage L1+N+PE, ±10%	230V	115V	230V	115V
frequency, ±10%	50/60Hz			
connected load (max)	60W			
overcurrent protection	fuse WTA-T 2A 250V			
capacity (max)	120ml			
speed – RPM	3500, 5800, ∞		1000, 3500, ∞	
force – RCF	3122		1137	
running time	01:00 ÷ 30:00 – [min., s] (step 1min.)			
short-time operation mode – SHORT	no			
continuous operation mode – HOLD	yes			
electromagnetic compatibility	according to PN-EN 55011			
ambient conditions	PN-EN 61010-1 (pkt.1.4.1)			
set-up site	indors only			
ambient temperature	2° ÷ 40°C			
humidity (maximum relative humidity)	< 80%			
excess-voltage category	II PN-EN 61010-1			
pollution degree	2 PN-EN 61010-1			
safety area	300 mm			
dimensions				
height (H)	180 mm		180 mm	
width (W)	220 mm		220 mm	
depth (D)	270 mm		270 mm	
height with open lid(H_{oc})	367 mm		367 mm	
noise level	56 dB		56 dB	
weight of centrifuge 230V	4 kg		4kg	4 kg
weight of centrifuge 230V	4 kg		4 kg	4 kg

There is a possibility of using power inverter 12DC/230AC (look: **10.ANNEXES → ADDITIONAL ACCESSORIES → OTHER**)

2 Application

The MPW-54 is a table top laboratory centrifuge for in vitro diagnostic (IVD). Device is used for separation samples taken from people's, animal's and plant's components of different densities, under the influence of the centrifugal force, to provide information about their biological state. Its construction ensures easy operation, safe work and wide range of applications at laboratories engaged in routine medical analyses, biochemical research works etc. This centrifuge is not biotight and therefore during centrifugation of preparations requiring biotightness one has to use closed and sealed containers and rotors. In the centrifuge, it is prohibited to centrifuge caustic, inflammable and explosive preparations.

3 Safety notes

3.1 Personnel

	▪ Laboratory centrifuge can be operated by laboratory personnel after getting acquainted with user manual. ▪ User manual shall be always held near the centrifuge. ▪ The centrifuge can not be misused.

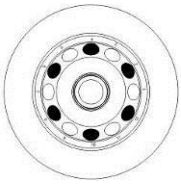
3.2 Guarantee

	▪ Guarantee period amounts to minimum **24 months** (unless otherwise specified in the purchase documents). ▪ The service life of the centrifuge specified by the manufacturer amounts to **10 years**. ▪ After termination of guarantee period it is necessary to carry out yearly technical inspections of the centrifuge. ▪ Manufacturer reserves the right to make technical changes in manufactured products. ▪ Maximum period of storage of not used centrifuge amounts to **1 year.** After this period, a service authorized by manufacturer should carry out technical inspection of the centrifuge.

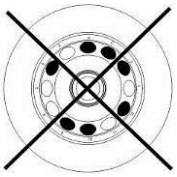
3.3 Loading the rotor

- Fix the rotor on the motor axis firmly.
- Avoid unbalance.
- Load opposite buckets with the same accessories.
- Centrifugation of the test tubes of different sizes:

  There is a possibility to centrifuge test tubes of different sizes; however, it is absolutely necessary in such cases that opposite buckets and round carriers be the same.



CORRECT



INCORRECT

- It is necessary to insert test tubes symmetrically on the opposite sides
- It is necessary to insert buckets symmetrically on the opposite sides

UWAGA

- If the centrifuge will run with a large unbalance it will occur dangerous vibrations.
- Buckets 13080 and 13081 are part of common balanced kit and marked by one number. One should load rotor with buckets from the same kit.

FILLING TUBES

- Fill test tubes outside the centrifuge.
- Please pay special attention to the quality and proper thickness of the glass test tubes walls. Those shall be test tubes for centrifuges.

3.4 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

	▪ 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. It is recommended to install emergency cut-out that shall be located far from the centrifuge, near the exit or beyond the room.
	▪ **Before switching on, check whether the centrifuge is connected to power supply correctly.**

3.5 Safety hints

	**ROTORS MAINTENANCE** ▪ Use only accessories in good condition. ▪ Protect equipment against corrosion using accurate preventive
	**HAZARDOUS MATERIALS** ▪ Infectious materials could be processed in closed buckets only. ▪ It is not allowed to subject to centrifugation toxic or infectious materials with damaged leak proof seals of the rotor or test-tube. Proper disinfection procedures have to be carried out when dangerous substances contaminated the centrifuge or its accessories.
	**EXPLOSIVE AND COMBUSTIBLE MATERIALS** ▪ It is not allowed to centrifuge explosive and inflammable materials. ▪ It is not allowed to centrifuge substances prone to reacting in result of supplying high energy during centrifugation. The centrifuge can not be operated in explosion-endangered areas ▪ It is not allowed to centrifuge materials capable of generating inflammable or explosive mixtures when subjected to air.

3.6 Maintenance conditions

	**START-UP** ▪ Prior to switching the centrifuge on, one shall read all sections of this instruction carefully in order to ensure smooth operation and avoid damages of this device or its accessories. ▪ In order to protect the centrifuge against unbalance, fill in the test tubes up to the same weight.
	**TRANSPORTATION** ▪ Centrifuge must not be transported with the rotor mounted on the shaft.
	**GENERAL HINTS** ▪ One must use original rotors, test-tubes and spare parts only. ▪ In case of faulty operation of the centrifuge one shall ask for assistance of service of MPW MED. INSTRUMENTS company or its authorized representatives. ▪ It is not allowed to switch the centrifuge on if it is not installed properly or rotor is not fitted correctly.

	**CENTRIFUGES SUBSTANCES** ▪ It is not allowed to exceed load limit set by the manufacturer. Rotors are intended for fluids of average homogeneous density equal to **1,2 g/cm^3** or smaller when centrifugation is carried out at maximum or submaximum speed. In order to avoid overloading of the rotor, please observe the maximum load, which is stored on each rotor. The maximum permissible load is achieved when all the tubes are filled with a liquid of 1,2 g/cm^3 density. If the density of the centrifuging liquid is greater than 1,2 g/cm^3, a tube can be filled only partially, or limit the speed of a centrifuge, which shall be determined from the formula: $n_{admissible} = n_{max} \times \sqrt{\frac{1,2}{\gamma}}$ γ = density $\left[\frac{g}{cm^3}\right]$ n_{max} =max speed [rpm]

3.7 Safety precautions

For safety reasons, inspections of the centrifuge carried out by the authorized service at least once a year after the period of warranty. The reason for more frequent inspections could be corrosion inducing environment. Examinations should end with issuing report of validation that checks on the technical state of the laboratory centrifuge. It is being recommended to establish document where every repairs and reviews are being registered. Both these documents should be stored in the place of use of the centrifuge.

INSPECTION PROCEDURES CARRIED OUT BY THE OPERATOR

Operator has to pay special attention to the fact that the centrifuge parts of key importance due to safety reasons are not damaged. This remark is specifically important as for:

- Centrifuge accessories and especially structural changes, corrosion, preliminary cracks, abrasion of metal parts.
- Screw joints.
- Inspection of the rotor assembly.
- Inspection of bioseals of the buckets if such are used.

Control of execution of the guarantee yearly technical inspection of the centrifuge.

Only the manufacturer-specified holders, included in the equipment list, as well as centrifuge capillaries, which diameter, length and durability are suitable, should be used for spinning in this centrifuge. The use of equipment made by other manufacturers should be consulted with the manufacturer of the centrifuge.

- It is not allowed to lift or shift the centrifuge during operation, and rest on it.
- It is nor allowed to stay in the safety zone within 30 cm distance around the centrifuge neither leave within this zone some things, e.g. glass vessels.
- It is not allowed to put any objects on the centrifuge.

COVER OPENING

- It isn't allowed to open the cover manually in emergency procedure when rotor is still turning.

ROTORS

- It is not allowed to use the rotors and round carriers with signs of corrosion or other mechanical defects.
- It is not allowed to centrifuge highly corrosive substances which may cause material impairment and lower mechanical properties of rotor and round carriers.
- It is not allowed to use rotors and accessories not admitted by the manufacturer. Let to use commercial glass and plastic test tubes, which are destined to centrifuging in this laboratory centrifuge. One should absolutely not use poor quality elements. Cracking of glass vessels and test tubes could result in dangerous vibration of the centrifuge.
- It is not allowed to carry out centrifugation with the rotor caps taken off or not driven tight.

4 Instalation

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 The contents of the package

Name	Quantity (pcs)	Cat No.
Centrifuge MPW-54	1	See name plate
Complete clamp	1	17168
Spanner for the rotor	1	17099L
Key for emergency cover release	1	17162
Power cord 230V/115V	1	17866/17867
Fuse WTA T2A 250V	2	17859
Petroleum jelly 20ml	1	17201
User manual	1	20054.EN

4.2 Location

- The centrifuge shall not be located near source of heat and shall not be subjected to direct sunlight.
- The table for the centrifuge shall be stable and shall have flat-levelled table top.
- It is necessary to ensure a safety zone of the minimum 30cm round the centrifuge from every direction.
- 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).

‘

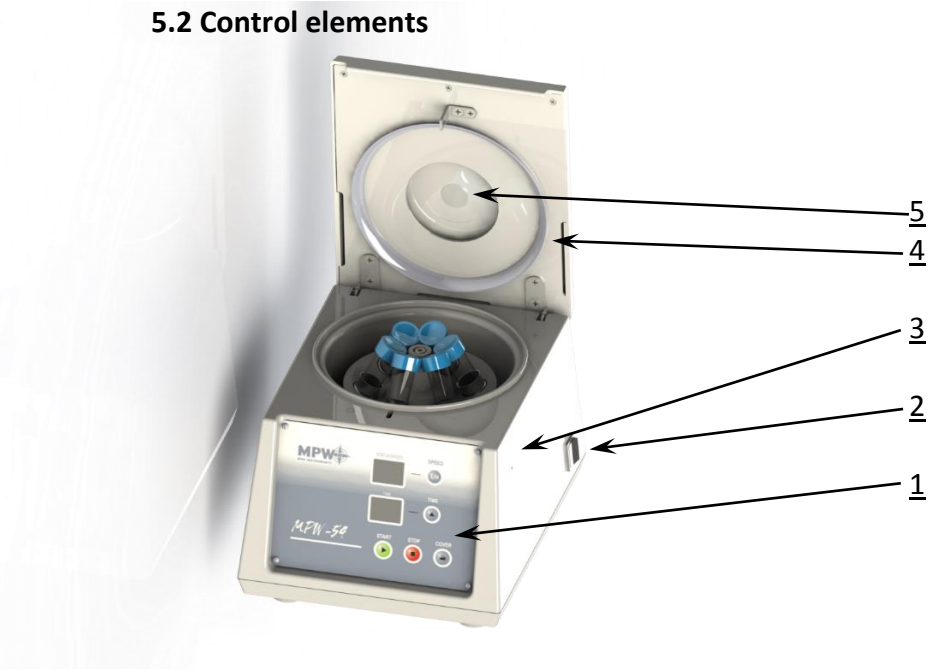
5. Operating and design

5.1 Description of centrifuge

New generation of MPW MED. INSTRUMENTS laboratory centrifuges is provided with state-of-the-art microprocessor control systems, very durable and quiet asynchronous brushless motors and accessories consistent with requirements of the present-day user.

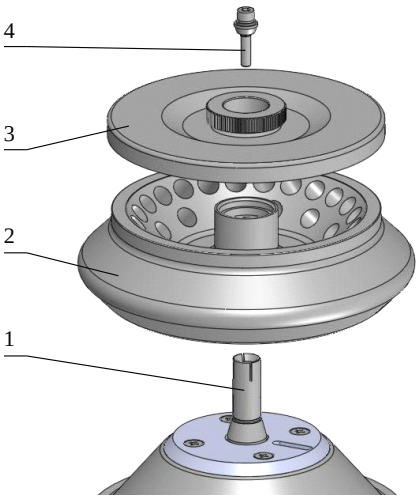
The centrifuge has rigid self-supporting structure. Housing was made of ABS. Cover is fixed on steel axles of hinges and from the front it is locked with electromagnetic lock blocking opening during centrifugation. Rotation chamber was made from plastic. Rotors and containers are from aluminum, reductive inserts from the polypropylene.

5.2 Control elements



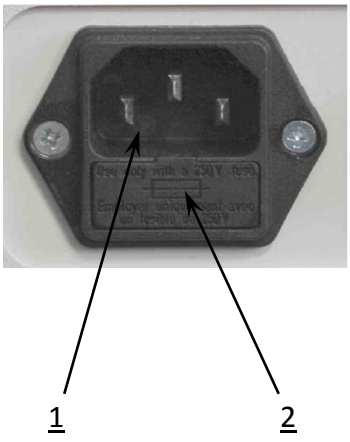
1. Control panel
2. Power switch
3. Hole for emergency lid opening
4. Cover
5. Glass inspection

1. General view



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

2. Angle rotor assembly



1. Mains socket
2. Fuse socket

3. Back of the centrifuge

5.3 Rotor and accessories installation

- Connect the centrifuge to the mains (master switch on left side of the centrifuge).
- Open the cover of the centrifuge by pressing the **COVER** key. Prior to putting the rotor in, one has to check if the rotating chamber is free of impurities, e.g. such as dust, glass splinters, residues of fluids that must be taken away.
- One shall fit the rotor on the motor shaft driving it home on the cone.

	Fitting the rotor too shallow will result in lack of identification of the rotor after start of the centrifuge, displaying the error message and stopping the centrifuge.

- Screw-in the bolt for fixing the rotor (clockwise) and screw it tightly home with the supplied spanner for the rotor.
- In case of rotors designed with the cover they must not be used without it. Rotor covers must be closed exactly. Rotor covers ensure smaller drags of the rotors, proper setting of the test-tubes and airtight sealing.
- Fill test tubes outside the centrifuge.
- Put on or screw the caps on vessels and rotors (if applicable).
- In case of centrifuging in an angle rotor, test tubes (buckets) have to be filled properly in order to prevent from pouring fluids during centrifuging.

	Centrifuge will tolerate small weight differences occurring during loading of rotors. However it is recommended to equalize vessels loads as much as possible in order to ensure minimal vibrations during operation. When the centrifuge is started with large imbalance, the unbalance control system will switch-off the drive system and error signal will be transmitted. On the monitoring panel, error message will be displayed.

- Threaded parts shall be lubricated with the petroleum jelly.
- For replacement of the rotor one shall unscrew clamping and then grab the rotor with both hands at opposite sides, taking it away from drive shaft by pulling it up.

5.4 Control device

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

5.5 Set up parameters

Data setting and read-out system forms hermetically closed keyboard with distinctly accessible operation points. Easily readable display signaling time to end of centrifuging and set mode of speed. It make easy for the operator to the registration status of the device.
Control system provides possibility of:

- set up speed mode (H) 5800 or (L) 3500 rpm (MPW-54), (H) 3500 or (L) 1000 rpm (MPW-54s),
- set up time of centrifuging in the range 1÷30 min or hold time mode.

5.6 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.

Rest state inspection

Opening of the centrifuge's cover is possible only with the rotor in the state of rest.

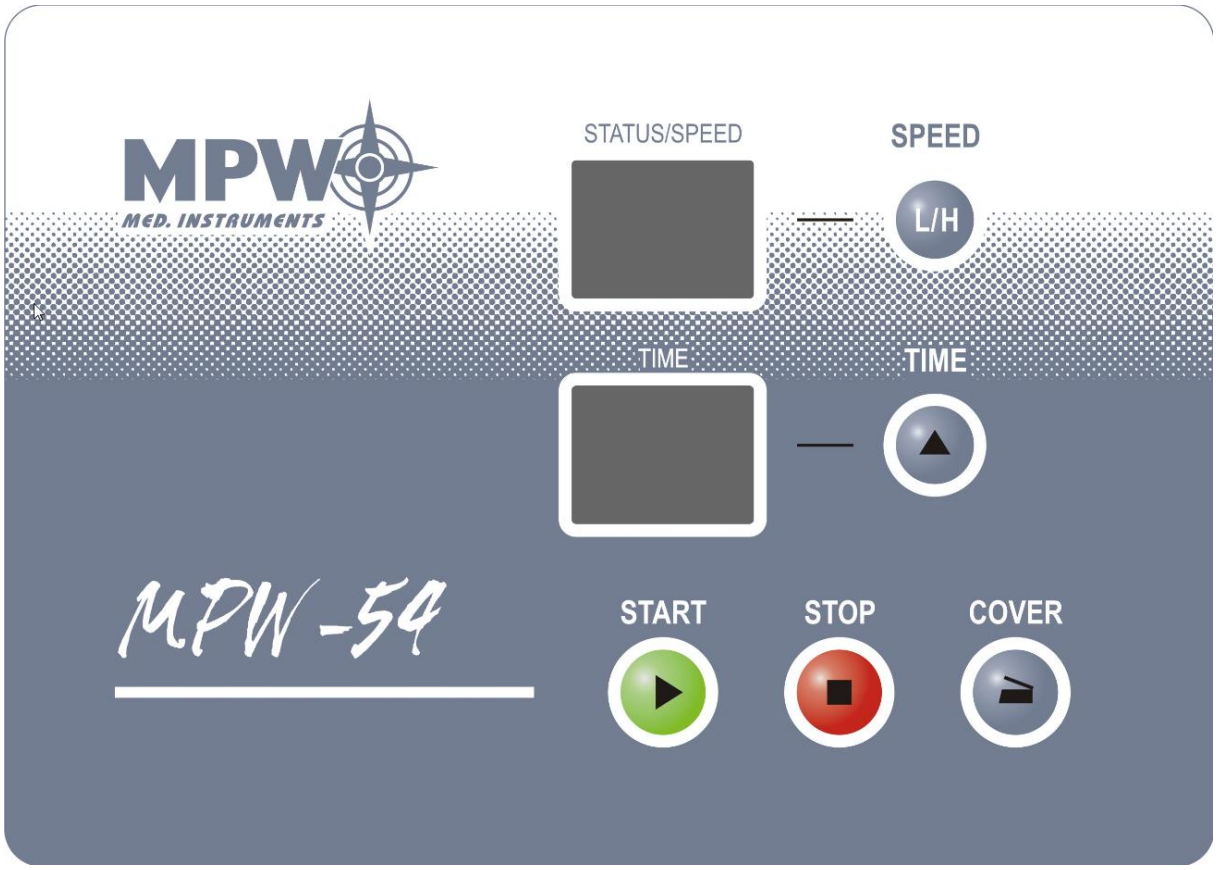
	**EMERGENCY COVER RELEASE** In case of e.g. mains failure it is possible to open cover manually. At first, one must be sure that rotor is not in the move (use inspection glass). On the right-hand side of the casing there is a hole. Insert emergency opening key (17162) into the hole. ***It is not allowed to use emergency cover release when the rotor is running!***

6. 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.

6.1 Control panel

The control panel (equipped with membrane keyboard) placed on the front casing serves the purpose of controlling centrifuge operation. STATUS/SPEED display show information about state of centrifuge (left side) and speed mode (right side). TIME display show information about time remain to the end of centrifuging.



4. Control panel

Buttons application:

▶	START	Start of centrifuging
■	STOP	Cancel of centrifuging
	COVER	Open the lid
▲	TIME	Set up runtime (in 1 minute step)
L/H	SPEED	Change speed mode

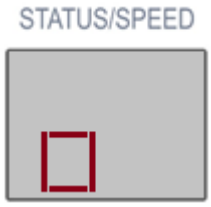
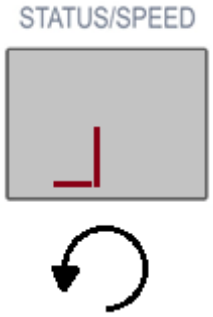
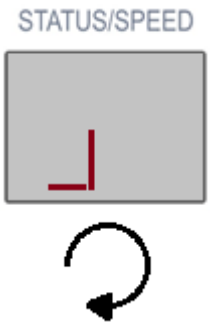
6.2 HOLD mode

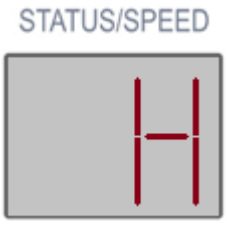
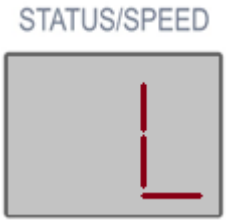
HOLD mode	continuous mode (centrifuging until pressing STOP)
	▪ In order to run the **HOLD** mode, set the time value to **- -**

6.3 Centrifuging finish

	WAYS OF FINISH THE CENTRIFUGING
	▪ After reaching the preset working time centrifuging is stopped.
 **x1**	▪ Before the expiry of the set time, you can interrupt the cycle by pressing the **STOP**

6.4 Signalling states of centrifuge

	▪ Cover is locked
	▪ Cover is open
	▪ Rotor is running (speed is increasing or constant) – mark turn counter-clockwise
	▪ Rotor is running (breaking) – mark turn clockwise
	▪ Rotor is running, time is counting – dot next to time indication is blinking
	▪ Cycle cancelled or end of centrifuging – a dot next to the time indication stops flashing, after braking the rotor, four short beeps are issued

	▪ Centrifuging in high rotational speed
	▪ Centrifuging in low rotational speed

Centrifuge has memory for remembering the last settings even after turn off and turn on the centrifuge

6.5 Maintenance of centrifuging elements

	▪ In order to increase durability of gaskets and threaded places, it shall be lubricated with petroleum jelly (cat. No 17201).

Cleaning of the accessories

	▪ In order to ensure safe operation one shall carry out in regular way periodical maintenance of the accessories. ▪ Rotors, buckets and round carriers have to withstand steady high stresses originating from the centrifugal force. Chemical reactions as well as corrosion (combination of variable pressure and chemical reactions) can cause corrosion or destruction of metals. Hard to observe surface cracks increase gradually and weaken material without visible symptoms. ▪ 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. ▪ In order to prevent corrosion one has to clean regularly the rotor with the fastening bolt, buckets and round carriers. ▪ Cleaning of the accessories shall be carried out outside of the centrifuge once every week or still better after each use. ▪ Then, those parts shall be dried using soft fabric or in the chamber drier at ca. 50°C. ▪ Especially prone to the corrosion are parts made of aluminium. For cleaning them one should use neutral agent of pH value 6÷8. ▪ It is forbidden to use alkaline agent of pH > 8. ▪ 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. ▪ Corrosion and damages resulting from insufficient maintenance could not be subject of claims lodged against the manufacturer.

One can use all standard disinfectants. The centrifuges and accessories are constructed from various materials and one should to take into account possible variety of materials. During sterilization by means of steam one should to consider temperature resistance of individual materials.

6.6 Sterilization

	sterilization * **121˚C,** **20 min**	**radiation β** **radiation γ** **25 kGy**	**C_2H_4O** (ethylene oxide)	**formalin,** **ethanol**
PS	○	●	○	●
SAN	○	○	●	●
PMMA	○	●	○	●
PC	●[1)]	●	●	●
PVC	○[2)]	○	●	●
POM	●[1)]	●	●	●
PE-LD	○	●	●	●
PE-HD	○	●	●	●
PP	●	●	●	●
PMP	●	●	●	●
ECTFE **ETFE**	●	○	●	●
PTFE	●	○	●	●
FEP/PFA	●	○	●	●
FKM	●	○	●	●
EPDM	●	○	●	●
NR	○	○	●	●
SI	●	○	●	●

● may be used

○ cannot be used

* Laboratory vessels have to be exactly cleaned and rinsed with the distilled water before the sterilization in the autoclave. It is always necessary to remove closures from containers!

1) The frequent steam sterilization reduces mechanical durability! PC test tubes may become useless.

2) Except PVC hoses which are resistant to the steam sterilization in the temperature 121°C

Chemical resistance of plastic

	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, dissolving).

Plastics

PS	polystyrene
SAN	styrene-acrylonitrile
PMMA	polymethyl methacrylate
PC	polycarbonate
PVC	polyvinyl chloride
POM	acetal polyoxymethylenel
PE-LD	low density polyethylene
PE-HD	high density polyethylene
PP	polypropylene
PMP	polymethylpentene

ECTFE	ethylene/chlorotrifluoroethylene
ETFE	ethylene/tetrafluoroethylene
PTFE	polytetrafluoroethylene
FEP	tetrafluoroethylene/perfluoropropylene
PFA	tetrafluoroethylene/perfluoroalkylvinylether
FKM	fluorcarbon rubber
EPDM	ethylene propylene diene
NR	natural rubber
SI	silicon rubber

	**DANGER!** For centrifuging infectious materials it is necessary to use hermetically closed buckets, in order to prevent they migration into the centrifuge.

Rotors, buckets and round carriers can be sterilized in autoclave with temperature 121 – 124°C and pressure 215 kPa during 20 min. 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).

Additional accessories can be sterilized using autoclave depending on material that they are made of. See table STERILIZATION.

	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.

6.7 Chemical resistance

One can use all standard disinfectants. The centrifuges and accessories are constructed from various materials and one should to take into account possible variety of materials. During sterilization by means of steam one should to consider temperature resistance of individual materials.

	**DANGER!** For centrifuging infectious materials it is necessary to use hermetically closed buckets, in order to prevent they migration into the centrifuge.

	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.

7. Guarantee, service

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.

8. Disposal

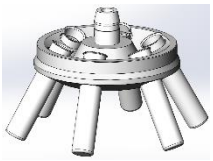
- When you are disposing the device, the respective statutory rules must be observed.
- Pursuant to guideline 2002/96/EC (WEEE), all devices supplied after August 13, 2005, may not be disposed as part of domestic waste.
- The device belongs to 8th group (medical devices) and is categorized in business to business field.
- The icon of the crossed-out trash can shows 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.

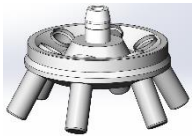
9. Manufacturer’s info

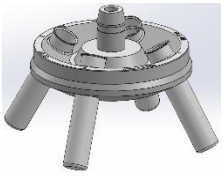
MPW MED. INSTRUMENTS	+48	**22 610 56 67**	sales department
		22 610 81 07	service
		22 610 55 36	fax
Boremlowska 46 Street	http://	www.mpw.pl	
04-347 Warsaw	e-mail:	mpw@mpw.pl	

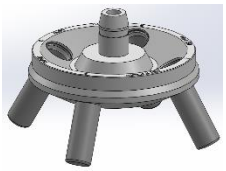
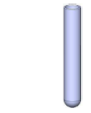
DISTRIBUTOR:

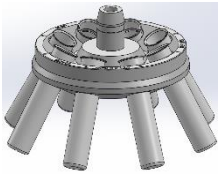
10. ANNEXES

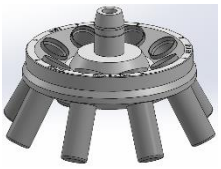
Capacity [ml]	**7**		**15**	**15**	**10**	**10**
Tube	glass		Nalgene PP	conical bottom PP	with cap PP	glass
Φ x L [mm]	12x100		16x113	17x120	16x108	12x75
Catalogue number	**15119**		**15048**	**15050**	**15053**	**15118**
 **Angle rotor (30°) 11101 with buckets 13080**	 					
Catalogue number	**14082**	**14083**				
Hole Φ x L [mm]	13,3x30	13,3x30				
Shape of round carrier bottom	lack of bottom					
Quantity of tubes per rotor	6					
Max RCF [g]	3120					
Max speed [rpm]	5800					
Centrifuging radius [mm]	8,3					
Time of acceleration [s]	15					
Time of decelaration [s]	29					

Capacity [ml]	**6**		**5**		**5**		**10**
Tube	with cap PP		glass		with cap PP		with cap PP
Φ x L [mm]	11,7x95		12x75		12x85		16x108
Catalogue number	**15054**		**15120**		**15419**		**15053**
 **Angle rotor (30°) 11101 with buckets 13081**	 						
Catalogue number	**14082**	**14083**	**14082**	**14083**	**14082**	**14083**	
Hole Φ x L [mm]	13,3x30	13,3x30	13,3x30	13,3x30	13,3x30	13,3x30	
Shape of round carrier bottom	lack of bottom						
Quantity of tubes per rotor	6						
Max RCF [g]	3120						
Max speed [rpm]	5800						
Centrifuging radius [mm]	8,3						
Time of acceleration [s]	15						
Time of decelaration [s]	29						

Capacity [ml]	**7**		**15**	**15**	**10**	**10**
Tube	glass		Nalgene PP	conical bottom PP	with cap PP	glass
Φ x L [mm]	12x100		16x113	17x120	16x108	12x75
Catalogue number	**15119**		**15048**	**15050**	**15053**	**15118**
 **Angle rotor (30°) 11144 with buckets 13080**	 					
Catalogue number	**14082**	**14083**				
Hole Φ x L [mm]	13,3x30	13,3x30				
Shape of round carrier bottom	lack of bottom					
Quantity of tubes per rotor	4					
Max RCF [g]	3120					
Max speed [rpm]	5800					
Centrifuging radius [mm]	8,3					
Time of acceleration [s]	15					
Time of decelaration [s]	29					

Capacity [ml]	**6**		**5**		**5**		**10**
Tube	with cap PP		glass		with cap PP		with cap PP
Φ x L [mm]	11,7x95		12x75		12x85		16x108
Catalogue number	**15054**		**15120**		**15419**		**15053**
 **Angle rotor (30°) 11144 with buckets 13081**	 		 		 		
Catalogue number	**14082**	**14083**	**14082**	**14083**	**14082**	**14083**	
Hole Φ x L [mm]	13,3x30	13,3x30	13,3x30	13,3x30	13,3x30	13,3x30	
Shape of round carrier bottom	Brak dna						
Quantity of tubes per rotor	4						
Max RCF [g]	3120						
Max speed [rpm]	5800						
Centrifuging radius [mm]	8,3						
Time of acceleration [s]	15						
Time of decelaration [s]	29						

Capacity [ml]	**7**		**15**	**10**	**10**
Tube	glass		Nalgene PP	with cap PP	glass
Φ x L [mm]	12x100		16x113	16x108	12x75
Catalogue number	**15119**		**15048**	**15053**	**15118**
 **Angle rotor (30°) 11145 with buckets 13080**	 				
Catalogue number	**14082**	**14083**			
Hole Φ x L [mm]	13,3x30	13,3x30			
Shape of round carrier bottom	lack of bottom				
Quantity of tubes per rotor	8				
Max RCF [g]	3120				
Max speed [rpm]	5800				
Centrifuging radius [mm]	8,3				
Time of acceleration [s]	15				
Time of decelaration [s]	29				

Capacity [ml]	**6**		**5**		**5**		**10**
Tube	with cap PP		glass		with cap PP		with cap PP
Φ x L [mm]	11,7x95		12x75		12x85		16x108
Catalogue number	**15054**		**15120**		**15419**		**15053**
 **Angle rotor (30°) 11145 with buckets 13081**	 		 		 		
Catalogue number	**14082**	**14083**	**14082**	**14083**	**14082**	**14083**	
Hole Φ x L [mm]	13,3x30	13,3x30	13,3x30	13,3x30	13,3x30	13,3x30	
Shape of round carrier bottom	lack of bottom						
Quantity of tubes per rotor	8						
Max RCF [g]	3120						
Max speed [rpm]	5800						
Centrifuging radius [mm]	8,3						
Time of acceleration [s]	15						
Time of decelaration [s]	29						

ADDITIONAL ACCESSORIES:

INNE/OTHER

nr kat./cat no	**opis**	**description**
16696	Przetwornica napięcia 300W umożliwiająca zasilanie prądem stałym o napięciu 12 V (m.in. z zapalniczki samochodowej)	Power inverter 300W (12DC→ 230 AC) (e.g. possibility of supply from the cigarette lighter socket)

	Only original MPW buckets can be used! One should use tubes which dimensions and durability is proper!Using of tubes from other companies should be consulted with manufacturer of centrifuge. 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).

DECLARATION OF CONFORMITY

Product	**Laboratory centrifuge**
Model	**MPW-54**
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 harmonised standards:

PN-EN ISO 13485:2012	PN-EN ISO 18113-3:2011
PN-EN ISO 13485:2012/AC:2013-03	PN-EN 61010-2-101:2005
PN-EN 13612:2006	PN-EN 61326-2-6:2013-08
PN-EN ISO 14971:2012	PN-EN ISO 62366:2008

· selected harmonized standards of Directive 2006/95/EC (LVD):

PN-EN 61010-1:2011	PN-EN 61010-2-020:2008

· Directive 2004/108/WE (EMC)

· standard PN-EN ISO 15223-1:2012

CZŁONEK ZARZĄDU
Wojciech Wojszewski

PREZES ZARZĄDU
mgr Hanna Małczyńska

„MPW MED. INSTRUMENTS"
SPÓŁDZIELNIA PRACY
w Warszawie

„MPW MED. INSTRUMENTS"
SPÓŁDZIELNIA PRACY
Warsaw, 46 Boremlowska Street
Quality policy in line with ISO 9001:2008
Certifying authority

Management System
TÜVRheinland CERTIFIED
www.tuv.com ID 0000023838

Warsaw, 13.11.2014

nr 10.054.03

DECLARATION OF DECONTAMINATION

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

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

5. **Device**
   – type: ……
   – serial No.: ……

6. **Description of decontamination**
   (see user manual)
   ……
   ……
   ……
   ……

7. **Decontamination carried out by:**
   – name: ……

8. **Date and signature** ……