CIMAREC i™
Magnetic Stirrer

Operating Manual
50134775 Issue 03.2012

MAXI DIRECT



POLY 15



MULTIPOINT 6/15



DOMINIQUE DUTSCHER SAS

Analyze • Detect • Measure • Control™

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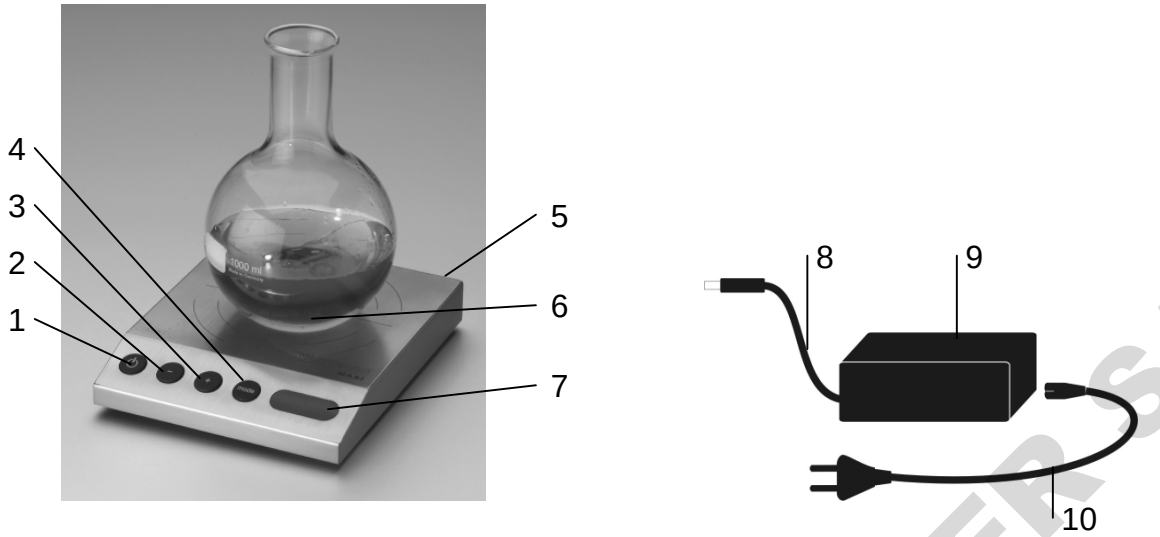
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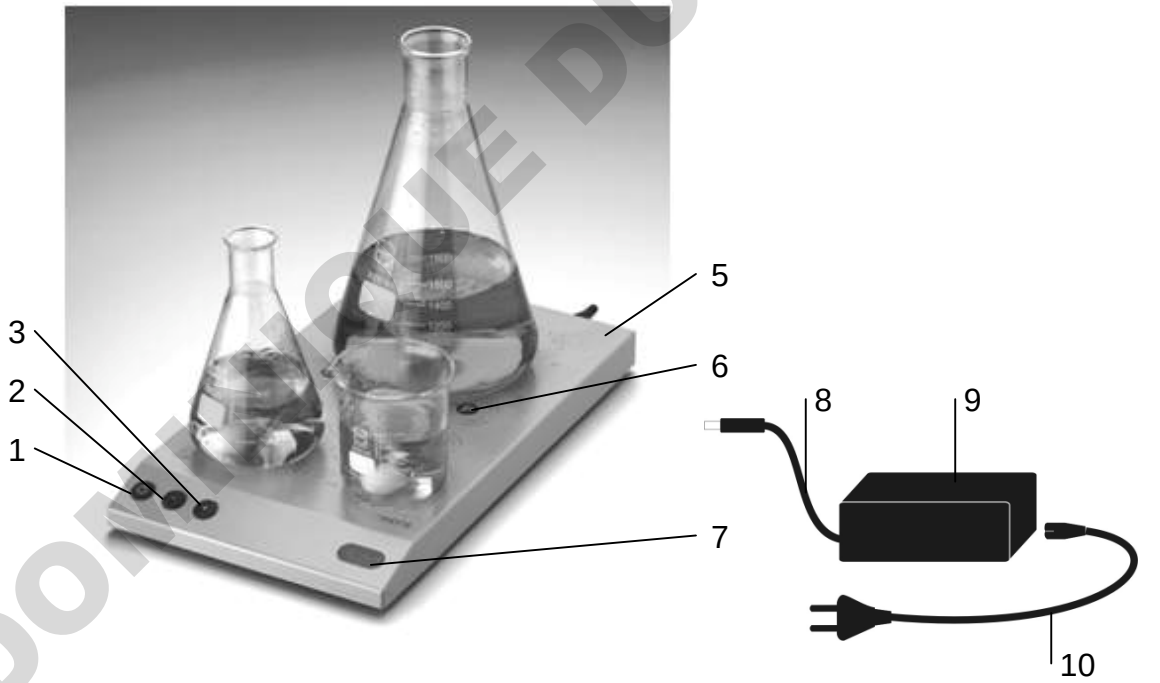
			Page
User considerations			6
		Correct use	6
		Incorrect use	6
		Pictographs	6
1	Safety considerations		7
2	Equipment description		10
3	Function		11
4	Startup procedure		12
5	Stirring operation		13
		5.1 Stirring vessels	13
		5.2 Magnetic stirring bars	14
		5.3 Recommended rotation speed ranges	14
		5.4 Stirring	16
		5.4.1 Tips on stirring	17
6	Maintenance and cleaning		17
7	Troubleshooting		21
8	Technical specifications		22
9	Warranty		24

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1 *START/STOP key* ⏻
2 ⊖ *key*
3 ⊕ *key*
4 *MODE key*
5 *Magnetic stirrer*
6 *Stirring point*
7 *Digital display*
8 *Secondary power cable*
9 *Power supply unit*
10 *Mains cable*

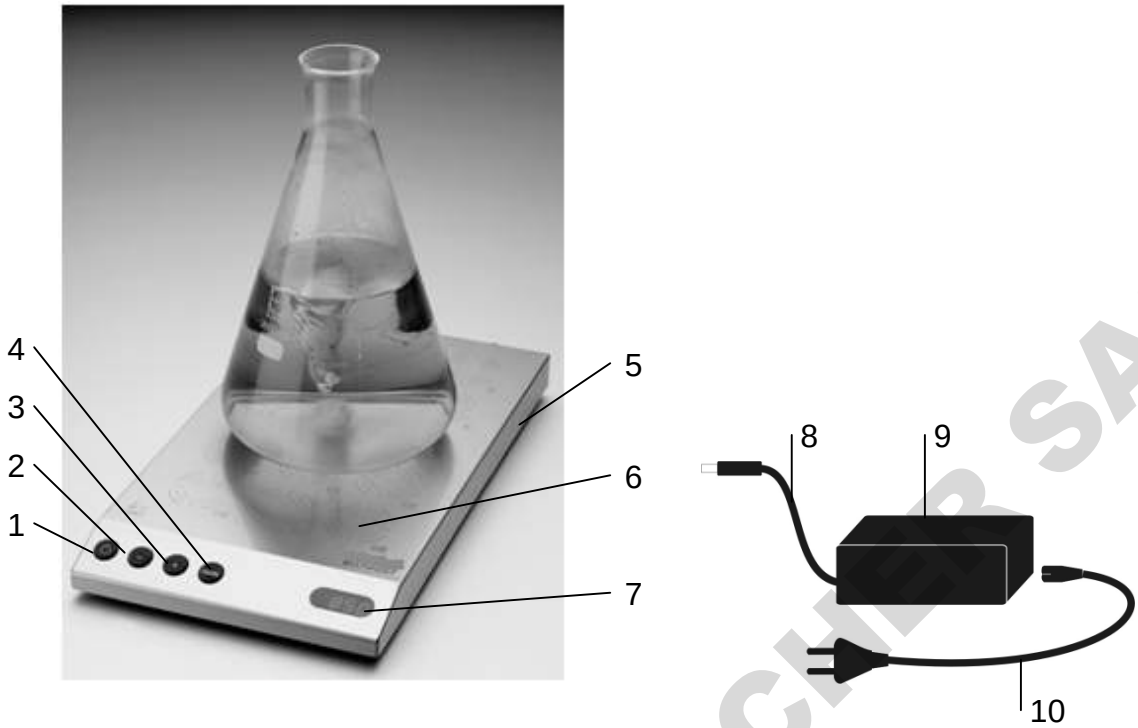
*Figure 1: The **MAXI DIRECT** magnetic stirrer with bench-top power supply unit.*



1 *START/STOP key* ⏻
2 ⊖ *key*
3 ⊕ *key*
5 *Magnetic stirrer*
6 *Stirring points*
7 *Digital display*
8 *Secondary power cable*
9 *Power supply unit*
10 *Mains cable*

*Figure 2: The **POLY 15** magnetic stirrer with bench-top power supply unit*

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1 *START/STOP key* ⏻
2 ⊖ *key*
3 ⊕ *key*
4 *MODE key*
5 *Magnetic stirrer*
6 *Stirring points*
7 *Digital display*
8 *Secondary power cable*
9 *Power supply unit*
10 *Mains cable*

*Figure 3: The **MULTIPOINT 6 / 15** magnetic stirrer with bench-top power supply unit*

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User considerations

Correct use

The direct-controlled magnetic stirrers **MAXI DIRECT**, **POLY 15** and **MULTIPOINT 6 / 15** are designed for laboratory use to stir liquids. The **MAXI DIRECT** magnetic stirrer is fitted with a single stirring point, while the **POLY 15** and the **MULTIPOINT 6 / 15** can stir several vessels simultaneously.
The stirrers can be employed for chemical, microbiological, biotechnical, pharmaceutical or medical purposes.
The stirrers are suited to operation in the following areas:

- On the laboratory bench,
- In cold chambers,
- In laminar flow equipment,
- In safety laboratories and sterile rooms.

Incorrect use

The magnetic stirrers **MAXI DIRECT**, **POLY 15** and **MULTIPOINT 6 / 15** must not be operated in hazardous locations.
The stirrers must not be operated in a water bath.
Do not stir or shake flammable liquids with a low boiling point.
The suitability of the direct-controlled magnetic stirrers for use in incubators is limited, because the stirring power cannot be adjusted as necessary. Moreover, the integrated eletronics heat the magnetic stirrer additionally.

Pictographs

You will find the following pictographs in this operating manual:



DANGER
This sign refers to dangerous voltages.



DANGER
This sign refers to hazardous situations.
Hazards to human life are indicated by "LIFE HAZARD".



CAUTION
This sign indicates danger to equipment and machinery.



INFORMATION
This sign indicates easier working practices.

♦ Indicates an operating step.

⇨ Indicates alternatives.

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1 Safety considerations

Required safety features:
The device is compliant with the safety requirements of:

- EN 61010
- Low-voltage directive 2006/95/EC
- EMC directive 2004/108/EC

For your own safety, you should observe the following safety warning signs.
The warning signs indicate potential sources of danger.
They also inform on how correct action can avert danger. You will find these warning signs wherever there is a risk of dangerous situations.



DANGER

Supply voltage and supply frequency must be within the range specified for the power supply unit (9).
The power supply unit (9) must only be connected to an earthed socket.



DANGER

The magnetic stirrers must not be immersed in water or cleaning solutions.



DANGER

Defective secondary power cables (8), mains cables (10), or mains plugs must be replaced only with original parts by the manufacturer or one of its representatives.
Return the defective power supply unit (9) to our customer service for repair.



DANGER

Magnetism.
Magnetic or metallic parts (e.g. data carriers, pacemakers, watches) can be affected by magnetic fields.
Keep such parts away from the magnetic stirrer (5) and the magnetic stirring bars.

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DANGER

Glass Splinter.
At high speeds of the mixing stick can lead to the destruction of the sample vessels.
Wear safety goggles!
The vortex should not reach the stirring bar.
The stirring bar must rotate in the center of the sample vessel.
Watch the rotational behavior of the mixing stick for slow starts



CAUTION

The equipment must not be operated in hazardous locations and in a water bath.



CAUTION

High speed rotations of the stirring bar can cause a warming of the goods.



CAUTION

At high speeds of the magnetic stirring, too high power setting can lead to overheating of the stirred material.



CAUTION

Do not place hot stirring vessels on top of the magnetic stirrer (5).
Maximum temperature: +56 °C.



CAUTION

Permitted ambient conditions:
Cf. Technical specifications.
Avoid extreme temperature changes.
The power supply unit (9) must not be run in humid rooms, or set up in water splash zones.



CAUTION

Do not use chlorine-based cleaning agents, cleaning wool, cleaning agents containing metal parts or ammonium when cleaning the equipment.
Such agents can damage the surface of the equipment.



CAUTION

In case of repair, the equipment must only be opened by an authorized service agent.

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CAUTION

Do not allow AlNiCo5 type magnetic stirring bars to remain in an alternating magnetic field if they cannot rotate freely. Do not subject the magnetic stirring bar to a strong inverse magnetic field. This may result in destruction of the magnetic stirring bar.

INFORMATION

If you are not using the magnetic stirrer (5) for a longer period of time, disconnect it from mains supply. Only then the stirrer is completely switched off.

INFORMATION

The length of the magnetic stirring bars must not exceed 80 % of the vessel diameter. In the case of circular and triangular magnetic stirring bars, the length must not exceed 50 mm. Do not use cylindrical stirring bars with a center ring, or elliptical stirring bars with a round cross-section.

INFORMATION

Some magnetic stirring bars (especially triangular bars) may have a critical resonance frequency at lower rotation speeds. This may cause the magnetic stirring bar to wander away from the turning center and carry out periodic oscillations. Avoid this rotation speed setting when the problem occurs. Quickly travel through this problem range when adjusting the rotation speed.

INFORMATION

Check the box, the parts delivered on completeness and visible damage.

INFORMATION

Use only appropriate sample containers! Review the sample containers prior to use for visible damage (cracks, tears, splinters, leakages, etc. ...)

INFORMATION

Use only suitable and undamaged magnetic stirrers! Check the stirring bar before use for signs of damage (cracks, chips ... etc.)

INFORMATION

Observe the relevant safety data sheets for chemical substances that you are working in the magnetic stirrer.

INFORMATION

Read the instructions carefully before using the magnetic stirrer. No application of the device by an untrained and inexperienced personnel.

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2 Equipment description

Figure 1 to Figure 3 show the components together with their position numbers.
Number of stirring points (6):

MAXI DIRECT (Figure 1):1 stirring point
POLY 15 (Figure 2): 15 stirring points
MULTIPOINT 6: 6 stirring points
MULTIPOINT 15 (Figure 3): 15 stirring points

INFORMATION
Check the box, the parts delivered on completeness and visible damage.

Power for the magnetic stirrer (5) is supplied through the power supply unit (9). The secondary power cable (8) of the power supply unit (9) is connected to the jack at the back of the magnetic stirrer (5).
The drive and electronic control unit are sealed into the housing of the magnetic stirrer (2). The housing is completely sealed.
The housing of the magnetic stirrers **MAXI DIRECT** and **MULTIPOINT 6 / 15** is hermetically encapsulated, as the magnetic drive is enbedded watertight in synthetic resin inside the housing. This prevents germs from penetrating into the inside of the magnetic stirrer (5). The magnetic stirrer (5) is cleared for use in safety laboratories and sterile rooms.
The drive is constructed without the use of moving parts and therefore completely wear-free. In contrast to mechanical drives, it will nor generate circulating air between the housing and the environment.
After a startup time of approximately 15 seconds, all magnetic stirring bars are synchronized to rotate at the preselected speed. The soft start-up function guarantees a safe acceleration of the magnetic stirring bars and can be monitored via the digital display (7). The soft start-up function is switched on when a dot appears next to the rotation speed in the digital display (79. As soon as the selected rotation speed has been reached, the dot in the digital display (79 vanishes.
Stirring vessels and magnetic stirring bars do not fall within the scope of delivery.

POLY 15:

You start and terminate the stirring operation with the START/STOP key (1). The rotation speed is set with the ⊖ key (2) and with the ⊕ key (3). The digital display (7) shows the currently set rotation speed.

MAXI DIRECT and MULTIPOINT 6 / 15:

Both the **MAXI DIRECT** magnetic stirrer as well as the **MULTIPOINT** magnetic stirrers are additionally equipped with the MODE key (4). You can select either one of four rotation speeds: 5/10/15/20 W.
You start and terminate the stirring operation with the START/STOP key (1). The digital display (7) shows the mode selected last. You switch to the power display or the rotation speed display via the MODE key (4). The desired power or rotation speed can be selected with the ⊖ key (2) and the ⊕ key (3).
After selecting the stirring power, the digital display (7) switches automatically to the rotation speed display after approximately 5 seconds.

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3 Function

The magnetic stirrers **MAXI DIRECT**, **POLY 15** and **MULTIPOINT 6 / 15** are used for chemical, microbiological, biotechnical or medical purposes, e.g.:

- Growing microorganisms (e.g. aerating and growing bacteria cultures),
- Dissolving nutrient media and solids,
- To prevent the settling of suspended matter,
- Titration.

The **MAXI DIRECT** magnetic stirrer is suitable for stirring larger volumes of liquid. Due to its far-reaching magnetic field, it is suitable for highly viscose media or samples in which sediments tend to form.
The magnetic stirrers **POLY 15** and **MULTIPOINT 6 / 15** can stir liquids in several vessels simultaneously.
The magnetic stirrers are well suited to the growing of bacteria cultures outside the incubator. If a power setting of 20 W is selected, the plates will heat to 10-20 K above the ambient temperature. Heat will accelerate growth. However, the stirrers cannot be used in incubators.
The **MAXI DIRECT** and **MULTIPOINT 6 / 15** power settings can be adjusted in four steps (5/10/15/20 watts). Use more power for larger quantities and more viscous liquids and reduced power for long-term operation without heat generation.
You can stir liquids in various shapes of vessel (e.g. Erlenmeyer flasks, beakers). As the rotation speed can be variably adjusted, liquids can be moved both gently as well as vigorously mixed.
The stirring vessel contains a magnetic stirring bar. When the stirring vessels are placed on the stirring points (6), a electromagnetic field will move the magnetic stirring bars. The drive of the magnetic stirrer is contructed without the use of moving parts, such as motors, bearings or belts, and is therefore completely wear-free.

You can set the speed in increments of 10 rpm.
Selectable speed range:

MAXI DIRECT and **MULTIPOINT 6 / 15**:	80 to 2,000 rpm
POLY 15:	130 to 990 rpm

The digital display (7) shows the current speed of the magnetic stirring bars. All magnetic stirring bars will be moving at the same speed. On the **MULTIPOINT 6**, magnetic stirring bars on neighbouring stirring points (6) will rotate in the same direction. On the **POLY 15** and **MULTIPOINT 15**, however, the magnetic stirring bars will rotate in opposite directions.
The Memory function saves the setting last at switching off the device, even if disconnected from mains supply for longer periods of time.

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4 Startup procedure

DANGER

Supply voltage and supply frequency must be within the range specified for the power supply unit (9). The power supply unit (9) must only be connected to an earthed socket.

DANGER

Magnetism.
Magnetic or metallic parts (e.g. data carriers, pacemakers, watches) can be affected by magnetic fields.
Keep such parts away from the magnetic stirrer (5) and the magnetic stirring bars.

DANGER

At high speeds of the mixing stick can lead to the destruction of the sample vessels.
Wear safety goggles!
The vortex should not reach the stirring bar.
The stirring bar must rotate in the center of the sample vessel.
Watch the rotational behavior of the mixing stick for slow starts

CAUTION

The equipment must not be operated in hazardous locations and in a water bath.

CAUTION

Permitted ambient conditions:
Cf. Technical specifications.
Avoid extreme temperature changes.
The power supply unit (9) must not be run in humid rooms, or set up in water splash zones.

INFORMATION

Read the instructions carefully before using the magnetic stirrer. No application of the device by an untrained and inexperienced personnel.

- Connect the secondary power cable (8) of the power supply unit (9) to the jack at the back of the magnetic stirrer (5).
- Connect the mains cable (10) of the power supply unit (9) to the jack at the back of the power supply unit (9).
- Connect the mains plug (10) to the mains socket.
- If a germ-free environment is required, accommodate the power supply unit (9) outside the sterile area.
- The magnetic stirrer (5) is now ready for operation

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5 Stirring operation

5.1 Stirring vessels

INFORMATION
Use only appropriate sample containers! Review the sample containers prior to use for visible damage (cracks, tears, splinters, leakages, etc. ...)

You should use stirring vessels which are circular in shape, and made of glass, non-magnetic metal or plastic. Wall thicknesses should be of an even thinness. Flat-bottomed glass vessels (not concave) and smooth surfaces improve the running quality of the magnetic stirring bars.
When stirring larger volumes of liquid, you should use stirring vessels having a relatively small diameter and a thin bottom.
The following table gives examples of suitable stirring vessels, and the available stirring points. In the case of larger vessels, not every stirring point (6) can be occupied by a vessel.

Type		**MULTIPOINT 6**	**MULTIPOINT 15 POLY 15**
Stirring vessels	**Nominal capacity**	**Available stirring points**	
Erlenmeyer flasks and flat-bottomed flasks	25 ml 50/100 ml 250/500 ml 1000 ml	6 6 6 6	15 15 8/6 6
Beakers (tall in shape)	25 ml 50 ml 100/250 ml 600/1000 ml 2000 ml*	6 6 6 6 6	15 15 15 8 6
Centrifuging tubes Test tubes Cultivating tubes			15**
Distance between stirring points (mm)		130	65

*) restricted range of application
**) test tube rack required

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5.2 Magnetic stirring bars

INFORMATION
Use only suitable and undamaged magnetic stirrers! Check the stirring bar before use for signs of damage (cracks, chips ... etc.)

Thermo recommends the following magnetic stirring bars:

Type	Size (mm)	Material	Order No.
KOMET 15	(Ø x L) 9 x 15	SmCo	50087924
KOMET 30	(Ø x L) 12 x 30		50087930
KOMET 50	(Ø x L) 21 x 50		50087909

INFORMATION
The length of the magnetic stirring bars must not exceed 80 % of the vessel diameter. In the case of circular and triangular magnetic stirring bars, the length must not exceed 50 mm. Do not use cylindrical stirring bars with a center ring, or elliptical stirring bars with a round cross-section.

INFORMATION
Some magnetic stirring bars (especially triangular bars) may have a critical resonance frequency at lower rotation speeds. This may cause the magnetic stirring bar to wander away from the turning center and carry out periodic oscillations. Avoid this rotation speed setting when the problem occurs. Quickly travel through this problem range when adjusting the rotation speed.

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Thermo has developed a new magnetic stirring bar **KOMET** (Figure 4). It contains a high-quality super-strong samarium-cobalt magnet. **KOMET** shows a strong magnetic force. The stronger attraction to the magnetic alternating field provides the stirring bar with very efficient stirring properties. Even if there are greater distances (e.g. in high measuring cylinders) the stirring force will be maintained. The stability of the stirring bar will not be impaired if the vessel has a curved bottom. The strong magnetic coupling in samarium-cobalt magnets will also increase friction. The standard design of the **KOMET** magnetic stirring bar is therefore unsuitable for stirring liquids containing particulate matter (such as mud) or for stirring in vessels with a rough interior surface. Some of the **KOMET** stirring bars are specially fitted with a wear-resitant glide ring for use under excruciating circumstances, such as when stirring vessels feature rough plastic or stainless-steel bottoms or if the media to be stirred contain solids (Figure 5).
Any risk of demagnetization by external magnetic fields is completely eliminated. All **KOMET** series stirring bars can be readily recognized by their two conical ends.

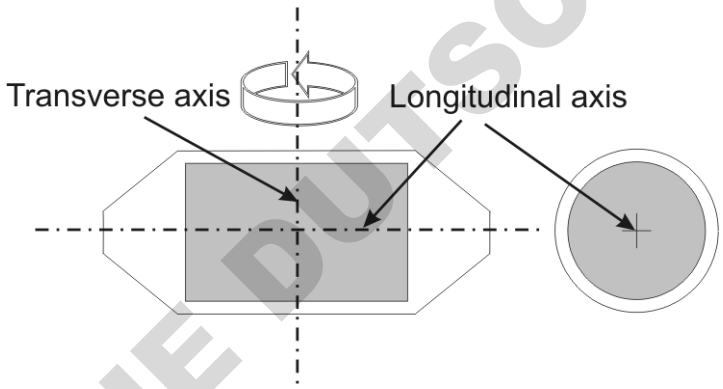


Figure 5: ***KOMET*** *stirring bar*
Side view (left) and cross-section through central portion (right)

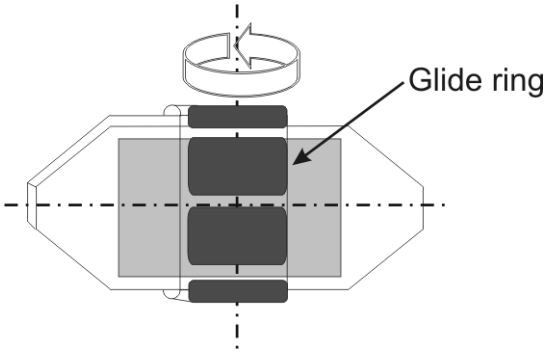


Figure 6: ***KOMET*** *stirring bar with glide ring*

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5.3 Recommended rotation speed ranges

CAUTION
High speed rotations of the stirring bar can cause a warming of the goods.

CAUTION
At high speeds of the magnetic stirring, too high power setting can lead to overheating of the stirred material.

We recommend the following rotation speed ranges for various applications:

Application	Speed range
Microbiological and biotechnical applications:	(rpm)
Aeration of bacteria cultures	200-350
Growth of bacteria cultures	300-450
Dissolving nutrient media, intensive aeration of bacteria cultures	350-500
Routine laboratory work:	
Prevent accretion of suspended matter	150-250
Titration	250-400
Dissolving solids	350-700

5.4 Stirring

DANGER

Glass Splinter.
At high speeds of the mixing stick can lead to the destruction of the sample vessels.
Wear safety goggles!
The vortex should not reach the stirring bar.
The stirring bar must rotate in the center of the sample vessel.
Watch the rotational behavior of the mixing stick for slow starts

CAUTION
Do not place hot stirring vessels on top of the magnetic stirrer (5).
Maximum temperature: +56 °C.

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- ♦ Fill stirring vessels no more than half full (high rotation speed range), or three-quarters full (low rotation speed range).

INFORMATION
Observe the relevant safety data sheets for chemical substances that you are working in the magnetic stirrer.

- ♦ Place a magnetic stirring bar into every stirring vessel.
- ♦ Centre the stirring vessel onto the stirring point (6).
- ♦ Press the START/STOP key (1).

The magnetic stirrer has a soft-start feature that first centres the magnetic stirring bars within the vessels and then slowly accelerates them to the desired speed.

- **MAXI DIRECT and MULTIPOINT 6 / 15:**

With these magnetic stirrers you have a choice of four different stirring power settings (5/10/15/20 watts). After startup, the digital display (7) shows the Mode setting last selected.

- ♦ Press the MODE key (4).

The digital display (7) shows the set power (e.g. P 20 => 20 watt).

- ♦ Set the desired power with the ⊖ key (2) and with the ⊕ key (3).

After the stirring power has been selected, the digital display (7) changes automatically to the rotation speed selection after approximately 5 seconds.

- **MAXI DIRECT, POLY 15 and MULTIPOINT 6 / 15:**

- ♦ Set the desired rotation speed with the ⊖ key (2) and with the ⊕ key (3).

The digital display (7) shows the currently set rotation speed. You can set the speed in increments of 10 rpm.
Selectable speed range:

MAXI DIRECT and **MULTIPOINT 6 / 15**:	80 to 2,000 rpm
POLY 15:	130 to 990 rpm

⇨ **End stirring operation:**

- ♦ Press the START/STOP key (1).

The magnetic stirrer switches to standby. The digital display (7) goes out and the magnetic stirring bars are stopped. However, the device is still live.

INFORMATION
If you are not using the magnetic stirrer (5) for a longer period of time, disconnect it from mains supply. Only then the stirrer is completely turned off.

5.4.1 Tips on stirring

⇨ **If rotation of the magnetic stirring bar is uneven or jerky:**
Reaction between the alternating magnetic field and the magnetic stirring bar is **too strong**.

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- ♦ Increase the rotation speed, or
- ♦ Reduce power, or
- ♦ Use a smaller magnetic stirring bar.

⇨ **If the magnetic stirring bar cannot be centred, or constantly wanders off centre:**
Reaction between the alternating magnetic field and the magnetic stirring bar **too weak**, or the base of the stirring vessel is concave or too thick.

- ♦ Move the stirring vessel a little back and forth and recentre it on the stirring point (6).
- ♦ Reduce the rotation speed, or
- ♦ Increase power, or
- ♦ Use a longer magnetic stirring bar or one with a larger diameter (e.g. the elliptical or **KOMET** magnetic stirring bar), or
- ♦ Use a smaller stirring vessel with a thin-walled, flat base, or
- ♦ Reduce the filling level in the stirring vessel.

⇨ **If the stirring action is too weak:**

- ♦ Increase power, or
- ♦ Use a magnetic stirring bar of the **KOMET** series, or
- ♦ Use a longer magnetic stirring bar, or a stirring vessel of smaller diameter.

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6 Maintenance and cleaning

DANGER

The magnetic stirrers must not be immersed in water or cleaning solutions.

CAUTION

Do not use chlorine-based cleaning agents, cleaning wool, cleaning agents containing metal parts or ammonium when cleaning the equipment.
Such agents can damage the surface of the equipment.

The magnetic stirrer (5) is maintenance-free.
The magnetic drive of **MAXI DIRECT** and **MULTIPOINT 6 / 15** is enbedded watertight in synthetic resin inside the housing. This prevents germs from being carried over to the inside or the outside. The stainless steel surface is largely resistant to acids and alkalis.
The standing surface is coated with a protective film. You may leave this on the magnetic stirrer (5), or strip it off.
Clean the surfaces of the magnetic stirrer (5) with a moistened cloth at regular intervals.
For this purpose you can use:

- water containing a surfactant detergent additive,
- isopropanol.

♦ Switch the magnetic stirrer (5) to standby with the help of the START/STOP key ⏻ (1). The digital display (7) disappears.
♦ Disconnect the secondary power cable (8) from the magnetic stirrer (5).
♦ Clean the surfaces of the magnetic stirrer (5).

DANGER

Defective secondary power cables (8), mains cables (10), or mains plugs must be replaced only with original parts by the manufacturer or one of its representatives.
Return the defective power supply unit (9) to our customer service for repair.

CAUTION

In case of repair, the equipment must only be opened by an authorized service agent.

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In case of necessity to repair the equipment, it should be returned to an authorized servicing agent. The equipment must be clean and free from harmful substances. To avoid transport damages during the shipment, please send the equipment correctly packed in the original packing.

Please always enclose the filled out return delivery note.

If necessary ask for the return delivery note at Thermo (address: see inside of the cover sheet).
When ordering spares, please state equipment type and serial number.

You can obtain further technical documents (e.g. circuit diagrams, board data) for your engineers by contacting the address on the inside of the cover sheet.

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7 Troubleshooting

- **Rotation of the magnetic stirring bar is always irregular:**
  It is unavoidable that magnetic stirring bars will age with time, for example through sterilization, use at excessive temperatures, or mechanical stress (such as when you drop it). This may adversely affect the magnetic properties of the stirring bar.

CAUTION

Do not allow AlNiCo5 type magnetic stirring bars to remain in an alternating magnetic field if they cannot rotate freely. Do not subject the magnetic stirring bar to a strong inverse magnetic field. This may result in destruction of the magnetic stirring bar.

♦ Remove and replace the magnetic stirring bar with a new one.

Or:

♦ Use the **KOMET** series of super-strong magnetic stirring bars offered by **Thermo** (see chapter 5.2). They are made from high performance Samarium-Cobalt magnets. Any risk of demagnetization by external magnetic fields is completely eliminated.

The magnetic stirrer (5) fails to operate:

♦ Check to see whether the power supply unit (9) is delivering voltage.

The power supply unit (9) is fitted with a temperature controlled safety system which will switch off the power supply unit (9) permanently in an overload situation.

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8 Technical specifications

Type		MAXI DIRECT	POLY 15	MULTIPOINT 6	MULTIPOINT 15
Order No.		50094713	50094596	50093557	50093538
Stirring points		1	15	6	15
Distance between stirring points	mm	-	65	130	65
Stirring volume	ml	1 – 5.000	1 – 800	1 – 3.000	1 – 3.000
Stirring power	W	5/10/15/20	10	5/10/15/20	5/10/15/20
Rotation speed range	rpm	80 – 2.000	130 – 990	80 – 2.000	80 – 2.000
Speed regulation for alternating loads		none			
Dimensions (W x D x H)	mm	180 x 215 x 35	240 x 420 x 35	240 x 420 x 35	240 x 420 x 35
Weight	kg	2.5	6	7.5	7.5
Housing		Stainless steel	Stainless steel, powder-coated	Stainless steel	Stainless steel
Permissible operating conditions		+5 °C to +40 °C at max. 95 % relative humidity			
Permissible storage conditions		-40 °C to +70 °C at 10 % to 95 % relative humidity 500 to 1,060 hPa barometric pressure			
Operating voltage	VDC	24	24	24	24
Protective system (EN 60529)		IP 62	IP 32	IP 62	IP 62
Equipment construction		according to IEC 1010			

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Bench-top power supply unit		**20 W**
Order No.		50093506
Supply voltage / frequency Operating voltage Length of cable Mark of conformity Protection (EN 60529)	VAC / Hz VDC	100 – 240 / 50 – 60 24 Primary and secondary cable approx. 2 m (reliable installation!) CE, $_{C}$ETL$_{UL}$ IP 20
Permissible operation conditions		+5 °C to +40 °C at 30 % to 80 % relative humidity 700 to 1,060 hPa barometric pressure
Permissible storage conditions		-40 °C to +70 °C at 10 % to 95 % relative humidity 500 to 1,060 hPa barometric pressure

Subject to technical alterations

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9 Warranty

The magnetic stirrers have a modular construction and offer the greatest possible degree of trouble-free operation, thanks to their maintenance-free stirring and magnetic drives.
If despite our strict quality controls a system component should ever fail to work perfectly, it can be repaired or replaced by our after-sales service without difficulty.
Please retain your invoice, which will be needed when presenting any warranty claims.

DOMINIQUE DUTSCHER SAS