



# Kest Mixer, RM

For outstanding mixing performance in critical pharma and biotechnology applications.

DS-000005 REV D

## Kest Mixer, RM

The Kest Mixer is a magnetic coupled mixer. With its aseptic design and excellent mixing performance it has become a popular choice for critical pharma and biotech applications.

The Kest Mixer RM range is designed to incorporate more energy into the tank (eg. for dispersions) and covers mixing volumes up to 8 000 litres. The Kest Mixer is designed for CIP/SIP applications.

Easy operator handling of the drive unit is secured by our patented Kest-Lock Connection. With our revolution counter you will be able to have control over your process.

The Kest Mixer RM range can be customized to perfectly fit your needs. We can manufacture the parts that have media contact in specific materials, please contact your reseller for a quote.

## Kest Mixer range for various mixing applications

Kest has developed several product lines for various mixing applications and clean room needs. The KM product line was developed for a large volume range and the KMS prod-

uct line was developed for LAF applications. See separate data sheets on the other product lines in the Kest Mixer family or contact your reseller for more information.

# We bring flow to your mixing process

Our mixers and components have one purpose: to make your mixing process flow. 24/7. To ensure predictable and compliant results. To minimize maintenance. To minimize waste. To maximize the value created by your mixing process.



## ✓ Perfect mixing result

After years of experience developing mixers this mixer will deliver a perfect mixing result over and over again.

## ✓ Revolution counter

The mixer is equipped with a revolution counter that measures the speed of the mixer in order for you to control your process.

## ✓ Full integrity of the tank

The magnetic coupling between the mixing head and drive unit ensures total integrity of the tank. All tank plates are FEM analyzed according to PED & ASME.

## ✓ ZERO particle shedding

The robust bearing combination of Zirconium and Sic and the fine-tuned geometry, ensures no particle generation.\*

## ✓ Minimize downtime

The low weight of the drive unit and our patented Kest-Lock connection ensures quick disconnection from the tank plate during maintenance.

\* The external test, according to USP<788> PARTICULATE MATTER IN INJECTIONS, could not detect any particles from the bearing.

# Kest Mixer RM, general information



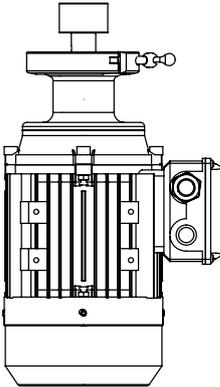
**Mixing Head**



**Male Bearing**



**Tank Plate**



**Drive Unit**

The Kest Mixer is a magnetically coupled mixer containing 4 modules, Mixing head, Male Bearing, Tank plate and Drive Unit.

To secure the integrity of the tank, the tank plate is welded into the tank, the mixing head and drive unit couple through magnetic forces. When installing the tank plate, make sure to use our welding tool and to follow the welding guideline.

Select the appropriate model, download the Kest Mixer selection guide as a support. For complex mixing applications contact your reseller for consultation.

Decide upon optional drive unit features like Revolution counter, and you will find the order information, Ref. No., for each part in this data sheet.

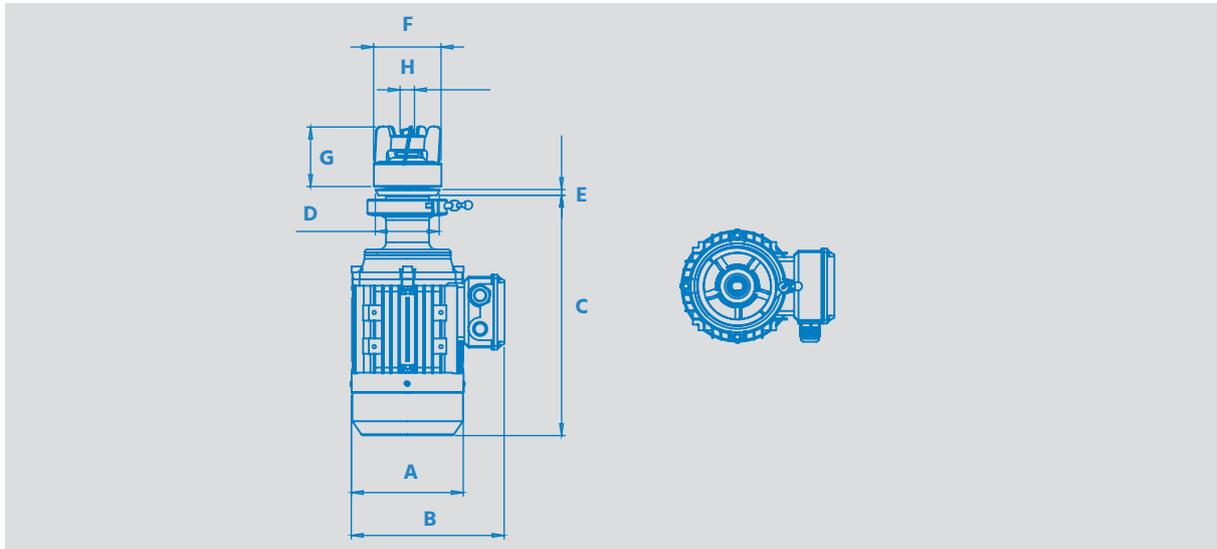


THE DRIVE UNIT IS TO BE OPERATED BY FREQUENCY CONVERTER. CONVERTER PARAMETERS TO BE VALIDATED FOR EACH PROCESS APPLICATION IN RELATION TO VOLUME, VISCOSITY ETC.



ALWAYS USE A WELDING TOOL AND FOLLOW THE WELDING GUIDE LINE WHEN INSTALLING A KEST MIXER TANK PLATE

# Kest-Mixer RM, general information



MODEL TYPE.	A mm [in]	B mm [in]	C mm [in]	D mm [in]	E mm [in]	F mm [in]	G mm [in]	H mm [in]
RM-01	154 [6.063]	192 [7.559]	277 [10.906]	55 [2.165]	6 [0.236]	66 [2.598]	55 [2.165]	12 [0.472]
RM-03	154 [6.063]	212 [8.346]	337 [13.268]	89 [3.504]	8 [0.315]	94 [3.701]	85 [3.346]	20 [0.787]
RM-06	217 [8.543]	280 [11.024]	452 [17.795]	159 [6.260]	8 [0.315]	145 [5.709]	104 [4.094]	30 [1.181]

## MECHANICAL SPECIFICATIONS

	Mixer head	Male bearing	Tank plate
Material grade	EN 1.4435/ASTM 316L, Silicone carbide (SiC)	Zirconium Oxide (ZrO2)	EN 1.4435/ASTM 316L
Material requirement	EN 10 272/10028-7, A479/A240 or SA479 SA240		
Documentation	Heat Certificate 3.1 acc. to EN 10 204		
Surface finish	Ra≤[0.5 µm] [20 µin] on surfaces in product contact		
Design Temperature	[0°C to +150°C] [+32°F to +302°F]		
Operating temperature	[0°C to +135°C] [+32°F to +275°F]		
Protection class	IP 55		
Design Pressure	[-1 bar(g) to + 7 bar(g)] [-14.5 psi to +101.5 psi]		
pH range	1-14		
Marking	Head and Bearing is marked with ID No. Tank plate is marked with material grade and heat number		
Packing	Each item is sealed in vacuum plastic bag, labelled with article code and packed in a box		
Male bearing sealing	EPDM or Silicone, approved acc. FDA regulation CFR 177.2600, USP Class VI		
Quality Assurance	Each product is controlled and tested acc. to Kest Technology quality assurance system		

# Kest-Mixer RM, Drive unit specifications

MODEL	MOTOR POWER 50/60Hz [kW]	FREQUENCY [Hz]	CURRENT 230/400V [A]	GEAR BOX RATIO [i]	SPEED RANGE [RPM]
RM-01	0.18	50/60	1.17 / 0.68	-	270-1350
RM-03	0.75	50/60	3.08 / 1.79	-	270-1420
RM-06	4.0	50/60	14.37 / 8.26	-	270-1435

## DRIVE UNIT SPECIFICATIONS

Motor	CE - Standards EN60 034-1
Motor protection	One thermo element as standard
Design temperature	[0°C to +40°C] [+32°F to +104°F]
Protection class	IP 55
Painting	Motor painted - RAL 7015
Marking	Each item is marked with article code
Packing	Each item is sealed in plastic bag, labelled with article code and packed in a box
Quality assurance	Each product is controlled and tested acc. to Kest Technology quality assurance system

# Kest Mixer RM, weights

MODEL	MIXING HEAD kg / [lb]	MALE POST kg / [lb]	TANK PLATE kg / [lb]	DRIVE UNIT* kg / [lb]	TOTAL* kg / [lb]
RM-01	0.5 / [1.1]	0.02 / [0.04]	0.3 / [0.7]	5.4 / [11.9]	6.2 / [13.7]
RM-03	1.5 / [3.3]	0.09 / [0.2]	0.8 / [1.8]	11 / [24.3]	13.4 / [29.6]
RM-06	3.9 / [8.6]	0.4 / [0.9]	2.5 / [5.5]	36 / [79.4]	42.8 / [94.4]

\*Weights based on standard unit with extension, stainless steel cover is not included, small variations might occur depending on options selected

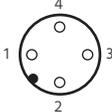
# Kest Mixer RM, Revolution Counter (optional)

The Kest Mixer RM Revolution Counter is a sensor system that enables secure verification of the actual rotation of the shaft.

The unit consists of a Namur sensor, that is located on the Drive Unit flange.

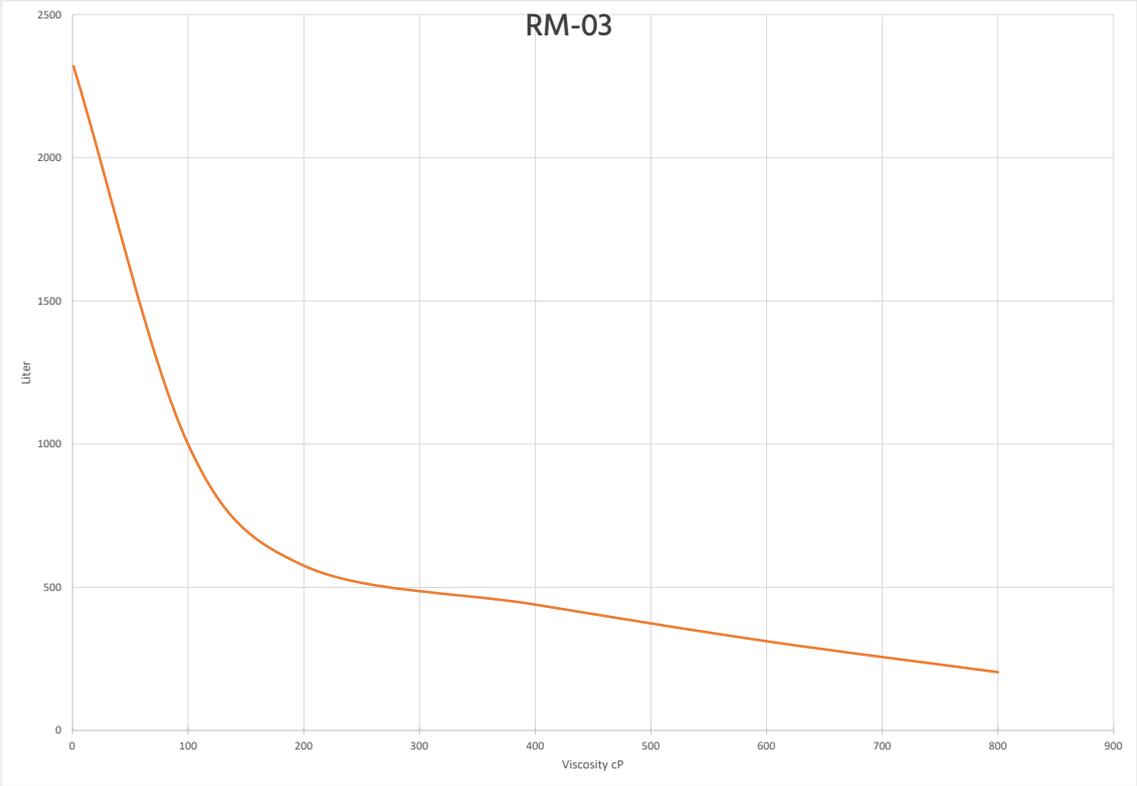
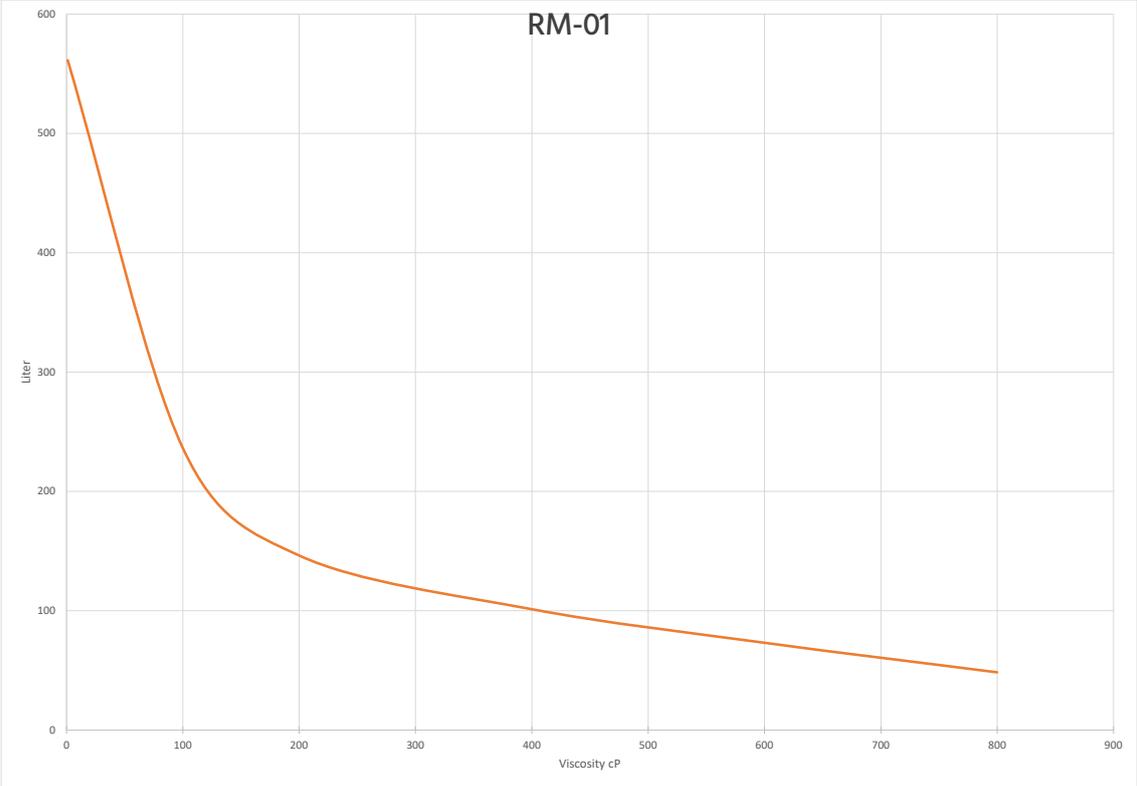
The output signal from the sensor is 1 pulse/rotation.

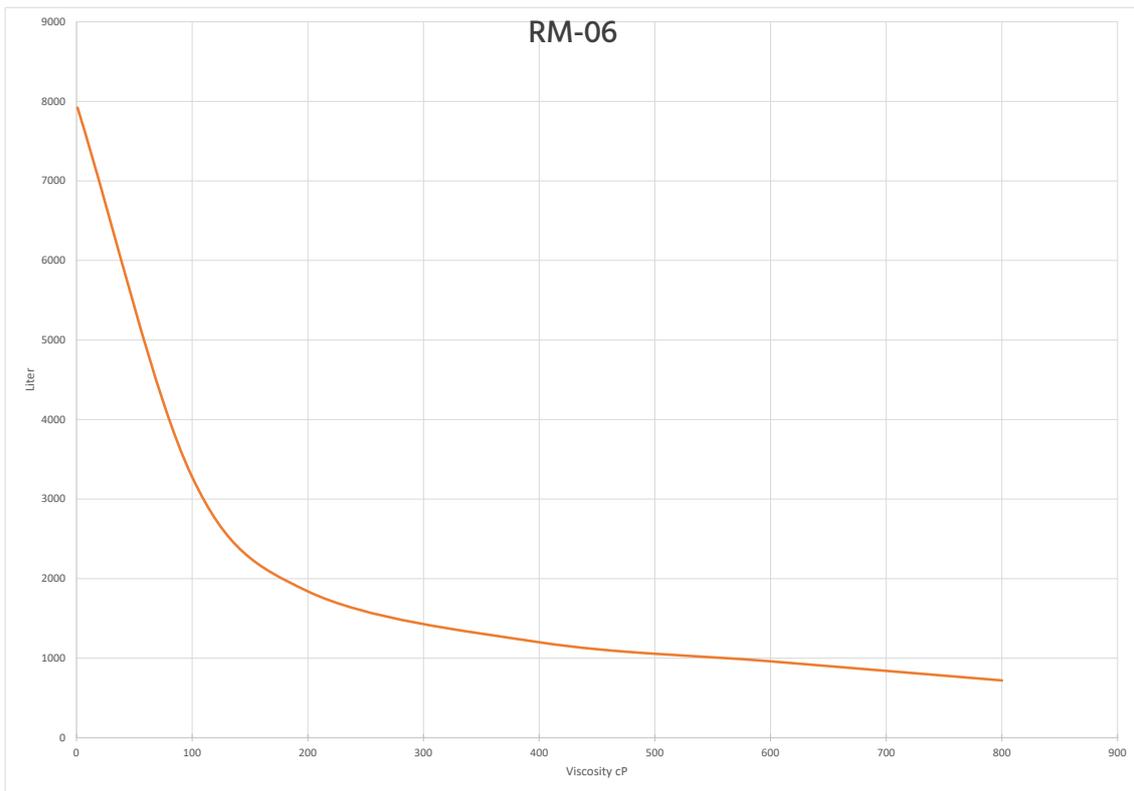
For visual indication, a LED on the sensor housing is indicating when the sensor gets a pulse.

MECHANICAL SPECIFICATIONS			
	Sensor Housing	Sensing face	Cable
Material grade	1.4305 / AISI303	PBT	5 meter, open ends
Design Temperature	[-25°C to +100°C] [-13°F to +212°F]		[0°C to +40°C] [+32°F to +104°F]
Marking	Each item is marked with article code		
Packing	Each item is sealed in vacuum plastic bag and packed in a box		
Quality Assurance	Each product is controlled and tested acc. to Kest Technology quality assurance system		
Electrical Specifications			
Type	NAMUR, NC		
Voltage	5-25 V DC		
Rated Current	200 mA		
Protection class	IP 67 (contacts)		
Connection type sensor unit	Output: 4-pole male connection M12x1		
Socket wiring identification		<b>1: Power supply 5-25 V DC (Brown)</b> <b>2: Pulse signal 5-25 V DC (Blue)</b> <b>3: -</b> <b>4: -</b>	
Pulses	1 pulse / rotation		

# Selection guide

The mixer is selected after volume based on the viscosity of the media. The different mixer sizes are targeting a specific volume range based on viscosity of 1 cP. Depending on the viscosity you might need to go for a larger size even if you are in the target volume. Se example in the end of the selection guide on how to select correct mixer size.





## Example:

The max mixing volume is 500 liters

The viscosity of the media is 100 cP.

Start with the RM01 mixer graph, RM01 can only mix around 230 liters at 100 cP. Look at the graph at 100 cP (on the horizontal axis) and follow it up to the orange line and read the value of the vertical axis to find out what the maximum mixing volume is at viscosity 100 cP. Move to the next size RM03, this mixer can mix around 1000 liters at 100 cP.

**For this application you need the RM03 mixer.**

For higher viscosities you might need to go up several sizes to find a mixer that with the sufficient capacity.

## Test center

Mixing can be simple and complex, this selection guide sizes the mixer to the correct capacity. Mixing performance can be affected by many different factors, if you need support with your mixing application, we have long experience and a fully equipped test centre. Do not hesitate to contact us with your mixing application or read more at [www.kest.se](http://www.kest.se)

## Kest-Mixer RM, Ref.No list

MODEL	MIXING HEAD	MIXING HEAD ELECTRO POLISHED	MALE BEARING	TANK PLATE
RM-01	101252	102449	100562	100625
RM-03	101253	102450	100415	100369
RM-06	101653	102451	101817	100537

## Drive unit - Ref.No list

MODEL	DRIVE UNIT STANDARD	DRIVE UNIT STANDARD & REVOLU- TION COUNTER
RM-01	101265	101643
RM-03	101272	101644
RM-06	101645	101646

## Kest-Mixer RM, options - Ref.No list

DESCRIPTION	ATTRACTOR*	MULTI TOOL*	WELDING TOOL
RM-01	101620	101838	100923
RM-03	100571	101839	100802
RM-06	-	-	100800

\* See separate data-sheet



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