



# Kest Mixer, KMS

For outstanding mixing performance in critical pharma and biotechnology applications.

DS-000002 REV B

## Kest Mixer, KMS

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 KMS range covers mixing volumes up to 200 liters. The Kest Mixer is designed for CIP/SIP applications and suitable for clean room environments.

Easy operator handling of the drive unit is secured by our patented Kest-Lock Connection. With our advanced Speed Sensor technology, you will have a reliable process control.

The KMS drive unit is an enclosed drive unit with a lot of built in functionality. The unique brushless DC motor has an extremely low heat generation and eliminates the need of a frequency converter to run the motor.

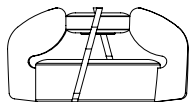
The Kest Mixer KMS range can be customized to perfectly fit your needs. We can modify the mixing head to mix to the last drop or manufacture the parts that have media contact in specific materials, please contact your reseller for a quote.

## 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 Rapid

Motion (RM) line for medium shear force generation. See separate data sheets on the other product lines in the Kest Mixer family or contact your reseller for more information.

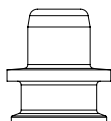
# Kest Mixer KMS, general information



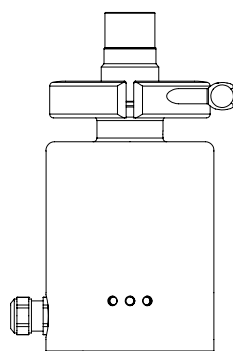
**Mixing Head**



**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.

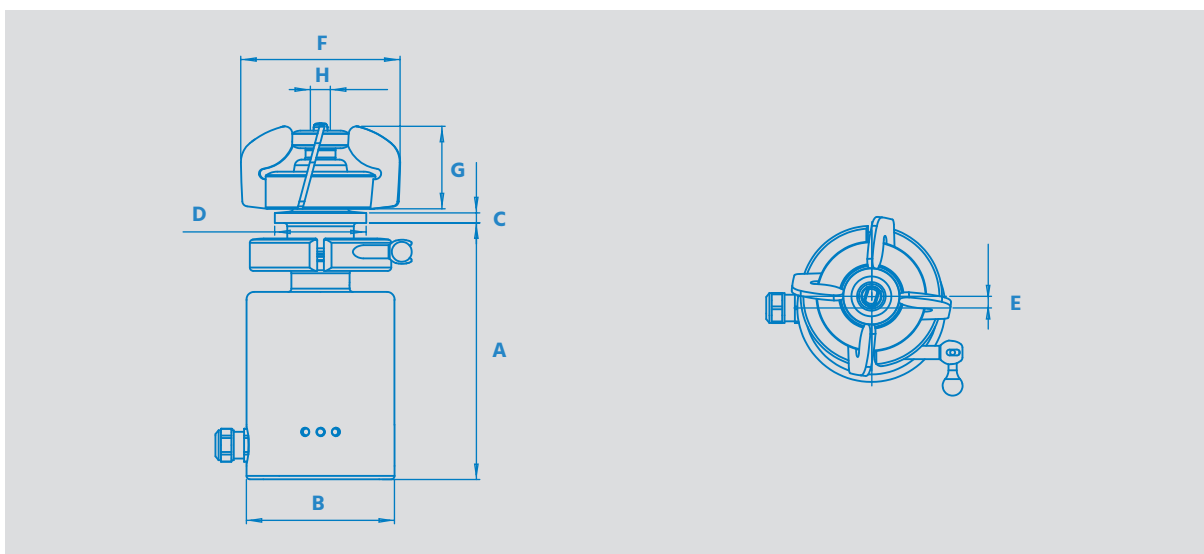
Select the appropriate model, download the Kest Mixer selection guide as a support. For complex mixing applications contact your reseller for consultation.

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



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

# Kest Mixer KMS, specifications



MODEL	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
KMS-0/3	155	89	6	55	7	82	33	12
KMS-3/7	225	89	6	55	7	96	46	12
KMS-7/20	241	89	6	84	7	120	56	16

## MECHANICAL SPECIFICATIONS

	Mixer head	Male bearing	Tank plate
Material grade	EN 1.4435/ASTM 316L, Silicone carbide (SiC)	Zirconium Oxide (ZrO <sub>2</sub> )	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 on surfaces in product contact		
Design Temperature	[0°C to +150°C] [+32°F to +302°F]		
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 KMS, Drive unit specifications

MODEL	MOTOR POWER [W]	VOLTAGE DC [V]	CURRENT [A]	GEAR BOX RATIO [1]	SPEED RANGE [RPM]
KMS-0/3	63	24	3.5	-	50-680
KMS-3/7	63	24	3.5	1:6	50-490
KMS-7/20	63	24	3.5	1:6	50-490

DRIVE UNIT SPECIFICATIONS	
Motor	Brushless DC
Design Temperature	[0°C to +40°C] [+32°F to +104°F]
Protection class	IP 65
Capsulation	EN 1.4404, Ra < 0.8 µm
Cable	3 meter multi wire, open cable end (see drive unit terminal connection configuration)
LED on housing	Yellow: Power, Green: Rotation, Blue: Pulse
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

## Drive unit terminal connection configuration

TERMINAL ID	COLOUR / BASIC CONNECTION	DESCRIPTION	TYPICAL FUNCTION
X1:1	Blue / Yes	Supply ground	- Ground
X1:2	Brown / Yes	Logic supply voltage	+ 24VDC
X2:1	Purple / Yes	Logic ground	- Ground
X2:2	Black / Yes	Control input C - hardware enable	+ 24VDC closing switch (rotation start)
X3:1	- / -	-	-
X3:2	Pink / Yes	0...10V - Speed control set value input	0-10V variable speed control
X4:1	Grey / If required	10V DC output	10V supply for speed control
X4:2	White / If required	0...10V - analog speed value output	For converter or display
X5:1	Red / Yes	Speed sensor pulse signal (PNP)	For pulse converter or display
X5:2	Orange / If required	24V PNP closing contact rotation indication	PLC

# Kest Mixer KMS, Speed Sensor (optional)

The Kest Mixer speed sensor unit is a integrated sensor system that enables secure verification of the actual rotation of the mixer head.

An integrated function in the Kest Mixers speed sensor also verifies that the mixer head is in place in the tank and that it is rotating in the correct direction, "clockwise".

The unit consists of a sensor, that is located underneath the magnetic rotor, and a converter unit integrated in the drive unit circuit card.

The output signal from the sensor is 1 pulse/rotation as standard, 1 pulse/magnet can be delivered upon request.

For visual indication of the different functions, the speed sensor is connected to the LED's located on the drive unit enclosure:

- **Yellow LED: Power supply**

- **Green LED: Rotation**

- **Blue LED: Pulse**

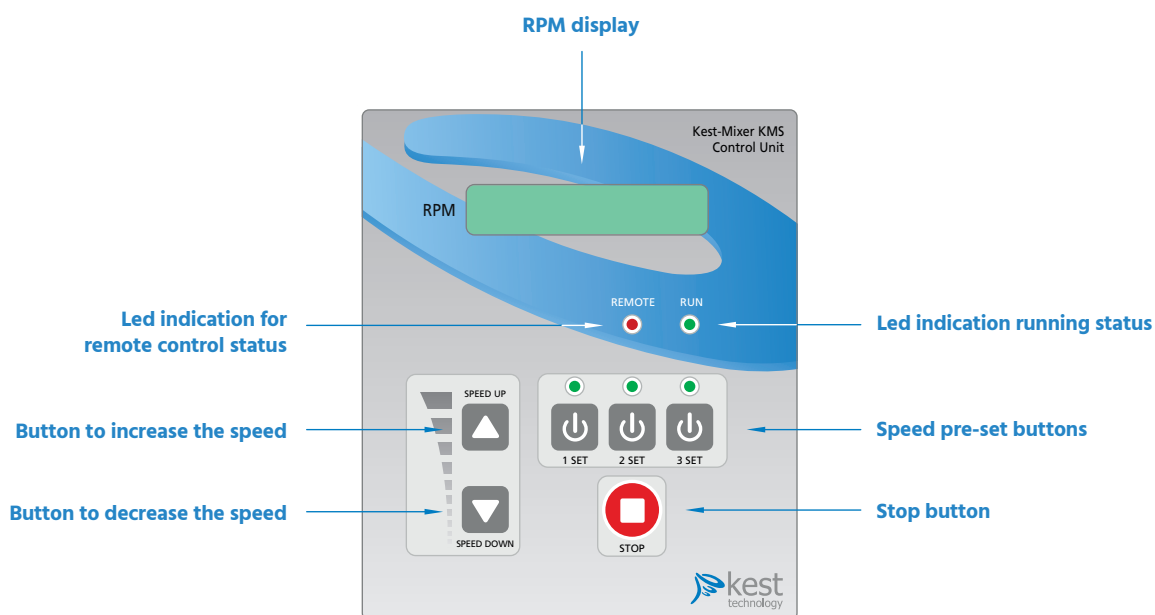
The sensor and cable are designed for +150°C to withstand the temperatures in the tank plate during sterilization.

MECHANICAL SPECIFICATIONS		
	Sensor holder	Cabeling
Material grade	POM C	Teflon-FEP
Design Temperature	[0°C to +150°C] [+32°F to +302°F]	
Packing	The Speed sensor is installed on the drive unit before delivery	
Quality Assurance	Each product is controlled and tested acc. to Kest Technology quality assurance system	
Electrical Specifications		
Type	Hall effect switch, PNP closing circuit	
Voltage	8-30 V DC	
Rated Current	200 mA	
Model	Standard puls	Max pulses (on request)
KMS-0/3	1 puls / rotation	2 pulses / rotation
KMS-3/7	1 puls / rotation	3 pulses / rotation
KMS-7/20	1 puls / rotation	3 pulses / rotation

# Kest Mixer KMS, Control Unit (optional)

The Kest KMS Mixer can be supplied with a control unit. This control unit is especially popular for mobile applications where an ordinary automation system is not available. If you choose

to use the control unit but no Speed Sensor the display will show the rotation speed of the motor instead of the Mixing Head.



## SPECIFICATIONS

Cabinet	
Material grade	Grey ABS
Measurement (HxWxD) mm	175 x 125 x 75
Design Temperature	[0°C to +40°C] [+32°F to +104°F]
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
Electrical Specifications	
Power supply	100 - 240 VAC / 50-60 Hz
Effect	30 W
Protection class	IP40

## Kest Mixer KMS, Ref.No list

MODEL	MIXING HEAD	MALE BEARING	TANK PLATE
KMS-0/3	100433	100562	100383
KMS-3/7	100559	100562	100625
KMS-7/20	101273	101385	100647

## Kest Mixer KMS, drive unit - Ref.No list

MODEL	STANDARD DRIVE UNIT	STANDARD DRIVE UNIT WITH SPEED SENSOR
KMS-0/3	101081	100434
KMS-3/7	101607	101091
KMS-7/20	101642	100990

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

MODEL	CONTROL CABINET	ATTRACTOR*	MULTI TOOL*	WELDING TOOL
KMS-0/3	100669	101620	101007	100446
KMS-3/7	100669	101620	101007	100923
KMS-7/20	100669	101436	101342	100802

\*See separate data sheet