



Kest ProFlow Mixer

The best mixer we ever built for critical pharma and biotechnology applications.

DS-000012 EN REV D

Kest ProFlow Mixer

The Kest ProFlow Mixer line is a new generation of aseptic magnetic coupled mixers. With its state of the art mixing performance and ability to mix to the last drop, it is a perfect choice for critical pharma and biotech applications.

The Kest ProFlow range covers mixing volumes up to 1200 liters and is designed for CIP/SIP applications.

With our advanced Speed Sensor technology, you will have a reliable process control with real time monitoring.

The Drive Unit is fan-less and totally enclosed in a hygienic cover - perfectly adapted to a clean room environment.

The ProFlow DC motor has an efficiency >95% thanks to and advanced integrated control circuit. The Pro Flow will minimize energy consumption and save both money and environment.

The unique brushless DC motor eliminates the need of a frequency converter to control the motor speed.

The Kest ProFlow range can be customized to perfectly fit your needs. We offer a wide range of materials and retrofit options, 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.

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 minimize energy use. 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.

✓ ZERO particle shedding

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

✓ Sustainable

The advanced motor boosts an impressive energy efficiency of >95%. While saving money, it also helps to reduce your carbon footprint significantly and due to low heat generation there is no need for compensating cooling - this is part of our - Green Mixing Concept.

✓ 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.

✓ Enhance your workplace

Due to the design of the drive unit it is extremely silent during operation enhancing the environment for the operators.

✓ Mixing to the last drop

The wings fixed position close to the tank bottom and the possibility to run the mixer during emptying of the tank, ensures full product recovery.

✓ Cleanroom optimized

The drive unit does not contain any fans that will interfere with your laminar air flow. It is totally capsuled in a smooth hygienic cover that is easy to keep clean.

✓ Minimal heat transfer

Thanks to the advanced drive unit, the energy is converted to rotation speed and a minimum result in heat. This prevents that heat is transferred into your application.

✓ Integrated speed sensor

The mixer is equipped with an integrated speed sensor that measures the speed of the mixing head, that the mixing head is in place and that it rotates in the right direction.

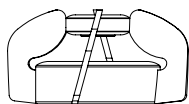
✓ Minimize downtime

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.

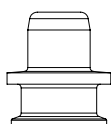
General information



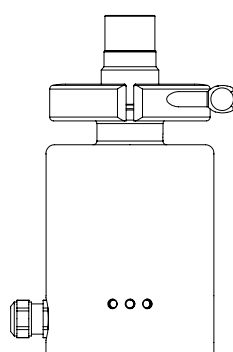
Mixing Head



Male Post



Tank Plate



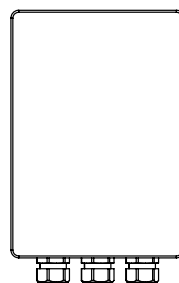
Drive Unit

The Kest ProFlow Mixer is a magnetically coupled mixer containing 4 modules, Mixing head, Male Post, 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 couples through the wall of the tank plate with magnetic forces. Welding tools and a welding guideline is available for easy and safe installation of the tank plate.

To select the appropriate model, use the selection guide in this data-sheet. For complex mixing applications contact your reseller for consultation.

The Power and Logic box contains the logic unit safely mounted in a cabinet. The box comes with size 20/70 and 70/120, the smaller units have the logic integrated in the drive unit.



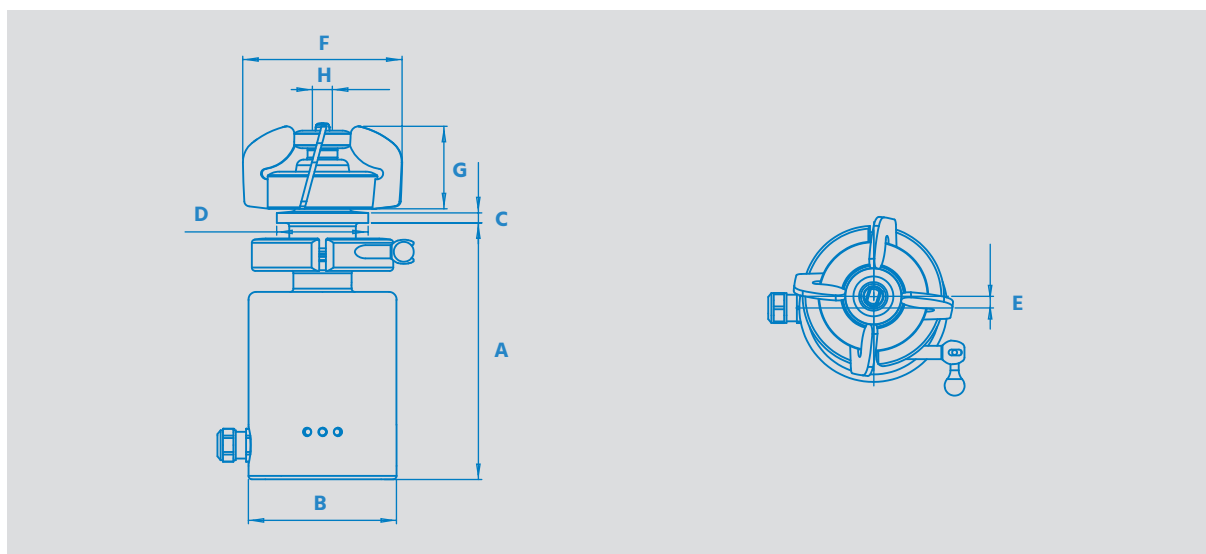
Power & logic box, only for 20/70 and 70/120

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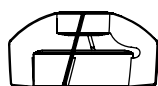
Dimensions



SIZE	A mm [in]	B mm [in]	C mm [in]	D mm [in]	E mm [in]	F mm [in]	G mm [in]	H mm [in]
0/05	161 [6.339]	89 [3.504]	5 [0.197]	58 [2.283]	7 [0.276]	60 [2.362]	24 [0.945]	12 [0.472]
0/3	155 [6.102]	89 [3.504]	6 [0.236]	55 [2.165]	7 [0.276]	82 [3.228]	33 [1.299]	12 [0.472]
3/7	225 [8.858]	89 [3.504]	6 [0.236]	55 [2.165]	7 [0.276]	96 [3.780]	46 [1.811]	12 [0.472]
7/20	241 [9.488]	89 [3.504]	6 [0.236]	84 [3.307]	7 [0.276]	120 [4.724]	56 [2.205]	16 [0.630]
20/70	275 [10.827]	102 [4.016]	7,94 [0.236]	89 [3.504]	- [-]	142 [5.591]	71 [2.795]	20 [0.787]
70/120	282 [11.102]	102 [4.016]	8 [0.236]	99 [3.898]	- [-]	160 [6.299]	71 [2.795]	20 [0.787]

Note! You can download 3D models of all our mixers from our CAD library at www.kest.se

Specifications



Mixing Head



Male Post



Tank Plate

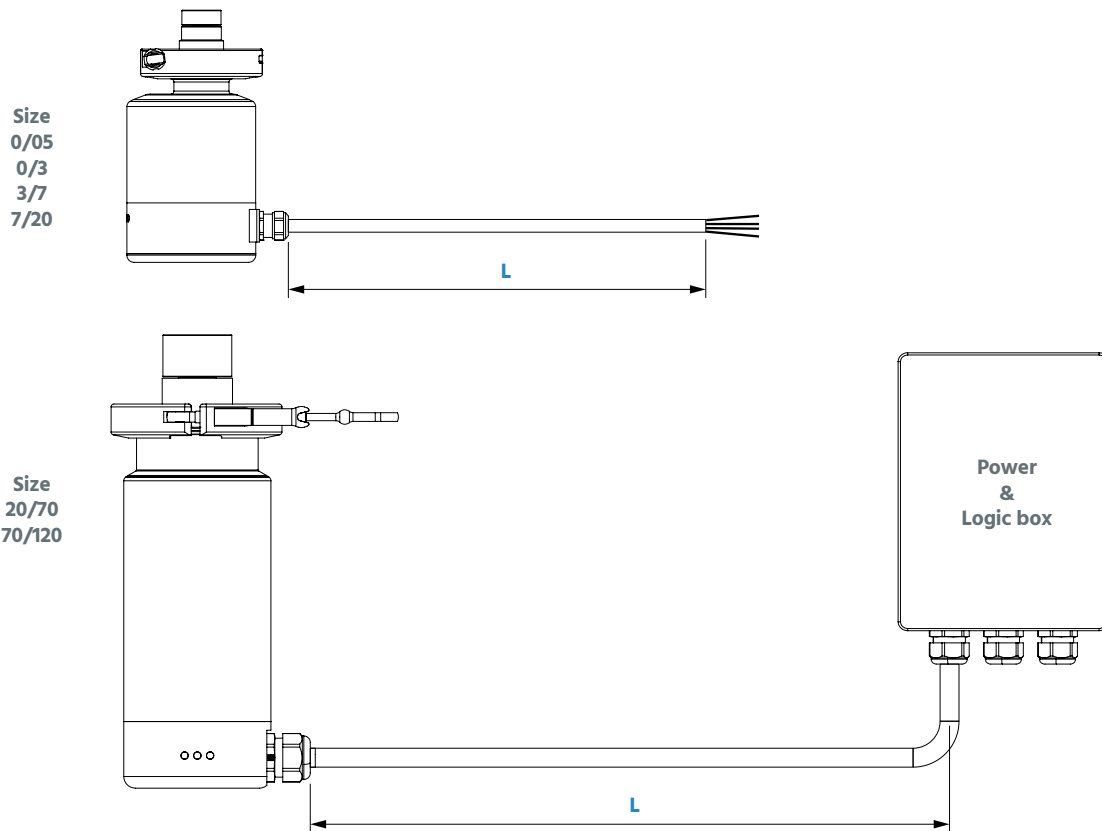
MECHANICAL SPECIFICATIONS

	Mixer head	Male post	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≤[0.38 µm] [15 µin] Polished - Mannually and electropolished - 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]		
Design Pressure	[-1 bar(g) to + 10 bar(g)] [-14.5 psi to +145.0 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, Silicone or Kalrez, 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		

Weights

SIZE	MIXING HEAD kg / [lb]	MALE POST kg / [lb]	TANK PLATE kg / [lb]	DRIVE UNIT* kg / [lb]	TOTAL* kg / [lb]
0/05	0.2 / [0.4]	0.02 / [0.04]	0.2 / [0.5]	2.6 / [5.7]	3.0 / [6.6]
0/3	0.3 / [0.7]	0.02 / [0.04]	0.2 / [0.5]	2.5 / [5.5]	3.0 / [6.6]
3/7	0.5 / [1.1]	0.02 / [0.04]	0.3 / [0.7]	3.0 / [6.6]	3.8 / [8.4]
7/20	1.0 / [2.2]	0.04 / [0.09]	0.5 / [1.1]	3.5 / [7.7]	5.0 / [11.0]
20/70	1.5 / [3.3]	0.09 / [0.2]	0.8 / [1.8]	6.2 / [13.7]	8,6 / [19.0]
70/120	2.0 / [4.4]	0.09 / [0.2]	1.1 / [2.4]	6.4 / [14.1]	9.6 / [21.2]

Drive unit specifications



SIZE	MODEL	MOTOR POWER W / [hp]	VOLTAGE DC V	CURRENT A	GEAR BOX RATIO i	SPEED RANGE RPM
0/05	KMPF-DU0/05A-0	63 / [0.084]	24	3.5	-	50-680
0/3	KMPF-DU0/3A-0	63 / [0.084]	24	3.5	-	50-680
3/7	KMPF-DU3/7A-0	63 / [0.084]	24	3.5	1:6	50-490
7/20	KMPF-DU7/20A-0	63 / [0.084]	24	3.5	1:6	50-490
20/70	KMPF-DU20/70A-0	754 / [1.0]	48	18	1:5	50-490
70/120	KMPF-DU70/120A-0	754 / [1.0]	48	18	1:5	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, POM (bottom lid and Speed Sensor holder)**

Cable *** (L) 3 meter multi wire, open cable end (see drive unit terminal connection configuration)**

LED on housing **Green: Power, Yellow: 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**

*** Other lengths available on request**

Power consumption

The Kest ProFlow mixer is equipped with a very efficient motor. The figures below is mean values based on operation in water (1 cP) with a standard mixing head and can vary depending on viscosity, mixing angle, volume and tank shape.

SIZE	50 RPM [W]	100 RPM [W]	200 RPM [W]	300 RPM [W]	400 RPM [W]	490 RPM [W]
0/3	2.7	3.0	4.0	6.3	10.0	15.0
3/7	3.7	5.2	8.7	14.6	21.0	27.3
7/20	5.6	7.8	13.2	20.5	36.0	56.0
20/70	13.0	17.0	31.0	58.5	109.0	179.0
70/120	13.5	18.0	36.5	78.0	155.0	265.0

Terminal connection - Size 0/05, 0/3, 3/7, 7/20

Drive unit, terminal connection (standard)

If you have chosen to run the mixer with the Kest control unit the wiring on the motor terminal needs to be changed according to table Drive unit, terminal connection (for Control Unit Mixer - CUM).

TERMINAL ID	COLOUR / BASIC CONNECTION	DESCRIPTION	TYPICAL FUNCTION
X1:1	Blue / Yes	Supply ground	- Ground
X1:2	Brown / Yes	Logic supply voltage	+ 24V DC
X2:1 *	Purple / Yes	Logic ground	- Ground
X2:2	Black / Yes	Control input C - hardware enable	+ 24V DC closing switch (rotation start)
X3:1	-	For CUM	For control unit
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 - analogue 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
X6:1 *	-	-	-

***Circuit Board Update (2025 Models and Later).** On newer blue circuit boards installed in units from 2025 onwards, terminal X2:1 has been removed, the Blue and Purple cable are connected to X1:1. Additionally, a new terminal, X6:1, has been added for future functionality.

Drive unit, terminal connection (for Control Unit Mixer - CUM)

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	Gray / Yes	For CUM	For control unit
X3:2	Pink / Yes	0...10V - Speed control set value input	0-10V variable speed control
X4:1	White / Yes	10V DC output	10V supply for speed control
X4:2	-	0...10V - analogue speed value output	For converter or display
X5:1	Red / Yes	Speed sensor pulse signal (PNP)	For pulse converter or display
X5:2	Orange / Yes	24V PNP closing contact rotation indication	PLC
X6:1 *	-	-	-

Circuit Board Update (2025 Models and Later). On newer blue circuit boards installed in units from 2025 onwards, terminal X2:1 has been removed, the Blue and Purple cable are connected to X1:1. Additionally, a new terminal, X6:1, has been added for future functionality.

Power & Logic box

The power & logic box for the 20/70 and 70/120 size is delivered with a 48V DC input as standard, this means you will supply the cabinet with 48V DC. As option we also have a version there you supply 110-230 V AC, in this optional version we provide an integrated AC to DC converter.

Power & Logic box - 48V DC input (standard)

POWER & LOGIC BOX SPECIFICATIONS

Material	ABS
Design Temperature	[0°C to +40°C] [+32°F to +104°F]
Protection class	IP 66
Measurement	175 x 250 x 125 mm
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

Power & Logic box connection terminal (standard)

TERMINAL ID	TERMINAL	DESCRIPTION	TYPICAL FUNCTION
X106:3	P1	Supply	+ 48VDC
X106:2	P1	Supply	- 0VDC
	P1	Ground	Supply ground
X5:2	P4	24V PNP closing contact rotation indication	Output signal of rotation, Yellow LED. For PLC.
X5:1	P4	Speed sensor pulse signal (PNP)	Output signal Speed pulse, Blue LED. For pulse converter or display
X4:1	P4	10V DC output	10V supply for speed control, if required
X100:4	P4	24V DC output	+ 24VDC supply for closing switch (rotation start), if required
X100:5	P4	Ground	Logic ground
X100:7	P4	Control input C - hardware enable	+ 24VDC closing switch (rotation start), electronic ON/OFF switch. Green LED
X100:11	P4	0...10V - Speed control set value input	0-10V variable speed control
X100:12	P4	Ground	Logic ground

Power & Logic box - 110 - 230 V AC input (optional)

POWER & LOGIC BOX SPECIFICATIONS

Material	PC, Grey
Design Temperature	[0°C to +40°C] [+32°F to +104°F]
Protection class	IP 66
Measurement	255 x 360 x 152 mm
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

Power & Logic box connection terminal - AC input (option)

TERMINAL ID	TERMINAL	DESCRIPTION	TYPICAL FUNCTION
AC/L		Supply Phase	+ 110-230 V AC
AC/N		Supply Neutral	0 V AC
		Ground	Supply ground AC
X5:2	P4	24V PNP closing contact rotation indication	Output signal of rotation, Yellow LED. For PLC.
X5:1	P4	Speed sensor pulse signal (PNP)	Output signal Speed pulse, Blue LED. For pulse converter or display
X4:1	P4	10V DC output	10V supply for speed control, if required
X100:1	P4	-	-
X100:2	P4	-	-
X100:3	P4	-	-
X100:4	P4	24V DC output	+ 24VDC supply for closing switch (rotation start), if required
X100:5	P4	Ground	Logic ground
X100:7	P4	Control input C - hardware enable	+ 24VDC closing switch (rotation start), electronic ON/OFF switch
X100:8	P4	-	-
X100:9	P4	-	-
X100:10	P4	-	-
X100:11	P4	0...10V - Speed control set value input	0-10V variable speed control
X100:12	P4	Ground	Logic ground

Speed Sensor

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

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 board.

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:

- **Green LED: Power (steady light)**
- **Yellow LED: Rotation (steady light)**
- **Blue LED: Pulse (pulsing light)**

The sensor and cable are designed for +150°C to withstand the temperatures in the tank plate during sterilization. The speed measurement has an accuracy of $\pm 3\%$.

MECHANICAL SPECIFICATIONS

	Sensor holder	Cabling
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 pulse	Max pulses (on request)
KMPF-0/05	Currently not available with speed sensor*	
KMPF-0/3	1 pulse / rotation	2 pulses / rotation
KMPF-3/7	1 pulse / rotation	3 pulses / rotation
KMPF-7/20	1 pulse / rotation	3 pulses / rotation
KMPF-20/70	1 pulse / rotation	4 pulses / rotation
KMPF-70/120	1 pulse / rotation	5 pulses / rotation

*The KMPF-0/05 is currently not available with speed sensor, the output speed puls on terminal X5:1 is generated from the motor.

Control Unit Mixer, CUM (optional)

The Kest control unit is developed for the smaller DC drive units to control and monitor the rotation speed of the mixer.

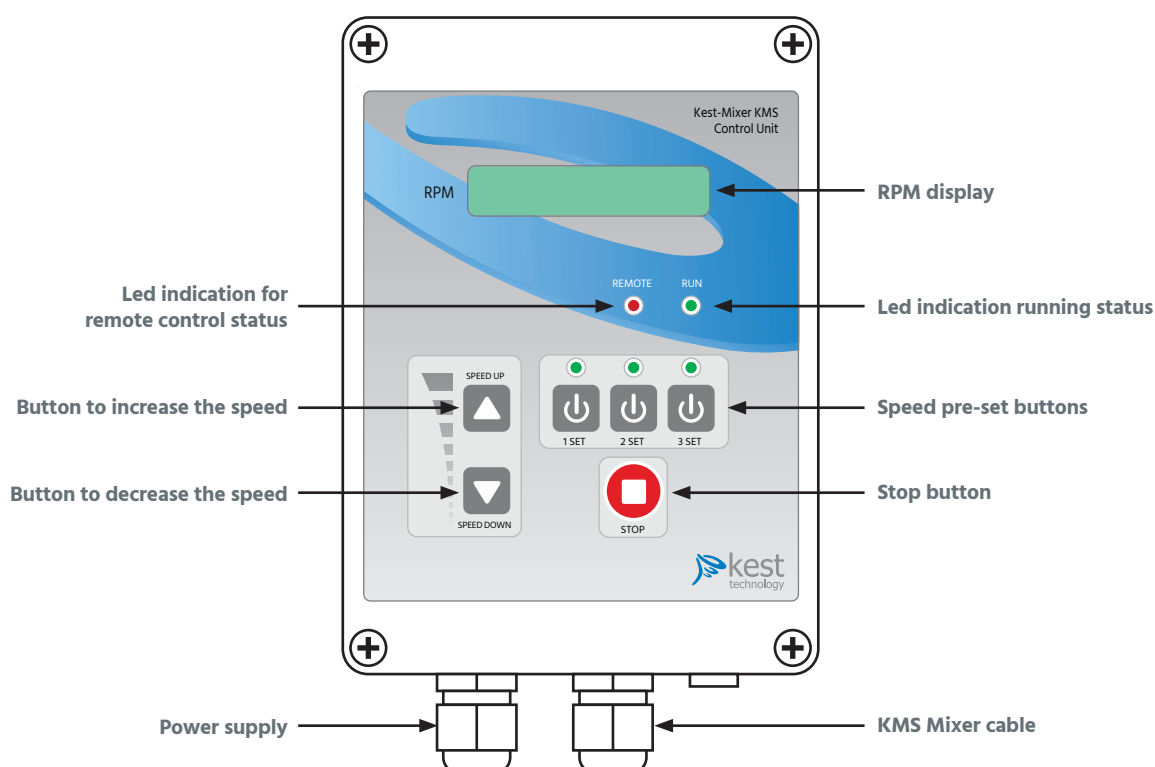
The Kest control unit is powered with 100-240 VAC at 50-60Hz that is transformed to 24 VDC, feeding the mixer.

The three pre-set buttons is used as quick buttons to set a certain speed value, each can be programmed to a specific RPM.

The unit is pre-programmed with ramping parameters for acceleration and deceleration to prevent the mixer from damage.

The display shows the rotation speed of the mixer and the target speed value. The display is also used when programming the pre-set buttons and for delivering error messages.

If you forgot to mount the mixing head in the tank it will show an error message.



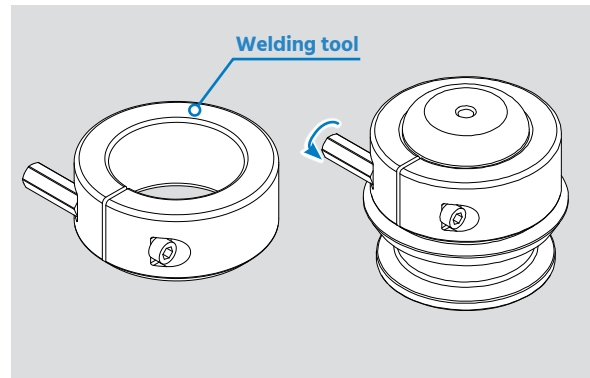
SPECIFICATIONS

Cabinet	
Material grade	Grey ABS
Measurement (HxWxD) mm	24 VDC: 175 x 125 x 75 mm [6.890 x 4.921 x 2.953 in] 48 VDC: 360 x 255 x 152 mm [6.890 x 4.921 x 2.953 in]
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, 100 W & 750 W
Protection class	IP66

Tools

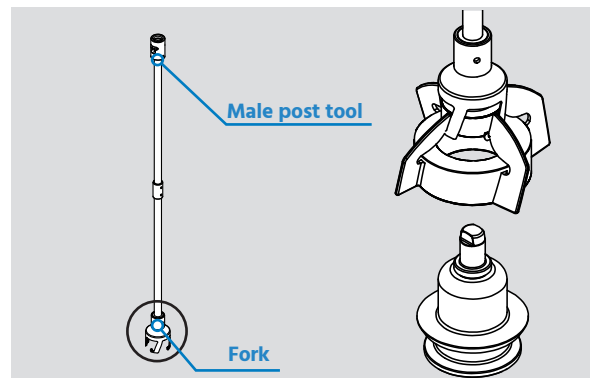
Welding tool

The welding tool is mounted on the Tank plate during installation. The aluminium welding tool transfers some heat away from the tank plate during welding to ensure that the tank plate doesn't get warped. The mixer is a precision component, and a warped tank plate can cause the mixer to malfunction. Always use a welding tool and follow the separate tank plate welding guideline when installing the tank plate.



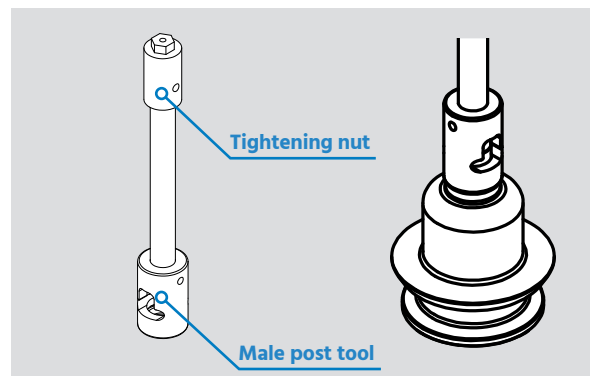
Multi tool

When you can't reach the tank plate you will need a multi tool to mount both the male post and mixing head, the tool is made in aluminium, and the male post tool works as the male post tightening tool below. The multi tool also has a fork in POM, to gently grab and lower down or bring up the mixing head from the male post in the tank. The standard length of the multitool is 750 mm, if you need a different length, we adjust it to fit your needs.



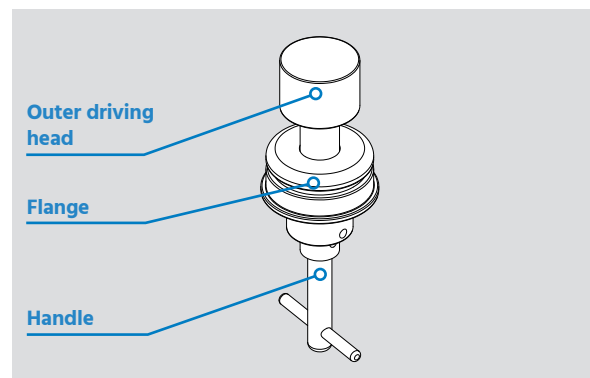
Male post tightening tool

In the cases where you can reach the tank plate to mount the male post and mixing head you will need the Male post tightening tool to fasten the male bearing with the correct torque. The tool is manufactured in aluminium with a stainless-steel nut on top for a torque wrench. The tool uses an O-ring to hold the male post in place, and when you are done the tool slides nicely off.



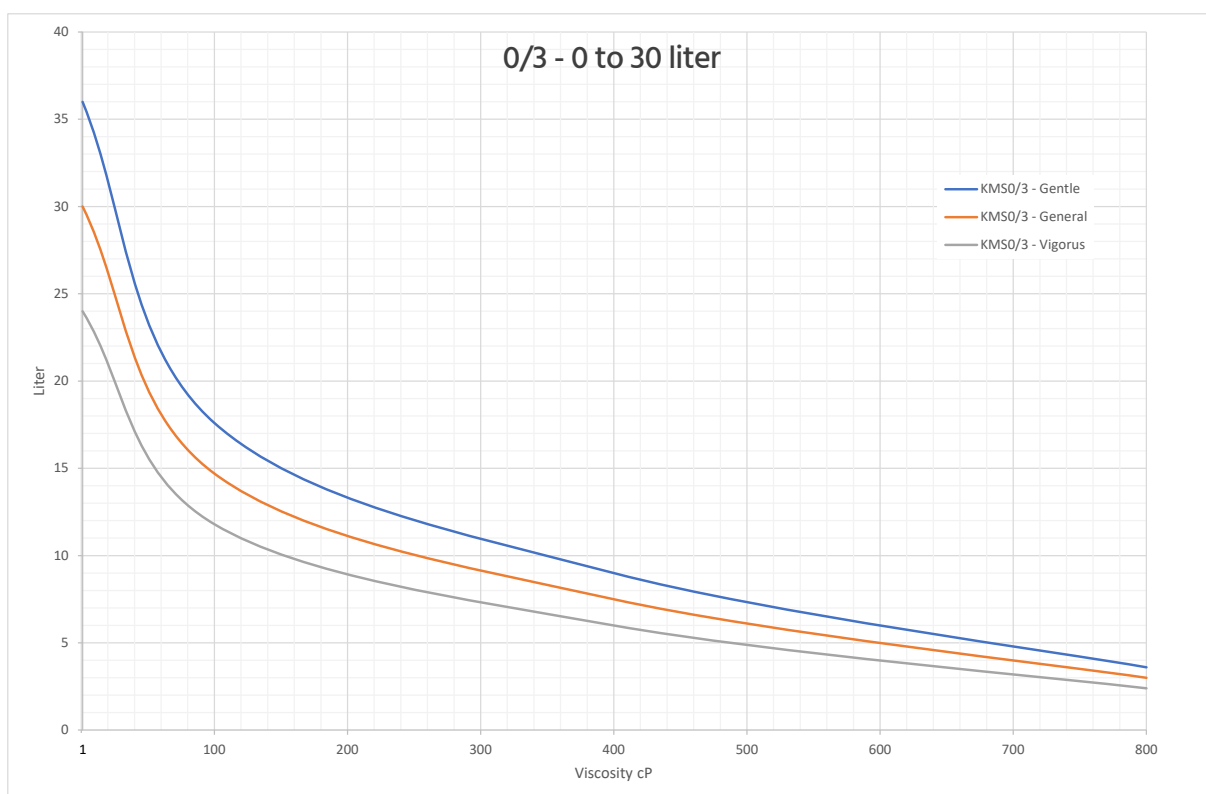
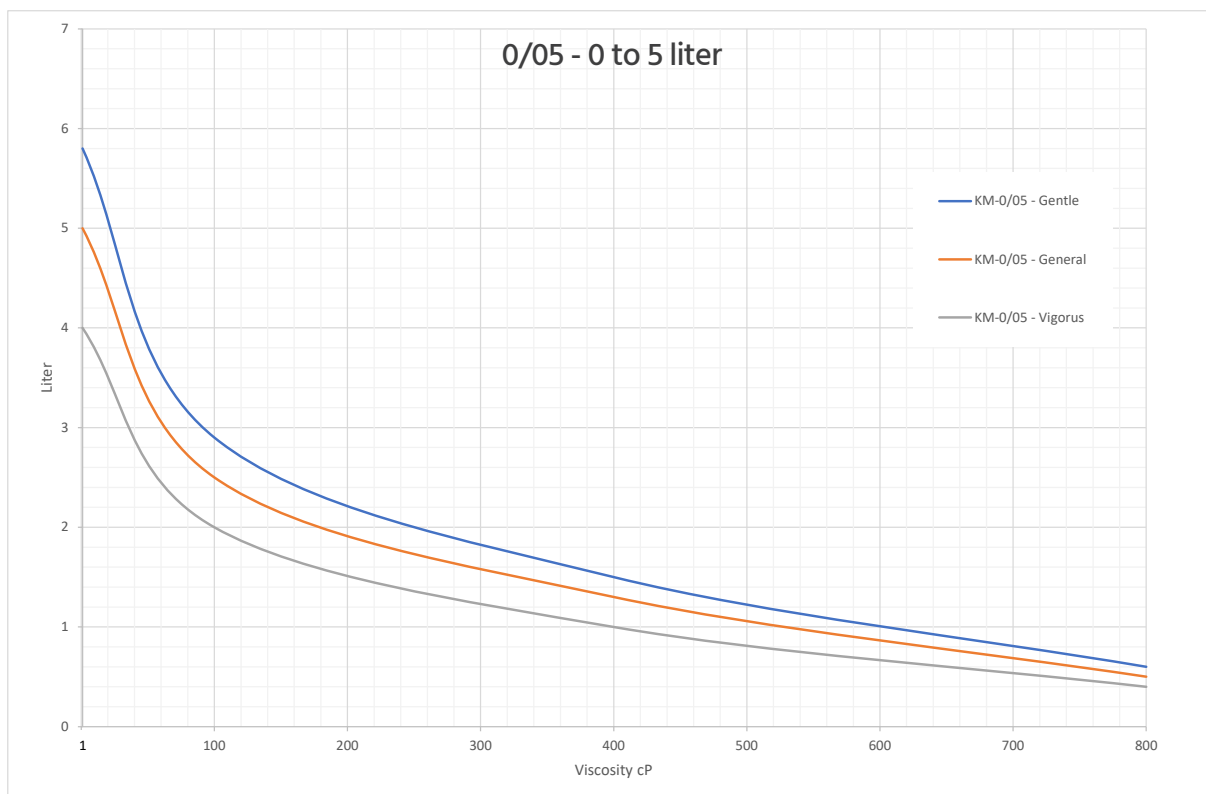
Mixing head attractor

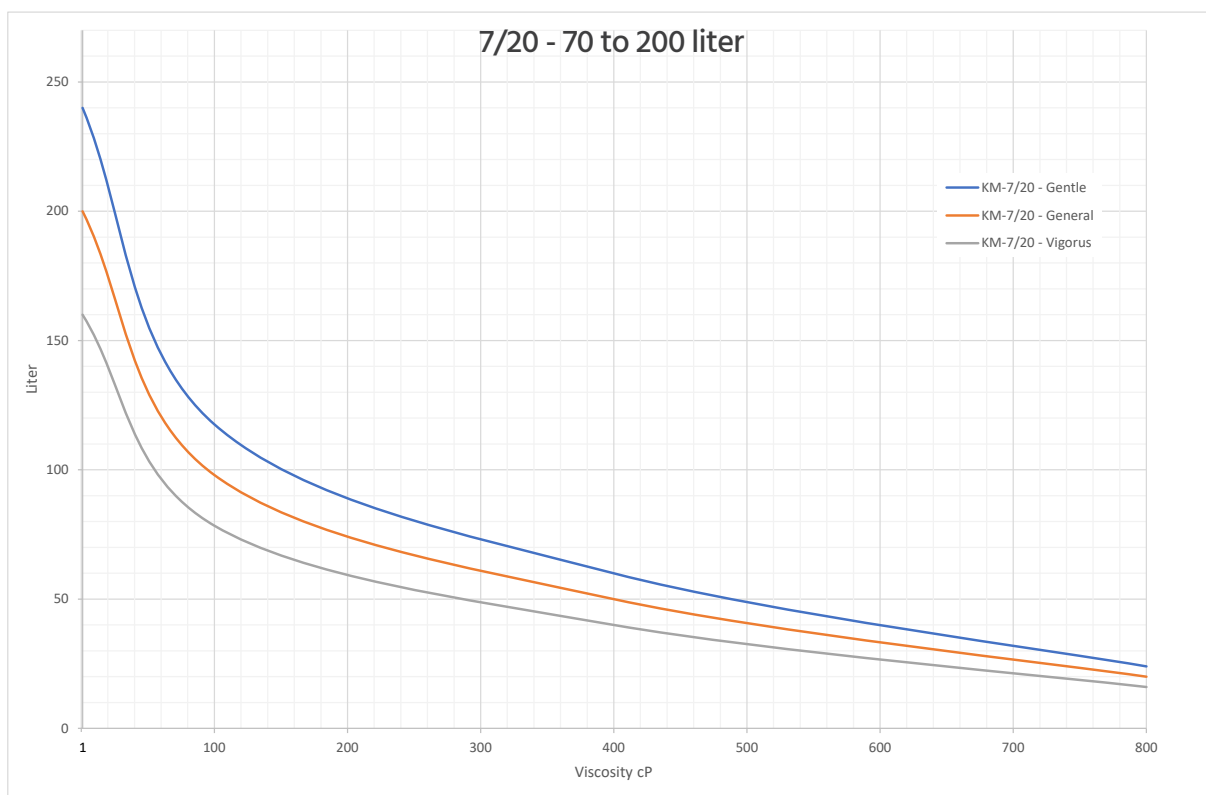
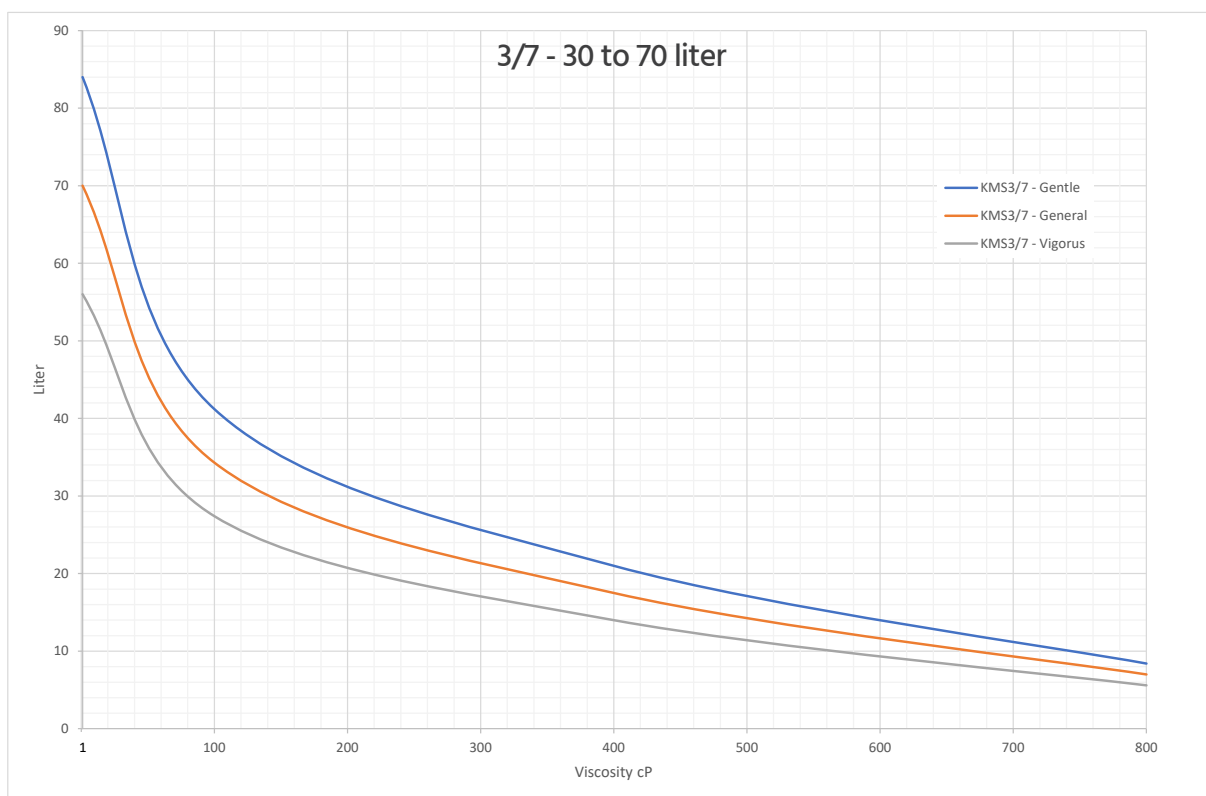
To keep the mixing head in place and protect the bearings while moving a mobile tank, it is important that the mixing head is secured inside. Normally when the drive unit is attached the mixing head is secured. If the drive unit needs to be detached during transportation a Mixing head attractor shall be used instead. The magnet on the mixing head attractor will keep the mixing head secured in place.

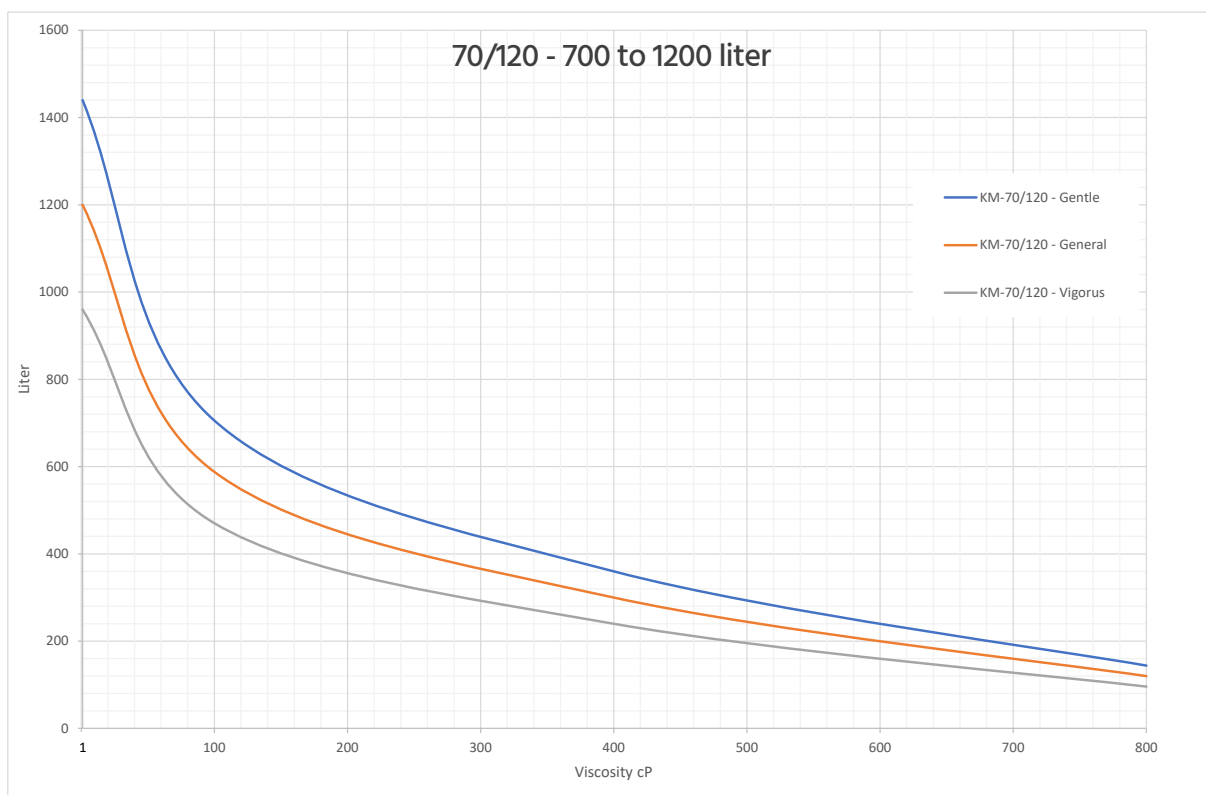
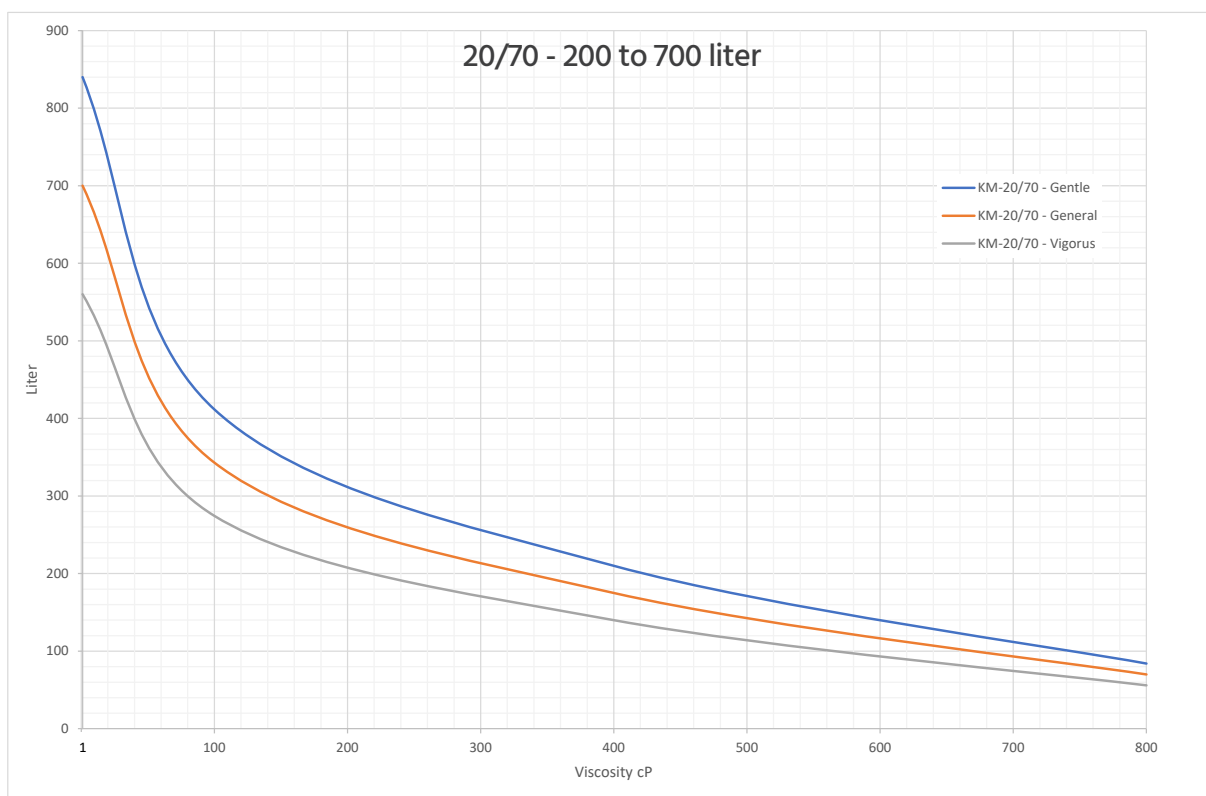


Selection guide

The mixer is selected after volume and desired mixing type 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. The characteristics of the General, Gentle and Vigorous mixing is subjective and built on experience. See example in the end of the selection guide on how to select correct mixer size.







Example:

You want to select a mixer that shall generate **General mixing**

The max mixing volume is 500 liters

The viscosity of the media is 100 cP.

Start with the mixer graph that has the correct range at 1 cP, KM20/70 has the range of 200 to 700 liter at 1 cP. Look at the graph at 100cP (on the horizontal axis) and follow it up to the orange line (General mixing) and read the value of the vertical axis to find out what the maximum mixing volume is at viscosity 100 cP.

In this case it is 340 Liter, go to the next size KM70/120 and check the maximum mixing volume in the same way. KM70/120 has the maximum mixing volume of 590 liter at 100 cp, this is enough for the application.

For this application you need the KM-70/120 mixer.

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

Gentle mixing and Vigorous mixing are variations of the General mixing, for support contact your local distributor or Kest.

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 an inhouse fully equipped test center. Do not hesitate to contact us with your mixing application.

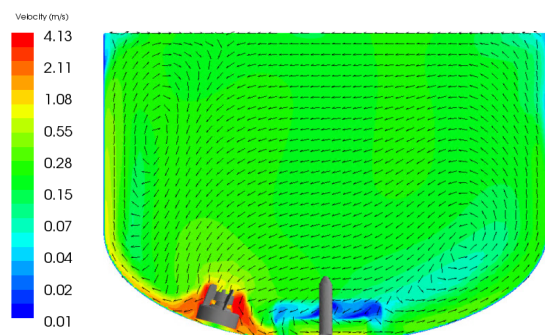
CFD analysis

Investing in a mixer is a critical decision—one that directly impacts product quality, process efficiency, and operational costs. That's why at Kest, we offer CFD analysis as a powerful tool to help you make the right choice before you commit. You're investing in confidence, clarity, and control.

Here's what CFD can do for you:

- **Visualize Flow Patterns:** See exactly how your product will behave inside the tank—before it's built. CFD reveals dead zones, vortex formation, and mixing efficiency in stunning detail.
- **Optimize Performance:** Tailor your mixer design to your specific fluid properties and process goals. CFD helps you fine-tune impeller type, placement, and speed for maximum effectiveness.

- **Save Time and Money:** Avoid costly trial-and-error setups. CFD reduces the need for physical prototypes and minimizes the risk of underperforming equipment.
- **Ensure Scale-Up Success:** Confidently scale from lab to production. CFD helps predict how mixing will change with volume, so you can plan ahead with precision.
- **Support Sustainability Goals:** CFD can identify energy-saving opportunities by optimizing mixing dynamics, helping you reduce power consumption and environmental impact.



Kest Mixer ProFlow (KMPF), Ref.No list

SIZE	MIXING HEAD	MALE POST	TANK PLATE	DRIVE UNIT	MULTICABLE*
0/05	103274	100562	103275	103276	101290
0/3	102440	100562	100383	102691	101290
3/7	102441	100562	100625	102692	101290
7/20	102442	101530	100647	102693	101290
20/70	102443	100415	100396	102673	102694
70/120	102444	100415	102629	102674	102694

*The multicable article is setup as 1 meter (3.3 ft), when ordering you specify the length of the cable you need by adding articles. If you order 3 articles you will get a 3 meter cable. For the 20/70 and the 70/120 the cable length specified is between the motor and the power and logic box. If you don't specify anything your mixer will be shipped with the standard cable length, see drive unit specification.

Kest Mixer ProFlow (KMPF), options - Ref.No list

SIZE	POWER & LOGIC BOX 110-230V AC	CONTROL CABINET	WELDING TOOL	MIXING HEAD ATTRACTOR	MULTI TOOL	MALE BEARING TOOL
0/05	-	100669	103277	103360	-	100704
0/3	-	100669	100446	101620	101006	100704
3/7	-	100669	100923	100572	101006	100704
7/20	-	102373	100802	101436	101342	102422
20/70	102971	102904	100802	100571	100655	102423
70/120	102971	102904	100780	-	100655	102423

