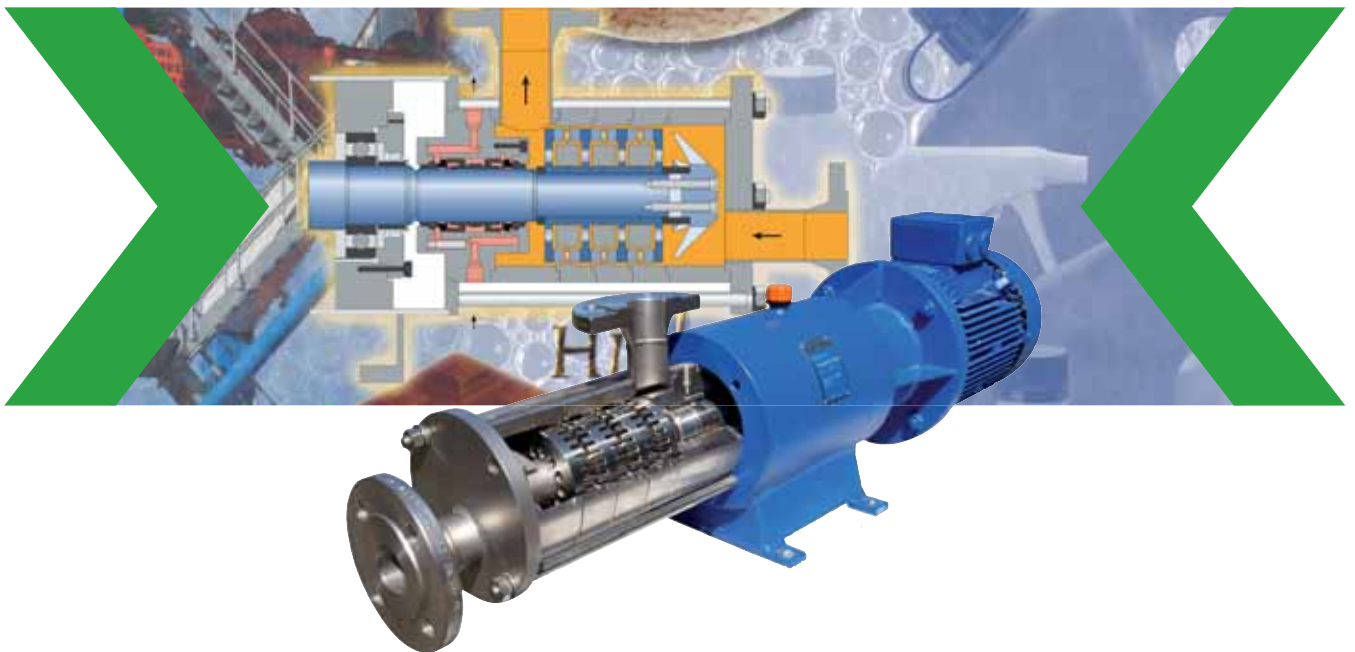


PENTAX

Multi-Frequency Fluid Mixers



Mix up your process !

PENTAX - for intensive mixing

Bran+Luebbe offers a wide variety of solutions to solve specific mixing problems. The range offers static and/or dynamic in-line mixers depending on the application.

The dynamic in-line mixer described in the following offer a brilliant performance in difficult processes. According to the process needs it can easily adopted in capacity, mixing result and auxiliary equipment.



Applications

- **Chemicals and plastics**
 - Dispersing hardeners, accelerators and colorants into resins.
 - Continuous cross-linking of PVA solutions.
 - Production of anionic and cationic bitumen emulsions.
 - Continuous molten resin saponification.
 - Wax and paraffin emulsion preparation.
 - Dispersing propellant in foams.
 - **Food**
 - Continuous production of mayonnaise.
 - Fine dispersion of additives in cocoa and chocolate.
 - Soya milk drink production.
 - Dispersion of citric acid in vegetable oil.
 - Homogenization of nut-nougat sandwich spread.
 - Preparation of beaten egg-white/sugar foam mixtures.
 - **Cosmetics and detergents**
 - Continuous manufacture of creams and emulsions.
 - Alkaline neutralization of fatty and sulphonic acids.
 - **Fibres and textiles**
 - Dyeing and delustering for semi- and fully synthetic spinning solutions.
 - Homogenization for viscose solutions.
 - Production of lubricant emulsions.
 - Continuous starch gelatinization.
- Dilution of molten alkane sulphonate.
Elimination of viscosity anomalies in alkyl ether sulphate dilutions.
Continuous shampoo and dish-washing liquid production.

Design and construction

The multi-frequency liquid mixer comprises a series of opposed rotors and stators on a common axis. The rotors are fitted with milled teeth for low viscosity applications and with round studs for use with viscous fluids.

Inside the PENTAX mixer, constantly changing areas of rapid flow and resistance subject

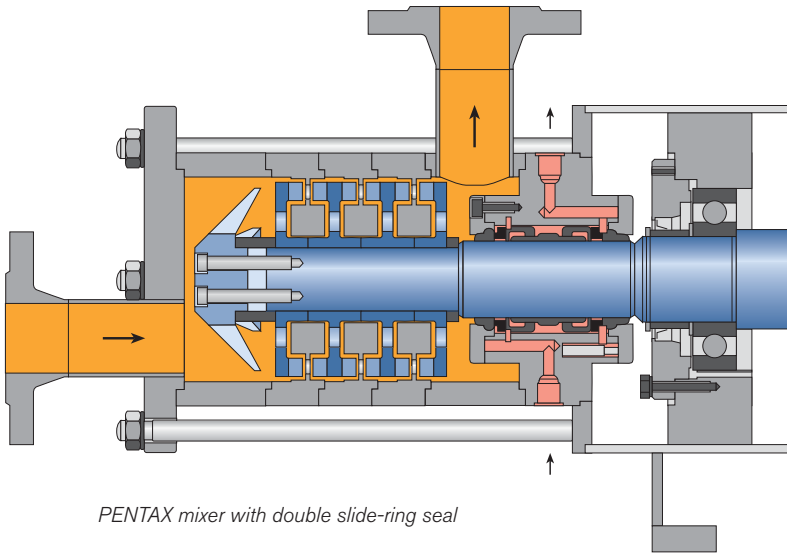
the liquid to high frequency acceleration and deceleration.

The resulting high energy shear forces result in effective dispersion and emulsification.

A pre-mixing chamber is located at the entrance to the mixer. When one or more components are fed in by non-synchronous piston or diaphragm pumps, this chamber

accommodates the discharge volume of several pump strokes and thereby equalizes any differences in concentration before the liquids enter the main mixing area

PENTAX Standard KMF

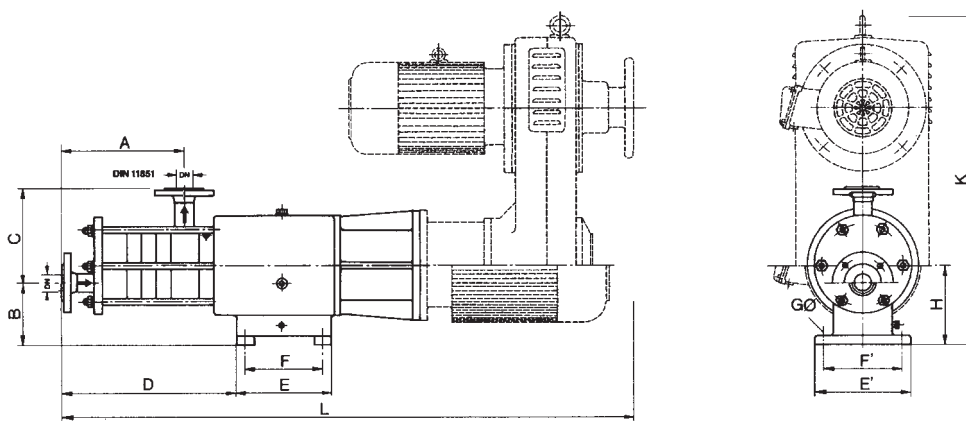


Advantages

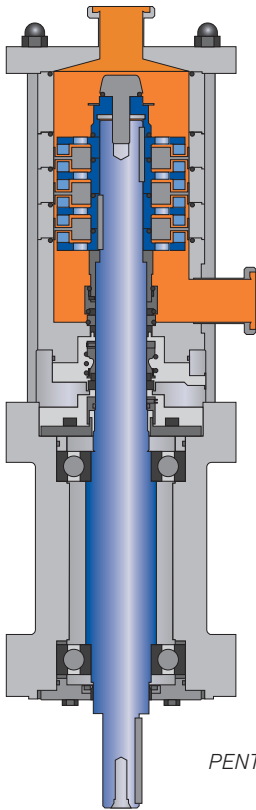
- Extremely fine droplet size and material distribution
- Low space requirement
- High shearing action and phase boundary area
- Rapid reaction rate for neutralization and other reactions
- Effective material exchange for reactions involving gases

Connections and dimensions

Type	Connection	Dimensions (mm) approx. dimensions										
		DN	A	B	C	D	E x E'	F x F'	G	H	K	L
KMF 8	25	230	92	128	298	190x180	165x155	13	110	600	1015	
KMF 15	40	303	116	166	383	200x240	170x210	14	142	630	1235	
KMF 30	50	334	170	255	477	260x265	210x215	19	215	900	1600	
KMF 70	80	389	172	303	488	470x380	420x330	19	245	-	1700	
KMF 120	100	445	165	310	657	500x400	440x350	24	260	-	2100	
KMF 250	100	470	210	385	593	410x450	350x400	24	315	-	2400	
KMF 300	150	400	333	437	707	750x610	684x560	24	333	-	2500	



PENTAX Hygienic SMD



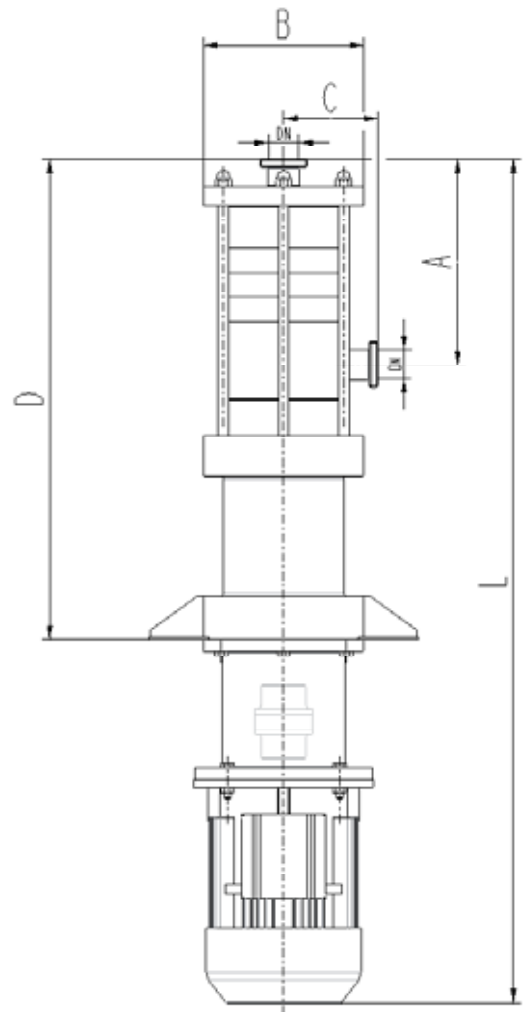
PENTAX mixer with single slide-ring seal

Advantages

- EHEDG - Certificate
- Hygienic mechanical seal
- Components gasketed with O-rings only
- Vertical execution for total emptying prior to cleaning
- Design is without dead storage capacity
- Vertical design allows easy and fast disassembly and assembly
- Robust design; wide variety of materials available
- Reduced wear due to moderate RPM
- Low noise level

Connections and dimensions

Type	Connection		Dimensions (mm) approx. dimensions				
	DN	DN	A	B	C	D	L
SMD	15	40	286	170	137	644	1235
SMD	30	50	343	267	157	803	1618
SMD	70	80	419	338	222	936	1781
SMD	120	100	470	380	212,5	1070	1985



How to choose the right dynamic in-line PENTAX Mixer

Type	Connection DN		Throughput ¹⁾ l/h		Speed range min ⁻¹	Drive power kW		Rotor diameter d _a mm
KMF	8	25	40	- 800	500/4500	2	- 4,0	72
KMF/SMD	15	40	150	- 3000	500/4000	2	- 9,5	94
KMF/SMD	30	50	400	- 6000	350/2800	4	- 18,5	149
KMF/SMD	70	80	900	- 12000	250/1450	5	- 22	236
KMF/SMD	120	100	1500	- 18000	200/ 950	15	- 30	256
KMF	250	100	2500	- 30000	150/ 750	15	- 30	317
KMF	300	150	4000	- 50000	100/ 450	22	- 45	515

¹⁾ For special applications higher throughputs may be acceptable.

The table above indicates the relationship between throughput, drive power and rotation speed. Low viscosity applications require high throughput and rotation speed with a low power rating; high viscosity applications require the opposite.

As many products exhibit non-Newtonian flow characteristics, it is not normally possible to determine the effective viscosity within the mixer; in these cases test runs in our pilot plant are required.

PENTAX mixers can be supplied with fixed gearing via a directly coupled motor, or with variable speed drives.

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