

Nikuni Micro-Bubble Generator



KTM Karyu Turbo Mixer

Nikuni has developed a unique and compact Micro-Bubble Generator - the KTM - that creates pressurized air-enriched whitewater with highly reliable performance, insuring excellent stability in processes and systems such as DAF units in water treatment plants.

Features :

1. Three Functions in One Pump

- The KTM simultaneously draws in air and water, dissolves air with its turbine impeller, and pumps pressurized water to the flotation tank or other process

2. Highly Efficient Air-water Dissolution

- Precision turbine pump technology and a unique design make possible extremely high levels of efficiency in dissolving air into water

3. Simplified DAF Operation and Stable Pump Performance

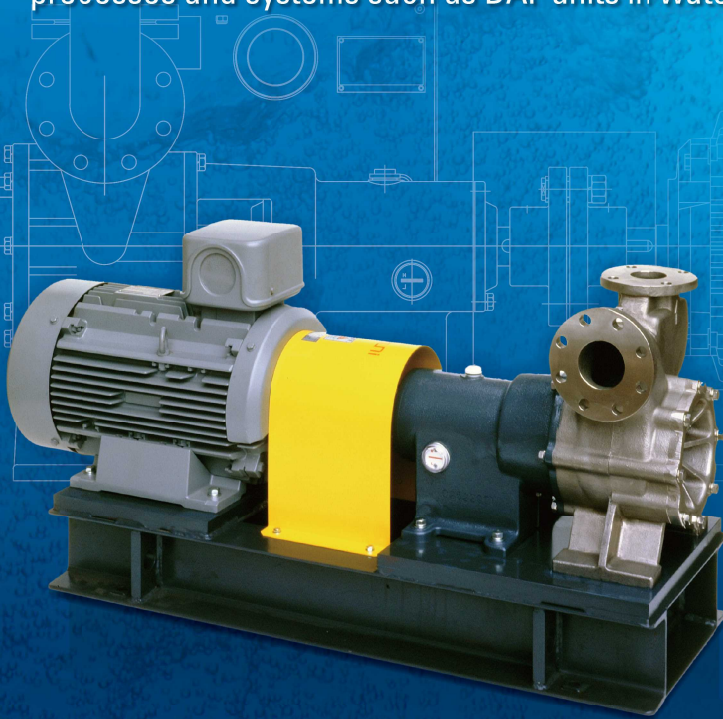
- The multifunctional KTM eliminates the need for ancillary equipment such as air compressors, large saturation tanks with difficult level control, and truly simplifies DAF systems and their operation

4. Compact and Small Footprint

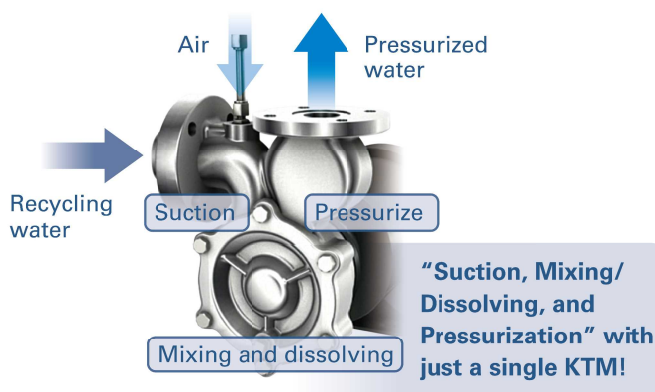
- Easily retrofit or upgrade existing DAF systems

5. Minimal Power Consumption and Maintenance cost

- Highly efficient process with small pump and motor, no compressor power required, while the simple and robust structure of the KTM minimizes maintenance cost



Working Principle/Mechanism



Case Studies



Large scale DAF system



High density micro-bubble generation



KTM Installed in parallel system

Major applications for DAF

- Waste Water Treatment Plants for Food, Beverage, Dairy, Seafood, Poultry Processing, Laundries, Bakeries etc.
- Drinking Water Treatment Plant and Desalination Plant
- Municipal Waste Water Plant and Power Station
- Automotive and Chemical Plant
- Petroleum or Oil & Gas Plant
- Paper Mill or Textile Industries

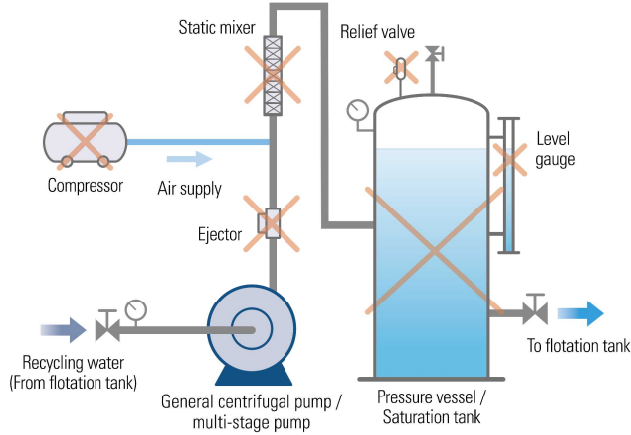
Performance Table

Model	50Hz Frequency				60Hz Frequency			
	Water Flow Rate		Air Flow Rate	Required Motor Power	Water Flow Rate		Air Flow Rate	Required Motor Power
	L / min	m ³ / h	NL / min (Range)*		L / min	m ³ / h	NL / min (Range)*	
KTM20F/N	17	1.0	1.3 (0 to 5)	0.75kW / 2P	22	1.3	1.7 (0 to 5)	0.75kW / 2P
KTM25F/N	25	1.5	2.0 (0 to 5)	1.5kW / 2P	42	2.5	3.3 (0 to 5)	1.5kW / 2P
KTM32F/N	50	3.0	4.0 (0 to 10)	2.2kW / 2P	67	4.0	5.3 (0 to 10)	2.2kW / 2P
KTM40F/N	80	4.8	6.4 (0 to 20)	3.7kW / 2P	117	7.0	9.3 (0 to 20)	3.7kW / 2P
KTM50F1/S1	133	8.0	11.0 (0 to 20)	5.5kW / 4P	192	11.5	15.0 (0 to 30)	7.5kW / 4P
KTM50F2/S2	200	12.0	16.0 (0 to 20)	7.5kW / 4P	250	15.0	20.0 (0 to 40)	11kW / 4P
KTM50F3/S3	250	15.0	20.0 (0 to 30)	11kW / 4P	300	18.0	24.0 (0 to 40)	15kW / 4P
KTM65F2/S2	333	20.0	27.0 (0 to 40)	15kW / 4P	467	28.0	37.0 (0 to 60)	18.5kW / 4P
KTM80F/S	700	42.0	56.0 (0 to 80)	22kW / 4P	967	58.0	77.0 (0 to 100)	30kW / 4P

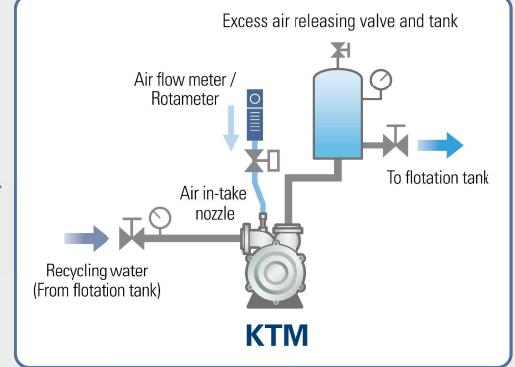
*Values in brackets show the recommended range of the air flow meter

Quick Comparison: Conventional System vs KTM for DAF System

Conventional system



KTM

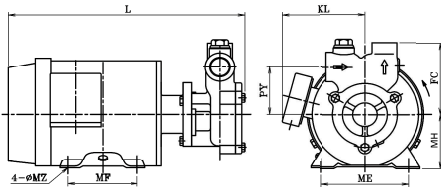


Advantages of KTM

- Eliminate Compressor/Ejector, Static Mixer and Saturation Vessel
- Easily retrofit to existing systems
- Improve performance of entire DAF system
- Easy operation & maintenance due to simple structure of KTM
- Save space with small footprint & compact size

Dimensions

Models: KTM20N(D) to KTM40N(D)

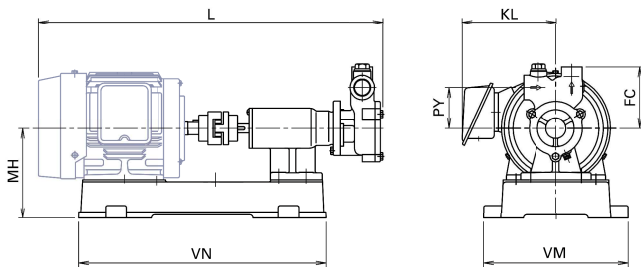


(units: mm, kg)

Model	kW	PY	FC	MH	L	ME	MF	KL	Weight
KTM20N(D)	0.56	63	95	71	304	112	90	107	12
KTM20N(D)	0.975	63	95	80	325	125	100	146	18
KTM25N(D)	0.975	70	105	80	331	125	100	146	22
KTM25N(D)	1.95	70	105	90	361	140	125	156	26
KTM32N(D)	1.95	80	120	90	366	140	125	156	27
KTM40N(D)	2.42	85	130	90	405	140	125	156	32

Note: Dimensions for FD series are slightly different with above values. Please consult with our sales for the detail.

Models: KTM20F/N to KTM40F/N

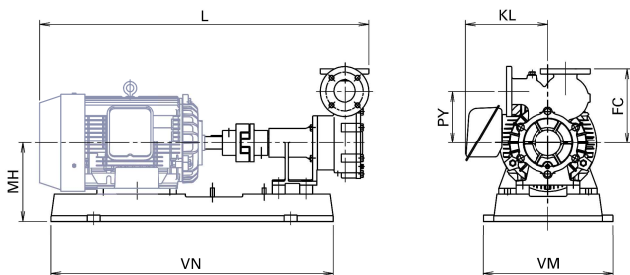


(units: mm, kg)

Model	kW	PY	FC	MH	L	KL	VM	VN	Weight
KTM20F/N	0.75	63	95	140	533	146	225	385	17
KTM25F/N	1.5	70	105	150	587	147	240	430	20
KTM32F/N	2.2	80	120	150	597.5	147	240	430	21
KTM40F/N	3.7	85	130	180	692	154	310	616	30

Note: The motor weights are not included. The motors shall be prepared by purchasers. Note: KL & L dimensions shown for reference only, will vary depending on actual motor size.

Models: KTM50F1/S1 to KTM80F/S



(units: mm, kg)

Model	kW	PY	FC	MH	L	KL	VM	VN	Weight
KTM50F1/S1	5.5	160	230	204	836	189	352	690	90
	7.5	160	230	204	874	189	352	690	90
KTM50F2/S2 KTM50F3/S3	7.5	170	240	204	874	189	352	690	110
	11	170	240	245	1027.5	257.5	404	878	120
	15	170	240	245	1027.5	257.5	404	878	130
KTM65F2/S2	15	190	240	300	1276.5	256	512	1285	240
	18.5	190	240	300	1353	335	512	1285	250
KTM80F/S	22	180	280	300	1356	279	512	1285	300
	30	180	280	360	1429	314	430	1250	300

Note: The motor weights are not included. The motors shall be prepared by purchasers. Note: KL & L dimensions shown for reference only, will vary depending on actual motor size.

Required & Recommended Accessories

Air flow meter
Refer to performance table on page 3 for selection

Solenoid valve
To prevent backflow
Settings:
Pump start OPEN
Pump stop CLOSE

Compound gauge
Range: -0.1 MPa / -1 bar / -15 psi to 0.25 MPa / 2.5bar / 35 psi
See note below for adjustment

Excess air separation tank
See table below for recommended tank size

Pressure gauge
Range: 0 MPa / 0 bar / 0 psi to 1.0 MPa / 10 bar / 150 psi

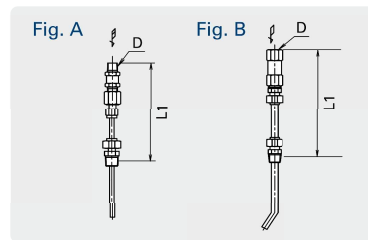
Air-intake nozzle
Supplied as optional accessory upon request

Note: slightly close suction valve to create vacuum (negative pressure) in suction line during operation
Optimal pressure is -0.02 MPa / -0.2 bar / -2.9 psi

Size of Air-intake Nozzle

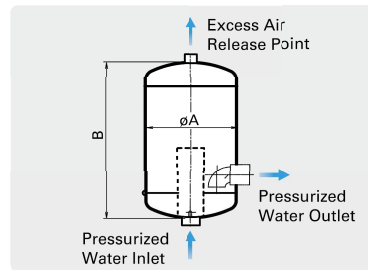
(units: mm)

Model	Drawing	Length (L1)	Dia.(D)
KTM20F/N	Fig. A	121	R1/4B
KTM25F/N		121	R1/4B
KTM32F/N		121	R1/4B
KTM40F/N		121	R1/4B
KTM50F1/S1 to KTM50F3/S3		129	R1/4B
KTM65S2/F2	Fig. B	183	Rc3/8
KTM80S/F		193	Rc3/8



Recommended Size of Separation Tank

Model	A (mm)	B (mm)	Capacity (Liter)
KTM20F/N	115	230	2
KTM25F/N	165	300	4
KTM32F/N	215	320	8
KTM40F/N	270	420	20
KTM50S/F1	320	800	60
KTM50F2/S2, KTM50F3/S3	460	900	140
KTM65S2/F2	580	1200	300
KTM80S/F	730	1400	500



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