Nikuni KTM Series Pumps

(Micro Bubble Generator for DAF System)

Client :
Project :
Model : KTM40N-000 (SS304 Material)

Date :
Doc. No. :
Revision No. :

Japan Headquarters :
843-5, Kuji, Takatsu-Ku, Kawasaki-Shi,
Kanagawa, Japan Post-code 213-0032
URL : http://www.nikuni.co.jp

Phone: +81-44-833-6500 (English)
+81-44-833-1121 (Japanese)
Fax : +81-44-833-6482

MAIN OFFFICE :
843-5 KUJI, TAKATU-KU, KAWASAKI, KANAGAWA, JAPAN 2130032
TEL : +81(0)-44-833-6500 FAX: +81(0)44-833-6482

NIKUNI BUBBLE GENERATOR FOR DAF SYSTEM

NIKUNI KTM (DAF) PUMP DATA SHEET

Company				Date	
Project				Data sheet No.	
Service				Rev.	
Item No				PID No.	
No.Operating		No.Spare		Total Required	
Pump Model	KTM40N-000 (SS304 Material)				
Pump Type	Coupling Type (Base plate, Coupling set & Coupling guard only)				

PROCESS AND PERFORMANCE DATA

Conditions of Service, Each Pump

Fluid	Treated Water	Design Capacity (L/min / gpm)	/
Normal Capacity (L/min / m3/Hr)	80 / 4.8	Suction Press. (MPa / bar)	-0.03 / -0.3
Temperature (℃)		Disch. Press. (MPa / bar)	/
Specific Gravity (at P.T.)		Differential Press. (MPa / bar)	/
Viscosity (at P.T. MPa･s)		Total Head (m / bar)	30 or 40 / 3 or 4
Air Flow rate (NL/min / Nm3/Hr)	6.4 / 0.38	Differential Head (m / bar)	
NPSH Ava. (m)		NPSH Req. (m)	

Motor Driver

*Electric motor should be prepared by purchaser

Phase		Output (kW / HP)	3.7 kW / 5 HP	Frequency	50 Hz
Voltage		Pole	2	Speed	3000 min-1
Type					

* Original base plate will be fixed to IEC Motor frame size 112M .

Connection

(Suction.)	Size	40 A	Rating	Rc 1.1/2
(Discharge.)	Size	32 A	Rating	Rc 1.3/4

Materials (Wetted parts)

Casing	SCS13	Shaft	SUS304	Cover O-ring	PTFE
Impeller	SUS304	Side plate	N/A	Slinger	NBR
Cover	SCS13	Mechanical Seal	Sic - Sic , PTFE		

Painting

MUNSELL N3

Remarks

Accessory :

Air In-take nozzle.

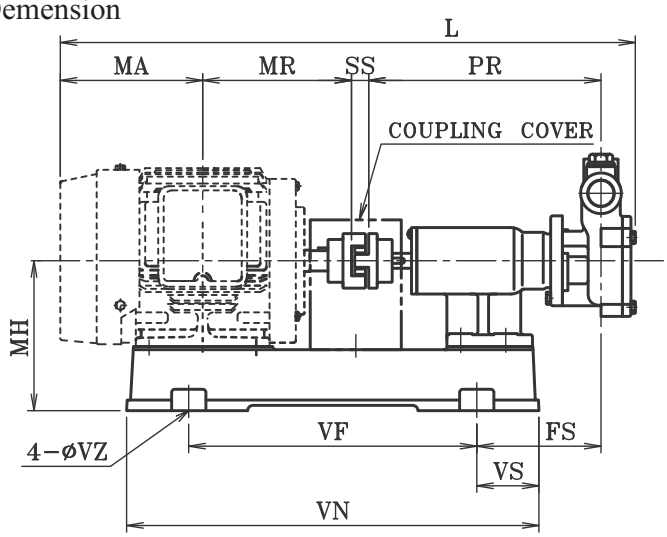
Please refer to attached recommendation of the air-parameter & guages ranges and other accessories.

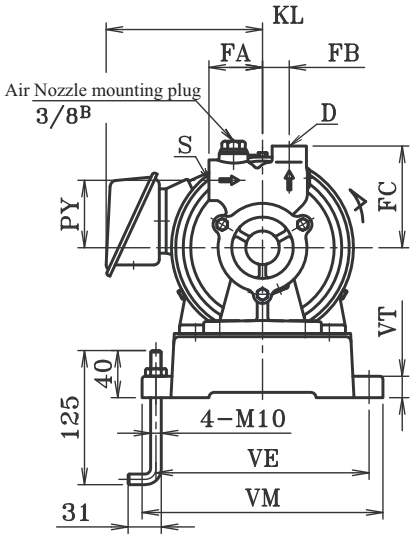
REV.	DATE	COMMENT	DESCRIPTION	DRAWN BY	CHECK BY	APPROVED BY

NIKUNI MODEL : KTM_N

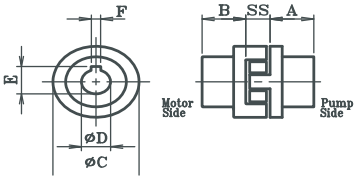
50Hz / 60Hz

Demension





Coupling Dimension for KTM_N / KTM_F



Coupling Dimensions

kw	A	B	C	D	E	F	SS
0.75	22	35	51	19	21.8	6	14
1.5, 2.2	36	53	71	24	27.3	8	18
3.7	36	53	71	28	31.3	8	18

Applicable motor frame size or original base-plate.

kW	IEC Frame
0.75	80M
1.5	90L
2.2	90L
3.7	112M

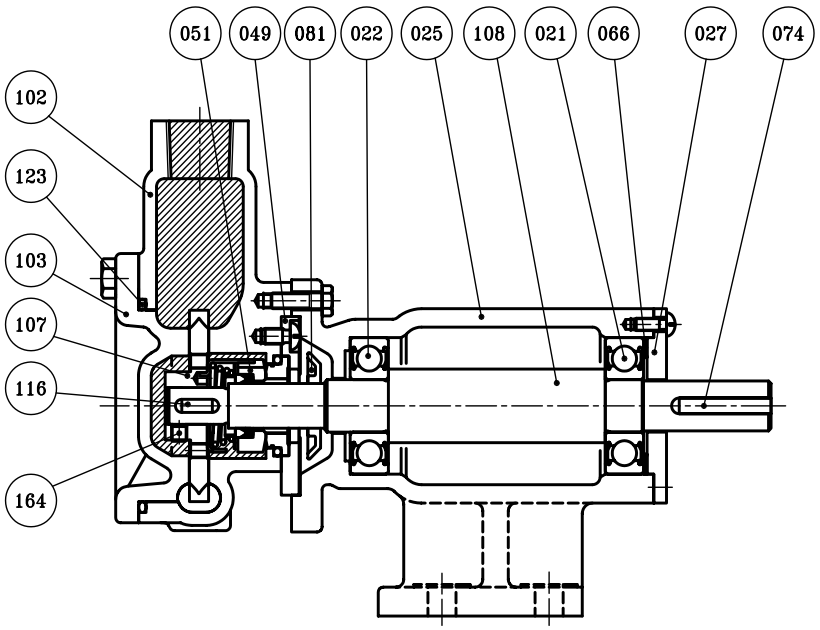
Demension & net weight

Unit : mm

Model	kw	HP	S	D	PR	PY	FA	FB	FS	FC	MH	L	MA	MR	SS	VE	VF	VM	VN	VS	VT	VZ	KL	Weight
KTM20N	0.75	1	Rc 3/4	Rc1/2	218	63	50	25	116	95	140	537	133	140	14	199	269	225	385	58	20	12	146	18
KTM25N	1.5	2	Rc1	Rc3/4	224	70	60	28	129	105	150	592	143	169	18	214	300	240	430	65	20	12	147	20
KTM32N	2.2	3	Rc1.1/4	Rc1	224	80	65	35	129	120	150	597.5	143	169	18	214	300	240	430	65	20	12	147	25
KTM40N	3.7	5	Rc 1.1/2	Rc1.1/4	238	85	70	40	82	130	180	692	186	200	18	280	425	310	616	96	25	12	154	30

*Approx. packing weight
(Motor weight not included)

Sectional Drawing



Materials

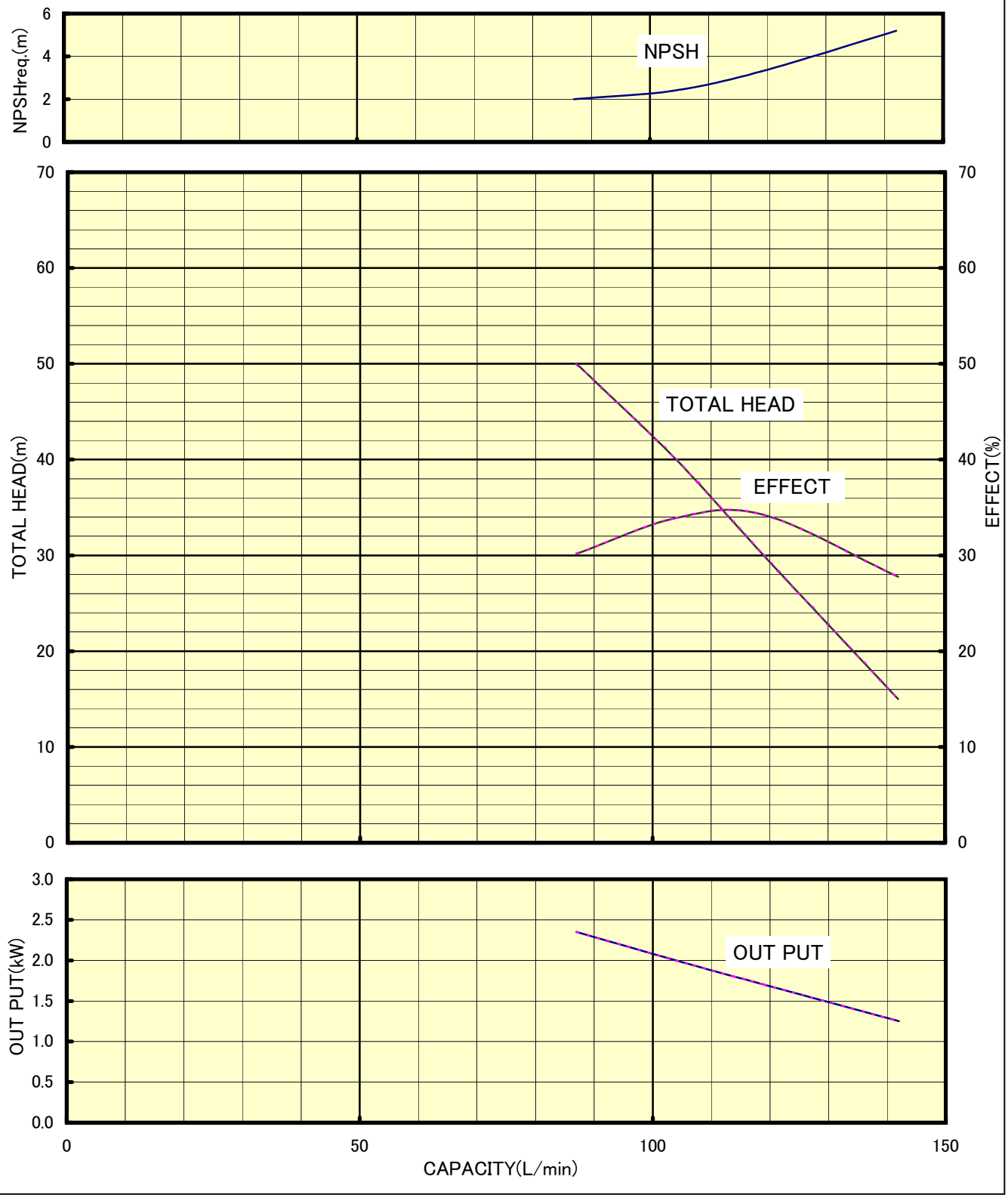
No.	NAME OF PARTS	SET	MATERIALS
021	Ball Bearing	1	SUJ
022	Ball Bearing	1	SUJ
025	Bracket	1	FC200
027	Bearing Gland	1	FC200
049	Mechanical Gland	1	SUS304
051	Mechanical Seal	1	SiC-SiC
074	Key	1	S45C
081	Slinger	1	NBR
102	Casing	1	SCS13
103	Cover	1	SCS13
107	Impeller	1	SUS304
108	Shaft	1	SUS304
116	Key	1	SUS316
123	O-Ring	1	PTFE
164	Set Screws	2	SUS304

NIKUNI

PUMP SUPPOSITION CURVE

50Hz

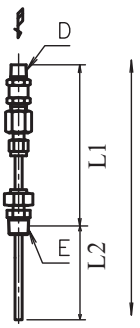
PUMP TYPE **KTM40N**



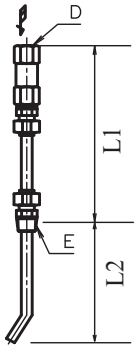
NIKUNI CO.,LTD.

Air Intake Nozzle (Included in every package)

How to connect the nozzle to Air Flow Meter (Air Intake Nozzle will be attached to every pump)



Standard Type

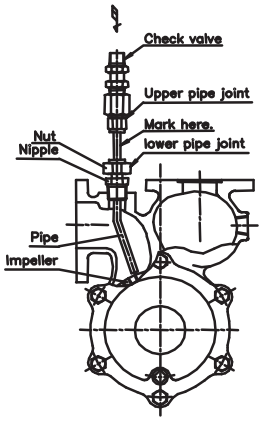


Large-scaled Tpye

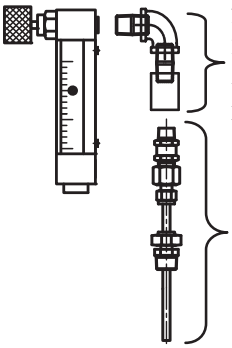
Applicalbe Model (Standard)	Dia. (E)	Length (L1)	Length (L2)	Length (L)	Dia. (D)
KTM15 (F)(N)(D)	R 3/8^{B}	121	73	157	R 1/4^{B}
KTM20 (F)(N)(D)	R 3/8^{B}	121	88	162	R 1/4^{B}
KTM25 (F)(N)(D)	R 3/8^{B}	121	97	167	R 1/4^{B}
KTM32 (F)(N)(D)	R 3/8^{B}	121	114	172	R 1/4^{B}
KTM40 (F)(N)(D)	R 3/8^{B}	121	120	177	R 1/4^{B}
KTM50 (F)(S)1,2,3	R 3/8^{B}	129	210	268	R 1/4^{B}

Applicable Model (Large-scaled Type)	Dia. (E)	Length (L1)	Length (L2)	Length (L)	Dia. (D)
KTM65S2 / F2	Rc 3/8	183	240	304	Rc 3/8
KTM80S / F	Rc 3/8	193	240	319	Rc 3/8

* In case of KTM80S / F model, connect “E” part with Bushing (3/4 x 3/8)



1) Loosen the nuts of the lower pipe joint to allow a nipple to freely move.
2) Mark the pipe bending direction on the pipe surface between the upper and lower pipe joints.
3) Wind a sealing tape around the lower pipe joint’s nipple of the suction nozzle, insert it into the nozzle junction of the pump, and turn the nipple to firmly fix it.
4) Turn the pipe to align the mark on the pipe surface so that the bend nose (gas discharge port) of the pipe will be directed to the center of the impeller.
5) Tighten the nuts of the lower pipe joint firmly. Make sure that the suction nozzle is not manually rotated.
6) Rotate the motor manually (rotate the shaft end of the motor with a screwdriver) to make sure that the pipe nose of the nozzle is not interfering with the impeller.

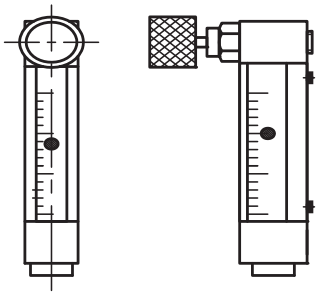


Noted :
Fitting connections & Air Flow meter should be prepared by purchaser

Air In-iake Nozzle will be attached to every pump

Recommended Accessories (To be prepared by Purchaser)

Air Parameter



Guages

Compound Guage
Minus 0.1 MPa to + 0.25MPa
Minus 1.0 Bar to + 2.5 Bar
Minus 15psi to + 35 psi

Pressure Guage
0 MPa to + 1.0MPa
0 Bar to + 10 Bar
0 psi to + 150 psi

Operation air flow rate & Air Parameter ranges

50Hz Frequency

Applicalbe Model (Standard)	Water Flow Rate m^3/Hr x 4Bar	Operation Air flow rate (N･L/min)	Air Flow Meter Range (N･L/min)
KTM20 (F)(N)(D)	1.0	1.3	0 to 5
KTM25 (F)(N)(D)	1.5	2.0	0 to 5
KTM32 (F)(N)(D)	3.0	4.0	0 to 10
KTM40 (F)(N)(D)	4.8	6.4	0 to 10
KTM50S1 / F1	8.0	10.6	0 to 20
KTM50S2 / F2	12.0	16.0	0 to 20
KTM50S3 / F3	15.0	20.0	0 to 30
KTM65S2 / F2	20.0	26.6	0 to 40
KTM80S / F	42.0	56.0	0 to 80

60Hz Frequency

Water Flow Rate m^3/Hr x 4Bar	Operation Air flow rate (N･L/min)	Air Flow Meter Range (N･L/min)
1.3	1.7	0 to 5
2.5	3.3	0 to 5
4.0	5.3	0 to 10
7.0	9.3	0 to 20
11.5	15.0	0 to 30
15.0	20.0	0 to 40
18.0	24.0	0 to 40
28.0	38.0	0 to 60
58.0	78.0	0 to 100

Excess Air Device / Separation Tank

The KTM Series pump user manual must be fully read and understood before operating the pump. Failure to do so may result in death, serious injury, or property damage. This page is intended for a basic understanding of the KTM startup operation and is not a substitute for the user manual.

PRE-OPERATION CHECK (POWER OFF)

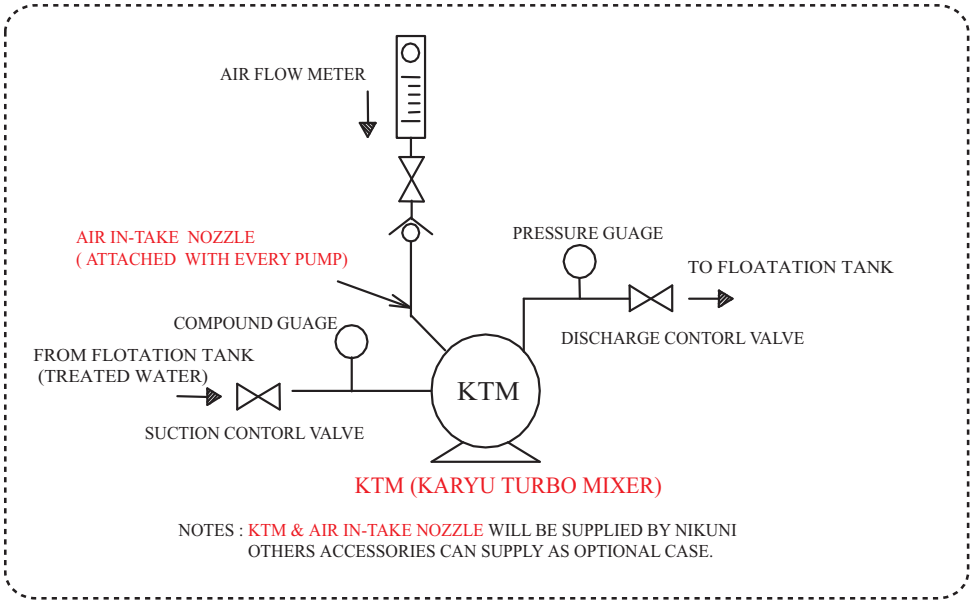
1) Prime KTM with effluent or water
2) Fully open Suction valve and Discharge valve. Do not run KTM with these valves closed.

STARTING THE KTM

1) Discharge side adjustments:
   Slowly tighten the Discharge valve until the discharge pressure falls within the desired range of 0.3MPa to 0.4Mpa (approximately 3 bar to 4 bar) with reference to the Pressure gauge.
   In the case where the Discharge valve (or KTM) is located far from the flotation tank, bubbles will tend to grow larger. In order to maintain microbubble size, an additional control valve should be installed on the flotation tank side to control the discharge pressure.

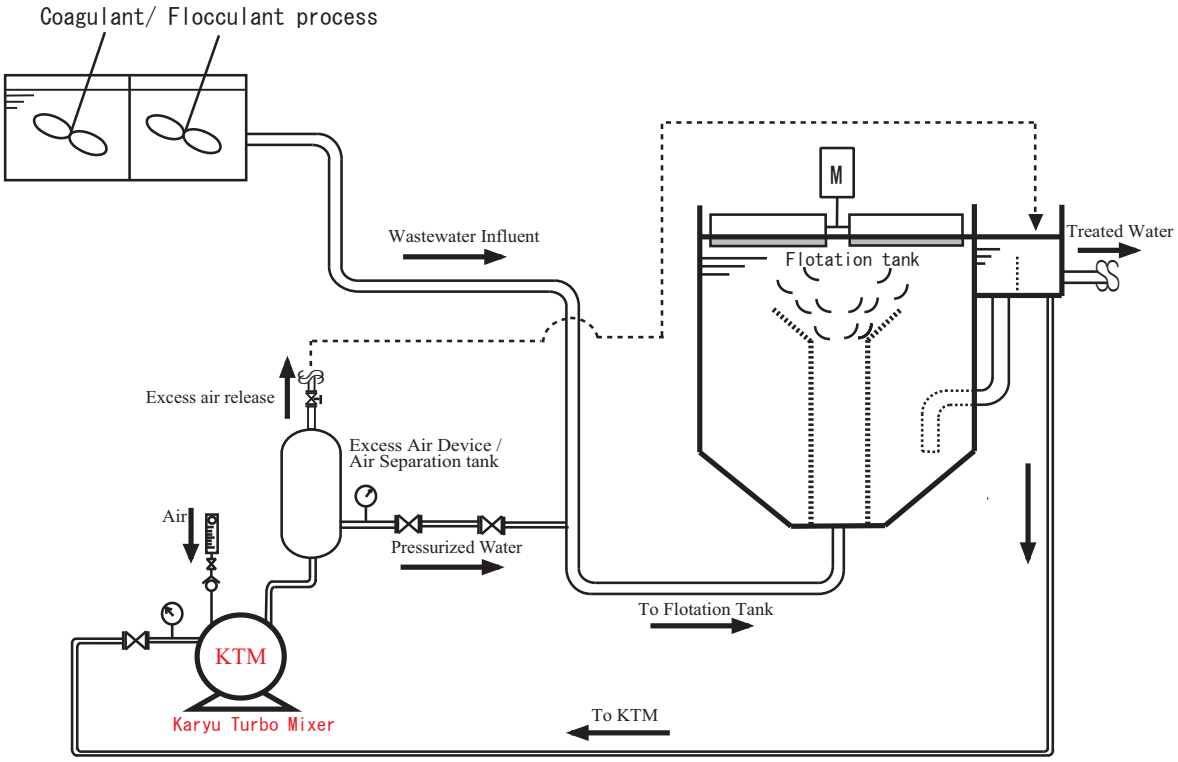
2) Suction side adjustments:
   Check to see if the Compound gauge indicates a negative suction pressure between the range of -0.02MPa to -0.03MPa (approximately -0.2 bar to -0.3 bar). If the pressure is higher than this range, slightly tighten the Suction valve to bring the pressure into the range stated above.

3) Air injection adjustments:
   Open the knob of Air-Parameter (Air flow meter) and adjust to an air flow rate that is 8% of the water flow rate.

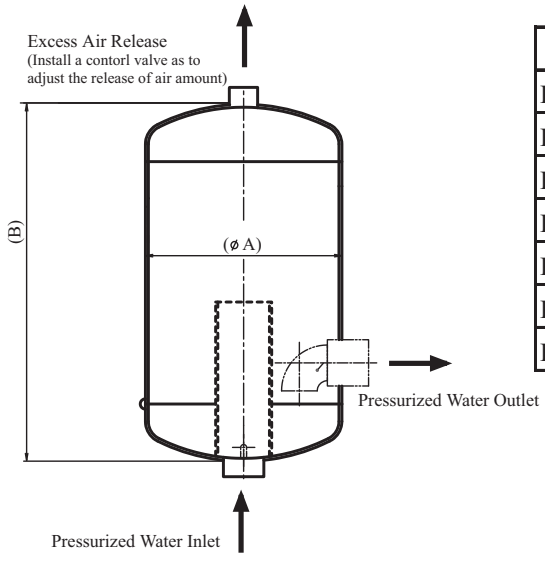


In case of mini bubbles occur and effect to flotation process,
please consider installing Excess Air Device / Separation Tank as shown in next page.

Reference P&ID for DAF System



Recommended Separation Tank Capacity



Model	A (mm)	B (mm)	Capacity (Liter)
KTM20N(F)(D)	100	260	2
KTM25N(F)(D)	120	350	4
KTM32N(F)(D)	260	400	20
KTM40N(F)(D)	260	400	20
KTM50S(F)1,S(F)2,S(F)3	300	850	60
KTM65S(F)2	450	900	140
KTM80S(F)	450	900	140