



TE Series Eductor Mixing Nozzle

DESIGN FEATURES

- Effective, economical way to circulate liquids in closed or open tanks
- No moving parts
- Non clog
- No maintenance
- Ventury multiplying effect

SPRAY CHARACTERISTICS

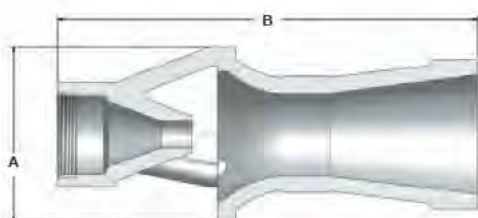
- Cone-shaped plume
- Flow rates: 26.7 to 12000 l/min
- The volume of discharge liquid will be 3-5 times greater than the motive liquid pumped



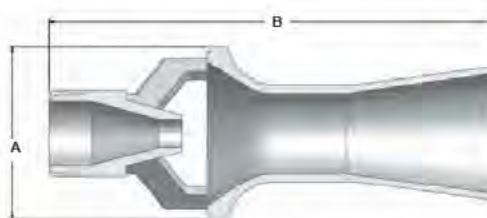
Plastic



Stainless steel



Metal



Plastic

POLYPROPYLENE MOULDED PLASTIC

Connection Size	BSP	Part Number	K Factor	LITERS PER MINUTE @ BAR								Dimensions (mm.)	
				0.7 BAR	1 BAR	1.5 BAR	2 BAR	2.5 BAR	3 BAR	3.5 BAR		A	B
Male	3/8	TE73	33.2	Motive 27.8 Discharge 139	33.2 166	40.7 204	47 235	52.5 263	57.6 288	62.2 311		54	114
	1/2	TE120	54.3	Motive 45.4 Discharge 227	54.3 272	66.5 333	76.7 384	85.8 429	94 470	101 508		64	140
	3/4	TE137	62.4	Motive 52.2 Discharge 261	62.4 312	76.4 382	88.2 441	98.6 493	108 540	117 585		73	162
	1	TE240	109	Motive 90.8 Discharge 454	108 543	133 665	153 768	172 858	188 940	203 1015		89	191
	1 1/2	TE340	155	Motive 130 Discharge 649	155 775	190 950	219 1095	245 1225	269 1345	290 1450		114	248

Material: Glass-Filled Polypropylene.

METAL

Connection Size	NPT or BSP	Part Number	K Factor	LITERS PER MINUTE @ BAR								Dimensions (mm)	
				0.7 BAR	1.5 BAR	2 BAR	2.5 BAR	3 BAR	5 BAR	7 BAR		A	B
Male	3/8	TE70	31.9	Motive 26.7 Discharge 107	31.9 128	39.1 156	45.1 180	55.3 221	71.4 286	84.4 338		44	114
	1/2	TE110	50.1	Motive 41.9 Discharge 168	50.1 200	61.3 245	70.8 283	87 348	112 448	132 528		51	127
	3/4	TE150	68.4	Motive 57.2 Discharge 229	68.4 274	83.7 335	96.7 387	118 472	153 612	181 724		57	152
	1	TE230	105	Motive 87.7 Discharge 351	105 419	128 514	148 593	182 728	234 936	277 1108		70	165
Female	1 1/2	TE320	146	Motive 122 Discharge 488	146 584	179 716	206 824	253 1010	326 1300	386 1540		76	184
	2	TE620	282	Motive 236 Discharge 944	282 1130	345 1380	399 1600	489 1960	631 2520	746 2990		108	286
	3	TE1500	684	Motive 572 Discharge 2290	684 2740	837 3350	967 3970	1180 4740	1530 6120	1810 7240		165	492
	4	TE2510	1130	Motive 950 Discharge 3800	1130 4540	1390 5560	1610 6420	1970 7870	2540 10200	3000 12000		213	864
150# Flange (PN6)	6	TE6010	2720	Motive 2270 Discharge 9100	2720 10900	3330 13300	3840 15400	4710 18800	6080 24300	7190 28800		321	1321
	8	TE10050	4550	Motive 3800 Discharge 15200	4550 18200	5570 22300	6430 25700	7870 31500	10200 40700	12000 48000		416	1727

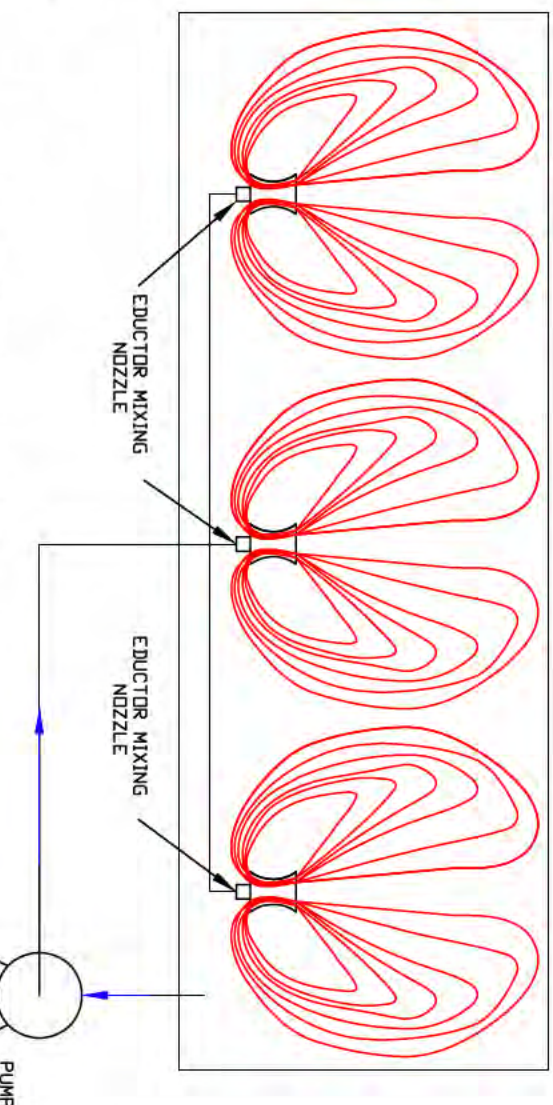
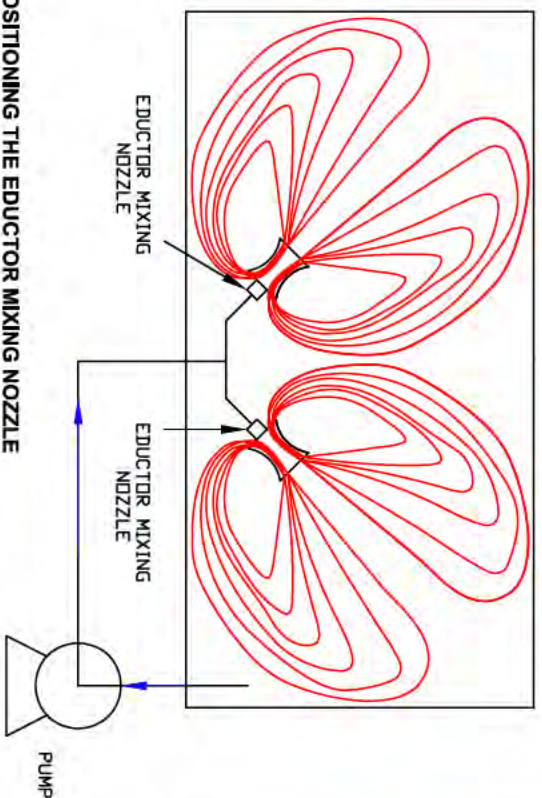
Motive Flow Rate (LPM) = $K \sqrt{\text{BAR}}$

Material: 316 Stainless Steel

END VIEW

SQUARE AND RECTANGULAR TANK

SIDE VIEW



POSITIONING THE EDUCTOR MIXING NOZZLE

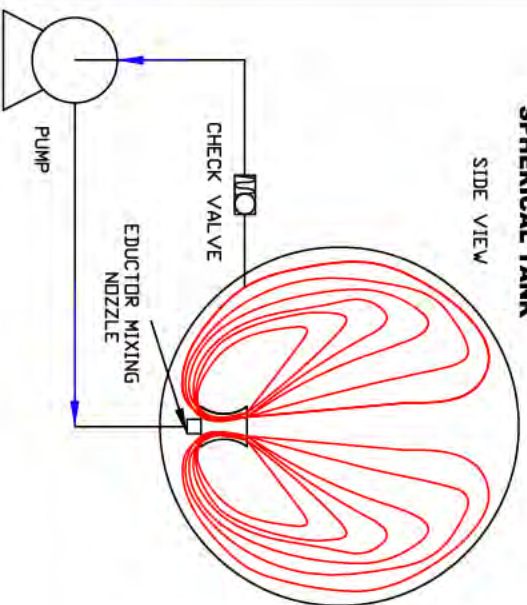
To agitate the liquid, position the Nozzle at the bottom of one side of the tank and direct the plume upwards towards the opposite side of the tank, aiming at the highest likely liquid level. To sweep solids along the tank bottom, direct the nozzle plume downwards at a 20 degrees angle towards the pump inlet.

TO DETERMINE AGITATION THROW

The Nozzle plume is cone shaped, diverging at an angle of approximately 11 degrees. To determine the approximate length of the discharge, multiply the pressure drop across the Eductor Nozzle in PSI times 1 foot.

SPHERICAL TANK

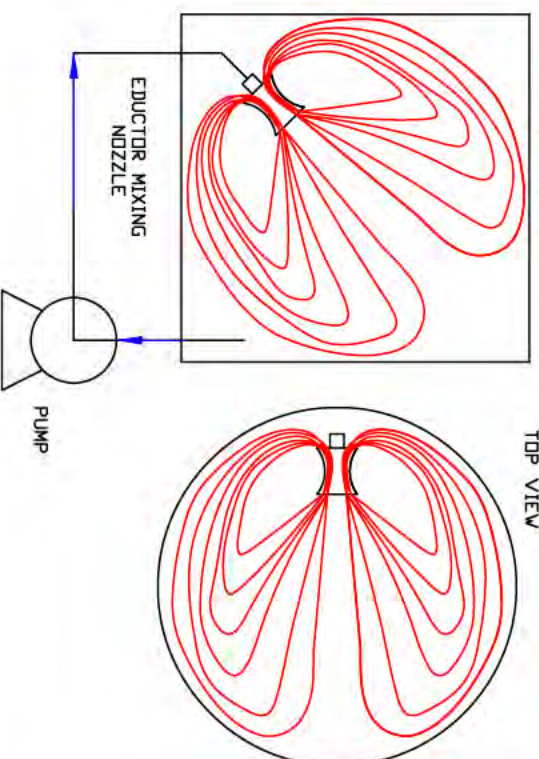
SIDE VIEW



CYLINDRICAL TANK

SIDE VIEW

TOP VIEW



0	21/04/08	FOR APPROVAL	VN	ET
REV DATE	DESCRIPTION	CHECK	APPROVE	

WILSON ENGINEERING (S) PTE LTD

CUSTOMER : 1092 C/JD JACK UP

PROJECT : 1092 C/JD JACK UP

MODEL : EDUCTOR MIXING NOZZLE

DRAWING TITLE : PLAN AND ELEVATION VIEWS

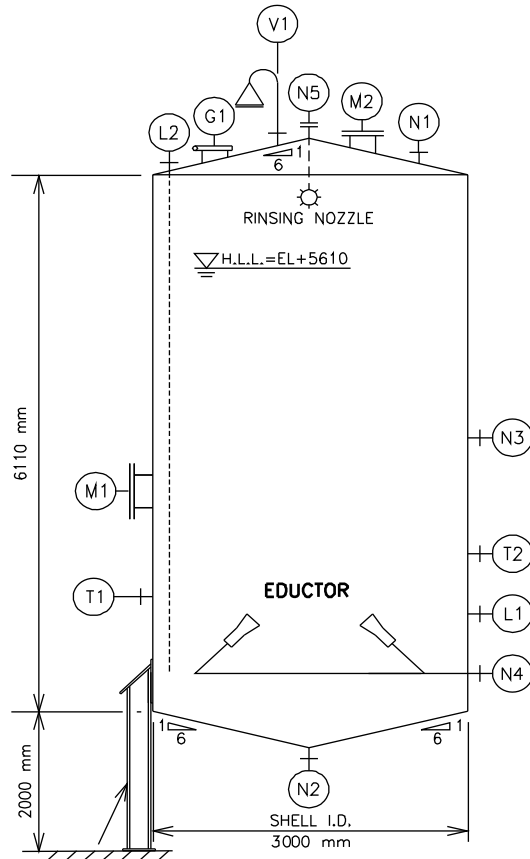
PD REF : DOC. NO :

SHEET 1 OF 1 DWG NO : TM1 REV 0



EDUCTOR CALCULATION

SAMPLE EDUCTOR CALCULATION



A hydraulic oil (S.G. = 1.21), preheat tank is 6.1m high and 3.0m in diameter (Approx. 44,420 Liter).
Pump flow 40m³/hr at 5 bar

1) The pressure differential (dp) is the static pressure in the tank.

Static gauge pressure to overcome at 6m depth
: density x gravitational force x ht. of tank
: 1046 x 9.81 x 6 = 61,570 Pa = 0.6 bar

Absolute pressure at 6m : 1 Atm + 0.6 bar = 1.6 bar

Effective Pressure discharge in the bottom of the tank
= pump pressure - Ab. static pressure

Motive pressure = 5 - 1.6 = 3.4 bar

2) Pump flow : 40 m³ per hr per cycle

Total required recirculation flowrate for 1 hr is 44,420 liters

3) Model : TE6010 eductor has a circulated flowrate of
4710 liter/min @ 3.0 Bar is selected

Model : TE6010

Size : 6 inch 150# Flange (PN6)

Motive flow : 4,710 liter/min @ 3.0 Bar

Material : 316 stainless steel

Qty : 3 pieces in opposing direction

Therefore, total (3 qty) Model TE6010 is used
with 4,710 liter/min @ 3.0 bar for **3 hrs cycle**

NOZZLES & MANHOLES

MARK	QTY	SIZE	RATING AND FACING	SERVICE	NOTES	REMARKS
N1	1	4" (HOLD)	ASME 150# RF	Inlet Nozzle	NOTE M-11	W/ Riser Pipe
N2	1	4" (HOLD)	ASME 150# RF	Outlet Nozzle		
N3	1	3" (HOLD)	ASME 150# RF	Pres. Bal. Inlet Nozzle	NOTE M-11	W/ Riser Pipe
N4	MR	MR / 3" (HOLD)	ASME 150# RF	Eductor Inlet	ATTACHMENT-2 & NOTE M-8	With Eductor
N5	1	4"(HOLD)	ASME 150# RF	Rinsing Nozzle Inlet	NOTE M-8 & M-11	W/ Riser Pipe
V1	1	2"	ASME 150# RF	Vent	NOTE M-9	
L1	1	3"	ASME 150# RF	Level Transmitter	NOTE P-2 & M-10	
L2	1	4"	ASME 150# RF	Level Switch	NOTE P-3, M-8, M-10 & M-16	With Stilling Well
T1	1	1-1/2"	ASME 150# RF	Temp Transmitter	NOTE M-10 & M-20	
T2	1	1-1/2"	ASME 150# RF	Thermowell	NOTE M-10 & M-20	
G1	1	6"	ASME 150# RF	Gauge Hatch	NOTE M-5 & M-6	With cover
M1	1	24"	API 650	Shell Manhole	NOTE M-5	With cover and davit
M2	1	20"	API 650	Roof Manhole	NOTE M-5	With cover and davit