



VAF[™] FILTRATION SYSTEMS **COOLING TOWER BASIN AGITATION SYSTEM** TURBULATOR EDUCTOR NOZZLES

GENERAL INFORMATON

When used in conjunction with cooling tower filter skids (that include a pump), turbulator agitation nozzles will:

- keep solids in suspension for removal
- significantly reduce tower blow down cycles, water waste, equipment maintenance, and chemical use

APPROXIMATING NOZZLE LAYOUT

The orientation of the nozzles is not an exact science. There are too many variables, such as flow rate and pressure, to determine the exact number of nozzles and their placement. The goal is the adequate agitation and coverage of the cooling tower basin. Proper installation and orientation of the nozzles result in effective basin agitatation at nozzle pressures between 0.5 and 4 bar (10 to 50 psi).

LATERAL AND MANIFOLD PLACEMENT

- Laterals near basin walls or obstructions should be located 0.6 m (2 . ft) from the wall/obstruction.
- Place lateral against basin wall in very small basins where only one . lateral is required.
- For effective agitation, laterals should be elevated off the basin floor • so that the nozzles are above the basin floor at least 50 mm (2 in) and nozzles are submerged at least 50 mm (2 in).
- Manifolds and laterals should be anchored in place to prevent movement or flotation.

Specifications

Materials

- Turbulator Nozzle: Polypropylene .
- Clamp Base: Fiberglass reinforced polypropylene
- Clamp Cap: Fiberglass reinforced polypropylene
- Swivel Ball: Polypropylene
- Clamp Spring: Hardened 304 SS
- Clamp O-Ring: EPDM

Nozzle Placement and Orientation

- Nozzles should be evenly distributed along the lateral. Multiple laterals should be evenly spaced. Optimum spacing of the nozzles is 75% of the "effective flow path" of the nozzle selected.
- When possible, some of the nozzles should be directed towards the wall obstruction and corners to prevent settling.
- Nozzles should be oriented so debris is swept towards the pump intake point in the basin.

Please contact Evoqua to determine the best economical design and effective coverage for your cooling tower.

	AVAILABLE NOZZLE MODE		
MODEL	DESCRIPTION	PRODUCT IMAGE	
	Turbulator Nozzle Assembly:		
TN-25-150	1/4" MPT includes spring clamp for	\sim	
	1.5" PVC pipe	elete.	
	Turbulator Nozzle Assembly:		
TN-25-200	1/4" MPT includes spring clamp		
	for 2" PVC pipe		
	Turbulator Nozzle Assembly:		
N-25-BJ-FPT	1/4" MPT includes FPT ball joint for		
	nozzle & 3/8" MPT connection	-	
N-25-THRED	Turbulator Nozzle Only:	A Deserved	Filtered Water to Manifold of
	1/4" MPT		Manifold of Turbulator Nozzles
	Turkulatan Nasala Asasarahin	. (
TN-38-200	Turbulator Nozzle Assembly: 3/8" MPT includes spring clamp		
111-30-200	for 2" PVC pipe		
	Turbulator Nozzle Assembly:		
N-38-BJ-FPT	3/8" MPT includes FPT ball		Filtration Skid Turbulator
	joint for nozzle and 3/8" MPT		Eliminates Prevent Settl Efficiency Robbing Basin Drain to Particulate to N
	connection		Particulate Filtration Skid Inlet a Clean Ba
	Turbulator Nozzle Only:		
N-38-THRED	3/8" MPT	and the second se	

NOZZLE PERFORMANCE DATA

	PERFORMANCE	INLET PRESSURE															
INLET CONNECTION (MALE NPT)		bar							psi								
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	10	15	20	25	30	35	40	50
	m³/hr									gpm							
1/4	INLET FLOW RATE	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.8	3.5	4.3	5.0	5.5	6.1	6.6	7.0	7.8
3/8		2.0	2.5	2.8	3.2	3.6	3.9	4.1	4.5	9.0	11.0	12.5	14.0	16.0	17.0	18.0	20.0
1/4	CIRCULATION RATE	3.7	4.4	5.2	5.7	6.4	7.0	7.5	8.4	16.2	19.4	22.8	25.1	28.1	30.6	33.0	36.8
3/8		10.2	12.5	14.2	15.9	18.2	19.3	20.4	22.7	45.0	55.0	62.5	70.0	80.0	85.0	90.0	100.0
		m							ft								
1/4	EFFECTIVE FLOW PATH	0.7	1.1	2.1	2.6	3.0	3.7	4.3	5.2	3.0	5.0	7.0	8.5	10.0	12.0	14.0	17.0
3/8		0.9	1.4	2.4	3.0	3.7	4.3	4.9	6.7	4.0	6.0	8.0	10.0	12.0	14.0	16.0	22.0



5270 Marshall St, Arvada, CO 80002 USA

Phone: +1 (303) 425-4242 Fax: +1 (303) 425-0112 www.vafusa.com www.evoqua.com

VAF is a trademark of Evoqua, its affiliaties and subsidiaries in some countries.

All information presented herein is believed reliable and in accordance with accepted engineering practices. Evoqua makes no warranties as to the completeness of this information. Users are responsible for evaluating individual product suitability for specific applications. Evoqua assumes no liability whatsoever for any special, indirect or consequential damages arising from the sale, resale or misuse of its products.

© 2017 Evoqua Water Technologies LLC Subject to change without notice VAF.TURBULATOR.DS.1217