

ECLIPSE

Enhanced Center Located Injection Pipe Spool

ProSep's ECLIPSE mixer outperforms other mixing technologies for low injection flow applications.

FEATURES

The ECLIPSE design is superior to other technologies, such as injection quills, because it provides homogeneous, high efficiency mixing with no lower limit on the injection fluid flow rate. The ECLIPSE is a static mixer primarily applied to gaseous streams where the injection rate is low relative to the main process flow rate. The unique patented design utilizes an inverted cone as the mixing mechanism to ensure the injected phase is introduced into the zone of highest velocity, where the greatest degree of dispersion is achieved.

DESIGN

The ECLIPSE has a venturi design, with tapered inlet and outlet sections, and the addition of an inverted cone in the middle of the mixer. This inverted cone enables the injection fluid to be introduced into the process stream where the highest velocity occurs. The ECLIPSE provides hydrodynamic forces for atomizing the injected fluid, thereby giving a high mass transfer area, and creates turbulence, rapidly reaching homogeneous fluid properties within three pipe diameters.



APPLICATIONS

- Gaseous flows
- H₂S Scavenging
- Natural gas dehydration
- Amine injection

BENEFITS

- Low injection rate achievable
- More efficient chemical usage
- Low differential pressure
- Inline solution, easily retrofitted
- No moving parts, low maintenance
- De-bottlenecks stressed process equipment
- Chemical consumption reduced by 20 - 40%
- ROI < 1 year
- Reduces CAPEX, replaces contacting towers

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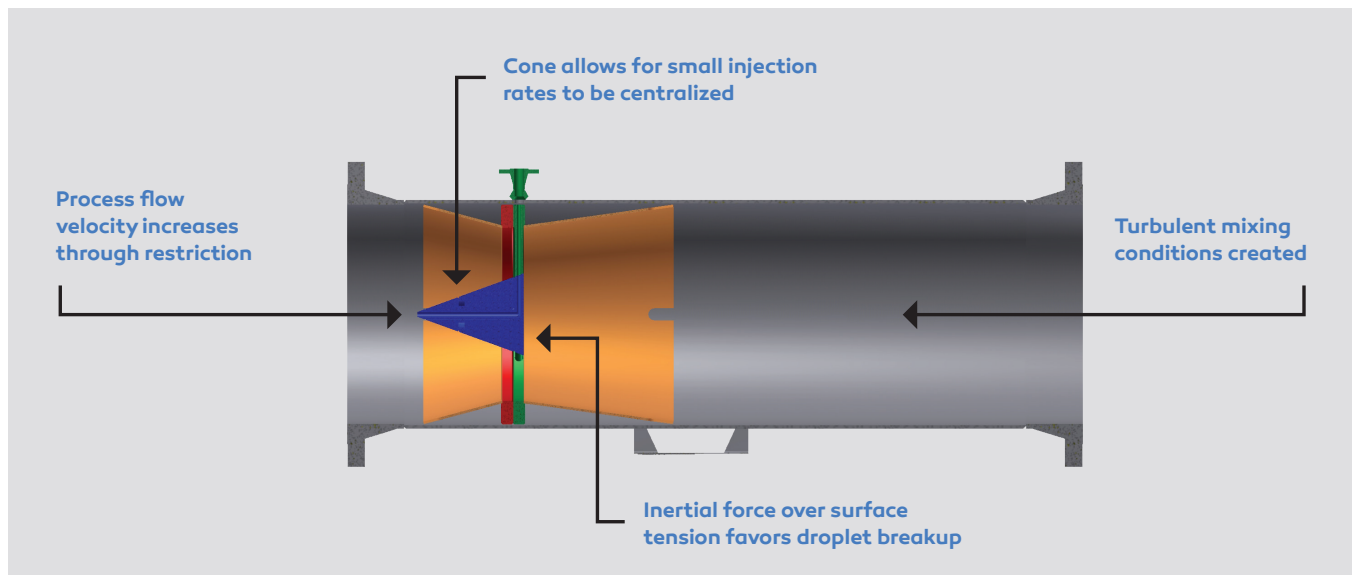
THE MIXING PROCESS

Process flow velocity increases through restriction:
Local dynamic pressures increase.

Inverted cone allows for centralized fluid injection:
Even fluid distribution into high velocity zone.

Inertial force over surface tension favors droplet breakup: Slip edge allows inertia to disperse injected fluid.

Turbulent mixing conditions created: Expanding pipe diameter creates turbulent mixing conditions.



ECLIPSE	Actual Gas Flow Rate MMACFD (M3/h)		Dimension (mm)					150#	300#	600#	900#	1500#
	Minimum	Maximum	150#	300#	600#	900#	1500#	Approx. Weight (lbs)				
2"	0.05 (52)	0.07 (75)	12.87	13.37	13.62	15.87	15.87	34	38	42	70	70
3"	0.10 (120)	0.15 (180)	15.34	16.09	16.34	17.84	19.09	56	65	69	91	129
4"	0.18 (210)	0.26 (300)	21.75	22.50	23.75	24.75	25.50	76	94	104	146	182
6"	0.42 (490)	0.58 (680)	30.62	31.37	32.87	34.62	37.12	114	156	164	286	394
8"	0.73 (860)	1.10 (1200)	41.46	42.21	43.96	46.21	50.21	216	272	288	506	678
10"	1.15 (1350)	1.60 (1880)	43.43	44.68	47.43	49.93	55.43	308	396	418	734	1106
12"	1.65 (1940)	2.29 (2700)	56.24	57.49	59.37	62.99	69.49	479	593	629	1053	1689
14"	2.26 (2660)	3.14 (3700)	57.24	58.49	60.24	63.99	70.74	603	747	841	1499	2255
16"	2.93 (3450)	4.1 (4800)	65.12	66.62	69.12	72.12	79.62	813	1021	1117	1899	3029
18"	3.73 (4400)	5.18 (6100)	77.93	79.43	81.43	84.93	92.68	993	1293	1403	2531	3933
20"	4.58 (5400)	6.36 (7500)	78.30	79.68	81.93	86.43	94.93	1244	1660	1794	3232	5004
24"	6.36 (7500)	9.33 (11000)	98.61	99.86	102.61	109.61	118.61	2019	2589	2429	5713	8149

Specifications included in above chart are provided as reference only. ProSep Mixers are fully customizable based on customer requirements.

Weights and dimensions provided in this document are approximate.