



Ejector Assembly

Installation, Operation & Maintenance

General: The Archer Instruments ejector assembly is designed to provide vacuum induction and to prevent motive water from entering the vacuum lines.

Installing the Ejector Assembly:

Important Notes:

- * $\frac{3}{4}$ " ejector assemblies incorporate interconnected nozzles and diffusers which are assembled by hand-threading the nozzle into the diffuser (through the check valve body). The nozzle and diffuser need only be threaded together hand-tight. Over-tightening these parts by using pipe wrenches, channel locks, etc. is not necessary and may result in damaged parts.
- * Archer Instruments ejectors are produced with male National Pipe Thread for both inlet and outlet connections. $\frac{3}{4}$ " models are also provided with a machined barb for use with 1" hose.
- * It is highly recommended that at least one union (or true union ball valve) be installed near the ejector for ease of future maintenance.
- * When selecting pipe and fitting materials to be used with the ejector, it is important to understand that the water discharge from the ejector will carry a highly chlorinated solution. Schedule 80 PVC is suitable for most installations and is generally recommended.

- 1) Prior to threading the diffuser into the downstream pipe tap or pipe fitting, disassemble it from the ejector and apply three wraps of Teflon thread tape.
- 2) Install the diffuser into the mating pipe tap. Proper installation requires no more than one half turn beyond hand tight.
- 3) Make sure the two OA-BUN-214 o-rings are in place on either side of the ejector check valve body. Then reassemble the nozzle and diffuser with the ejector and connect the motive water supply to the nozzle, using a union or hose.

Operating the Ejector Assembly:

- 1) After installation, the ejector should be tested for proper operation before connecting the vacuum tubing. Make sure all valves are aligned properly and provide motive water to the ejector.
- 2) When motive water is supplied a vacuum should be felt at the tube connector. If no vacuum is felt, investigate both the supply pressure and backpressure and consult the appropriate nozzle performance table (included in this manual).
- 3) Next, shut off the water flow and observe the tube connector for any indication of water. The ejector assembly incorporates a spring loaded, normally closed diaphragm check valve and is designed to prevent any water from entering the vacuum line.
- 4) Once it has been confirmed that the ejector is working properly, the ejector is ready for use. Attach the vacuum tubing to the rest of the gas feed system. The system should be fully connected and the chlorine cylinder valve(s) open before supplying motive water to the ejector.

NOTE: The ejector check valve requires regular maintenance to prevent water from flooding the gas lines. It is generally recommended that the check valve be rebuilt once per year. However, this is only a rule of thumb. Some applications involve frequent start / stop cycles and high back pressures. In these applications the elastomers in the check valve will wear more rapidly than in applications where the ejector operates constantly.

Maintaining the Ejector Assembly:

Recommended Maintenance Frequency: Archer Instruments recommends yearly maintenance of the ejector.

-Refer to the appropriate parts diagram when performing maintenance on the ejector assembly.

- 1) Prior to performing any maintenance on the ejector assembly it must be isolated from pressurized water sources by shutting off the booster pump (if applicable) and closing the water supply valve.

- 2) Next disconnect the ejector water supply from the nozzle.
- 3) Disassemble the nozzle from the diffuser. This will allow the ejector body / check valve assembly to be removed.
- 4) Inspect the nozzle for any foreign objects, damage or deposits and clean if necessary.
- 5) The check valve can be serviced by disassembling the four bolts & nuts holding the top and bottom bodies together.
- 6) The ejector check valve is comprised of a spring, diaphragm assembly and a seating elastomer (either o-ring or flat gasket).
- 7) Be careful not to lose or damage the ejector spring.
- 8) The diaphragm assembly consists of a rubber diaphragm between two threaded parts (diaphragm bolt and diaphragm nut). These can be unscrewed from one another, allowing the diaphragm and support diaphragm to be removed.
- 9) On o-ring style ejectors, the check valve o-ring is found installed in a groove on top of the diaphragm bolt. On gasket-style ejectors, the flat gasket is accessed by unscrewing the seat plug from the top body.
- 10) Clean all parts carefully. Reassemble using new diaphragm, o-rings and (if applicable) a new gasket. Apply a thin film of Fluorolube grease to each o-ring.

-Should you have any questions during maintenance of your ejector assembly, please contact your local service provider or Archer Instruments for support.

10 PPD (200 gr/hr)

Nozzle >	7		8	
Ejector Backpressure	PSI @ GPM		Standard PSI @ GM	
0	18	1.5	12	1.7
10	33	2.0	22	1.9
20	48	2.4	35	2.3
30	60	2.7	50	2.8
40	75	3.1	62	3.1
50	90	3.6	76	3.5
60	103	3.9	90	3.9
70	116	4.3	103	4.3
80	130	4.7	120	4.8
90	145	5.1	135	5.2
100	156	5.4	150	5.7
110	171	5.8	165	6.1
120	185	6.2	180	6.5
130	198	6.6	200	7.1
140	213	7.0	210	7.4
150	227	7.4	227	7.9
160	240	7.7	240	8.3

25 PPD (500 gr/hr)

Nozzle >	7		8	
Ejector Backpressure	PSI @ GPM		Standard PSI @ GM	
0	40	2.2	20	1.9
10	60	2.7	35	2.3
20	80	3.3	47	2.7
30	100	3.8	60	3.0
40	120	4.4	73	3.4
50	140	5.0	90	3.9
60	160	5.5	100	4.2
70	180	6.1	115	4.6
80	200	6.6	130	5.1
90	220	7.2	143	5.5
100	240	7.7	155	5.8
110	260	8.3	170	6.2
120	280	8.9	185	6.7
130	300	9.4	198	7.0
140	-	-	212	7.5
150	-	-	226	7.9
160	-	-	240	8.3

50 PPD (1 Kg/hr)

Nozzle >	10		9		8	
Ejector Backpressure	PSI @ GPM		Standard PSI @ GPM		PSI @ GPM	
0	16	4.0	30	4.1	35	2.3
10	28	5.0	41	4.7	55	2.9
20	40	5.8	55	5.1	80	3.6
30	53	6.8	69	5.7	100	4.2
40	65	7.4	81	6.1	120	4.8
50	80	8.0	95	6.6	141	5.4
60	90	8.6	109	6.8	162	6.0
70	102	9.1	120	7.2	183	6.7
80	115	9.6	134	7.6	205	7.3
90	128	10.0	147	7.8	226	7.9
100	140	10.4	160	8.1	247	8.5
110	151	10.8	173	8.4	272	9.2
120	164	11.3	188	8.8	293	9.8
130	175	11.8	200	9.0	-	-
140	190	12.2	213	9.2	-	-
150	200	12.7	226	9.5	-	-
160	212	13.3	240	9.8	-	-

100 PPD (2 Kg/hr)

Nozzle >	10		9	
Ejector Backpressure	PSI @ GPM		Standard PSI @ GPM	
0	27	5.0	50	5.1
10	50	6.7	65	5.4
20	65	7.3	80	6.1
30	78	8.0	95	6.5
40	91	8.6	110	7.0
50	105	9.2	125	7.2
60	117	9.7	140	7.6
70	131	10.1	155	7.9
80	142	10.5	170	8.3
90	158	11.0	185	8.7
100	170	11.5	200	9.0
110	183	12.0	213	9.3
120	197	12.7	228	9.5
130	210	13.2	244	9.9
140	222	13.7	260	10.2
150	235	14.0	275	10.4
160	250	14.5	291	10.8

250 PPD (5 Kg/hr)

Nozzle >	0.375		0.296		0.250	
Throat >	0.562		0.386		0.386	
Ejector Backpressure	PSI @ GPM		Standard PSI @ GPM		PSI @ GPM	
0	20	15.0	-	-	25	7.5
10	35	20.0	40	14.0	47	10.5
20	50	25.0	52	15.0	68	12.5
30	65	28.0	65	16.7	85	14.5
40	80	32.0	77	18.2	98	16.0
50	95	34.0	87	19.7	108	17.0
60	110	38.0	100	21.0	119	18.0
70	-	-	113	22.3	130	19.0
80	-	-	125	23.3	143	19.6
90	-	-	137	24.5	155	20.3
100	-	-	148	25.4	-	-
110	-	-	160	26.3	-	-

500 PPD (10 Kg/hr)

Nozzle >	0.375		0.296		0.250	
Throat >	0.562		0.386		0.386	
Ejector Backpressure	PSI @ GPM		Standard PSI @ GPM		PSI @ GPM	
0	20	15.0	48	15.0	60	11.9
10	35	20.0	72	18.0	90	14.5
20	50	25.0	88	20.1	115	17.5
30	62	27.0	105	22.0	135	19.0
40	80	32.0	123	24.0	155	20.4
50	96	34.0	140	25.5	172	21.5
60	110	38.0	160	26.7	-	-
70	130	41.0	175	27.3	-	-
80	145	44.0	192	28.5	-	-
90	-	-	210	29.2	-	-
100	-	-	228	31.0	-	-