EDUCTORS

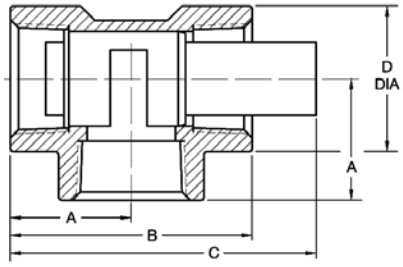
FLUID EDUCTORS
540 SERIES

540 Series Fluid Eductors are constructed of corrosion resistant PVC and specifically designed for water treatment applications. The eductor cartridge is chemically bonded inside the housing for years of trouble-free service. For optimum performance, eductors should be installed with a section of the straight pipe extending from the discharge area.

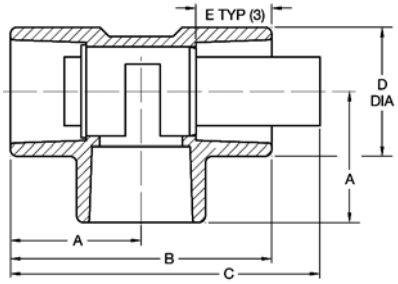
- Available in U.S. Standard socket weld ends* and NPT ends
- Min./max. operating pressure: 20 to 125 psi (1.37 to 8.6 bars)
- Operating temperature up to 140°F (60°)

* Add an "S" to the end of the series number when ordering U.S. Standard socket weld ends.

NPT Dimensions



Socket Dimensions



Part Number	Connection Size Inches	Dimensions (Inches)					Dimensions (mm)				
		"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
QA-540-# *	0.5 FNPT	1.37	2.75	—	1.31	—	35	70	—	33	—
QA-540S-# *	0.5 Socket	1.37	2.75	—	1.31	0.88	35	70	—	33	22
QA-541-# *	0.75 FNPT	1.72	3.44	—	1.50	—	44	88	—	38	—
QA-541S-# *	0.75 Socket	1.72	3.44	—	1.56	1.00	44	88	—	40	25
QA-542-# *	1.0 FNPT	1.72	3.44	—	1.81	—	44	88	—	46	—
QA-542S-# *	1.0 Socket	1.88	3.75	—	1.81	1.13	48	96	—	46	20
QA-544-# *	1.5 FNPT	2.09	4.19	5.25	2.38	—	53	106	133	60	—
QA-544S-# *	1.5 Socket	2.38	4.75	5.63	2.38	1.38	60	120	143	60	35
QA-546-# *	2.0 FNPT	2.78	5.56	6.63	3.00	—	71	142	168	76	—
QA-546S-# *	2.0 Socket	2.78	5.56	6.63	3.06	1.50	71	142	168	78	38

* Substitute nozzle number for "#" (see second row of Performance Table on next page).

NOTES:

Dimensions are nominal.

Maximum Temperature 140°F (60°C)

Due to the differences in the tees which are supplied by vendor, all dimensions are subject to variations.

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MEMBER Water Quality ASSOCIATION

FORM 1367
EFFECTIVE
MARCH 2016

FLUID EDUCTORS
540 SERIES

Performance

Inlet Pressure P.S.I. (Bars)	Nozzle Flow Rates – gals/min (L/min)																									
	Model 540: 1/2 inch						Model 541: 3/4 inch				Model 542: 1 inch				Model 544: 1-1/2 inch						Model 546: 2 inch					
	540-1 Black	540-2 Brown	540-3 Red	540-4 White	540-5 Blue	Draw Factor	541-1 Red	541-2 White	541-3 Blue	Draw Factor	542-1 Red	542-2 White	542-3 Blue	Draw Factor	544-1 Red	544-2 White	544-3 Blue	544-4 Yellow	544-5 Orange	Draw Factor	546-1 Red	546-2 White	546-3 Blue	546-4 Yellow	546-5 Orange	Draw Factor
20	0.13	0.18	0.31	0.62	0.90	0.80	1.07	1.80	2..90	1.15	4.40	5.80	8.20	1.04	8.70	13.4	17.0	21.0	24.5	1.08	29.5	35.7	28.4	45.0	52.0	1.08
(1.37)	(0.52)	(0.73)	(1.22)	(2.44)	(3.50)		(4.30)	(7.20)	(11.2)		(17.3)	(22.0)	(31.7)		(34.2)	(52.5)	(66.0)	(83.0)	(97.6)		(116)	(140)	(152)	(178)	(207)	
30	0.16	0.23	0.38	0.76	1.10	0.78	1.30	2.10	3.50	1.20	5.40	7.10	10.0	0.94	10.6	16.4	20.7	25.7	30.0	1.12	36.0	43.7	47.0	55.0	64.0	1.12
(2.06)	(0.60)	(0.84)	(1.42)	(2.82)	(4.00)		(4.90)	(8.30)	(13.0)		(20.0)	(25.0)	(36.0)		(39.5)	(60.0)	(76.0)	(96.0)	(112)		(134)	(162)	(176)	(205)	(240)	
40	0.19	0.26	0.44	0.88	1.20	0.82	1.50	2.50	4.00	1.26	6.20	8.20	11.7	0.95	12.3	19.0	24.0	29.7	34.7	1.16	41.7	50.0	54.0	64.0	74.0	1.16
(2.75)	(0.74)	(1.00)	(1.74)	(3.50)	(4.90)		(6.00)	(10.2)	(16.0)		(24.5)	(31.0)	(45.0)		(48.4)	(74.4)	(93.4)	(117)	(138)		(164)	(198)	(216)	(252)	(294)	
50	0.21	0.29	0.49	0.98	1.40	0.83	1.70	2.80	4.50	1.25	7.00	9.20	13.0	0.85	13.8	21.2	26.8	33.2	38.8	1.15	46.6	56.5	61.0	71.4	83.0	1.15
(3.44)	(0.86)	(1.20)	(2.02)	(4.00)	(5.70)		(7.00)	(11.8)	(18.4)		(28.4)	(36.0)	(52.0)		(58.0)	(86.0)	(108)	(136)	(160)		(190)	(230)	(250)	(292)	(340)	
60	0.23	0.32	0.54	1.10	1.50	0.85	1.80	3.10	4.90	1.15	7.60	10.0	14.4	0.82	15.0	23.0	29.5	36.3	42.5	0.95	51.0	62.0	66.5	78.0	91.0	0.95
(4.13)	(0.91)	(1.27)	(2.14)	(4.20)	(6.08)		(7.40)	(12.5)	(19.5)		(30.0)	(38.0)	(55.0)		(59.3)	(91.0)	(114)	(144)	(170)		(200)	(244)	(265)	(310)	(360)	
70	0.25	0.35	0.58	1.20	1.65	0.88	2.00	3.30	5.30	1.08	8.20	10.8	15.5	0.80	16.3	25.0	31.8	39.3	46.0	0.90	55.0	67.0	71.0	84.5	98.0	0.90
(4.82)	(0.96)	(1.34)	(2.25)	(4.40)	(6.40)		(7.80)	(13.1)	(20.5)		(31.6)	(40.0)	(58.0)		(62.0)	(96.0)	(120)	(152)	(178)		(212)	(256)	(278)	(325)	(380)	
80	0.27	0.37	0.62	1.30	1.80	0.85	2.15	3.60	5.70	1.00	8.70	11.6	16.6	0.78	17.4	27.0	34.0	42.0	49.0	0.80	59.0	71.0	77.0	90.0	106	0.80
(5.51)	(1.05)	(1.47)	(2.47)	(4.90)	(7.00)		(8.50)	(14.4)	(22.5)		(34.8)	(44.0)	(63.0)		(68.0)	(105)	(132)	(166)	(195)		(232)	(280)	(306)	(357)	(416)	
100	0.30	0.42	0.70	1.40	2.00	0.83	2.40	4.00	6.40	0.95	9.80	13.0	18.5	0.75	19.5	30.0	38.0	47.0	55.0	0.80	66.0	80.0	86.0	100	118	0.80
(6.9)	(1.13)	(1.60)	(2.66)	(5.20)	(7.50)		(9.20)	(15.5)	(24.3)		(37.5)	(47.5)	(68.5)		(74.0)	(113)	(142)	(180)	(210)		(250)	(300)	(330)	(385)	(445)	
120	0.33	0.46	0.76	1.50	2.20	0.80	2.60	4.30	7.00	0.90	10.7	14.2	20.0	0.70	21.3	32.8	41.5	51.5	60.0	0.75	72.0	87.0	94.0	110	130	0.75
(8.27)	(1.21)	(1.70)	(2.84)	(5.60)	(8.10)		(9.80)	(16.6)	(26.0)		(40.0)	(50.7)	(73.0)		(76.0)	(120)	(152)	(190)	(225)		(268)	(325)	(350)	(410)	(480)	
Nozzle Dia. ("E" – inches)	0.038	0.042	0.052	0.070	0.086	–	0.098	.125	.157	–	.188	.219	.250	–	.281	.312	.359	.406	.438	–	.469	.500	.547	.578	.625	–
Throat Dia. ("F" – inches)	0.076	0.086	.104	.140	.172		.196	.250	.312		.375	.438	.500		.562	.625	.719	.812	.875		.938	1.000	1.094	1.156	1.250	

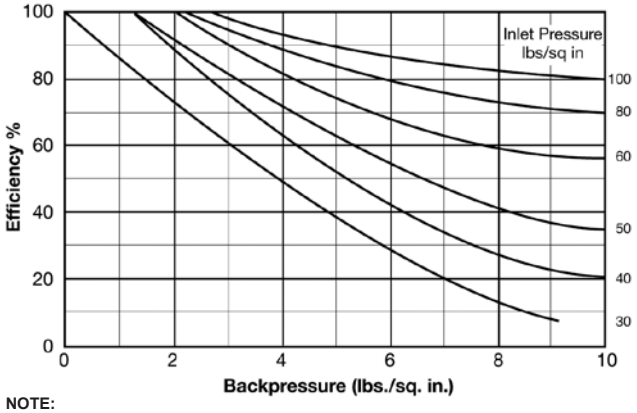
Data based on: 1. Water media specific gravity 1.0; 2. Suction lift 3 ft. (1 meter); 3. Discharge head 0 ft. or meters; 4. Media temperature 60°F (15°C)

Specific Gravity Chart

Fluid	Specific Gravity	Fluid	Specific Gravity	Fluid	Specific Gravity
Saturated Brine (NaCl)	1.2	Sodium Hydroxide (50%)	1.52	Sodium Hydroxide (25%)	1.16
Hydrochloric Acid (30%)	1.14	Sulphuric Acid (20%)	1.13		

Fig. 1: Efficiency vs. Backpressure

At different inlet pressure. Suction lift 3 feet (1 m).



NOTE:

At 5 psi Backpressure: 30 psi Inlet = 39% 40 psi Inlet = 52% 50 psi Inlet = 63%
60 psi Inlet = 74% 80 psi Inlet = 84% 100 psi Inlet = 89%

To Calculate Drawrate

Where A = Nozzle flowrate; B = Specific gravity; C = Draw factor; D = Efficiency factor

$$\text{Drawrate} = \frac{(A)\ (C)\ (D)}{B}$$

Example:

Find drawrate for 30% hydrochloric acid at inlet pressure of 60 psi and back pressure of 5 psi for 1" blue code ejector.

From Nozzle Flowrate Table: At 60 psi, Series 542-3
A = Nozzle flowrate = 14.4 gal./min.
C = Draw factor = 0.82

From Specific Gravity Chart: B = S.G. of 30% HCL = 1.14

From Efficiency Table (Fig. 1): D = 5 psi backpressure @ 60 psi inlet pressure = 74%

$$\text{Drawrate} = \frac{(14.4)\ (0.82)\ (.77)}{1.14} = 7.97 \text{ gal./min.}$$

How to Order

1. Select series number based on required pipe size.
2. Add "S" suffix to series number if socket weld ends desired.
3. Add nozzle size suffix as determined by supply pressure and required flow (see example).

Example:

540-3, 1/2", red code threaded ejector; 540S-3, 1/2", red code socket weld ejector

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FORM 1367
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MARCH 2016