SMPT-OSA1 / 4

VISAGAGE ORIFICE SELECTOR

Patent #9,433,144

Installation and Operation Manual

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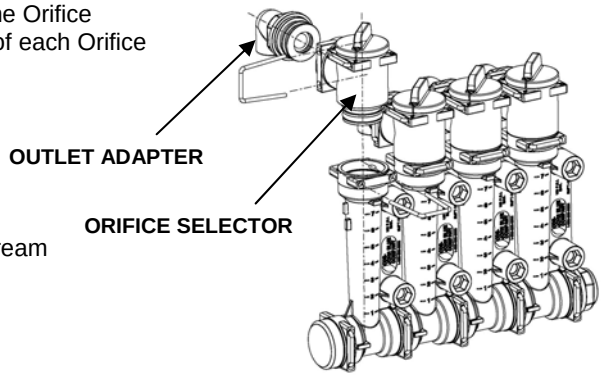
Installation and Operation:

1. Remove the outlet adapter from each Visagage II column. Install the Orifice Selectors in each row, and then install the outlet adapters into the side of each Orifice Selector. The o-rings may be lubed to ease assembly.

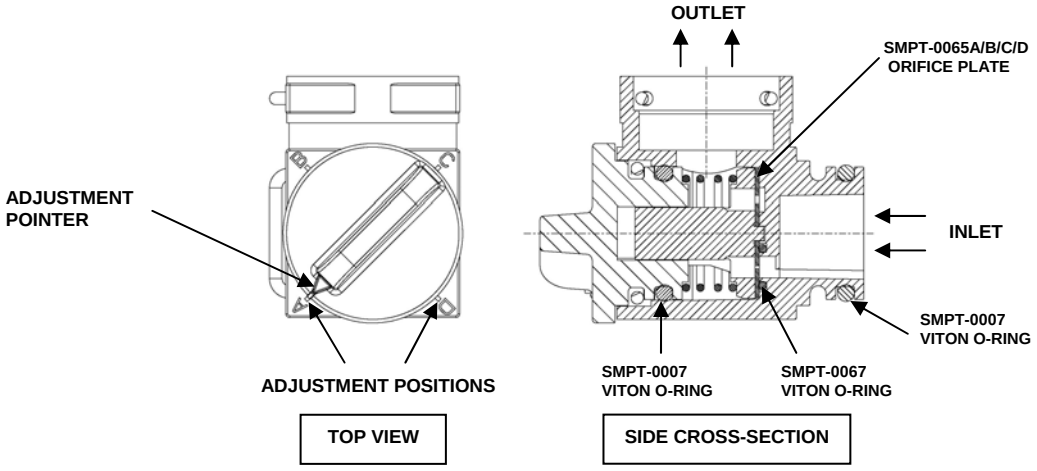


2. Maximum allowed pressure is 100 psi, but for more equal flow distribution it is recommended that you choose an orifice size that keeps your pressure between 15 and 40 psi. It is also recommended that you use CDS-John Blue 3 psi check valves (#CV1103-xxx) downstream at the row units for this orifice-type system. See page 3 for application chart information.

3. A strainer should be used in the fertilizer feed line with an appropriate screen mesh to help prevent orifice clogging.

4. The materials in the assembly are polypropylene, Viton (o-rings), and stainless steel (spring and orifice disc). You must check for compatibility with the chemicals you are using.

5. Adjustment between the four different orifice sizes is accomplished by turning the dial cap on top of the unit. You may use small pliers to help turn the cap – it has detents and a snug fit to keep it from turning by accident due to vibration. Make sure the pointer aligns with the target letter and line at each position. It is recommended that you adjust the orifices when the pump is not running because flow will be blocked for a moment while you turn the cap.

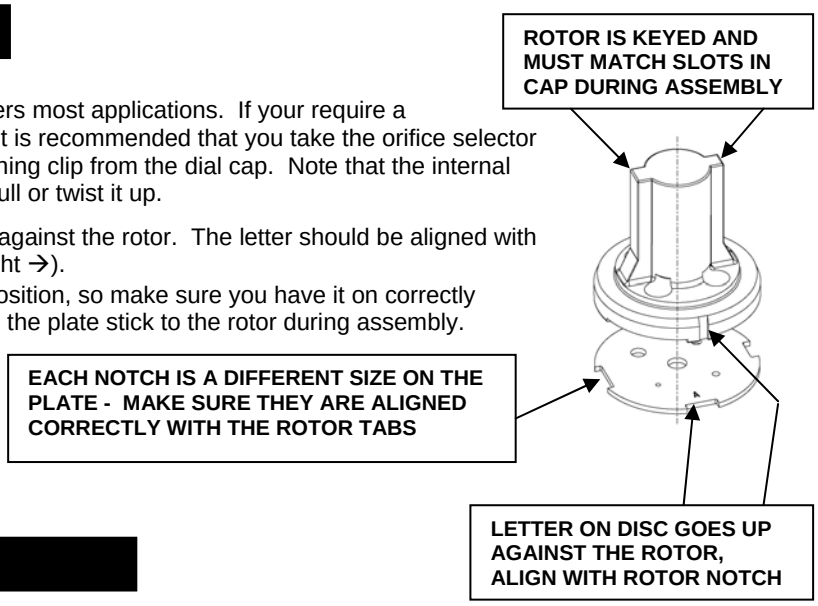


Installation and Operation (continued):

6. From the factory, plate "A" is installed because it covers most applications. If your require a change to one of the other orifice plates "B", "C", or "D:, it is recommended that you take the orifice selector off of the top of the Visagage, and then remove the retaining clip from the dial cap. Note that the internal spring is stiff and the cap will pop up when you start to pull or twist it up.

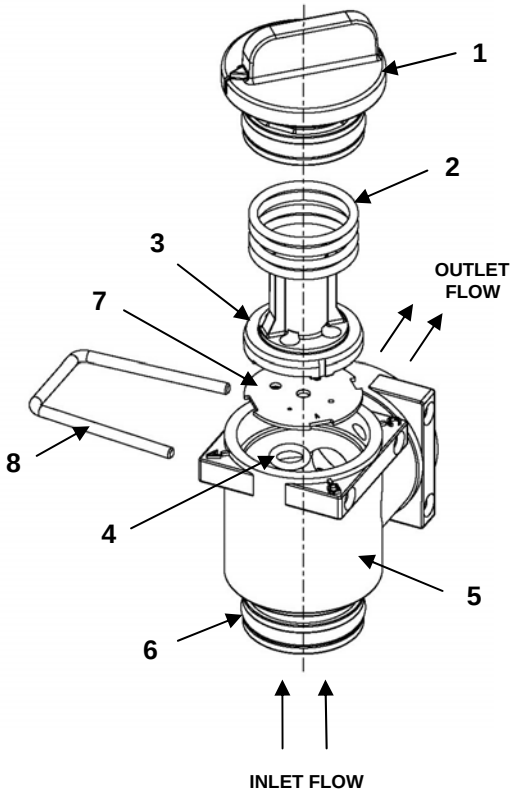
It is important that the side with the letter goes up and against the rotor. The letter should be aligned with the notch on the outside of the rotor (see figure to the right →).

The notches in the plate only allow it to install in one position, so make sure you have it on correctly before reassembly. You may use a little grease to make the plate stick to the rotor during assembly.



Parts Diagram:

Item	PART #	DESCRIPTION
1	SMPT-0063	DIAL CAP
2	SMPT-0066	316 SS SPRING
3	SMPT-0064	ROTOR
4	SMPT-0067	PLATE O-RING - VITON #010
5	SMPT-0062	BODY
6	SMPT-0007	BODY O-RING - VITON #212 - **2 REQUIRED**
7	SMPT-0065A SMPT-0065B SMPT-0065C SMPT-0065D	316 SS ORIFICE PLATE – "A" 316 SS ORIFICE PLATE – "B" 316 SS ORIFICE PLATE – "C" 316 SS ORIFICE PLATE – "D"
8	SMPT-0006	RETAINING CLIP - **2 REQUIRED**
-	SMPT-0082A	REPLACEMENT ORIFICE ASSEM WITH "A" PLATE INSTALLED



DIAL POSITION	PLATE "A" SMPT-0065A	PLATE "B" SMPT-0065B	PLATE "C" SMPT-0065C	PLATE "D" SMPT-0065D
A	0.031"	0.107"	0.024"	0.116"
B	0.048"	0.125"	0.039"	0.133"
C	0.069"	0.142"	0.059"	0.148"
D	0.099"	0.150"	0.084"	0.162"

Storage and Cleaning:

- After use, flush the system for a few minutes with a solution that will neutralize any additives that may have been used (*refer to that manufacturer's instructions)*.

- Use grease or petroleum jelly to help with re-assembly of the unit.

Orifice Selector Plate Application Chart:

NOTE:

- Use the charts below to choose the correct orifice size for your application.
- It is recommended that the pressure is kept between 15 and 40 psi for best distribution performance.
- For solutions other than water, apply the appropriate conversion factor (shown on the right) to the flow table GPA values.
- This table is also available at www.cds-johnblue.com, or use a QR code reader for this direct link:

SOLUTION WEIGHT (LBS/GAL)	CONVERSION FACTOR
9.0	0.96
10.0	0.91
11.0	0.87
12.0	0.83
14.0	0.77
16.0	0.72

PLATE "A":

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate A, Position A 0.031 orifice	10	0.06	4.0	3.0	2.4	2.0	1.5	1.2
	20	0.09	5.7	4.3	3.4	2.8	2.1	1.7
	30	0.11	6.9	5.2	4.2	3.5	2.6	2.1
	40	0.12	8.0	6.0	4.8	4.0	3.0	2.4
	50	0.14	9.0	6.7	5.4	4.5	3.4	2.7
	60	0.15	9.8	7.4	5.9	4.9	3.7	2.9
	70	0.16	10.6	8.0	6.4	5.3	4.0	3.2
	80	0.17	11.3	8.5	6.8	5.7	4.3	3.4

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate A, Position C 0.069 orifice	10	0.30	19.9	14.9	11.9	9.9	7.5	6.0
	20	0.43	28.1	21.1	16.9	14.0	10.5	8.4
	30	0.52	34.4	25.8	20.6	17.2	12.9	10.3
	40	0.60	39.7	29.8	23.8	19.9	14.9	11.9
	50	0.67	44.4	33.3	26.7	22.2	16.7	13.3
	60	0.74	48.7	36.5	29.2	24.3	18.3	14.6
	70	0.80	52.6	39.4	31.5	26.3	19.7	15.8
	80	0.85	56.2	42.1	33.7	28.1	21.1	16.9

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate A, Position B 0.048 orifice	10	0.15	9.6	7.2	5.8	4.8	3.6	2.9
	20	0.21	13.6	10.2	8.2	6.8	5.1	4.1
	30	0.25	16.7	12.5	10.0	8.3	6.2	5.0
	40	0.29	19.2	14.4	11.5	9.6	7.2	5.8
	50	0.33	21.5	16.1	12.9	10.8	8.1	6.5
	60	0.36	23.6	17.7	14.1	11.8	8.8	7.1
	70	0.39	25.4	19.1	15.3	12.7	9.5	7.6
	80	0.41	27.2	20.4	16.3	13.6	10.2	8.2

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate A, Position D 0.099 orifice	10	0.62	40.9	30.7	24.5	20.5	15.3	12.3
	20	0.88	57.8	43.4	34.7	28.9	21.7	17.4
	30	1.07	70.8	53.1	42.5	35.4	26.6	21.3
	40	1.24	81.8	61.4	49.1	40.9	30.7	24.5
	50	1.39	91.5	68.6	54.9	45.7	34.3	27.4
	60	1.52	100.2	75.1	60.1	50.1	37.6	30.1
	70	1.64	108.2	81.2	64.9	54.1	40.6	32.5
	80	1.75	115.7	86.8	69.4	57.8	43.4	34.7

PLATE "B":

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate B, Position A 0.107 orifice	10	0.72	47.8	35.8	28.7	23.9	17.9	14.3
	20	1.02	67.6	50.7	40.5	33.8	25.3	20.3
	30	1.25	82.8	62.1	49.7	41.4	31.0	24.8
	40	1.45	95.6	71.7	57.3	47.8	35.8	28.7
	50	1.62	106.8	80.1	64.1	53.4	40.1	32.1
	60	1.77	117.0	87.8	70.2	58.5	43.9	35.1
	70	1.92	126.4	94.8	75.9	63.2	47.4	37.9
	80	2.05	135.1	101.4	81.1	67.6	50.7	40.5

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate B, Position C 0.142 orifice	10	1.28	84.2	63.1	50.5	42.1	31.6	25.2
	20	1.80	119.0	89.3	71.4	59.5	44.6	35.7
	30	2.21	145.8	109.3	87.5	72.9	54.7	43.7
	40	2.55	168.3	126.2	101.0	84.2	63.1	50.5
	50	2.85	188.2	141.1	112.9	94.1	70.6	56.5
	60	3.12	206.1	154.6	123.7	103.1	77.3	61.8
	70	3.37	222.6	167.0	133.6	111.3	83.5	66.8
	80	3.61	238.0	178.5	142.8	119.0	89.3	71.4

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate B, Position B 0.125 orifice	10	0.99	65.2	48.9	39.1	32.6	24.5	19.6
	20	1.40	92.2	69.2	55.3	46.1	34.6	27.7
	30	1.71	112.9	84.7	67.8	56.5	42.4	33.9
	40	1.98	130.4	97.8	78.3	65.2	48.9	39.1
	50	2.21	145.8	109.4	87.5	72.9	54.7	43.7
	60	2.42	159.7	119.8	95.8	79.9	59.9	47.9
	70	2.61	172.5	129.4	103.5	86.3	64.7	51.8
	80	2.79	184.4	138.3	110.7	92.2	69.2	55.3

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate B, Position D 0.150 orifice	10	1.42	93.9	70.4	56.3	47.0	35.2	28.2
	20	2.01	132.8	99.6	79.7	66.4	49.8	39.8
	30	2.46	162.6	122.0	97.6	81.3	61.0	48.8
	40	2.85	187.8	140.9	112.7	93.9	70.4	56.3
	50	3.18	210.0	157.5	126.0	105.0	78.7	63.0
	60	3.49	230.0	172.5	138.0	115.0	86.3	69.0
	70	3.76	248.4	186.3	149.1	124.2	93.2	74.5
	80	4.02	265.6	199.2	159.4	132.8	99.6	79.7

Orifice Selector Plate Application Chart (continued):

PLATE "C":

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate C, Position A 0.024 orifice	10	0.04	2.4	1.8	1.4	1.2	0.9	0.7
	20	0.05	3.4	2.5	2.0	1.7	1.3	1.0
	30	0.06	4.2	3.1	2.5	2.1	1.6	1.2
	40	0.07	4.8	3.6	2.9	2.4	1.8	1.4
	50	0.08	5.4	4.0	3.2	2.7	2.0	1.6
	60	0.09	5.9	4.4	3.5	2.9	2.2	1.8
	70	0.10	6.4	4.8	3.8	3.2	2.4	1.9
	80	0.10	6.8	5.1	4.1	3.4	2.5	2.0

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate C, Position C 0.059 orifice	10	0.22	14.5	10.9	8.7	7.3	5.4	4.4
	20	0.31	20.5	15.4	12.3	10.3	7.7	6.2
	30	0.38	25.2	18.9	15.1	12.6	9.4	7.5
	40	0.44	29.1	21.8	17.4	14.5	10.9	8.7
	50	0.49	32.5	24.4	19.5	16.2	12.2	9.7
	60	0.54	35.6	26.7	21.4	17.8	13.3	10.7
	70	0.58	38.4	28.8	23.1	19.2	14.4	11.5
	80	0.62	41.1	30.8	24.7	20.5	15.4	12.3

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate C, Position B 0.039 orifice	10	0.10	6.3	4.8	3.8	3.2	2.4	1.9
	20	0.14	9.0	6.7	5.4	4.5	3.4	2.7
	30	0.17	11.0	8.2	6.6	5.5	4.1	3.3
	40	0.19	12.7	9.5	7.6	6.3	4.8	3.8
	50	0.22	14.2	10.6	8.5	7.1	5.3	4.3
	60	0.24	15.5	11.7	9.3	7.8	5.8	4.7
	70	0.25	16.8	12.6	10.1	8.4	6.3	5.0
	80	0.27	18.0	13.5	10.8	9.0	6.7	5.4

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate C, Position D 0.084 orifice	10	0.45	29.4	22.1	17.7	14.7	11.0	8.8
	20	0.63	41.6	31.2	25.0	20.8	15.6	12.5
	30	0.77	51.0	38.3	30.6	25.5	19.1	15.3
	40	0.89	58.9	44.2	35.3	29.4	22.1	17.7
	50	1.00	65.8	49.4	39.5	32.9	24.7	19.8
	60	1.09	72.1	54.1	43.3	36.1	27.0	21.6
	70	1.18	77.9	58.4	46.7	39.0	29.2	23.4
	80	1.26	83.3	62.5	50.0	41.6	31.2	25.0

PLATE "D":

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate D, Position A 0.116 orifice	10	0.85	56.2	42.1	33.7	28.1	21.1	16.8
	20	1.20	79.4	59.6	47.7	39.7	29.8	23.8
	30	1.47	97.3	73.0	58.4	48.6	36.5	29.2
	40	1.70	112.3	84.2	67.4	56.2	42.1	33.7
	50	1.90	125.6	94.2	75.3	62.8	47.1	37.7
	60	2.08	137.6	103.2	82.5	68.8	51.6	41.3
	70	2.25	148.6	111.4	89.1	74.3	55.7	44.6
	80	2.41	158.8	119.1	95.3	79.4	59.6	47.7

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate D, Position C 0.148 orifice	10	1.39	91.4	68.6	54.8	45.7	34.3	27.4
	20	1.96	129.3	97.0	77.6	64.6	48.5	38.8
	30	2.40	158.3	118.8	95.0	79.2	59.4	47.5
	40	2.77	182.8	137.1	109.7	91.4	68.6	54.8
	50	3.10	204.4	153.3	122.6	102.2	76.7	61.3
	60	3.39	223.9	167.9	134.4	112.0	84.0	67.2
	70	3.66	241.9	181.4	145.1	120.9	90.7	72.6
	80	3.92	258.6	193.9	155.1	129.3	97.0	77.6

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate D, Position B 0.133 orifice	10	1.12	73.8	55.4	44.3	36.9	27.7	22.1
	20	1.58	104.4	78.3	62.6	52.2	39.2	31.3
	30	1.94	127.9	95.9	76.7	63.9	47.9	38.4
	40	2.24	147.6	110.7	88.6	73.8	55.4	44.3
	50	2.50	165.1	123.8	99.0	82.5	61.9	49.5
	60	2.74	180.8	135.6	108.5	90.4	67.8	54.2
	70	2.96	195.3	146.5	117.2	97.7	73.2	58.6
	80	3.16	208.8	156.6	125.3	104.4	78.3	62.6

			GPA for Water, 30" spacing					
			3	4	5	6	8	10
	PSI	GPM/row	mph	mph	mph	mph	mph	mph
Plate D, Position D 0.162 orifice	10	1.66	109.5	82.1	65.7	54.8	41.1	32.9
	20	2.35	154.9	116.2	92.9	77.4	58.1	46.5
	30	2.87	189.7	142.3	113.8	94.9	71.1	56.9
	40	3.32	219.1	164.3	131.4	109.5	82.1	65.7
	50	3.71	244.9	183.7	146.9	122.5	91.8	73.5
	60	4.06	268.3	201.2	161.0	134.1	100.6	80.5
	70	4.39	289.8	217.3	173.9	144.9	108.7	86.9
	80	4.69	309.8	232.3	185.9	154.9	116.2	92.9

Notes:

LIMITED WARRANTY

THIS WARRANTY IS IN LIEU OF ALL OTHER WRITTEN OR EXPRESS WARRANTIES AND REPRESENTATIONS. ANY IMPLIED WARRANTIES INCLUDING MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO THIS WRITTEN WARRANTY. CDS-JOHN BLUE COMPANY SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES.

Use of this product for any purpose other than its original intent, abuse of the product, and/or any modification to the original product is strictly prohibited by the manufacturer, CDS-John Blue Company. Any modification to the product should be approved by CDS-John Blue Company prior to use. CDS-John Blue Company will deny Warranty claims and liability in any situation involving misuse, abuse or modification.

Each new machine or component manufactured by CDS-John Blue Company through original buyer is warranted by CDS-John Blue Company to buyer and to any party or parties to whom buyer may resell, lease or lend the equipment to be free from defects in material and workmanship under normal use and service. This obligation of CDS-John Blue Company under this warranty is limited to the repair or replacement of defective parts or correction of improper workmanship of any parts of such equipment which shall within one year from the date of CDS-John Blue's original delivery thereof, be returned to CDS-John Blue's factory, transportation charges prepaid and which CDS-John Blue Company shall determine to its satisfaction upon examination thereof to have been thus defective. When it is impractical to return the defective parts of such equipment to CDS-John Blue's factory, then CDS-John Blue shall have no liability for the labor cost involved in repairing or replacing any such parts and shall be liable solely for supplying the material necessary to replace or repair the defective parts, provided that prior thereto CDS-John Blue Company shall have determined to its satisfaction that any such parts are thus defective.

This warranty shall not apply to any equipment which shall have been repaired or altered outside CDS-John Blue's factory in any way so as to affect its durability, nor which has been subjected to misuse, abuse, negligence or accident, or operated in any manner other than in accordance with operating instructions provided by CDS-John Blue Company. This warranty does not extend to repairs made necessary by the use of inferior or unsuitable parts or accessories, or parts or accessories not recommended by CDS-John Blue Company.

CDS-John Blue Company makes no warranties in respect to parts, accessories or components not manufactured by CDS-John Blue Company, same ordinarily being warranted separately by their respective manufacturers.

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