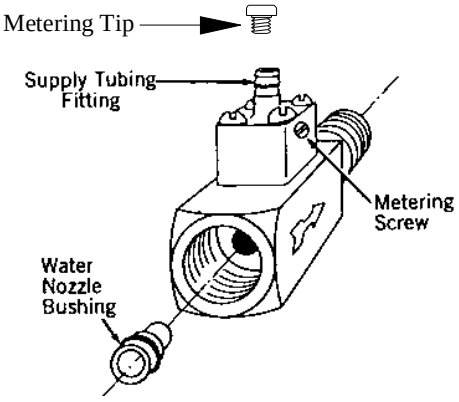
DEMA®

SINGLE-STAGE INJECTOR MODELS
200-3C, 200C, 201C, 202C, 203C, 204C, 206C, 208C
INSTALLATION INSTRUCTIONS

1. PARTS

A. Injector B. Backup washer (Models 204C & smaller).
C. Ceramic Weight. D. Tubing 8' long w/ foot strainer.
E. Three brass nozzle bushings



2. INSTALLATION

A. Selecting the nozzle bushing: Find the appropriate APPLICATION under Section 4 and use the tables to select one of the three bushings supplied. Push the bushing into the injector inlet, small end first, as far as it will go. See Figure to the right.

B. Back up washer:
In some applications a flexible hose and shut off gun are used downstream from the injector. When the gun is shut off a momentary back flow can develop and push out the nozzle bushing. To prevent this, place the plastic backup washer behind the nozzle before screwing the injector onto the inlet pipe.

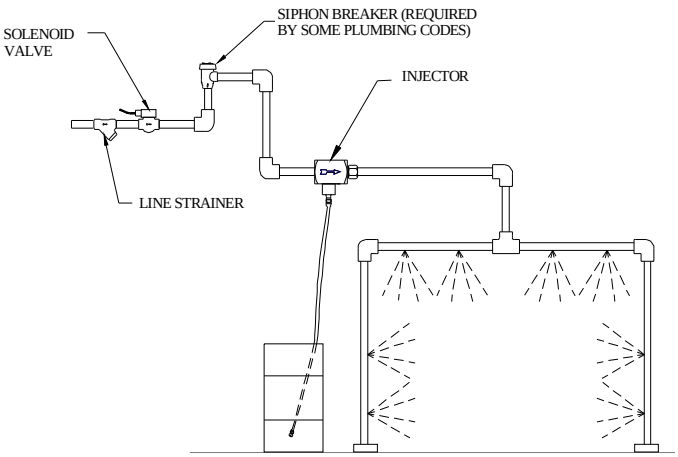
C. Placement in the water line:
The injector may be installed in a horizontal or vertical line and with the knob in any position below, above, or to the side. Water flow must be in the direction of the arrow on the injector body. If the thread size is different from the line size, use pipe bushings or reducers as required. (Injector selection is based on flow, not line size.)

D. Connection to chemical supply:
Install the ceramic weight provided by sliding the plastic tubing through the ceramic weight. Drop the end of the tubing with the strainer and ceramic weight into the fluid product container. Cut the tubing to any convenient length and slip the open end over the injector fitting. The container may be more than 8 feet below the injector (extra tubing required) but injection capacity will be less. Do not place the container above the injector unless the injector is under pressure when not in use. This will prevent free siphoning.

3. CHEMICAL FEED ADJUSTMENT

See FIG. above for the location of the metering screw in the knob. The knob may be re-oriented for better accessibility by removing the 4 machine screws and turning it to the new position. Turn the metering screw to the left to increase the injection rate. Five turns provide the maximums shown in Table 1. These figures are with 8 feet of suction tubing, a lift of 4 feet from the fluid container to the injector, and for a maximum water temperature of 140°F. Injectors will operate at reduced injection rates up to 200°F or a lift up to 25 feet. If the chemical is viscous (above 75 cps) the maximum injection rates of injectors up to Model 204C can be as much as doubled by using 3/8" ID tubing. (Dema part 100-12L.) Use a 1" piece of regular tubing over the inlet barb as a bushing. Optional "T" type metering knob (see parts list on back page). Screw pre-selected metering tip (fixed orifice) into inlet barb before attaching plastic tubing.

FIGURE 2



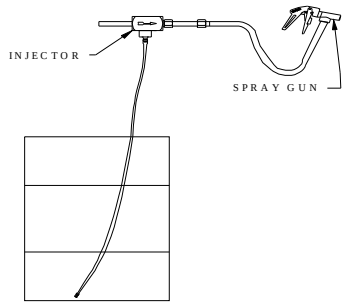
APPLICATIONS

SPRAYING SYSTEM AT LINE PRESSURE (FIGURES 2 AND 3):

Select the nozzle bushing to match your total spray nozzle flow and pressure as shown in Table 1 on page two. Spray nozzle catalog flow ratings are the most convenient method of determining water flow. Once an injector has been

matched to a spray nozzle system, it will continue to function regardless of fluctuations in line pressure, as the water flow will also fluctuate in proportion. Therefore, if your line pressure is unknown, it is permissible to use spray nozzle ratings at any pressure, for the purpose of selecting an injector. Flow ratings at 40 PSI are the basis for the spray nozzle numbering system and are therefore most frequently used. If there are lengthy piping, hose, or other restrictions between the injector and nozzles, these pressure losses must be added to the rated pressure before entering Table 1 (see Table 7).

F I G U R E 3



SPRAYING SYSTEM AT LINE PRESSURE
TABLE 1

INJECTOR		TOTAL SPRAY NOZZLE – GPM									*MAX. INJECTION OZ/MIN.			MIN. INJECTION CC/MIN.		
MODEL NUMBER	NOZZLE BUSHING	INJECTOR INPUT PRESSURE – PSI									VISCOSITY-CPS			VISCOSITY-CPS		
		15	30	45	60	75	90	125	155	230	1	75	220	1	75	220
200-3C & CT	02	.10-.12	.13-.16	.15-.19	.17-.21	.19-.22	.21-.26	.24-.30	.26-.33	.31-.37	3	0.5	0.3	30	15	7
	03	.12-.16	.16-.21	.19-.24	.21-.28	.22-.27	.26-.33	.30-.38	.33-.42	.37-.45						
	04	.16-.20	.21-.26	.24-.30	.28-.34	.27-.39	.33-.41	.38-.47	.42-.52	.45-.65						
200C & CT	1	.20-.25	.26-.32	.30-.38	.34-.43	.39-.46	.41-.52	.47-.59	.52-.66	.65-.77	5	1.5	0.5			
	2	.25-.32	.32-.41	.38-.48	.43-.55	.46-.56	.52-.66	.59-.76	.66-.84	.77-.92						
	3	.32-.39	.41-.51	.48-.60	.55-.68	.56-.76	.66-.82	.76-.95	.84-1.0	.92-1.3						
201C & CT	4	.39-.49	.51-.64	.60-.76	.68-.86	.76-.96	.82-1.0	.95-1.2	1.0-1.3	1.3-1.6	7	4	2			
	5	.49-.63	.64-.82	.76-.97	.86-1.1	.96-1.2	1.0-1.3	1.2-1.5	1.3-1.7	1.6-1.9						
	6	.63-.79	.82-1.0	.97-1.2	1.1-1.4	1.2-1.5	1.3-1.6	1.5-1.9	1.7-2.1	1.9-2.5						
202C & CT	7	.79-.98	1.0-1.3	1.2-1.5	1.4-1.7	1.5-1.9	1.6-2.1	1.9-2.4	2.1-2.6	2.5-3.2	11	6	2.5			
	8	.98-1.3	1.3-1.6	1.5-1.9	1.7-2.2	1.9-2.3	2.1-2.6	2.4-3.0	2.6-3.4	3.2-3.7						
	9	1.3-1.6	1.6-2.0	1.9-2.4	2.2-2.7	2.3-3.0	2.6-3.3	3.0-3.8	3.4-4.2	3.7-5.0						
203C & CT	10	1.6-2.0	2.0-2.6	2.4-3.0	2.7-3.4	3.0-3.6	3.3-4.1	3.8-4.7	4.2-5.2	5.0-6.0	21	7	3			
	11	2.0-2.5	2.6-3.3	3.0-3.9	3.4-4.4	3.6-4.8	4.1-5.3	4.7-6.0	5.2-6.7	6.0-8.0						
	12	2.5-3.2	3.3-4.1	3.9-4.8	4.4-5.5	4.8-6.1	5.3-6.6	6.0-7.6	6.7-8.3	8.0-10						
204C & CT	13	3.2-3.9	4.1-5.1	4.8-6.0	5.5-7.6	6.1-8.2	6.6-8.3	7.6-9.4	8.3-10	10-14	30	8	3.5			
	14	3.9-5.1	5.1-6.6	6.0-7.7	7.6-8.8	8.2-9.6	8.3-11	9.4-12	10-14	14-16						
	15	5.1-6.3	6.6-8.2	7.7-9.7	8.8-11	9.6-13	11-13	12-15	14-17	16-21						
206C & CT	16	6.3-7.9	8.2-10	9.7-12	11-14	13-16	13-17	15-19	17-21	21-26	55	33	18	175	90	60
	17	7.9-10	10-13	12-15	15-18	16-19	17-21	19-24	21-27`1	26-31						
	18	10-13	13-16	15-19	18-22	19-24	21-26	24-30	27-33	31-40						
208C & CT	19	13-16	16-20	19-24	22-27	24-30	26-33	30-38	33-42	40-50	60	33	18			
	20	16-20	20-26	24-31	27-35	30-37	33-42	38-48	42-54	50-56						
	21	20-25	26-33	31-39	35-44	37-48	42-53	48-61	54-67	56-80						
		10	20	30	40	50	60	80	100	150						
		INJECTOR OUPUT (SPRAY NOZZLE) - PSI														

SINGLE-STAGE INJECTOR MODELS
200-3C, 200C, 201C, 202C, 203C, 204C, 206C, 208C
INSTALLATION INSTRUCTIONS

***NOTE:** The maximum injection capacities listed in Table 1 are for "standard performance" (35% pressure loss). In practice the maximum injection capacity may be higher as the injector pressure loss will vary within the flow range shown for each nozzle bushing. For highest injection the figures in Table 1 can be doubled by deliberately under sizing the injector using the next lower nozzle bushing than the one specified. This will result in considerably higher pressure loss.

PUMP SUCTION LINE UNDER PRESSURE (FIG. 4):
Select a nozzle bushing from Table 2 corresponding to the injector water flow and the injector inlet pressure as set by the regulator. (A regulator must be used to compensate for water pressure fluctuations, as pump flow is constant.) Note that the water flow in the table is injector flow and may be less than pump displacement if the pump has a by-pass. Avoid flow restrictions between the injector and pump inlet.

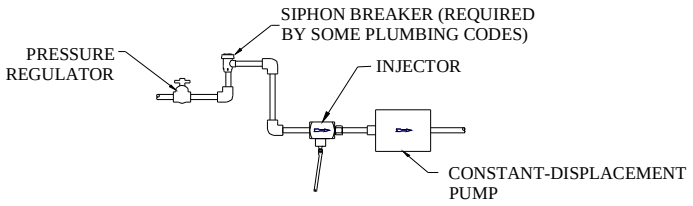


FIGURE 4

CAUTION: Do not connect an injector to a pump suction line if the chemical-water mixture can injure the pump.

PUMP SUCTION LINE UNDER PRESSURE
TABLE 2

INJECTOR		WATER FLOW – GPM				
MODEL NUMBER	NOZZLE BUSHING	REGULATOR SETTING - PSI				INJECTION RATE
		8	12	16	20	
202C & CT	7	.60-.68	.68-.75	.75-.81	.81-.90	SEE TABLE 1
	8	.85-.93	.93-1.0	1.0-1.2	1.2-1.3	
	9	1.1-1.2	1.2-1.3	1.3-1.4	1.4-1.5	
203C & CT	10	1.2-1.4	1.4-1.5	1.5-1.6	1.6-1.8	
	11	1.7-1.8	1.8-2.0	2.0-2.1	2.1-2.4	
	12	2.1-2.4	2.4-2.6	2.6-2.8	2.8-3.1	
204C & CT	13	2.6-2.8	2.8-3.1	3.1-3.4	3.4-3.6	
	14	3.6-3.8	3.8-4.2	4.2-4.6	4.6-5.0	
	15	4.2-4.6	4.6-5.0	5.0-5.5	5.5-6.0	
206C & CT	16	5.2-5.7	5.7-6.3	6.3-7.0	7.0-7.4	
	17	7.0-7.6	7.6-8.4	8.4-9.2	9.2-10	
	18	8.0-9.2	9.2-10	10-11	11-12	
208C & CT	19	10-12	12-13	13-14	14-15	
	20	14-15	15-16	16-18	18-20	
	21	16-17	17-19	19-21	21-23	

PUMP SUCTION FROM OPEN TANK (FIG. 5):
Select a nozzle bushing from Table 3 corresponding to the injector water flow and the available head pressure. Note that the water flow in the table is injector flow which may be less than pump displacement if the pump has a by-pass. Avoid flow restrictions between the injector and pump inlet. Pressure in this line will be sub-atmospheric as indicated in the table.

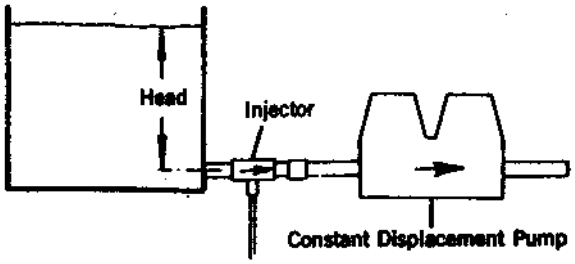


FIGURE 5

SINGLE-STAGE INJECTOR MODELS
200-3C, 200C, 201C, 202C, 203C, 204C, 206C, 208C

INSTALLATION INSTRUCTIONS

PUMP SUCTION LINE FROM OPEN TANK

TABLE 3

INJECTOR		WATER FLOW - GPM					
MODEL NUMBER	NOZZLE BUSHING	WATER HEAD - FEET					INJECTION RATE
		0	2	4	6	8	
203C & CT	10	.70-.92	.78-1.0	.82-1.1	.88-1.2	.91-1.3	SEE TABLE 1
	11	.92-1.2	1.0-1.3	1.1-1.4	1.2-1.5	1.3-1.6	
	12	1.2-1.5	1.3-1.6	1.4-1.7	1.5-1.8	1.6-1.9	
204C & CT	13	1.5-1.9	1.6-2.1	1.7-2.3	1.8-2.4	1.9-2.5	
	14	1.9-2.3	2.1-2.5	2.3-2.7	2.4-2.9	2.5-3.0	
	15	2.3-2.9	2.5-3.4	2.7-3.5	2.9-3.6	3.0-3.8	
206C & CT	16	2.9-3.9	3.4-4.2	3.5-4.7	3.6-5.0	3.8-5.1	
	17	3.9-4.6	4.2-5.0	4.7-5.3	5.0-5.8	5.1-6.1	
	18	4.6-5.7	5.0-6.1	5.3-6.7	5.8-7.1	6.1-7.2	
208C & CT	19	5.7-7.5	6.1-7.8	6.7-8.6	7.1-9.1	7.2-10	
	20	7.5-8.8	7.8-9.6	8.6-11	9.1-12	10-12	
	21	8.8-11	9.6-13	11-13	12-14	12-15	
		5	4	3	2	0	
		PUMP SUCTION—IN. HG. VAC.					

DISCHARGE INTO OPEN TANK: FIG. 6

Select the nozzle bushing from Table 4. The selection is the smallest that comes with the injector so as to provide for the highest possible injection ratio. Water flow at 25 PSI is shown in the table. If more flow is required use a larger bushing.

Important: Some piping must be provided on the injector outlet to cause it to prime. If a float valve is used, a snap acting type is advised as it provides full flow and constant injection. A throttling valve will reduce or stop injection when valve is not fully open.

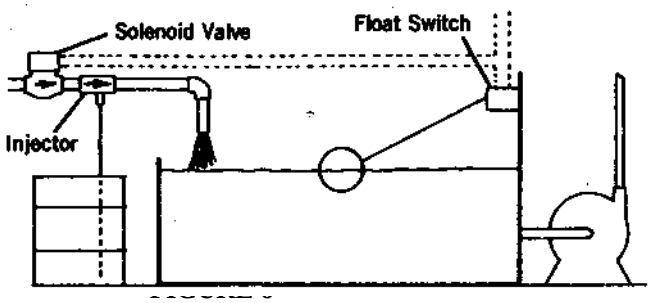


TABLE 4 – DISCHARGE INTO OPEN TANK

Injector Model No.	200-3C	200C	201C	202C	203C	204C	206C	208C	2012C
Nozzle Bushing No.	0.02	1	4	7	10	13	16	19	22
Water GPM at 25 PSI	0.12	0.25	0.5	1	2	4	8	16	32
Injection Rate	Double Maximum Figures Shown in Table 1								

SYSTEM OF UNKNOWN FLOW OR PRESSURE: FIG. 7

Select the nozzle bushing from Table 4. This is the smallest bushing that comes with each unit and requires the least flow. Turn the hand valve (or set a restrictor) to create a 35% pressure drop across the injector to provide the injection rates shown in Table 1. Increase the pressure loss for additional injection.

NOTE: If the injector does not draw with the main valve fully closed the injector is too large for the unknown system and a smaller model must be used.

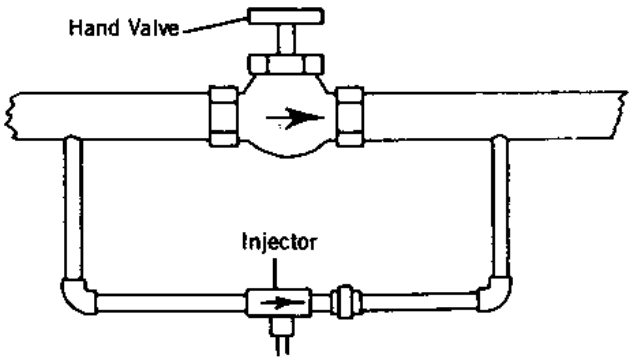
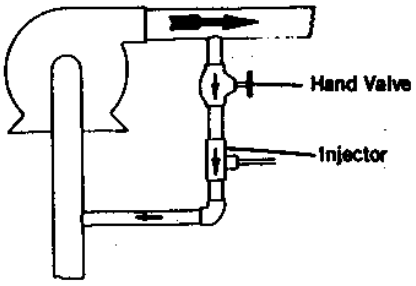


FIGURE 7

ALTERNATE PUMP SUCTION APPLICATION: FIG. to the right

Select the nozzle bushing from Table 4. This is the smallest bushing that comes with each unit and requires the least flow. The hand valve is recommended so that the by-passed water can be throttled to the minimum rate required to work the injector. For example, if throttled to 25 PSI differential the flow will be as shown in Table 4. Maximum injection rates are double those shown in Table 1.



PUMP DISCHARGE LINE: FIGS. 9a, 9b, 9c

Select a nozzle bushing from Table 5. Refer to Figures 9a, 9b, and 9c in determining which pressure column to use.

A. Fig. 9a

Select the pump discharge pressure at the top of Table 5, and proceed down the column. The injector nozzle bushing is opposite the total pump flow rate. The nozzles and piping in the spraying system must be sized to this flow at the pressure shown at the bottom of the table. For example, if the pump is rated 2.5 GPM at 700 PSI use Model 201C with #4 bushing. The spray nozzles should have a total capacity of at least 2.5 GPM at 450 PSI less line pressure losses. A by-pass throttling valve is required to allow full pump flow without exceeding maximum allowable pump discharge pressure. (Inquire about DEMA B series injectors with built-in by-pass.)

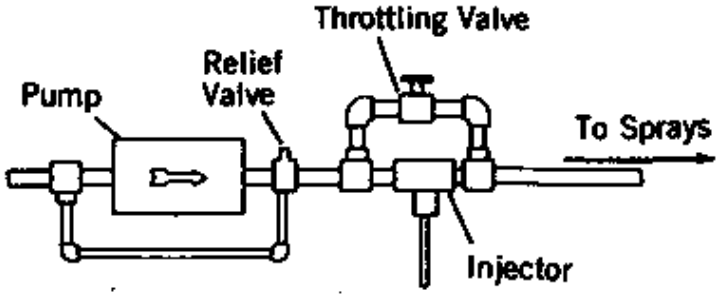


FIGURE 9a

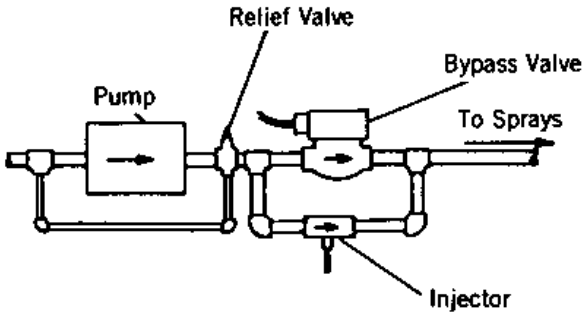


FIGURE 9b

B. Fig. 9b.

Enter a pressure column at the bottom of Table 5 corresponding to pump discharge pressure with the by-pass valve open. (Rinse position.) Move up the column and select an injector nozzle bushing opposite the flow rate. For example, 700 PSI and 2.5 GPM use Model 200C with #3 bushing. When the by-pass valve is closed the injector will be actuated. A relief valve must be used or pump discharge pressure will rise to the figure shown at the top of the column, (1100 PSI in the example). See Section 5 for bypass valve selection.

C. Fig. 9c.

Enter a pressure column at the bottom of Table 5 corresponding to the pressure at the nozzle in the "wash" position plus line losses. Move up the column and select an injector nozzle bushing opposite the total pump flow rate. For example, 200 PSI and 2.5 GPM, use Model 201C #6 bushing. Pump discharge pressure will be as shown at the top of the column, 300 PSI in the example. When the turret is turned to a smaller nozzle the injector stops operating and a clear rinse ensues. This nozzle is generally sized for maximum pump discharge pressure which results in minimal injector loss and a hard, clear rinse.

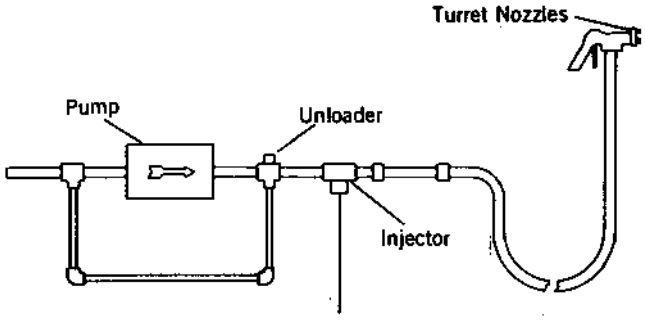


FIGURE 9c

SINGLE-STAGE INJECTOR MODELS
200-3C, 200C, 201C, 202C, 203C, 204C, 206C, 208C

INSTALLATION INSTRUCTIONS

TABLE 5

INJECTOR		TOTAL SPRAY NOZZLE FLOW - GPM													
MODEL NUMBER	NOZZLE BUSHING	PUMP DISCHARGE PRESSURE - PSI													INJECTION RATE
		150	300	390	460	540	620	700	*770	*930	*1100	*1230	*1540	*2000	*3000	
200-3C & CT	02	.27-.32	.37-.44	.41-.49	.44-.53	.48-.57	.51-.61	.54-.65	.57-.68	.62-.75	.67-.81	.72-.86	.80-.95	.90-1.1	1.1-1.3	SEE TABLE 1
	03	.32-.39	.44-.53	.49-.59	.53-.64	.57-.69	.61-.74	.65-.78	.68-.82	.75-.89	.81-.97	.86-1.0	.95-1.1	1.1-1.3	1.3-1.6	
	04	.39-.56	.53-.76	.59-.85	.64-.92	.69-1.0	.74-1.1	.78-1.1	.82-1.2	.89-1.3	.97-1.4	1.0-1.5	1.1-1.7	1.3-1.9	1.6-2.3	
200C & CT	1	.56-.66	.76-.91	.85-1.0	.92-1.1	1.0-1.2	1.1-1.2	1.1-1.3	1.2-1.4	1.3-1.5	1.4-1.7	1.5-1.8	1.7-2.0	1.9-2.3	2.3-2.8	
	2	.66-.80	.91-1.1	1.0-1.2	1.1-1.3	1.2-1.4	1.2-1.5	1.3-1.6	1.4-1.7	1.5-1.8	1.7-2.0	1.8-2.1	2.0-2.4	2.3-2.7	2.8-3.3	
	3	.80-1.1	1.1-1.5	1.2-1.7	1.3-1.8	1.4-2.0	1.5-2.1	1.6-2.2	1.7-2.3	1.8-2.5	2.0-2.7	2.1-2.9	2.4-3.2	2.7-3.7	3.3-4.5	
201C & CT	4	1.1-1.4	1.5-1.9	1.7-2.1	1.8-2.3	2.0-2.5	2.1-2.7	2.2-2.8	2.3-3.0	2.5-3.2	2.7-3.5	2.9-3.7	3.2-4.1	3.7-4.7	4.5-5.8	
	5	1.4-1.7	1.9-2.3	2.1-2.5	2.3-2.7	2.5-3.0	2.7-3.2	2.8-3.4	3.0-3.5	3.2-3.8	3.5-4.2	3.7-4.4	4.1-4.9	4.7-5.6	5.8-6.9	
	6	1.7-2.1	2.3-2.9	2.5-3.3	2.7-3.6	3.0-3.8	3.2-4.1	3.4-4.3	3.5-4.6	3.8-5.0	4.2-5.4	4.4-5.8	4.9-6.4	5.6-7.3	6.9-8.9	
202C & CT	7	2.1-2.7	2.9-3.8	3.3-4.2	3.6-4.6	3.8-4.9	4.1-5.3	4.3-5.6	4.6-5.9	5.0-6.4	5.4-6.9	5.8-7.4	6.4-8.2	7.3-9.4	8.9-11	
	8	2.7-3.2	3.8-4.5	4.2-5.0	4.6-5.4	4.9-5.8	5.3-6.2	5.6-6.6	5.9-6.9	6.4-7.6	6-9-8.2	7.4-8.7	8.2-9.7	9.4-11	11-13	
	9	3.2-4.3	4.5-6.0	5.0-6.7	5.4-7.3	5.8-7.9	6.2-8.4	6.6-8.9	6.9-9.3	7.6-10	8.2-11	8.7-12	9.7-13	11-15	13-18	
203C & CT	10	4.3-5.1	6.0-7.1	6.7-7.9	7.3-8.6	7.9-9.2	8.4-9.9	8.9-10	9.3-11	10-12	11-13	12-14	13-15	15-18	18-21	
	11	5.1-6.8	7.1-9.1	7.9-10	8.6-11	9.2-12	9.9-13	10-13	11-14	12-15	13-17	14-18	15-20	18-23	21-28	
	12	6.8-8.8	9.1-12	10-13	11-15	12-16	13-17	13-18	14-19	15-20	17-22	18-24	20-26	23-30	28-36	
204C & CT	13	8.8-12	12-15	13-17	15-19	16-20	17-21	18-23	19-24	20-26	22-28	24-30	26-33	30-40	36-49	
	14	12-14	15-18	17-20	19-22	20-24	21-26	23-27	24-28	26-31	28-34	30-36	33-40	40-47	49-58	
	15	14-18	18-24	20-27	22-30	24-32	26-34	27-36	28-38	31-41	34-45	36-48	40-53	47-62	58-75	
206C & CT	16	18-23	24-30	27-34	30-37	32-40	34-42	36-45	38-47	41-52	45-56	48-60	53-66	62-76	75-93	
	17	23-27	30-36	34-40	37-43	40-47	42-49	45-53	47-56	52-61	56-66	60-70	66-78	76-91	93-99	
	18	27-34	36-47	40-52	43-57	47-61	49-65	53-69	56-73	61-80	66-86	70-92	78-99	91-99		
208C & CT	19	34-43	47-59	52-65	57-71	61-77	65-82	69-87	73-91	80-99	86-99	92-99				
	20	43-48	59-66	65-74	71-80	77-86	82-92	87-98	91-99							
	21	48-68	66-94	74-99	80-99	86-99	92-99	98-99								
		100	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**1000**	**1300**	**1950**	

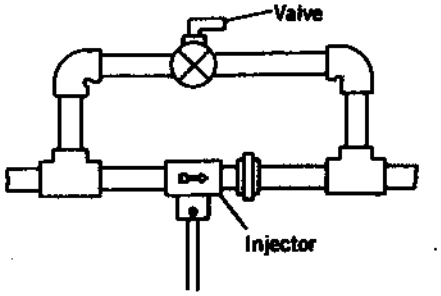
INJECTOR OUTLET PRESSURE – SPRAY NOZZLE PRESSURE PLUS LINE LOSSES

***NOTE For pressures above 750 PSI specify Model with suffix "S" (stainless steel knob)**

TABLE 6

INJECTOR MODEL NO.	SOLENOID VALVE MODEL NO.	
	MAX. PRESS. DIFFERENTIAL	
	150 PSI	750 PSI
200-3C	401 P	453 P
200C	401 P	453 P
201C	401 P	453 P
202C	412 P	453 P
203C	413 P, 473 P	453 P
204C	414 P, 474 P	454 P
206C	416 P, 476 P	458 P
208C	418 P	458 P

FIGURE 10



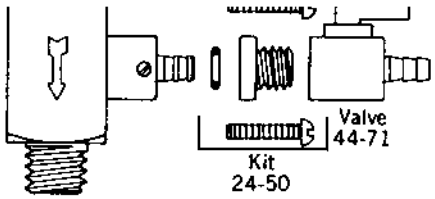


FIGURE 11

5. WASH-RINSE CONTROL: FIGURES 10 AND 11.

Stopping injection for rinsing may be accomplished in the following ways:

A. By-pass valve. When a ball or solenoid valve in a by-pass line is opened the pressure drop across the injector is slight and injection stops. Rinsing can be almost at full supply pressure. If a solenoid valve is used its maximum operating pressure rating must be as high as the injector pressure drop. Table 6 lists Dema solenoid valves suitable for this purpose. Specify voltage and cycles.

B. Control at spray gun. An injector correctly sized to a spray gun will stop injecting if the flow is further restricted at the gun or spray nozzle. Hence, a clear rinse can be achieved by partially closing the spray gun valve, shifting to a smaller nozzle or shutting off one or a pair of nozzles. For a matched injector and gun with wash-rinse control ask for "Spray Clean" catalog.

C. Valve in chemical line. A small ball valve or solenoid valve may be placed in the chemical line. Dema Models 44-71 PVC ball valve and 481P (PVC) solenoid valve are suitable for this purpose. Dema Kit 24-50 for mounting these valves directly on the injector is available for sizes up through Model 204C. For models 206C and up that have the large 3/8" metering knob 1/8" NPT threads can be cut directly into the 3/8" hose barb which will then allow the valves to be mounted directly onto the metering knob.

TABLE 7 - WATER LINE PRESSURE LOSS – PSI/100 FT.

WATER GPM	STEEL PIPE - NOMINAL DIA.								BRASS PIPE - NOMINAL DIA.								COPPER TUBING O.D. TYPE L					
	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 ½	1/8	¼	3/8	1/2	3/4	1	1 1/4	1 1/2	1/4	3/8	1/2	5/8	3/4	7/8
1/4	3								2								10	1				
1/2	11	2.5							6.5	1.8							35	4.1	1			
3/4	23	6	1.1						14	3.6	1						71	8.5	2			
1	38	8.5	1.9						23	6	1.6						120	13	2.9	1		
2	130	30	7	2.1					75	20	5.6	1.8					400	45	10	3.4	1.3	
3	270	60	14	4.5	1.1				150	40	11	3.6						94	20	6.7	2.6	
5	420	150	36	12	2.8				400	100	28	9	2.2					230	50	17	6.1	3
8		330	86	28	6.7	1.9				220	62	21	5.2	1.6				500	120	40	15	6.5
10		520	130	43	10	3				320	90	30	7.8	2.4					180	56	22	10
15			270	90	21	6.2	1.6				190	62	16	5	1.5					120	44	20
25			670	240	56	16	4.2	2			470	150	40	12	3.8	1.7				330	110	50
35				450	130	40	8	3.8				270	70	20	6.6	3.2				550	200	88
50					200	60	15	7				520	140	40	13	6					360	170
75					420	130	30	15					290	80	25	13						360
100						210	52	25					480	130	42	21						610

WATER GPM	RUBBER HOSE - I.D.						
	1/4	3/8	1/2	5/8	3/4	1	1 1/4
1/4	4.5						
1/2	16	2					
3/4	32	4.2	1				
1	54	7	1.7				
2	180	25	6	2			
3	380	50	13	4	1.5		
5		130	34	10	4	1	
8		300	80	25	10	2.4	1
10			120	38	15	3.5	1.4
15			250	80	32	8	3
25			600	200	90	20	7
35				360	160	40	13
50					300	70	26
75						160	60
100						260	100

6. SERVICING:

A. If the injector fails to draw chemical in the initial installation:
1. Has the injector been correctly sized to the equipment and the proper nozzle bushing been installed? Review the application in Section 4. Do not neglect line losses. Table 7.
2. Is the injector body installed with the arrow on the side in the direction of water flow?
3. Is the chemical metering screw backed off?
4. Are the spray nozzles clogged, hose kinked, or is there some other obstruction in the water line?
5. Is the water temperature too high? 180°F is the highest allowable and injection will fall from maximum as temperature rises above 140°F.

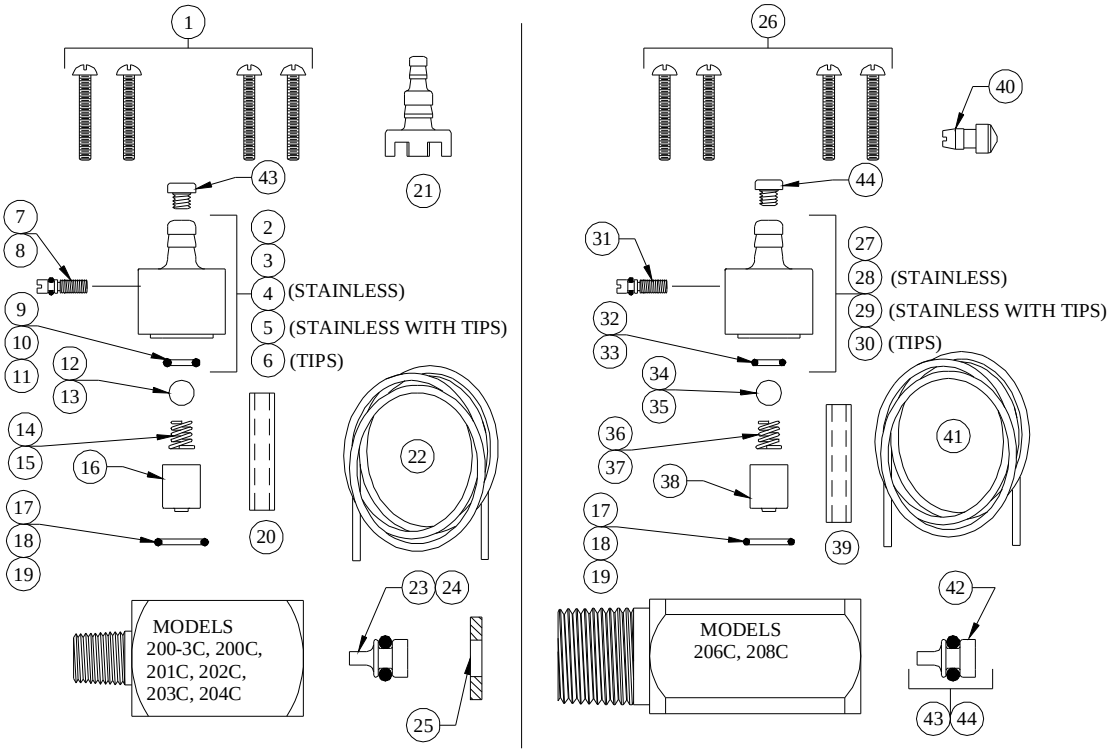
B. If the injector stops operating after having worked properly:
1. See A-4 above. Clean or remove obstructions.
2. Is the foot strainer clogged? Lift tube from drum and clean.
3. Is the check valve clogged? Remove the 4 knob screws to disassemble. Inspect and clean ball, spring, and o-ring.
4. Has the water nozzle bushing become clogged or blown back out? See Section 2-B for recommended use of back-up washer. If water is dirty use a line strainer ahead of the injector. Ask for DEMA line strainer catalog.
5. Are there lime deposits in the throat of the injector? Certain chemicals can cause precipitation in the throat of the injector. Let the injector draw in a small quantity of a de-liming agent (mild acid) to remove the deposit. If deposits are so heavy that injection has ceased it may be necessary to remove the injector body from the line and soak it. Should liming be recurrent, periodic maintenance is indicated.

RETURNS: **NO MERCHANDISE MAY BE RETURNED FOR CREDIT WITHOUT DEMA'S WRITTEN PERMISSION. RETURN MERCHANDISE AUTHORIZATION NUMBER REQUIRED IN ADVANCE OF RETURN.**

WARRANTY: DEMA products are warranted against defective material and workmanship under normal use and service for one year from the date of manufacture. This limited warranty does not apply to any products which have a normal life shorter than one year or failure and damage caused by chemicals, corrosion, improper voltage supply, physical abuse, or misapplication. Rubber and synthetic rubber parts such as "o"- rings, diaphragms, squeeze tubing and gaskets are considered expendable and are not covered under warranty. This warranty is extended only to the original buyer of DEMA products. If products are altered or repaired without prior approval of DEMA, this warranty will be void.

Defective units or parts should be returned to the factory with transportation prepaid. If inspection shows them to be defective, they will be repaired or replaced without charge, F.O.B. factory. DEMA assumes no liability for damages. Return merchandise authorization number, to return units for repair or replacement, must be granted in advance of return.

SINGLE-STAGE INJECTOR MODELS
200-3C, 200C, 201C, 202C, 203C, 204C, 206C, 208C
INSTALLATION INSTRUCTIONS



NO.	PART NO.	DESCRIPTION
1	24-33	Screw #8-32 x 7/8" Lg. (4-Reqd.)
2	24-32	Metering Knob Assy.
3	24-32PS	Metering Knob Assy. (-P Injectors)
4	24-32S	Metering Knob Assy. (Stainless)
5	24-32ST	Metering Knob Assy. (Stainless w/Tips)
6	24-32T	Metering Knob Assy. (Tips)
7	100-24	Metering Screw
8	100-24PS	Metering Screw (-P Injectors)
9	24-25	Check Valve O-Ring (EP)
10	24-25S	Check Valve O-Ring (Silicone)
11	24-25V	Check Valve O-Ring (Viton)
12	24-24P	Check Valve Ball (Teflon)
13	24-24S	Check Valve Ball (Stainless)
14	24-23	Check Valve Spring (Stainless)
15	24-23-2	Check Valve Spring (Hastelloy)
16	24-34-	Check Valve Core (Specify Model No.)
17	25-29	Metering Knob O-Ring (EP)
18	25-29S	Metering Knob O-Ring (Silicone)
19	25-29V	Metering Knob O-Ring (Viton)
20	61-107-2	Ceramic Weight for ¼" ID Tubing for 200-3C Thru 204C
21	24-11MP	Foot Strainer
22	100-12	Vinyl Tubing (3/8" OD x 8' Lg.)
23	24-8-	Water Nozzle & O-Ring Assy. (Brass) Add Num. Stamped on Nozzle
24	24-8S-	Water Nozzle & O-Ring Assy. (Stainless) Add Num. Stamped on Nozzle

NO.	PART NO.	DESCRIPTION
25	24-31	Back-Up Washer (Specify Model No.
26	23-7	Screw (1" Lg.) (4 Reqd.)
27	23-32	Metering Knob Assy.
28	23-32S	Metering Knob Assy. (Stainless)
29	23-32ST	Metering Knob Assy. (Stainless w/Tips)
30	23-32T	Metering Knob Assy. (Tips)
31	23-24	Metering Screw
32	23-11	Check Valve O-Ring (EP)
33	23-11V	Check Valve O-Ring (Viton)
34	23-10	Check Valve Ball (Stainless)
35	23-10P	Check Valve Ball (Teflon)
36	23-9	Check Valve Spring (Stainless)
37	23-9-2	Check Valve Spring (Hastelloy)
38	23-34-	Check Valve Core (Specify Model No.)
39	61-107	Ceramic Weight for 3/8" ID Tubing for 206C Thru 208C
40	24-11L	Foot Strainer
41	100-12L	Vinyl Tubing (1/2" OD x 8' Lg.)
42	23-8-	Water Nozzle & O-Ring Assy. (Brass) Add Num. Stamped on Nozzle

ACCESSORIES

NO.	PART NO.	DESCRIPTION
43	100-15-	Metering Tip (Specify Color)
	100-15K	Metering Tip Kit
44	61-9	Metering Tip (Specify Color)
	61-9K	Metering Tip Kit

METERING TIP CHART

CT - SERIES INJECTORS

Tip Color	200-3CT		200CT		201CT		202CT		203CT		204CT	
	Oz/Gal	Ratio	Oz/Gal	Ratio	Oz/Gal	Ratio	Oz/Gal	Ratio	Oz/Gal	Ratio	Oz/Gal	Ratio
Tan	4	31.5	4	31.0	2	46.8	1.0	125	0.4	320	0.3	386
Orange	9	14.0	5	28.6	3	43.3	1.2	107	0.5	256	0.4	337
Turquoise	15	10.3	6	21.2	4	30.4	1.5	87	0.8	171	0.5	301
Pink	21	6.2	9	14.5	6	22.8	2.4	53	1.0	135	0.7	188
Clear	24	5.3	10	13.4	7	18.8	2.8	45	1.3	98	0.8	156
Brown	29	4.4	13	10.0	8	15.6	3.1	41	1.5	85	1.0	129
Red	33	3.9	17	7.7	9	14.0	4.2	30	1.9	67	1.5	86
White	35	3.6	18	7.1	10	12.4	4.7	27	2.3	57	1.8	70
Green	41	3.1	22	5.8	13	10.0	5.8	22	2.6	49	2.3	55
Blue	45	2.9	25	5.2	15	8.3	6.5	20	3.2	40	2.9	44
Yellow	50	2.6	27	4.7	18	7.0	9.4	14	4.9	26	3.7	35
Black	53	2.4	31	4.1	25	5.2	13.0	10	6.5	20	4.9	26
Purple	56	2.3	33	3.9	33	3.9	18.4	7	9.2	14	6.0	21
Gray	58	2.2	35	3.6	34	3.7	23.8	5	10.4	12	6.6	19
No Tip	61	2.1	36	3.5	37	3.4	29.1	4	12.8	10	8.1	16
	#03 nozzle, 0.15 GPM		#2 nozzle, 0.31 GPM		#5 nozzle, 0.68 GPM		#8 nozzle, 1.33 GPM		#11 nozzle, 2.80 GPM		#14 nozzle, 4.72 GPM	

Tip Color	206CT		208CT	
	Oz/Gal	Ratio	Oz/Gal	Ratio
Clear	0.25	506	0.05	2443
Purple	0.28	459	0.09	1360
Yellow	0.34	377	0.11	1122
Green	0.73	176	0.20	649
Pink	0.96	134	0.25	518
Turquoise	1.55	83	0.41	311
Black	1.68	76	0.48	261
Gray	2.20	58	0.57	223
Red	2.92	44	0.73	174
Blue	3.48	37	0.88	146
Brown	4.41	29	1.08	118
White	7.20	18	1.28	100
Orange	6.90	19	2.30	56
No Tip	12.11	11	2.73	47
	#17 nozzle, 10.80 GPM		#20 nozzle, 21.50 GPM	

Note: All data taken at 40 psi, using a chemical of 1 cps and the water nozzle indicated.

DEMA metering tip kit #100-15KU and capillary tip #44-61P are available for leaner dilutions.