

Hydraflex Injection System

Air Driven Chemical Valve
P-HFI-239



5 Port Hydraflex Detergent
Manifold for POD
E-HFI-219



HydraFlex Single Hydra-
Cannon Assembly
P-HFI-259



Hydraflex Injector Quick
Quick Connect x 3/8" Thread
P-HFI-202



What is the Hydraflex Injection System:

- The Hydraflex Injection System is used in our Tommy's exclusive Detergent POD. The system is used for efficiently mixing and delivering chemical to the various wash applications.

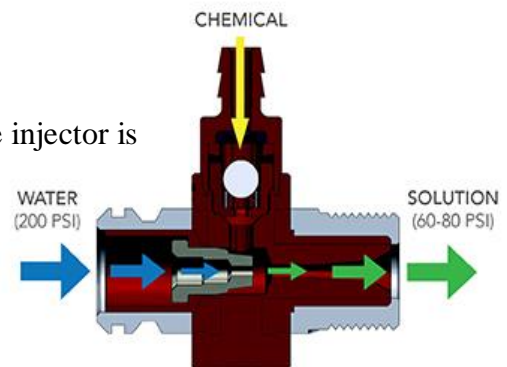
How Does it Work:

- When air is applied to the Air Driven Chemical Valve from the Air Solenoid Valve Assembly for POD (see below) the air opens the valve and allows water to flow from the manifold (at 200psi) into the top of the Hydraflex Injector. The injector has an orifice inside it that reduces the pressure, this pressure change is what causes vacuum to be created at the detergent injection barb. The detergent then mixes with the water and goes out into the tunnel at 60-80 PSI.

Helpful Information

- The amount of chemical use varies based on what size injector is being used and by the metering tip that is installed. The bigger the metering tip the more chemical that will be used.

Hydraflex Metering Tips



- There are different types of Hydraflex Metering Tips, regular Hydraflex metering Tips (P-HFI-219), and Ultra Lean Hydraflex Metering Tips (P-HFI-220)
- Inside of the Air Driven Chemical Valve is a spring, this spring is rated for 1 million cycles. If this spring were to go bad you would have to replace the whole unit. Some signs that the spring may have broken are, the detergent stays on even after its commanded off. If you have air going into the valve but no chemical comes out this could be another sign of a failed spring. Take caution when removing the cap to inspect the spring it is under tension, also ensure the water is turned off otherwise you will get water backflowing and damage the valve.
- There are multiple different size injectors, be sure if you replace one, that you replace it with the correct size failure to do so could cause excessive chemical use or improper volumetrics.
- The Hydraflex System works on the change in pressure causing a vacuum so if there is too much back pressure at the application site this could cause a failure to draw chemical.
 - Possible causes of too much back pressure
 - Wrong injector size
 - Excessive build up in the lines or foamers
 - Wrong size nozzles

Air Solenoid Valve Assembly for POD
P-AIR-2159



Helpful Information

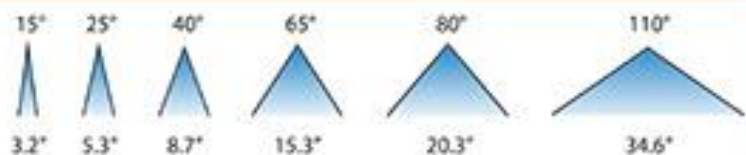


METERING PLUG ASSEMBLIES

Draw Volume in ml in a given time

Length	ml in 30s	ml in 25s	ml in 15s
3.00"	1.9	1.6	0.9
2.00"	2.6	2.2	1.3
1.00"	4.6	3.8	2.3
0.75"	5.7	4.8	2.9
0.50"	8.0	6.6	4.0
0.25"	13.9	11.6	7.0

NOZZLE COVERAGE (at 12 inches)



Conveyor Speed Chart

based on conveyor movement in 15 seconds

60 inches (5')	= 60 cars per hour
90 inches (7.5')	= 90 cars per hour
120 inches (10')	= 120 cars per hour
150 inches (12.5')	= 150 cars per hour
180 inches (15')	= 180 cars per hour

Conversions

and other helpful math

1 gal. = 128 oz.	55 gal. = 7,040 oz.
5 gal. = 640 oz.	1 qt. = 32 oz.
30 gal. = 3,840 oz.	4 qt. = 1 gal.
0.5 oz. per car = 14,080 cars per 55 gal. drum	
1.0 oz. per car = 7,040 cars per 55 gal. drum	
1.5 oz. per car = 4,693 cars per 55 gal. drum	

NOZZLE CHART - Volume (GPM at various PSI)

NOZZLE SIZE	ORIFICE DIM. IN.	40 PSI	100 PSI	250 PSI	500 PSI	750 PSI	1000 PSI	1,000 PSI
H-VV Small Capacity 1/8"-1/4"								
0.05	0.02	0.05	0.08	0.12	0.18	0.20	0.23	0.25
0.067	0.02	0.07	0.11	0.16	0.24	0.28	0.30	0.33
H-VVL Integral Strainer 1/8"-1/4"								
1.00	0.03	0.10	0.16	0.25	0.35	0.40	0.43	0.50
2.00	0.03	0.20	0.32	0.50	0.71	0.80	0.89	1.00
3.00	0.04	0.30	0.47	0.75	1.10	1.25	1.35	1.50
4.00	0.05	0.40	0.63	1.00	1.40	1.70	1.80	2.00
H-U Med Capacity 1/8"-3/4"								
5.00	0.06	0.50	0.79	1.30	1.80	2.10	2.20	2.50
6.00	0.06	.60	.95	1.50	2.10	2.50	2.70	3.00
8.00	0.07	0.80	1.30	2.00	2.80	3.40	3.60	4.00
10.00	0.08	1.00	1.60	2.50	3.50	4.20	4.50	5.00
U Lg Capacity 1"-2"								
15.00	0.09	1.50	2.40	3.80	5.30	6.40	6.80	7.50
20.00	.11	2.00	3.20	5.00	7.10	8.40	9.00	10.00
40.00	0.16	4.00	6.30	10.00	14.20	16.80	18.00	20.00

Hydrominder Tip Chart

All ratios calculated using 40 psi at water viscosity

Tip Color	511	515	546	Dia.
ULTRA LEAN				
Lt Orange	1:1030			
Red/Purple	1:880			
Olive	1:530			
Lt Purple	1:465			
Pink	1:355			
Pink	1:240	1:152	1:1024	.010
Purple	1:120	1:104	1:596	.014
Aqua	1:100			
Yellow	1:90	1:48	1:416	.020
Brown	1:75	1:40	1:296	.023
Orange	1:64	1:33	1:234	.025
Green	1:48	1:24	1:176	.029
Tan	1:36	1:16	1:144	.035
Blue	1:25	1:12	1:96	.040
White	1:23	1:10	1:67	.043
Red	1:17	1:7	1:48	.052
Beige	1:8	1:4	1:32	.070
Black	1:6	1:2	1:20	.098
Gray	1:5	1:1.1	1:10	.128
No Tip	1:4	1:1	1:6	OPEN

Volumes at Various Pressures

Size	40 psi	800 psi	1,000 psi
03	0.3 GPM	1.25 GPM	1.5 GPM
04	.4 GPM	1.70 GPM	2.0 GPM
05	.5 GPM	2.10 GPM	2.5 GPM
10	1.0 GPM	4.20 GPM	5.0 GPM

Hydra-Flex® PLUGS/TIPS - Chemical to Water Dilution Ratios

PLUG LENGTH	.029" 0.25 GPM	.040" 0.50 GPM	.051" 0.75 GPM	.067" 0.97 GPM	.079" 1.41 GPM	.083" 2.10 GPM	.091" 3.20 GPM	.098" 5.20 GPM	.125" 5.40 GPM
3.00"	1:251	1:503	1:754	1:1006	1:1509	1:2012	1:2203	1:3209	1:5532
2.00"	1:181	1:363	1:544	1:726	1:1089	1:1451	1:1633	1:2359	1:3991
1.00"	1:104	1:208	1:311	1:415	1:623	1:831	1:934	1:1350	1:2284
0.75"	1:82	1:165	1:247	1:329	1:494	1:659	1:741	1:1071	1:1812
0.50"	1:59	1:119	1:178	1:238	1:357	1:475	1:531	1:772	1:1307
0.25"	1:34	1:68	1:102	1:136	1:204	1:272	1:306	1:442	1:748
METERING TIP COLOR									
ULTRA LEAN									
Copper	1:57	1:104	1:155	1:146	1:281	1:406	1:458	1:629	1:1074
Pumpkin	1:43	1:82	1:119	1:126	1:238	1:348	1:396	1:534	1:946
Burgundy	1:34	1:67	1:97	1:111	1:207	1:304	1:367	1:496	1:845
Lime	1:28	1:57	1:81	1:100	1:183	1:270	1:347	1:447	1:784
Tan	1:28	1:37	1:81	1:100	1:183	1:270	1:307	1:447	1:764
Orange	1:23	1:29	1:64	1:78	1:137	1:196	1:215	1:314	1:535
Turquoise	1:17	1:21	1:45	1:55	1:91	1:126	1:134	1:197	1:336
Pink	1:14	1:16	1:35	1:42	1:68	1:93	1:98	1:143	1:244
Lt Blue	1:11	1:12	1:24	1:31	1:67	1:64	1:66	1:93	1:166
Brown	1:10	1:12	1:22	1:28	1:43	1:58	1:59	1:88	1:150
Red		1:10	1:17	1:23	1:34	1:45	1:46	1:69	1:116
White			1:16	1:22	1:31	1:42	1:43	1:64	1:108
Green			1:14	1:20	1:28	1:37	1:38	1:55	1:94
Blue			1:12	1:17	1:23	1:30	1:31	1:46	1:77
Yellow			1:9	1:12	1:16	1:20	1:22	1:31	1:52
Black			1:10	1:13	1:16	1:17	1:17	1:24	1:40
Purple				1:66	1:83	1:9	1:10	1:13	1:21
Gray				1:53	1:67	1:69	1:76	1:10	1:16
Open				1:49	1:53	1:52	1:6	1:63	1:10

Chemical dose rates are based on a viscosity equal to water. Actual dose rates may vary. Field tests are recommended.