

- *Hydrant Flow Measurement -
Using the best options
for the circumstances...*

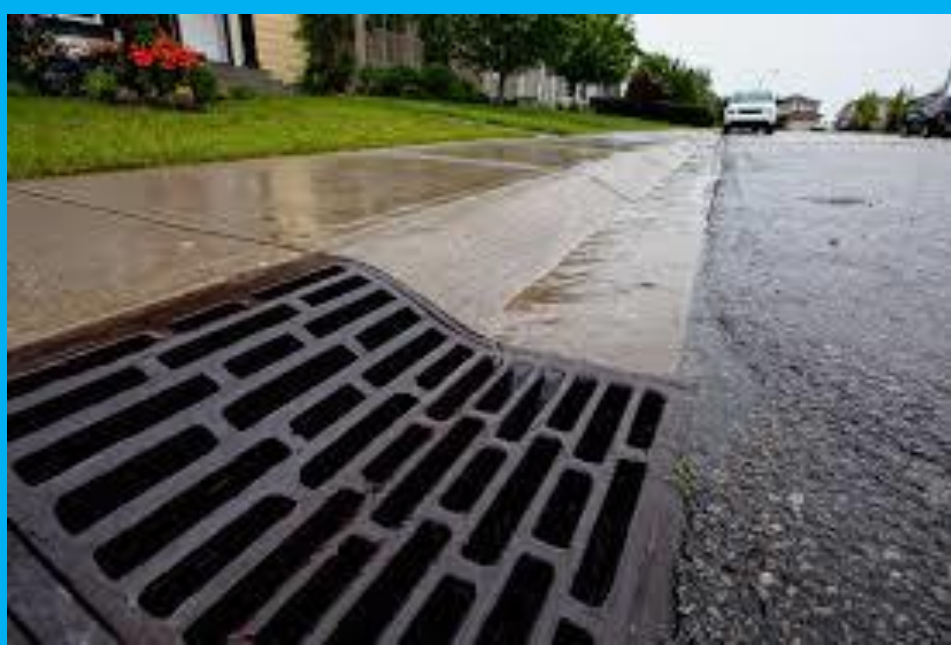
2022 Clean Safe Drinking Water Workshop

Tom Cameron
President / CEO



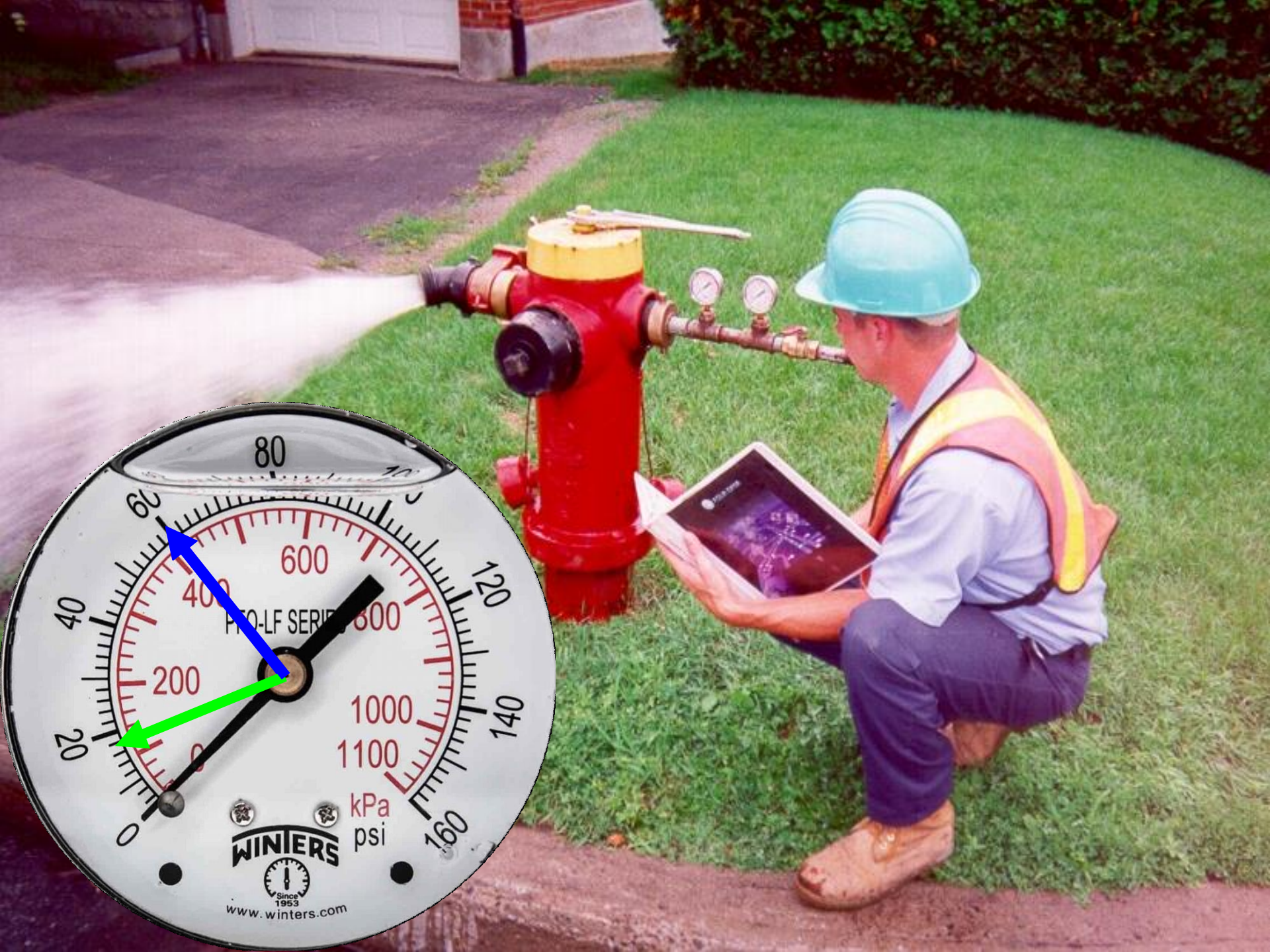
**Measuring flow can
be very simple or can
be complex...**

**Do what works best
for you and your
municipality...**



Drainage is Very Important







Pressure (psi)	Flow (gpm)	Velocity (ft/sec)					
		1.5" DN	1.5" DN	1.5" DN	1.5" DN	1.5" DN	1.5" DN
2	72	1.8	6.2	6.2	6.2	6.2	6.2
4	104	2.7	9.3	9.3	9.3	9.3	9.3
6	136	3.6	12.4	12.4	12.4	12.4	12.4
8	168	4.5	15.5	15.5	15.5	15.5	15.5
10	180	4.5	15.5	15.5	15.5	15.5	15.5
12	176	4.6	15.3	15.3	15.3	15.3	15.3
14	160	4.6	15.2	15.2	15.2	15.2	15.2
16	140	4.7	14.9	14.9	14.9	14.9	14.9
18	120	4.8	14.6	14.6	14.6	14.6	14.6
20	100	4.9	14.3	14.3	14.3	14.3	14.3
22	80	5.0	14.0	14.0	14.0	14.0	14.0
24	60	5.1	13.7	13.7	13.7	13.7	13.7
26	40	5.2	13.4	13.4	13.4	13.4	13.4
28	20	5.3	13.1	13.1	13.1	13.1	13.1
30	10	5.4	12.8	12.8	12.8	12.8	12.8
32	5	5.5	12.5	12.5	12.5	12.5	12.5
34	2.5	5.6	12.2	12.2	12.2	12.2	12.2
36	1.5	5.7	11.9	11.9	11.9	11.9	11.9
38	0.75	5.8	11.6	11.6	11.6	11.6	11.6
40	0.375	5.9	11.3	11.3	11.3	11.3	11.3
42	0.1875	6.0	11.0	11.0	11.0	11.0	11.0
44	0.09375	6.1	10.7	10.7	10.7	10.7	10.7
46	0.046875	6.2	10.4	10.4	10.4	10.4	10.4
48	0.0234375	6.3	10.1	10.1	10.1	10.1	10.1
50	0.01171875	6.4	9.8	9.8	9.8	9.8	9.8
52	0.005859375	6.5	9.5	9.5	9.5	9.5	9.5
54	0.0029296875	6.6	9.2	9.2	9.2	9.2	9.2
56	0.00146484375	6.7	8.9	8.9	8.9	8.9	8.9
58	0.000732421875	6.8	8.6	8.6	8.6	8.6	8.6
60	0.0003662109375	6.9	8.3	8.3	8.3	8.3	8.3
62	0.00018310546875	7.0	8.0	8.0	8.0	8.0	8.0
64	9.155273296875e-05	7.1	7.7	7.7	7.7	7.7	7.7
66	4.5776366484375e-05	7.2	7.4	7.4	7.4	7.4	7.4
68	2.28881832421875e-05	7.3	7.1	7.1	7.1	7.1	7.1
70	1.144409162109375e-05	7.4	6.8	6.8	6.8	6.8	6.8
72	5.722045810546875e-06	7.5	6.5	6.5	6.5	6.5	6.5

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Pressure (psi)	Flow (gpm)	Velocity (ft/sec)					
		2.0" DN	2.0" DN	2.0" DN	2.0" DN	2.0" DN	2.0" DN
2	140	3.1	1.4	6.8	6.8	6.8	6.8
4	148	3.8	1.7	10.0	10.0	10.0	10.0
6	206	6.4	2.4	14.0	14.0	14.0	14.0
8	227	8.2	2.8	18.0	18.0	18.0	18.0
10	266	7.9	3.1	17.0	17.0	17.0	17.0
12	300	7.8	3.4	1.8	1.2	6.8	6.8
14	310	6.9	3.7	3.1	1.9	6.8	6.8
16	336	6.6	3.9	3.3	1.4	1.0	6.7
18	366	6.4	4.2	3.9	1.8	1.0	6.8
20	374	6.9	4.4	3.8	1.8	1.1	6.8
22	381	16.3	4.6	3.8	1.7	1.1	6.8
24	470	16.8	4.8	3.7	1.7	1.2	6.8
26	427	11.3	5.0	3.8	1.8	1.3	6.8
28	463	11.7	5.2	3.8	1.8	1.3	6.8
30	489	12.1	5.4	3.8	1.8	1.3	6.8
32	474	12.8	5.6	3.1	3.0	1.4	6.8
34	460	12.8	5.7	3.0	3.1	1.4	6.8
36	460	13.2	5.9	3.0	3.1	1.4	6.8
38	478	13.8	6.0	3.0	3.0	1.4	6.8
40	470	14.3	6.1	3.0	3.0	1.4	6.8
42	460	14.9	6.2	3.0	3.0	1.4	6.8
44	460	15.5	6.3	3.0	3.0	1.4	6.8
46	460	16.1	6.4	3.0	3.0	1.4	6.8
48	460	16.7	6.5	3.0	3.0	1.4	6.8
50	460	17.3	6.6	3.0	3.0	1.4	6.8
52	460	17.9	6.7	3.0	3.0	1.4	6.8
54	460	18.5	6.8	3.0	3.0	1.4	6.8
56	460	19.1	6.9	3.0	3.0	1.4	6.8
58	460	19.7	7.0	3.0	3.0	1.4	6.8
60	460	20.3	7.1	3.0	3.0	1.4	6.8
62	460	20.9	7.2	3.0	3.0	1.4	6.8
64	460	21.5	7.3	3.0	3.0	1.4	6.8
66	460	22.1	7.4	3.0	3.0	1.4	6.8
68	460	22.7	7.5	3.0	3.0	1.4	6.8
70	460	23.3	7.6	3.0	3.0	1.4	6.8
72	460	23.9	7.7	3.0	3.0	1.4	6.8

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Pressure (psi)	Flow (gpm)	Velocity (ft/sec)					
		2.5" DN	2.5" DN	2.5" DN	2.5" DN	2.5" DN	2.5" DN
4	161	3.7	1.7	6.8	6.8	6.8	6.8
6	244	6.4	2.8	1.8	1.8	6.7	6.8
8	316	8.3	3.7	2.1	1.8	6.8	6.8
10	373	8.8	4.4	2.2	1.8	6.7	6.8
12	423	11.1	6.0	2.9	1.8	6.7	6.8
14	467	12.8	6.8	3.1	2.0	1.8	6.8
16	488	13.4	6.9	3.3	2.1	1.8	6.8
18	486	14.4	6.4	3.4	2.2	1.8	6.8
20	481	15.3	6.5	3.4	2.4	1.7	6.8
22	474	16.2	7.2	4.4	2.4	1.8	6.8
24	466	17.0	7.8	4.3	2.7	1.8	6.8
26	478	17.8	7.8	4.8	2.8	2.0	6.8
28	468	18.8	8.3	4.8	3.0	2.1	6.8
30	472	19.3	8.8	4.8	3.1	2.1	6.8
32	468	20.0	8.8	5.0	3.2	2.2	6.8
34	468	20.7	8.2	5.2	3.2	2.2	6.8
36	470	21.3	8.8	5.2	3.4	2.4	6.8
38	464	22.0	8.8	5.4	3.4	2.4	6.8
40	467	22.8	10.8	5.4	3.4	2.4	6.8
42	460	23.2	10.8	5.4	3.7	2.4	6.8
44	460	23.8	10.8	5.4	3.8	2.4	6.8
46	460	24.4	10.8	5.1	3.8	2.7	6.8
48	460	25.0	11.1	5.2	4.0	2.8	6.8
50	460	25.6	11.3	5.4	4.1	2.8	6.8
52	460	26.2	11.6	5.4	4.2	2.8	6.8
54	460	26.7	11.8	5.4	4.2	2.8	6.8
56	460	27.3	12.0	5.8	4.3	2.8	6.8
58	460	27.8	12.2	5.8	4.4	2.1	6.8
60	460	28.3	12.5	7.0	4.8	2.1	6.8
62	460	28.8	12.7	7.1	4.8	2.2	6.8
64	460	29.3	12.8	7.3	4.8	2.4	6.8
66	460	29.8	13.1	7.4	4.7	2.4	6.8
68	460	30.3	13.3	7.8	4.9	2.4	6.8
70	460	30.8	13.6	7.8	4.9	2.4	6.8
72	460	31.3	13.7	7.7	4.8	2.4	6.8
74	460	31.8	13.8	7.8	5.0	2.4	6.8

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Engineering flow charts for full flow 2.5" gate valves w/ or wo/ elbows..

2.0" OUTLET 45° Elbow



Length of pipe:	500
Velocity:	5
Flushing Time:	5

Length of Pipe divided By Velocity
times 1 divided by 60

Pressure (psi)	Flow (gpm)	Velocity			
		Pipe diameter 4"	Pipe diameter 6"	Pipe diameter 8"	Pipe diameter 10"
2	128	3.4	1.5	0.8	0.5
4	180	4.8	2.1	1.2	0.8
6	221	5.8	2.6	1.5	0.9
8	255	6.7	3.0	1.7	1.1
10	285	7.5	3.3	1.9	1.2
12	312	8.2	3.7	2.1	1.3
14	337	8.9	4.0	2.2	1.4
16	361	9.5	4.2	2.4	1.5
18	383	10.1	4.5	2.5	1.6





Water & Waste Water Diagnosis Specialists

AQUA
DATA
Atlantic

DXF 664



AQUA
DATA
Atlantic



Water & Waste Water Diagnosis Specialists

NOVA SCOTIA
DXF 664





SPINKER
MADE IN U.S.A.

10/10/10



TYPE BH CLASS IIB 90c 3

Pollard
Water
dot.com
LPD-250A
ALUMINUM
DECHLORINATING
DIFFUSER

LPD-250A
ALUMINUM DECHLORINATING DIFFUSER

WATER
PAINT



Technical data table with multiple columns and rows of text, likely a performance chart for the nozzle.





Model II FLOW CHART

PITOT DIAMETER ORIFICE			
PSI	2 1/2"	1 3/4"	1 1/8"
10	533	282	118
11	559	295	124
12	584	308	129
13	608	321	135
14	631	333	140
15	653	345	145
16	675	356	149
17	695	367	154
18	716	378	159
19	735	388	163
20	754	398	167
21	773	408	171
22	791	418	175
23	809	427	179
24	826	436	183
25	843	445	187
26	860	454	191
27	876	463	194
28	893	471	198
29	908	479	201
30	924	488	205
31	939	496	208
32	954	504	211
33	969	511	215
34	984	519	218
35	998	527	221
36	1012	534	224
37	1026	542	227
38	1040	549	230
39	1053	556	233
40	1067	563	236
41	1080	570	239
42	1093	577	242

PITOT DIAMETER ORIFICE			
PSI	2 1/2"	1 3/4"	1 1/8"
43	1106	584	245
44	1119	591	248
45	1131	597	251
46	1144	604	253
47	1156	610	256
48	1168	617	259
49	1180	623	262
50	1192	630	264
51	1204	636	267
52	1216	642	269
53	1228	648	272
54	1239	654	275
55	1251	660	277
56	1262	666	280
57	1273	672	282
58	1284	678	285
59	1295	684	287
60	1306	690	289
61	1317	695	292
62	1328	701	294
63	1338	707	297
64	1349	712	299
65	1359	718	301
66	1370	723	304
67	1380	729	306
68	1390	734	308
69	1401	740	310
70	1411	745	313
71	1421	750	315
72	1431	756	317
73	1441	761	319
74	1451	766	321
75	1460	771	324

U. S. Patent # 5,069,073



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2" Pitotless Nozzle™ GRV FLOW CHART



10 - 40 PSI Little Hose Monster			41 - 70 PSI Little Hose Monster			Key Flow Test Points Little Hose Monster		
PSI	GPM	GPM	PSI	GPM	GPM	GPM	PSI	PSI
10	493	529	41	999	1071	500	10.7	9.1
11	517	555	42	1011	1084	562.5	13.0	11.3
12	540	579	43	1023	1096	750	23.1	20.1
13	562	603	44	1035	1109	1000	41.1	35.8
14	584	626	45	1046	1122	1125	52.0	45.3
15	604	648	46	1058	1134	1500	92.5	80.5
16	624	669	47	1069	1146			
17	643	689	48	1081	1158			
18	662	709	49	1092	1170			
19	680	729	50	1103	1182			
20	698	748	51	1114	1194			
21	715	766	52	1125	1206			
22	732	784	53	1136	1217			
23	748	802	54	1146	1229			
24	764	819	55	1157	1240			
25	780	836	56	1167	1251			
26	795	853	57	1178	1262			
27	811	869	58	1188	1273			
28	825	885	59	1198	1284			
29	840	900	60	1208	1295			
30	854	916	61	1218	1306			
31	869	931	62	1228	1317			
32	882	946	63	1238	1327			
33	896	960	64	1248	1338			
34	910	975	65	1258	1348			
35	923	989	66	1267	1358			
36	936	1003	67	1277	1369			
37	949	1017	68	1286	1379			
38	962	1031	69	1296	1389			
39	974	1044	70	1305	1399			
40	987	1057						

The readings on this chart are based on which device the Pitotless Nozzle is connected to.

It is the user's responsibility to verify that the correct chart and column is being used.

- **Little Hose Monster™ (HML).** Use this column when the Pitotless Nozzle is connected to a Little Hose Monster.
- **Open Atmosphere.** Use this column when the Pitotless Nozzle is connected directly to a test header or hydrant flowing openly to atmosphere.

This chart is FM Approved for flow rate accuracy. Please call us or instruct the Authority Having Jurisdiction to call us if there are any questions. Additional copies of flow charts are available at: www.hosemonster.com/literature.html

Updated Feb. 2011

U. S. Patent # 6,874,375



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