



### Rig Mass Flow Rate Calculations

Please Enter Parameters in highlighted boxes below

Engine Data File		
<b>Ambient Conditions</b>		
Air Temperature	5	[C]
Atmospheric Pressure	975	[mBar]
Air Humidity	95	[%]
<b>Viper Engine Parameters</b>		
Engine Air Intake Mass Flow	18.7	[Kg/s]
Butane Flow Rate	1732	[Ltr/h]
Engine Speed	12150	[RPM]
ETC	650	[C]
<b>Gas Delivery System Data File</b>		
<b>Gas Delivery System</b>		
Mixed Gas (Fuel) Mass Flow rate	0.0826	[Kg/s]
Oxygen Mass Flow rate	0.151	[Kg/s]

Please do not change anything in this box

Test Date and Time = 14.04.2015 16:50:04.7

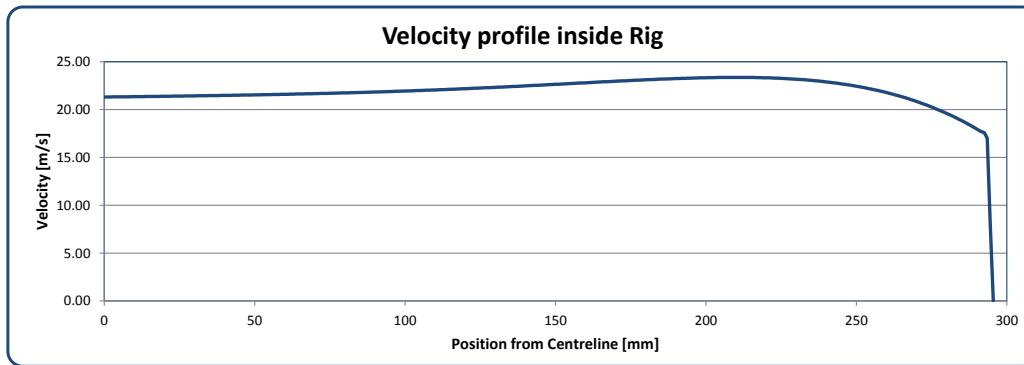
Calculated Parameters		
Air density	1.217898	[Kg/m3]
Liquid Butane density	584	[Kg/m3]
Butane mass Flow rate	0.280969	[Kg/s]
Air Fuel Ratio	79.23263	[ ]
<b>Calculated Exhaust gas properties (Reaction Engines)</b>		
Exhaust products density	0.389	[Kg/m3]
<b>Pitot Traverse Results</b>		
Rig Gas flow rate - Integrated	2.325006	[Kg/s]
Total Rig Mass flow	2.558606	[Kg/s]
<b>Rig Gas Temperature as read from TC 11</b>		
Gas Temperature	528	[C]

Bruce Ewan to fill in

Note

Manual for viper 201 gives figures for fuel flow rate to be as follows at maximum power

Fuel Flow	2035	lb/hr	to	2920	lb/hr
	925	Kg/hr		1327.273	Kg/hr
	1156.25	ltr/hr		1659.091	ltr/hr



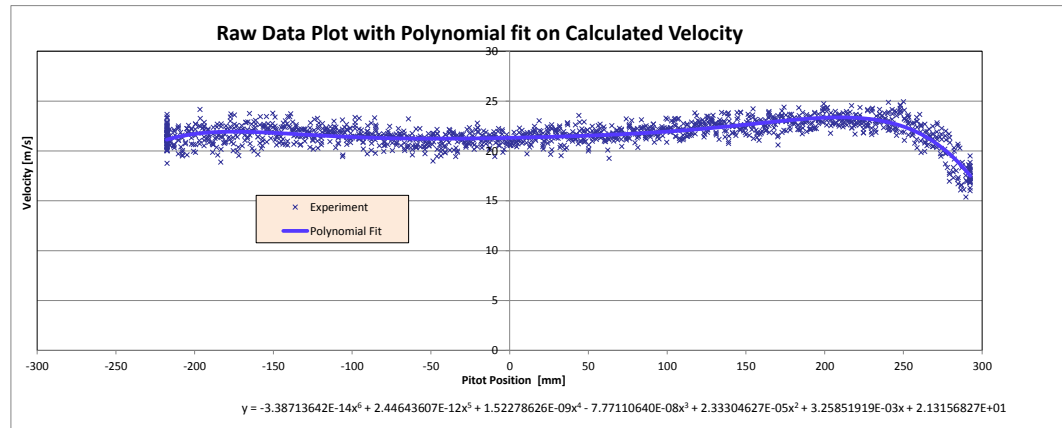
**Data Acquisition Parameters**

Sampling Rate	1000	[Hz]	
No of samples recorded	100	Samples	
Averaged samples sampling	10	[Hz]	
Pitot Traverse speed	7	[mm/s]	Averaged Pitot dp
Distance Travelled every 0.1	0.7	[mm]	0.921231543
			Average Vel 21.7247184 [m/s]

**Raw Data from CSV File**

Date and time [dd:mm:yyyy hh:mm:ss.ms]	Pitot Position from rig centre [mm]	TC11 - Pitot [deg C]	Pitot dP [mBar]	O2 %
14.04.2015 16:50:04.7	-217.51	519.8	0.7815	104.56
14.04.2015 16:50:04.8	-217.53	519.9	0.835	104.56
14.04.2015 16:50:04.9	-217.54	520.1	0.9128	104.56
14.04.2015 16:50:05.0	-217.53	519.9	0.7829	104.56
14.04.2015 16:50:05.1	-217.56	519.9	0.8084	104.56
14.04.2015 16:50:05.2	-217.54	520.1	0.8812	104.56
14.04.2015 16:50:05.3	-217.52	520.2	0.9271	104.56
14.04.2015 16:50:05.4	-217.55	520	0.9277	104.56
14.04.2015 16:50:05.5	-217.5	520	0.8722	104.56
14.04.2015 16:50:05.6	-217.51	520.3	0.8123	104.56
14.04.2015 16:50:05.7	-217.58	520.4	0.9583	104.56
14.04.2015 16:50:05.8	-217.52	520.2	0.922	104.56
14.04.2015 16:50:05.9	-217.55	520.2	0.9449	104.56
14.04.2015 16:50:06.0	-217.54	520.4	0.8778	104.56
14.04.2015 16:50:06.1	-217.51	520.5	1.0528	104.56
14.04.2015 16:50:06.2	-217.52	520.3	0.8959	104.56
14.04.2015 16:50:06.3	-217.52	520.4	0.8648	104.56
14.04.2015 16:50:06.4	-217.54	520.7	0.9869	104.56
14.04.2015 16:50:06.5	-217.55	520.7	0.8828	104.56
14.04.2015 16:50:06.6	-217.54	520.6	1.0655	104.56
14.04.2015 16:50:06.7	-217.54	520.7	0.8773	104.56
14.04.2015 16:50:06.8	-216.93	520.9	0.8411	104.56
14.04.2015 16:50:06.9	-215.64	520.8	0.9004	104.56
14.04.2015 16:50:07.0	-215.76	520.7	0.8268	104.56
14.04.2015 16:50:07.1	-215.48	521	0.8506	104.56
14.04.2015 16:50:07.2	-212.71	521.1	0.8825	104.56
14.04.2015 16:50:07.3	-212.93	520.9	0.8031	104.56
14.04.2015 16:50:07.4	-212.89	520.9	0.9382	104.56
14.04.2015 16:50:07.5	-212.42	521.1	0.9045	104.56
14.04.2015 16:50:07.6	-210.16	521.2	0.8639	104.56
14.04.2015 16:50:07.7	-210.38	520.9	0.7552	104.56
14.04.2015 16:50:07.8	-210.32	521	0.863	104.56
14.04.2015 16:50:07.9	-208.73	521.2	0.8103	104.56
14.04.2015 16:50:08.0	-207.79	521.1	0.7391	104.56
14.04.2015 16:50:08.1	-207.81	520.9	0.7694	104.56
14.04.2015 16:50:08.2	-207.79	521	0.8816	104.56
14.04.2015 16:50:08.3	-205.72	521.1	0.8466	104.56
14.04.2015 16:50:08.4	-204.82	521	0.7482	104.56
14.04.2015 16:50:08.5	-204.85	520.9	0.9608	104.56
14.04.2015 16:50:08.6	-203.71	521	0.9352	104.56
14.04.2015 16:50:08.7	-201.81	521.1	0.9152	104.56
14.04.2015 16:50:08.8	-202.02	521	0.8834	104.56
14.04.2015 16:50:08.9	-202.02	520.9	0.9639	104.56
14.04.2015 16:50:09.0	-200.67	521.1	0.7759	104.56
14.04.2015 16:50:09.1	-199.33	521.2	0.8281	104.56
14.04.2015 16:50:09.2	-199.45	520.9	0.7673	104.56
14.04.2015 16:50:09.3	-199.42	520.9	1.004	104.56
14.04.2015 16:50:09.4	-196.97	521.1	0.9874	104.56
14.04.2015 16:50:09.5	-196.97	521.1	0.861	104.56
14.04.2015 16:50:09.6	-196.92	520.9	0.8351	104.56
14.04.2015 16:50:09.7	-194.9	520.9	0.9674	104.56
14.04.2015 16:50:09.8	-193.92	521.1	0.9859	104.56
14.04.2015 16:50:09.9	-193.97	521.1	0.8904	104.56
14.04.2015 16:50:10.0	-193.94	520.9	1.0168	104.56
14.04.2015 16:50:10.1	-192.05	521	0.8774	104.56
14.04.2015 16:50:10.2	-191.44	521.1	0.9589	104.56
14.04.2015 16:50:10.3	-191.47	521	0.95	104.56
14.04.2015 16:50:10.4	-191.05	520.9	0.9074	104.56
14.04.2015 16:50:10.5	-188.34	521.1	0.8297	104.56

Calculated Velocity [m/s]
20.0449367
20.7196987
21.6634695
20.0628831
20.3870013
21.2851856
21.8325009
21.8395646
21.1762102
20.436119
22.1968293
21.7723676
22.0410927
21.2440828
23.2655399
21.4619889
21.0861862
22.5256209
21.3045007
23.4054462
21.2380316
20.7952437
21.5158219
20.6177102
20.9123523
21.3008804
20.3200611
21.9628104
21.5647527
21.0752111
19.7047617
21.0642303
20.4109452
19.4935887
19.889153
21.290016
20.8631235
19.6132267
22.2257638
21.927668
21.6919304
21.3117393
22.2615904
19.9729895
20.6339127
19.8619917
22.7199334
22.5313264
21.039808
20.7209393
22.3019706
22.5142057
21.396009
22.864303
21.2392419
22.203777
22.1004949
21.5992954
20.6538369



14.04.2015 16:50:10.6	-188.6	521.2	0.7673	104.56	19.8619917
14.04.2015 16:50:10.7	-188.53	521	0.8465	104.56	20.8618913
14.04.2015 16:50:10.8	-187.07	520.9	0.8791	104.56	21.259808
14.04.2015 16:50:10.9	-185.92	521.1	0.9272	104.56	21.8336784
14.04.2015 16:50:11.0	-186.05	521.2	0.8062	104.56	20.3592415
14.04.2015 16:50:11.1	-185.32	521	0.7468	104.56	19.5948684
14.04.2015 16:50:11.2	-183.26	520.9	0.7907	104.56	20.1625783
14.04.2015 16:50:11.3	-183.48	521.1	0.9286	104.56	21.8501557
14.04.2015 16:50:11.4	-183.41	521.1	0.6935	104.56	18.8826712
14.04.2015 16:50:11.5	-181.63	520.9	0.8438	104.56	20.8285941
14.04.2015 16:50:11.6	-180.85	520.9	0.9142	104.56	21.6800763
14.04.2015 16:50:11.7	-180.93	521.1	0.8395	104.56	20.7754552
14.04.2015 16:50:11.8	-180.62	521	0.8476	104.56	20.8754416
14.04.2015 16:50:11.9	-177.8	520.8	0.8701	104.56	21.1507018
14.04.2015 16:50:12.0	-178.06	520.9	0.8896	104.56	21.386395
14.04.2015 16:50:12.1	-178.05	521	0.9524	104.56	22.1283937
14.04.2015 16:50:12.2	-176.64	520.9	0.8494	104.56	20.8975958
14.04.2015 16:50:12.3	-175.31	520.7	0.8349	104.56	20.7184579
14.04.2015 16:50:12.4	-175.52	520.9	0.8861	104.56	21.3442828
14.04.2015 16:50:12.5	-175.47	521	0.7799	104.56	20.0244067
14.04.2015 16:50:12.6	-173.88	520.8	0.9063	104.56	21.5861995
14.04.2015 16:50:12.7	-172.87	520.7	0.7757	104.56	19.9704151
14.04.2015 16:50:12.8	-172.91	521	0.8906	104.56	21.3984119
14.04.2015 16:50:12.9	-171.97	521	0.7418	104.56	19.5291622
14.04.2015 16:50:13.0	-169.78	520.7	0.8185	104.56	20.5139616
14.04.2015 16:50:13.1	-170.01	520.7	0.9277	104.56	21.8395646
14.04.2015 16:50:13.2	-170	520.9	0.9419	104.56	22.0060753
14.04.2015 16:50:13.3	-168.02	520.9	0.862	104.56	21.0520227
14.04.2015 16:50:13.4	-167.45	520.6	1.0146	104.56	22.8395544
14.04.2015 16:50:13.5	-167.45	520.7	1.0176	104.56	22.8732958
14.04.2015 16:50:13.6	-166.25	520.9	1.0214	104.56	22.9159636
14.04.2015 16:50:13.7	-164.77	520.8	0.8359	104.56	20.730862
14.04.2015 16:50:13.8	-164.92	520.7	0.9062	104.56	21.5850086
14.04.2015 16:50:13.9	-164.96	520.8	0.9372	104.56	21.9511025
14.04.2015 16:50:14.0	-163.43	520.9	0.7985	104.56	20.2617829
14.04.2015 16:50:14.1	-162.29	520.8	0.7778	104.56	19.9974291
14.04.2015 16:50:14.2	-162.39	520.7	0.9603	104.56	22.2199799
14.04.2015 16:50:14.3	-162.36	520.9	0.9354	104.56	21.9300125
14.04.2015 16:50:14.4	-159.73	521	0.8918	104.56	21.4128232
14.04.2015 16:50:14.5	-159.87	520.8	0.7515	104.56	19.6564321
14.04.2015 16:50:14.6	-159.83	520.7	0.8919	104.56	21.4140237
14.04.2015 16:50:14.7	-157.67	520.9	0.7989	104.56	20.2668572
14.04.2015 16:50:14.8	-156.94	520.9	0.8206	104.56	20.5402608
14.04.2015 16:50:14.9	-156.91	520.7	0.8814	104.56	21.2876009
14.04.2015 16:50:15.0	-156.63	520.7	0.8571	104.56	20.9921028
14.04.2015 16:50:15.1	-154.21	520.9	0.8499	104.56	20.9037456
14.04.2015 16:50:15.2	-154.41	520.9	0.9347	104.56	21.9218054
14.04.2015 16:50:15.3	-154.38	520.6	1.07	104.56	23.454819
14.04.2015 16:50:15.4	-153.91	520.7	0.9639	104.56	22.2615904
14.04.2015 16:50:15.5	-151.63	520.8	0.8801	104.56	21.2718963
14.04.2015 16:50:15.6	-151.87	520.7	0.9293	104.56	21.8583898
14.04.2015 16:50:15.7	-151.84	520.5	0.988	104.56	22.538171
14.04.2015 16:50:15.8	-148.89	520.6	0.9608	104.56	22.2257638
14.04.2015 16:50:15.9	-148.96	520.7	0.9833	104.56	22.4844991
14.04.2015 16:50:16.0	-148.94	520.6	1.0641	104.56	23.3900645
14.04.2015 16:50:16.1	-148.81	520.5	0.8661	104.56	21.102029
14.04.2015 16:50:16.2	-146.27	520.7	0.8442	104.56	20.8335304
14.04.2015 16:50:16.3	-146.45	520.8	0.92	104.56	21.7487405
14.04.2015 16:50:16.4	-146.38	520.6	0.9067	104.56	21.5909626
14.04.2015 16:50:16.5	-145.31	520.6	0.8922	104.56	21.4176248
14.04.2015 16:50:16.6	-143.68	520.9	1.0103	104.56	22.7911046
14.04.2015 16:50:16.7	-143.86	520.9	0.8739	104.56	21.1968373
14.04.2015 16:50:16.8	-143.88	520.7	0.9772	104.56	22.4146482
14.04.2015 16:50:16.9	-141.24	520.7	1.0047	104.56	22.7278523
14.04.2015 16:50:17.0	-140.93	520.9	0.8238	104.56	20.5802711
14.04.2015 16:50:17.1	-140.97	520.9	0.8556	104.56	20.9737258
14.04.2015 16:50:17.2	-140.26	520.8	0.9841	104.56	22.4936438
14.04.2015 16:50:17.3	-137.76	520.8	1.0192	104.56	22.8912709
14.04.2015 16:50:17.4	-138.09	521	0.9573	104.56	22.1852449
14.04.2015 16:50:17.5	-138.03	520.9	0.9417	104.56	22.0037389
14.04.2015 16:50:17.6	-136.24	520.8	0.9078	104.56	21.6040556

14.04.2015 16:50:17.7	-135.47	520.9	0.8469	104.56	20.8668197
14.04.2015 16:50:17.8	-135.52	521	0.9801	104.56	22.4478831
14.04.2015 16:50:17.9	-135.49	520.9	0.9962	104.56	22.6315066
14.04.2015 16:50:18.0	-133.49	520.8	0.9485	104.56	22.0830403
14.04.2015 16:50:18.1	-132.9	521	0.8243	104.56	20.5865157
14.04.2015 16:50:18.2	-132.93	521.1	0.893	104.56	21.4272248
14.04.2015 16:50:18.3	-131.56	520.9	0.8975	104.56	21.481145
14.04.2015 16:50:18.4	-129.88	520.9	0.9581	104.56	22.1945129
14.04.2015 16:50:18.5	-130.04	521.1	0.9522	104.56	22.1260702
14.04.2015 16:50:18.6	-130.07	521.2	0.8566	104.56	20.9859789
14.04.2015 16:50:18.7	-127.63	520.9	0.9018	104.56	21.5325425
14.04.2015 16:50:18.8	-127.47	520.9	0.9322	104.56	21.8924692
14.04.2015 16:50:18.9	-127.5	521.1	0.9209	104.56	21.7593758
14.04.2015 16:50:19.0	-126.81	521	0.8068	104.56	20.3668161
14.04.2015 16:50:19.1	-124.72	520.8	0.7923	104.56	20.1829677
14.04.2015 16:50:19.2	-124.99	520.8	0.8611	104.56	21.0410298
14.04.2015 16:50:19.3	-124.97	520.9	0.8695	104.56	21.143408
14.04.2015 16:50:19.4	-122.77	520.8	0.9169	104.56	21.7120677
14.04.2015 16:50:19.5	-121.99	520.7	0.8578	104.56	21.0006733
14.04.2015 16:50:19.6	-122.03	520.8	1.0534	104.56	23.2721686
14.04.2015 16:50:19.7	-121.74	520.9	0.8	104.56	20.2808051
14.04.2015 16:50:19.8	-119.36	520.7	0.847	104.56	20.8680516
14.04.2015 16:50:19.9	-119.51	520.6	0.8825	104.56	21.3008804
14.04.2015 16:50:20.0	-119.51	520.8	0.8265	104.56	20.6139694
14.04.2015 16:50:20.1	-119.04	520.9	0.9048	104.56	21.5683287
14.04.2015 16:50:20.2	-116.76	520.7	0.9466	104.56	22.0609112
14.04.2015 16:50:20.3	-116.96	520.7	0.913	104.56	21.6658427
14.04.2015 16:50:20.4	-116.94	521	0.9105	104.56	21.6361594
14.04.2015 16:50:20.5	-114.04	521	0.914	104.56	21.6777047
14.04.2015 16:50:20.6	-114.1	520.8	0.9416	104.56	22.0025705
14.04.2015 16:50:20.7	-114.05	520.8	0.8523	104.56	20.9332395
14.04.2015 16:50:20.8	-113.96	521	0.9138	104.56	21.6753328
14.04.2015 16:50:20.9	-111.4	521	0.9144	104.56	21.6824476
14.04.2015 16:50:21.0	-111.54	520.8	1.0271	104.56	22.9798168
14.04.2015 16:50:21.1	-111.47	520.8	0.9307	104.56	21.8748485
14.04.2015 16:50:21.2	-110.43	521	0.8045	104.56	20.3377648
14.04.2015 16:50:21.3	-108.84	520.9	0.8822	104.56	21.2972596
14.04.2015 16:50:21.4	-108.98	520.7	0.8411	104.56	20.7952437
14.04.2015 16:50:21.5	-108.5	520.9	0.8352	104.56	20.7221799
14.04.2015 16:50:21.6	-105.9	521	0.7467	104.56	19.5935565
14.04.2015 16:50:21.7	-106.09	520.8	0.7347	104.56	19.4354776
14.04.2015 16:50:21.8	-106.02	520.8	0.9127	104.56	21.6622829
14.04.2015 16:50:21.9	-104.55	520.9	0.9263	104.56	21.8230792
14.04.2015 16:50:22.0	-103.43	521	0.8308	104.56	20.6675235
14.04.2015 16:50:22.1	-103.55	520.7	0.8628	104.56	21.0617894
14.04.2015 16:50:22.2	-103.51	520.7	0.8885	104.56	21.3731687
14.04.2015 16:50:22.3	-100.84	520.9	0.8782	104.56	21.2489225
14.04.2015 16:50:22.4	-101.03	520.8	0.8448	104.56	20.8409326
14.04.2015 16:50:22.5	-100.97	520.6	0.9219	104.56	21.7711868
14.04.2015 16:50:22.6	-99.8	520.6	0.8833	104.56	21.310533
14.04.2015 16:50:22.7	-97.84	520.8	0.8945	104.56	21.4452133
14.04.2015 16:50:22.8	-98.13	520.7	1.0611	104.56	23.3570696
14.04.2015 16:50:22.9	-98.06	520.6	0.8955	104.56	21.4571972
14.04.2015 16:50:23.0	-95.88	520.7	0.8811	104.56	21.2839778
14.04.2015 16:50:23.1	-95.54	520.9	0.8747	104.56	21.2065373
14.04.2015 16:50:23.2	-95.52	520.8	1.0539	104.56	23.277691
14.04.2015 16:50:23.3	-94.1	520.7	0.9497	104.56	22.0970051
14.04.2015 16:50:23.4	-92.88	520.8	0.7927	104.56	20.1880618
14.04.2015 16:50:23.5	-93	520.9	0.8516	104.56	20.9246414
14.04.2015 16:50:23.6	-93.02	520.8	0.8798	104.56	21.2682705
14.04.2015 16:50:23.7	-90.44	520.8	0.7556	104.56	19.7099795
14.04.2015 16:50:23.8	-90.45	521	0.9362	104.56	21.9393883
14.04.2015 16:50:23.9	-90.47	521.1	0.9149	104.56	21.6883749
14.04.2015 16:50:24.0	-88.61	520.9	0.8796	104.56	21.265853
14.04.2015 16:50:24.1	-87.82	520.9	0.7821	104.56	20.05263
14.04.2015 16:50:24.2	-87.88	521.2	0.8953	104.56	21.4548009
14.04.2015 16:50:24.3	-87.67	521.2	0.8389	104.56	20.7680296
14.04.2015 16:50:24.4	-85.22	521	0.7605	104.56	19.7737849
14.04.2015 16:50:24.5	-85.37	521	0.8668	104.56	21.1105549
14.04.2015 16:50:24.6	-85.37	521.2	0.904	104.56	21.5587915
14.04.2015 16:50:24.7	-84.93	521.1	0.9376	104.56	21.9557864

14.04.2015 16:50:24.8	-82.62	521	0.819	104.56	20.5202264
14.04.2015 16:50:24.9	-82.82	521.1	0.9139	104.56	21.6765188
14.04.2015 16:50:25.0	-82.82	521.2	0.8892	104.56	21.3815864
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14.04.2015 16:50:25.2	-79.93	521	0.8933	104.56	21.4308237
14.04.2015 16:50:25.3	-79.92	521.2	0.7746	104.56	19.9562503
14.04.2015 16:50:25.4	-79.13	521.2	0.8226	104.56	20.5652763
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14.04.2015 16:50:25.6	-77.37	521	0.8295	104.56	20.6513474
14.04.2015 16:50:25.7	-77.35	521.3	0.9182	104.56	21.7274541
14.04.2015 16:50:25.8	-75.37	521.3	0.9082	104.56	21.6088147
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14.04.2015 16:50:26.7	-69.75	520.9	0.916	104.56	21.7014091
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14.04.2015 16:50:27.1	-66.81	520.9	0.7967	104.56	20.2389327
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14.04.2015 16:50:27.7	-61.76	521.5	0.7482	104.56	19.6132267
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14.04.2015 16:50:28.0	-59.18	521.8	0.8044	104.56	20.3365008
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14.04.2015 16:50:28.2	-58.59	521.7	0.827	104.56	20.6202037
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14.04.2015 16:50:29.4	-48.67	522.5	0.7013	104.56	18.9885637
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14.04.2015 16:50:29.6	-48.2	522.8	0.8499	104.56	20.9037456
14.04.2015 16:50:29.7	-45.94	522.6	0.7912	104.56	20.1689522
14.04.2015 16:50:29.8	-46.16	522.7	0.8873	104.56	21.3587306
14.04.2015 16:50:29.9	-46.13	522.9	0.7365	104.56	19.4592713
14.04.2015 16:50:30.0	-43.53	522.9	0.7968	104.56	20.2402028
14.04.2015 16:50:30.1	-43.6	522.7	0.7732	104.56	19.9382079
14.04.2015 16:50:30.2	-43.59	522.8	0.7412	104.56	19.5212625
14.04.2015 16:50:30.3	-42.77	523	0.8312	104.56	20.6724983
14.04.2015 16:50:30.4	-40.88	523	0.7635	104.56	19.8127481
14.04.2015 16:50:30.5	-41.06	522.9	0.771	104.56	19.9098224
14.04.2015 16:50:30.6	-41.07	523.2	0.821	104.56	20.5452663
14.04.2015 16:50:30.7	-39.99	523.4	0.8708	104.56	21.159208
14.04.2015 16:50:30.8	-38.3	523.3	0.9545	104.56	22.1527764
14.04.2015 16:50:30.9	-38.54	523.3	0.8441	104.56	20.8322965
14.04.2015 16:50:31.0	-38	523.7	0.784	104.56	20.0769727
14.04.2015 16:50:31.1	-35.4	523.8	0.7848	104.56	20.0872134
14.04.2015 16:50:31.2	-35.65	523.7	0.8939	104.56	21.4380197
14.04.2015 16:50:31.3	-35.69	523.8	0.9131	104.56	21.6670292
14.04.2015 16:50:31.4	-34.02	524.1	0.8015	104.56	20.2998094
14.04.2015 16:50:31.5	-33.09	524.2	0.8852	104.56	21.3334404
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14.04.2015 16:50:31.8	-30.41	524.5	0.8726	104.56	21.1810654

14.04.2015 16:50:31.9	-30.58	524.6	0.9151	104.56	21.6907453
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14.04.2015 16:50:32.4	-27.64	524.7	0.8203	104.56	20.5365058
14.04.2015 16:50:32.5	-25.79	524.8	0.8316	104.56	20.6774718
14.04.2015 16:50:32.6	-25.56	524.9	0.8561	104.56	20.9798532
14.04.2015 16:50:32.7	-25.46	524.7	0.9216	104.56	21.7676442
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14.04.2015 16:50:33.0	-22.69	524.8	0.887	104.56	21.3551196
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14.04.2015 16:50:33.4	-20.12	524.7	0.9377	104.56	21.9569572
14.04.2015 16:50:33.5	-18.15	524.4	0.8554	104.56	20.9712743
14.04.2015 16:50:33.6	-17.65	524.4	0.8045	104.56	20.3377648
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14.04.2015 16:50:38.9	21.63	523.8	0.8579	104.56	21.0018973

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14.04.2015 16:50:40.6	35.02	523.9	0.7911	104.56	20.1676776
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14.04.2015 16:50:41.5	40	523.9	0.8878	104.56	21.3647477
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14.04.2015 16:50:43.7	57.89	523.9	0.9008	104.56	21.5206005
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14.04.2015 16:50:44.1	60.9	523.9	0.8523	104.56	20.9332395
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14.04.2015 16:50:44.4	62.34	524.1	0.7853	104.56	20.0936113
14.04.2015 16:50:44.5	63.18	523.9	0.7215	104.56	19.2600923
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14.04.2015 16:50:45.5	71.03	524.3	0.9183	104.56	21.7286372
14.04.2015 16:50:45.6	71.18	524.2	0.8141	104.56	20.458749
14.04.2015 16:50:45.7	70.87	524.1	0.8714	104.56	21.1664963
14.04.2015 16:50:45.8	71.98	524.4	0.9168	104.56	21.7108836
14.04.2015 16:50:45.9	74.2	524.5	0.8654	104.56	21.0934998
14.04.2015 16:50:46.0	74.04	524.2	1.0486	104.56	23.2190862

14.04.2015 16:50:46.1	73.98	524.2	0.88	104.56	21.2706878
14.04.2015 16:50:46.2	75.65	524.5	0.8877	104.56	21.3635444
14.04.2015 16:50:46.3	76.11	524.4	0.8769	104.56	21.2331893
14.04.2015 16:50:46.4	76.19	524.2	0.9664	104.56	22.2904408
14.04.2015 16:50:46.5	77.5	524.3	1.0349	104.56	23.0669084
14.04.2015 16:50:46.6	79.27	524.4	0.9443	104.56	22.0340937
14.04.2015 16:50:46.7	79.17	524.3	0.9561	104.56	22.1713356
14.04.2015 16:50:46.8	79.56	524.2	0.8437	104.56	20.8273599
14.04.2015 16:50:46.9	81.63	524.4	0.9005	104.56	21.5170166
14.04.2015 16:50:47.0	81.42	524.5	0.8053	104.56	20.3478743
14.04.2015 16:50:47.1	81.72	524.4	0.8944	104.56	21.4440145
14.04.2015 16:50:47.2	83.28	524.4	0.9305	104.56	21.872498
14.04.2015 16:50:47.3	84.27	524.6	0.97	104.56	22.33192
14.04.2015 16:50:47.4	84.11	524.7	0.9165	104.56	21.7073312
14.04.2015 16:50:47.5	84.32	524.5	0.9198	104.56	21.7463763
14.04.2015 16:50:47.6	86.7	524.6	0.875	104.56	21.2101736
14.04.2015 16:50:47.7	86.65	524.8	0.986	104.56	22.5153475
14.04.2015 16:50:47.8	86.76	524.9	0.9515	104.56	22.1179358
14.04.2015 16:50:47.9	87.9	524.7	0.9623	104.56	22.2431064
14.04.2015 16:50:48.0	89.34	524.8	0.8908	104.56	21.4008144
14.04.2015 16:50:48.1	89.13	525.1	0.9083	104.56	21.6100043
14.04.2015 16:50:48.2	89.21	525.1	0.931	104.56	21.8783738
14.04.2015 16:50:48.3	91.9	525	0.8472	104.56	20.8705152
14.04.2015 16:50:48.4	92.22	525.1	0.9244	104.56	21.8006863
14.04.2015 16:50:48.5	92.11	525.2	0.9191	104.56	21.7380999
14.04.2015 16:50:48.6	92.86	525.2	0.9101	104.56	21.6314063
14.04.2015 16:50:48.7	94.88	525.1	0.8748	104.56	21.2077495
14.04.2015 16:50:48.8	94.51	525.3	0.9323	104.56	21.8936434
14.04.2015 16:50:48.9	94.63	525.4	0.9531	104.56	22.1365243
14.04.2015 16:50:49.0	97.48	525.3	0.9395	104.56	21.9780213
14.04.2015 16:50:49.1	97.15	525.2	0.9005	104.56	21.5170166
14.04.2015 16:50:49.2	97.21	525.4	0.9514	104.56	22.1167735
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14.04.2015 16:50:49.4	100.03	525.3	1.0446	104.56	23.174758
14.04.2015 16:50:49.5	99.73	525.2	0.8477	104.56	20.876673
14.04.2015 16:50:49.6	99.82	525.5	0.9678	104.56	22.3065808
14.04.2015 16:50:49.7	101.97	525.5	0.9298	104.56	21.8642693
14.04.2015 16:50:49.8	102.31	525.2	0.9322	104.56	21.8924692
14.04.2015 16:50:49.9	102.24	525.3	0.9679	104.56	22.3077332
14.04.2015 16:50:50.0	102.82	525.5	1.0309	104.56	23.0222872
14.04.2015 16:50:50.1	105.61	525.5	0.8936	104.56	21.434422
14.04.2015 16:50:50.2	105.26	525.3	0.8981	104.56	21.4883241
14.04.2015 16:50:50.3	105.13	525.4	1.0516	104.56	23.2522769
14.04.2015 16:50:50.4	106.59	525.6	1.046	104.56	23.1902825
14.04.2015 16:50:50.5	107.98	525.5	0.8599	104.56	21.0263637
14.04.2015 16:50:50.6	107.78	525.4	0.8784	104.56	21.251342
14.04.2015 16:50:50.7	108.68	525.5	0.8726	104.56	21.1810654
14.04.2015 16:50:50.8	110.47	525.6	0.8808	104.56	21.2803541
14.04.2015 16:50:50.9	110.36	525.4	1.0067	104.56	22.7504626
14.04.2015 16:50:51.0	110.13	525.4	0.8684	104.56	21.1300296
14.04.2015 16:50:51.1	112.43	525.5	0.8974	104.56	21.4799482
14.04.2015 16:50:51.2	112.92	525.6	0.8956	104.56	21.4583952
14.04.2015 16:50:51.3	112.94	525.3	0.9266	104.56	21.8266128
14.04.2015 16:50:51.4	114.08	525.2	0.9031	104.56	21.5480571
14.04.2015 16:50:51.5	115.39	525.4	0.9276	104.56	21.8383875
14.04.2015 16:50:51.6	115.37	525.4	0.9663	104.56	22.2892875
14.04.2015 16:50:51.7	115.51	525.1	1.0197	104.56	22.8968852
14.04.2015 16:50:51.8	117.81	525.1	0.9176	104.56	21.720354
14.04.2015 16:50:51.9	117.78	525.3	0.9673	104.56	22.3008179
14.04.2015 16:50:52.0	118.04	525.3	0.9877	104.56	22.5347489
14.04.2015 16:50:52.1	118.77	525.1	1.0771	104.56	23.5325077
14.04.2015 16:50:52.2	120.8	525.2	1.0008	104.56	22.6836974
14.04.2015 16:50:52.3	120.42	525.3	1.0245	104.56	22.9507128
14.04.2015 16:50:52.4	120.61	525.1	1.0227	104.56	22.9305423
14.04.2015 16:50:52.5	122.59	525	1.0402	104.56	23.1258989
14.04.2015 16:50:52.6	123.37	525.1	0.9281	104.56	21.8442724
14.04.2015 16:50:52.7	123.39	525.2	0.8903	104.56	21.3948075
14.04.2015 16:50:52.8	123.88	525	0.9135	104.56	21.6717745
14.04.2015 16:50:52.9	126.01	525	1.0707	104.56	23.4624899
14.04.2015 16:50:53.0	125.84	525.2	1.0194	104.56	22.8935168
14.04.2015 16:50:53.1	125.86	525.2	0.9504	104.56	22.1051472



14.04.2015 16:50:53.2	127.46	524.9	0.9925	104.56	22.5894395
14.04.2015 16:50:53.3	128.6	524.9	1.0232	104.56	22.936147
14.04.2015 16:50:53.4	128.4	525.1	1.038	104.56	23.1014305
14.04.2015 16:50:53.5	129.13	525.1	1.0808	104.56	23.5728919
14.04.2015 16:50:53.6	131.3	524.8	0.9081	104.56	21.607625
14.04.2015 16:50:53.7	131.05	524.8	0.9301	104.56	21.8677963
14.04.2015 16:50:53.8	131.04	525	0.9203	104.56	21.7522862
14.04.2015 16:50:53.9	132.98	524.9	0.8714	104.56	21.1664963
14.04.2015 16:50:54.0	133.62	524.7	0.9827	104.56	22.4776381
14.04.2015 16:50:54.1	133.47	524.8	0.9934	104.56	22.5996792
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14.04.2015 16:50:54.3	136.77	524.6	0.8915	104.56	21.4092213
14.04.2015 16:50:54.4	136.43	524.5	0.943	104.56	22.0189215
14.04.2015 16:50:54.5	136.31	524.7	0.9904	104.56	22.5655287
14.04.2015 16:50:54.6	137.69	524.7	0.9408	104.56	21.9932217
14.04.2015 16:50:54.7	139.22	524.5	0.8988	104.56	21.4966967
14.04.2015 16:50:54.8	139	524.4	0.8379	104.56	20.7556478
14.04.2015 16:50:54.9	138.98	524.6	0.8533	104.56	20.9455163
14.04.2015 16:50:55.0	141.49	524.6	0.9277	104.56	21.8395646
14.04.2015 16:50:55.1	141.61	524.4	0.9233	104.56	21.7877114
14.04.2015 16:50:55.2	141.61	524.3	0.9822	104.56	22.4719191
14.04.2015 16:50:55.3	143.64	524.5	0.9038	104.56	21.5564065
14.04.2015 16:50:55.4	144.5	524.5	0.9837	104.56	22.4890719
14.04.2015 16:50:55.5	144.4	524.3	1.0443	104.56	23.17143
14.04.2015 16:50:55.6	144.47	524.4	1.1067	104.56	23.853667
14.04.2015 16:50:55.7	146.2	524.5	0.9619	104.56	22.2384831
14.04.2015 16:50:55.8	146.78	524.4	0.9961	104.56	22.6303707
14.04.2015 16:50:55.9	146.69	524.3	1.1061	104.56	23.8472
14.04.2015 16:50:56.0	147.88	524.4	0.9784	104.56	22.4284065
14.04.2015 16:50:56.1	149.65	524.5	0.9273	104.56	21.8348557
14.04.2015 16:50:56.2	149.68	524.4	0.9708	104.56	22.3411272
14.04.2015 16:50:56.3	150.05	524.3	0.9094	104.56	21.6230858
14.04.2015 16:50:56.4	152.17	524.5	0.9044	104.56	21.5635606
14.04.2015 16:50:56.5	151.93	524.5	1.067	104.56	23.4219153
14.04.2015 16:50:56.6	152.21	524.3	1.0091	104.56	22.7775653
14.04.2015 16:50:56.7	153.77	524.3	0.953	104.56	22.135363
14.04.2015 16:50:56.8	154.71	524.5	0.9798	104.56	22.4444473
14.04.2015 16:50:56.9	154.51	524.5	0.9899	104.56	22.5598319
14.04.2015 16:50:57.0	154.84	524.3	0.8779	104.56	21.2452928
14.04.2015 16:50:57.1	157.34	524.4	0.9167	104.56	21.7096995
14.04.2015 16:50:57.2	157.09	524.6	0.887	104.56	21.3551196
14.04.2015 16:50:57.3	157.16	524.6	0.9273	104.56	21.8348557
14.04.2015 16:50:57.4	158.37	524.4	0.864	104.56	21.0764309
14.04.2015 16:50:57.5	159.87	524.6	1.0217	104.56	22.9193287
14.04.2015 16:50:57.6	159.71	524.8	0.9263	104.56	21.8230792
14.04.2015 16:50:57.7	160.34	524.7	0.9411	104.56	21.996728
14.04.2015 16:50:57.8	162.8	524.6	0.9464	104.56	22.0585806
14.04.2015 16:50:57.9	162.48	524.8	0.9431	104.56	22.020089
14.04.2015 16:50:58.0	162.69	524.9	0.9853	104.56	22.5073538
14.04.2015 16:50:58.1	163.28	524.8	0.9509	104.56	22.1109611
14.04.2015 16:50:58.2	164.86	524.7	0.929	104.56	21.8548613
14.04.2015 16:50:58.3	164.67	525	0.9891	104.56	22.5507141
14.04.2015 16:50:58.4	164.84	525.1	1.0766	104.56	23.5270451
14.04.2015 16:50:58.5	167.97	524.9	0.9689	104.56	22.319254
14.04.2015 16:50:58.6	167.54	524.9	1.0076	104.56	22.7606299
14.04.2015 16:50:58.7	167.65	525.2	0.9267	104.56	21.8277906
14.04.2015 16:50:58.8	168.76	525.3	0.9976	104.56	22.6474035
14.04.2015 16:50:58.9	170.5	525.1	0.9048	104.56	21.5683287
14.04.2015 16:50:59.0	170.19	525.2	0.8916	104.56	21.410422
14.04.2015 16:50:59.1	170.42	525.4	0.8258	104.56	20.6052381
14.04.2015 16:50:59.2	172.99	525.4	0.9296	104.56	21.8619177
14.04.2015 16:50:59.3	172.87	525.2	1.1208	104.56	24.0051408
14.04.2015 16:50:59.4	172.83	525.3	1.0829	104.56	23.5957819
14.04.2015 16:50:59.5	174.1	525.5	0.9467	104.56	22.0620765
14.04.2015 16:50:59.6	175.57	525.4	1.0309	104.56	23.0222872
14.04.2015 16:50:59.7	175.28	525.2	1.0351	104.56	23.0691372
14.04.2015 16:50:59.8	175.37	525.4	1.0818	104.56	23.5837947
14.04.2015 16:50:59.9	177.94	525.5	1.0303	104.56	23.0155865
14.04.2015 16:51:00.0	177.91	525.3	1.0907	104.56	23.6806083
14.04.2015 16:51:00.1	177.87	525.3	0.9759	104.56	22.3997337
14.04.2015 16:51:00.2	179.01	525.4	1.0912	104.56	23.6860355

14.04.2015 16:51:00.3	181.07	525.5	1.0201	104.56	22.9013757
14.04.2015 16:51:00.4	180.74	525.2	1.0266	104.56	22.9742227
14.04.2015 16:51:00.5	180.64	525.2	1.0005	104.56	22.6802973
14.04.2015 16:51:00.6	182.9	525.5	0.9564	104.56	22.1748138
14.04.2015 16:51:00.7	183.42	525.5	0.9923	104.56	22.5871634
14.04.2015 16:51:00.8	183.39	525.3	1.0522	104.56	23.2589093
14.04.2015 16:51:00.9	184.56	525.4	0.9528	104.56	22.1330401
14.04.2015 16:51:01.0	185.84	525.5	0.9172	104.56	21.7156193
14.04.2015 16:51:01.1	186.01	525.5	1.0015	104.56	22.691629
14.04.2015 16:51:01.2	186.53	525.3	1.0253	104.56	22.9596718
14.04.2015 16:51:01.3	188.5	525.4	1.0432	104.56	23.1592231
14.04.2015 16:51:01.4	188.16	525.6	1.057	104.56	23.311901
14.04.2015 16:51:01.5	188.54	525.4	1.0265	104.56	22.9731038
14.04.2015 16:51:01.6	190.26	525.4	0.9569	104.56	22.1806094
14.04.2015 16:51:01.7	190.99	525.6	0.9638	104.56	22.2604356
14.04.2015 16:51:01.8	190.8	525.6	1.069	104.56	23.4438563
14.04.2015 16:51:01.9	191.25	525.5	0.9563	104.56	22.1736544
14.04.2015 16:51:02.0	193.69	525.4	0.9672	104.56	22.2996651
14.04.2015 16:51:02.1	193.5	525.7	0.9607	104.56	22.2246071
14.04.2015 16:51:02.2	193.48	525.7	0.9709	104.56	22.3422778
14.04.2015 16:51:02.3	194.77	525.5	0.9621	104.56	22.2407949
14.04.2015 16:51:02.4	196.2	525.5	1.0364	104.56	23.0836191
14.04.2015 16:51:02.5	196.06	525.8	1.0326	104.56	23.0412617
14.04.2015 16:51:02.6	196.11	525.8	1.0927	104.56	23.7023097
14.04.2015 16:51:02.7	198.85	525.7	1.1231	104.56	24.0297588
14.04.2015 16:51:02.8	198.81	525.8	1.1474	104.56	24.288328
14.04.2015 16:51:02.9	198.86	526	1.0154	104.56	22.848557
14.04.2015 16:51:03.0	199.82	526	1.1513	104.56	24.3295709
14.04.2015 16:51:03.1	201.8	525.9	1.154	104.56	24.3580828
14.04.2015 16:51:03.2	201.35	526	0.9941	104.56	22.6076403
14.04.2015 16:51:03.3	201.32	526.2	1.0344	104.56	23.0613355
14.04.2015 16:51:03.4	204.27	526.1	1.052	104.56	23.2566987
14.04.2015 16:51:03.5	204.04	526	0.987	104.56	22.5267621
14.04.2015 16:51:03.6	204.02	526.2	1.0675	104.56	23.4274025
14.04.2015 16:51:03.7	205.05	526.3	1.0034	104.56	22.7131435
14.04.2015 16:51:03.8	206.83	526.1	1.0645	104.56	23.3944603
14.04.2015 16:51:03.9	206.52	526.2	1.0631	104.56	23.3790713
14.04.2015 16:51:04.0	207.12	526.4	1.0162	104.56	22.857556
14.04.2015 16:51:04.1	209.34	526.5	1.0835	104.56	23.6023179
14.04.2015 16:51:04.2	209.14	526.3	1.0417	104.56	23.142567
14.04.2015 16:51:04.3	208.93	526.3	0.9987	104.56	22.6598861
14.04.2015 16:51:04.4	211.6	526.6	0.9989	104.56	22.6621549
14.04.2015 16:51:04.5	211.74	526.6	1.1031	104.56	23.8148384
14.04.2015 16:51:04.6	211.69	526.4	0.977	104.56	22.4123543
14.04.2015 16:51:04.7	212.39	526.4	1.0566	104.56	23.3074897
14.04.2015 16:51:04.8	214.19	526.6	0.9925	104.56	22.5894395
14.04.2015 16:51:04.9	214.25	526.5	1.0426	104.56	23.1525621
14.04.2015 16:51:05.0	214.33	526.3	1.0956	104.56	23.7337416
14.04.2015 16:51:05.1	216.12	526.5	1.1103	104.56	23.8924325
14.04.2015 16:51:05.2	216.59	526.6	1.0375	104.56	23.0958659
14.04.2015 16:51:05.3	216.88	526.4	1.0206	104.56	22.9069875
14.04.2015 16:51:05.4	217.08	526.3	1.1711	104.56	24.5378884
14.04.2015 16:51:05.5	219.51	526.5	1.0842	104.56	23.6099408
14.04.2015 16:51:05.6	219.3	526.6	0.9151	104.56	21.6907453
14.04.2015 16:51:05.7	219.33	526.4	1.0325	104.56	23.040146
14.04.2015 16:51:05.8	220.77	526.4	1.0568	104.56	23.3096955
14.04.2015 16:51:05.9	222.32	526.6	1.0224	104.56	22.9271788
14.04.2015 16:51:06.0	222.16	526.7	1.0158	104.56	22.8530569
14.04.2015 16:51:06.1	222.32	526.4	0.9936	104.56	22.6019541
14.04.2015 16:51:06.2	224.76	526.4	0.9254	104.56	21.8124749
14.04.2015 16:51:06.3	224.55	526.6	0.9278	104.56	21.8407416
14.04.2015 16:51:06.4	224.65	526.6	0.9589	104.56	22.203777
14.04.2015 16:51:06.5	226.73	526.4	0.9863	104.56	22.5187725
14.04.2015 16:51:06.6	227.38	526.5	1.1335	104.56	24.1407612
14.04.2015 16:51:06.7	227.26	526.7	1.1239	104.56	24.0383156
14.04.2015 16:51:06.8	228.54	526.5	1.0318	104.56	23.0323345
14.04.2015 16:51:06.9	229.93	526.4	0.9109	104.56	21.6409115
14.04.2015 16:51:07.0	229.6	526.6	0.9326	104.56	21.8971656
14.04.2015 16:51:07.1	229.81	526.7	0.9669	104.56	22.2962065
14.04.2015 16:51:07.2	232.26	526.5	1.0307	104.56	23.0200538
14.04.2015 16:51:07.3	232.33	526.5	1.0327	104.56	23.0423774

14.04.2015 16:51:07.4	232.33	526.7	0.9537	104.56	22.1434909
14.04.2015 16:51:07.5	232.82	526.7	1.0745	104.56	23.5040881
14.04.2015 16:51:07.6	235.21	526.5	1.0387	104.56	23.1092187
14.04.2015 16:51:07.7	234.91	526.6	1.014	104.56	22.8328001
14.04.2015 16:51:07.8	234.94	526.9	1.094	104.56	23.716405
14.04.2015 16:51:07.9	236.68	526.9	1.0769	104.56	23.5303228
14.04.2015 16:51:08.0	237.51	526.7	0.9709	104.56	22.3422778
14.04.2015 16:51:08.1	237.24	526.7	1.0274	104.56	22.9831726
14.04.2015 16:51:08.2	238.6	526.9	1.0526	104.56	23.2633299
14.04.2015 16:51:08.3	240.7	526.9	0.9747	104.56	22.3859578
14.04.2015 16:51:08.4	240.39	526.7	0.9469	104.56	22.0644068
14.04.2015 16:51:08.5	240.26	526.9	0.9899	104.56	22.5598319
14.04.2015 16:51:08.6	241.31	527	0.9521	104.56	22.1249083
14.04.2015 16:51:08.7	243.15	526.9	0.9548	104.56	22.1562574
14.04.2015 16:51:08.8	242.91	526.8	1.0435	104.56	23.1625529
14.04.2015 16:51:08.9	243.49	527.1	1.0085	104.56	22.7707926
14.04.2015 16:51:09.0	245.64	527.1	1.0782	104.56	23.5445211
14.04.2015 16:51:09.1	245.49	526.9	0.9381	104.56	21.9616398
14.04.2015 16:51:09.2	245.19	526.9	0.9728	104.56	22.3641285
14.04.2015 16:51:09.3	248.04	527.1	1.1789	104.56	24.619469
14.04.2015 16:51:09.4	247.99	527.2	1.1459	104.56	24.2724467
14.04.2015 16:51:09.5	248.02	526.9	1.0964	104.56	23.7424051
14.04.2015 16:51:09.6	248.84	527	0.932	104.56	21.8901206
14.04.2015 16:51:09.7	250.62	527.2	0.864	104.56	21.0764309
14.04.2015 16:51:09.8	250.38	527.2	0.9314	104.56	21.8830732
14.04.2015 16:51:09.9	250.61	526.9	1.0528	104.56	23.2655399
14.04.2015 16:51:10.0	252.65	527	1.0745	104.56	23.5040881
14.04.2015 16:51:10.1	252.94	527.2	1.0308	104.56	23.0211705
14.04.2015 16:51:10.2	253.15	527.1	1.0861	104.56	23.6306193
14.04.2015 16:51:10.3	253.55	527	1.0647	104.56	23.3966579
14.04.2015 16:51:10.4	255.69	527	0.9616	104.56	22.2350149
14.04.2015 16:51:10.5	255.64	527.1	0.9049	104.56	21.5695205
14.04.2015 16:51:10.6	255.74	526.9	0.9073	104.56	21.5981052
14.04.2015 16:51:10.7	257.27	526.9	0.8404	104.56	20.7865885
14.04.2015 16:51:10.8	258.49	527.1	1.0259	104.56	22.9663888
14.04.2015 16:51:10.9	258.39	527.2	0.8707	104.56	21.157993
14.04.2015 16:51:11.0	258.71	527	0.8025	104.56	20.3124691
14.04.2015 16:51:11.1	261.22	526.9	0.7659	104.56	19.8438635
14.04.2015 16:51:11.2	261.02	527.1	0.859	104.56	21.0153573
14.04.2015 16:51:11.3	261	527.2	0.9346	104.56	21.9206327
14.04.2015 16:51:11.4	263.04	526.9	0.8885	104.56	21.3731687
14.04.2015 16:51:11.5	263.57	526.9	0.7743	104.56	19.9523855
14.04.2015 16:51:11.6	263.6	527.1	0.8418	104.56	20.8038952
14.04.2015 16:51:11.7	264.93	527.1	0.8193	104.56	20.5239843
14.04.2015 16:51:11.8	266.31	526.9	0.8698	104.56	21.1470552
14.04.2015 16:51:11.9	265.96	526.9	0.8868	104.56	21.3527118
14.04.2015 16:51:12.0	265.91	527.1	0.8304	104.56	20.6625476
14.04.2015 16:51:12.1	268.66	527	0.9828	104.56	22.4787818
14.04.2015 16:51:12.2	268.74	526.9	0.8777	104.56	21.2428727
14.04.2015 16:51:12.3	268.6	527	0.8152	104.56	20.4725661
14.04.2015 16:51:12.4	269.17	527.1	0.8158	104.56	20.4800988
14.04.2015 16:51:12.5	271.58	527	0.9973	104.56	22.6439979
14.04.2015 16:51:12.6	271.15	526.9	0.8048	104.56	20.3415565
14.04.2015 16:51:12.7	271.3	527.1	0.8912	104.56	21.4056188
14.04.2015 16:51:12.8	273.16	527.2	0.8906	104.56	21.3984119
14.04.2015 16:51:12.9	273.83	526.9	0.7378	104.56	19.4764375
14.04.2015 16:51:13.0	273.55	526.9	0.7574	104.56	19.7334422
14.04.2015 16:51:13.1	274.03	527.1	0.7978	104.56	20.2528998
14.04.2015 16:51:13.2	276.93	527.2	0.7564	104.56	19.7204108
14.04.2015 16:51:13.3	276.7	527	0.6807	104.56	18.7075999
14.04.2015 16:51:13.4	276.66	527.1	0.7606	104.56	19.7750849
14.04.2015 16:51:13.5	277.92	527.3	0.6546	104.56	18.3454428
14.04.2015 16:51:13.6	279.3	527.4	0.6063	104.56	17.655661
14.04.2015 16:51:13.7	279.24	527.2	0.5594	104.56	16.9590464
14.04.2015 16:51:13.8	279.22	527.5	0.6173	104.56	17.8151029
14.04.2015 16:51:13.9	281.73	527.6	0.6231	104.56	17.8986004
14.04.2015 16:51:14.0	281.82	527.4	0.6543	104.56	18.3412385
14.04.2015 16:51:14.1	281.77	527.4	0.5832	104.56	17.3160549
14.04.2015 16:51:14.2	283.6	527.5	0.632	104.56	18.0259738
14.04.2015 16:51:14.3	284.7	527.6	0.5433	104.56	16.7132169
14.04.2015 16:51:14.4	284.79	527.4	0.5837	104.56	17.3234762

14.04.2015 16:51:14.5	284.59	527.2	0.5706	104.56	17.1279774
14.04.2015 16:51:14.6	286.38	527.5	0.5034	104.56	16.0878053
14.04.2015 16:51:14.7	286.7	527.6	0.5361	104.56	16.6021029
14.04.2015 16:51:14.8	286.89	527.4	0.5326	104.56	16.5478196
14.04.2015 16:51:14.9	288.35	527.4	0.505	104.56	16.1133517
14.04.2015 16:51:15.0	289.91	527.7	0.5648	104.56	17.0407043
14.04.2015 16:51:15.1	289.67	527.7	0.4604	104.56	15.3853668
14.04.2015 16:51:15.2	290.26	527.6	0.5572	104.56	16.9256654
14.04.2015 16:51:15.3	292.28	527.7	0.6351	104.56	18.070129
14.04.2015 16:51:15.4	292.16	527.9	0.6459	104.56	18.2231244
14.04.2015 16:51:15.5	292.41	528	0.5962	104.56	17.5079857
14.04.2015 16:51:15.6	292.4	527.9	0.627	104.56	17.954527
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14.04.2015 16:51:15.8	292.17	528.2	0.6692	104.56	18.5489001
14.04.2015 16:51:15.9	292.4	528.2	0.6248	104.56	17.9230001
14.04.2015 16:51:16.0	292.34	528.1	0.6912	104.56	18.8513329
14.04.2015 16:51:16.1	292.28	528.4	0.5553	104.56	16.8967833
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14.04.2015 16:51:16.4	292.25	528.5	0.6622	104.56	18.451632
14.04.2015 16:51:16.5	292.39	528.9	0.6387	104.56	18.121271
14.04.2015 16:51:16.6	292.42	529	0.7402	104.56	19.5080894
14.04.2015 16:51:16.7	292.41	528.8	0.4987	104.56	16.0125272
14.04.2015 16:51:16.8	292.34	528.9	0.5659	104.56	17.0572904
14.04.2015 16:51:16.9	292.44	529.2	0.5565	104.56	16.9150304
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14.04.2015 16:51:17.1	292.44	529.1	0.5908	104.56	17.4285172
14.04.2015 16:51:17.2	292.36	529.1	0.5984	104.56	17.5402585
14.04.2015 16:51:17.3	292.18	529.4	0.5914	104.56	17.437365
14.04.2015 16:51:17.4	292.36	529.3	0.516	104.56	16.2878983
14.04.2015 16:51:17.5	292.39	529.1	0.5493	104.56	16.8052507
14.04.2015 16:51:17.6	292.28	529.2	0.5764	104.56	17.214808
14.04.2015 16:51:17.7	291.47	529.3	0.6733	104.56	18.6056353
14.04.2015 16:51:17.8	290.18	529.2	0.6291	104.56	17.9845692
14.04.2015 16:51:17.9	290.19	529.3	0.6552	104.56	18.3538485
14.04.2015 16:51:18.0	289.59	529.5	0.5986	104.56	17.5431895
14.04.2015 16:51:18.1	287.06	529.6	0.6507	104.56	18.2907115
14.04.2015 16:51:18.2	287.45	529.3	0.667	104.56	18.5183852
14.04.2015 16:51:18.3	287.38	529.4	0.6916	104.56	18.8567867
14.04.2015 16:51:18.4	285.84	529.5	0.8003	104.56	20.2846074
14.04.2015 16:51:18.5	284.63	529.5	0.832	104.56	20.6824442
14.04.2015 16:51:18.6	284.8	529.3	0.8153	104.56	20.4738218
14.04.2015 16:51:18.7	284.76	529.4	0.6879	104.56	18.806278
14.04.2015 16:51:18.8	282.13	529.6	0.8026	104.56	20.3137346
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14.04.2015 16:51:19.0	282.32	529.4	0.7155	104.56	19.1798416
14.04.2015 16:51:19.1	281.03	529.5	0.7456	104.56	19.579119
14.04.2015 16:51:19.2	279.03	529.7	0.9163	104.56	21.7049625
14.04.2015 16:51:19.3	279.48	529.6	0.8448	104.56	20.8409326
14.04.2015 16:51:19.4	279.39	529.5	0.8856	104.56	21.3382599
14.04.2015 16:51:19.5	277.11	529.6	0.8673	104.56	21.1166426
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14.04.2015 16:51:20.1	274.31	529.4	0.8708	104.56	21.159208
14.04.2015 16:51:20.2	271.17	529.4	0.8236	104.56	20.5777727
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14.04.2015 16:51:20.6	268.7	529.6	0.8129	104.56	20.4436651
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14.04.2015 16:51:20.8	268.83	529.8	0.9121	104.56	21.6551614
14.04.2015 16:51:20.9	266.81	529.7	0.8965	104.56	21.4691744
14.04.2015 16:51:21.0	266.26	529.8	0.9589	104.56	22.203777
14.04.2015 16:51:21.1	266.25	529.9	0.9046	104.56	21.5659448
14.04.2015 16:51:21.2	265.07	529.8	0.9366	104.56	21.9440747
14.04.2015 16:51:21.3	263.67	529.6	1.0002	104.56	22.6768967
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14.04.2015 16:51:21.5	263.7	529.8	0.8506	104.56	20.9123523

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14.04.2015 16:51:21.7	261.17	529.6	0.9838	104.56	22.490215
14.04.2015 16:51:21.8	261.21	529.9	0.9969	104.56	22.6394564
14.04.2015 16:51:21.9	260.34	530	1.0889	104.56	23.66106
14.04.2015 16:51:22.0	258.47	529.7	1.0612	104.56	23.3581702
14.04.2015 16:51:22.1	258.73	529.7	1.0278	104.56	22.9876462
14.04.2015 16:51:22.2	258.72	530	0.9747	104.56	22.3859578
14.04.2015 16:51:22.3	256.71	529.9	1.0116	104.56	22.805763
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14.04.2015 16:51:22.5	256.04	529.6	0.9462	104.56	22.0562497
14.04.2015 16:51:22.6	255.59	529.8	1.0088	104.56	22.7741792
14.04.2015 16:51:22.7	253.08	529.7	1.0016	104.56	22.6927618
14.04.2015 16:51:22.8	253.32	529.5	1.0124	104.56	22.814779
14.04.2015 16:51:22.9	253.19	529.6	0.9086	104.56	21.6135728
14.04.2015 16:51:23.0	251.72	529.7	1.0363	104.56	23.0825054
14.04.2015 16:51:23.1	250.64	529.6	1.0466	104.56	23.1969327
14.04.2015 16:51:23.2	250.69	529.5	1.1286	104.56	24.0885257
14.04.2015 16:51:23.3	250.07	529.6	1.2092	104.56	24.9338456
14.04.2015 16:51:23.4	247.92	529.7	1.1179	104.56	23.9740648
14.04.2015 16:51:23.5	248.26	529.5	1.1233	104.56	24.0318983
14.04.2015 16:51:23.6	248.06	529.5	1.1718	104.56	24.5452208
14.04.2015 16:51:23.7	245.51	529.7	1.1102	104.56	23.8913565
14.04.2015 16:51:23.8	245.62	529.8	0.9559	104.56	22.1690166
14.04.2015 16:51:23.9	245.64	529.5	0.9046	104.56	21.5659448
14.04.2015 16:51:24.0	244.53	529.5	1.121	104.56	24.0072825
14.04.2015 16:51:24.1	242.91	529.8	1.1337	104.56	24.1428908
14.04.2015 16:51:24.2	243.08	529.8	1.0938	104.56	23.714237
14.04.2015 16:51:24.3	243.13	529.5	0.9892	104.56	22.551854
14.04.2015 16:51:24.4	240.82	529.6	1.0339	104.56	23.0557612
14.04.2015 16:51:24.5	240.52	529.8	1.1111	104.56	23.9010385
14.04.2015 16:51:24.6	240.55	529.7	1.2026	104.56	24.8657061
14.04.2015 16:51:24.7	240.01	529.6	1.0971	104.56	23.7499831
14.04.2015 16:51:24.8	237.73	529.7	1.0193	104.56	22.8923939
14.04.2015 16:51:24.9	237.99	529.9	1.0466	104.56	23.1969327
14.04.2015 16:51:25.0	238.08	529.8	1.1017	104.56	23.7997213
14.04.2015 16:51:25.1	234.97	529.7	1.0332	104.56	23.0479549
14.04.2015 16:51:25.2	235.12	529.9	1.0937	104.56	23.713153
14.04.2015 16:51:25.3	235.07	530	1.0597	104.56	23.341656
14.04.2015 16:51:25.4	234.92	529.8	1.1352	104.56	24.1588573
14.04.2015 16:51:25.5	232.36	529.8	0.9979	104.56	22.6508085
14.04.2015 16:51:25.6	232.64	530	0.9302	104.56	21.8689718
14.04.2015 16:51:25.7	232.59	530	1.0174	104.56	22.8710479
14.04.2015 16:51:25.8	230.4	529.7	1.1469	104.56	24.2830354
14.04.2015 16:51:25.9	230	529.7	1.1368	104.56	24.1758766
14.04.2015 16:51:26.0	230.02	529.9	1.1172	104.56	23.9665577
14.04.2015 16:51:26.1	228.53	529.9	1.031	104.56	23.0234038
14.04.2015 16:51:26.2	227.39	529.7	0.9814	104.56	22.4627655
14.04.2015 16:51:26.3	227.47	529.8	0.992	104.56	22.5837487
14.04.2015 16:51:26.4	227.47	529.9	1.0123	104.56	22.8136522
14.04.2015 16:51:26.5	224.91	529.8	0.9885	104.56	22.5438732
14.04.2015 16:51:26.6	224.99	529.7	1.0189	104.56	22.8879016
14.04.2015 16:51:26.7	224.97	529.8	1.0398	104.56	23.121452
14.04.2015 16:51:26.8	223.06	530	1.0272	104.56	22.9809354
14.04.2015 16:51:26.9	222.35	529.8	1.0844	104.56	23.6121184
14.04.2015 16:51:27.0	222.43	529.8	1.1538	104.56	24.3559719
14.04.2015 16:51:27.1	222.11	530	1.0615	104.56	23.3614716
14.04.2015 16:51:27.2	219.68	530	0.9946	104.56	22.613325
14.04.2015 16:51:27.3	219.95	529.8	1.0899	104.56	23.6719221
14.04.2015 16:51:27.4	219.89	529.7	1.0131	104.56	22.822665
14.04.2015 16:51:27.5	218.54	529.9	0.9863	104.56	22.5187725
14.04.2015 16:51:27.6	217.19	529.9	1.0176	104.56	22.8732958
14.04.2015 16:51:27.7	217.34	529.6	0.9721	104.56	22.3560807
14.04.2015 16:51:27.8	217.29	529.6	0.9667	104.56	22.2939004
14.04.2015 16:51:27.9	214.9	529.8	1.023	104.56	22.9339053
14.04.2015 16:51:28.0	214.79	529.7	1.0699	104.56	23.453723
14.04.2015 16:51:28.1	214.83	529.5	1.0362	104.56	23.0813917
14.04.2015 16:51:28.2	213.91	529.5	1.1153	104.56	23.9461693
14.04.2015 16:51:28.3	211.59	529.7	1.0369	104.56	23.0891866
14.04.2015 16:51:28.4	211.88	529.6	1.017	104.56	22.8665515
14.04.2015 16:51:28.5	211.94	529.4	1.0548	104.56	23.2876281
14.04.2015 16:51:28.6	209.84	529.5	1.0439	104.56	23.1669919

14.04.2015 16:51:28.7	209.29	529.6	0.984	104.56	22.4925009
14.04.2015 16:51:28.8	209.4	529.4	1.0937	104.56	23.713153
14.04.2015 16:51:28.9	208.97	529.3	1.0769	104.56	23.5303228
14.04.2015 16:51:29.0	206.6	529.5	1.079	104.56	23.5532542
14.04.2015 16:51:29.1	206.84	529.5	1.1166	104.56	23.9601211
14.04.2015 16:51:29.2	206.8	529.3	1.0032	104.56	22.7108798
14.04.2015 16:51:29.3	205.15	529.2	1.0122	104.56	22.8125253
14.04.2015 16:51:29.4	203.79	529.5	0.922	104.56	21.7723676
14.04.2015 16:51:29.5	203.91	529.4	1.1032	104.56	23.8159179
14.04.2015 16:51:29.6	203.92	529.2	1.0407	104.56	23.1314562
14.04.2015 16:51:29.7	201.25	529.3	1.1167	104.56	23.961194
14.04.2015 16:51:29.8	201.35	529.4	1.1474	104.56	24.288328
14.04.2015 16:51:29.9	201.36	529.4	1.06	104.56	23.3449598
14.04.2015 16:51:30.0	199.48	529.2	1.1904	104.56	24.7392572
14.04.2015 16:51:30.1	198.75	529.3	1.118	104.56	23.9751371
14.04.2015 16:51:30.2	198.83	529.5	1.0736	104.56	23.4942426
14.04.2015 16:51:30.3	198.54	529.4	1.0256	104.56	22.9630305
14.04.2015 16:51:30.4	196.11	529.3	1.0067	104.56	22.7504626
14.04.2015 16:51:30.5	196.28	529.4	1.0426	104.56	23.1525621
14.04.2015 16:51:30.6	196.24	529.5	1.0494	104.56	23.2279417
14.04.2015 16:51:30.7	193.98	529.3	1.0432	104.56	23.1592231
14.04.2015 16:51:30.8	193.75	529.2	1.0994	104.56	23.7748652
14.04.2015 16:51:30.9	193.72	529.5	1.1069	104.56	23.8558223
14.04.2015 16:51:31.0	192.18	529.6	1.009	104.56	22.7764367
14.04.2015 16:51:31.1	191.12	529.3	1.0745	104.56	23.5040881
14.04.2015 16:51:31.2	191.17	529.3	1.0068	104.56	22.7515925
14.04.2015 16:51:31.3	191.16	529.5	0.9539	104.56	22.1458127
14.04.2015 16:51:31.4	188.52	529.5	1.0863	104.56	23.632795
14.04.2015 16:51:31.5	188.68	529.3	1.0253	104.56	22.9596718
14.04.2015 16:51:31.6	188.67	529.4	0.9371	104.56	21.9499313
14.04.2015 16:51:31.7	187.67	529.5	1.0163	104.56	22.8586806
14.04.2015 16:51:31.8	185.9	529.4	1.0158	104.56	22.8530569
14.04.2015 16:51:31.9	186.17	529.3	0.9661	104.56	22.2869808
14.04.2015 16:51:32.0	186.11	529.3	1.1064	104.56	23.8504337
14.04.2015 16:51:32.1	183.88	529.4	1.0788	104.56	23.5510712
14.04.2015 16:51:32.2	183.59	529.3	1.1511	104.56	24.3274576
14.04.2015 16:51:32.3	183.59	529.2	0.9541	104.56	22.1481341
14.04.2015 16:51:32.4	182.94	529.3	0.9919	104.56	22.5826104
14.04.2015 16:51:32.5	180.43	529.4	1.0224	104.56	22.9271788
14.04.2015 16:51:32.6	180.71	529.1	1.0573	104.56	23.315209
14.04.2015 16:51:32.7	180.62	529	1.0564	104.56	23.3052837
14.04.2015 16:51:32.8	178.98	529.3	1.0102	104.56	22.7899766
14.04.2015 16:51:32.9	178.03	529.3	1.0548	104.56	23.2876281
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14.04.2015 16:51:33.7	172.73	529	1.0798	104.56	23.5619841
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14.04.2015 16:51:34.5	167.56	528.9	1.0544	104.56	23.2832122
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14.04.2015 16:51:36.7	150.43	529.2	1.0187	104.56	22.8856552
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14.04.2015 16:51:36.9	149.09	529	0.9958	104.56	22.6269626
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14.04.2015 16:51:37.2	146.56	529	0.951	104.56	22.1121237
14.04.2015 16:51:37.3	146.51	529.1	1.1097	104.56	23.8859759
14.04.2015 16:51:37.4	144.93	529.3	1.0607	104.56	23.3526667
14.04.2015 16:51:37.5	143.95	529.2	0.9837	104.56	22.4890719
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14.04.2015 16:51:38.1	139.37	529.6	1.0277	104.56	22.9865279
14.04.2015 16:51:38.2	138.89	529.6	1.103	104.56	23.813759
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14.04.2015 16:51:41.1	117.86	529.7	1.0117	104.56	22.8068902
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14.04.2015 16:51:41.3	115.14	529.6	0.9599	104.56	22.2153517
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14.04.2015 16:51:41.6	113.98	529.7	0.9524	104.56	22.1283937
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14.04.2015 16:51:45.5	85.46	529.2	0.9768	104.56	22.4100602
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14.04.2015 16:51:46.3	78.51	529.2	0.9541	104.56	22.1481341
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14.04.2015 16:51:54.6	18.73	529.9	1.0311	104.56	23.0245203
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14.04.2015 16:51:54.8	15.84	530.2	0.9554	104.56	22.1632179
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14.04.2015 16:52:13.3	-121.35	538	0.9813	104.56	22.4616211
14.04.2015 16:52:13.4	-121.43	538.1	0.9622	104.56	22.2419507
14.04.2015 16:52:13.5	-122.05	537.9	0.9019	104.56	21.5337363
14.04.2015 16:52:13.6	-124.12	537.8	0.9481	104.56	22.0783834
14.04.2015 16:52:13.7	-123.88	538	1.0434	104.56	23.161443
14.04.2015 16:52:13.8	-123.89	538	0.8892	104.56	21.3815864
14.04.2015 16:52:13.9	-124.79	537.8	0.8867	104.56	21.3515079
14.04.2015 16:52:14.0	-126.66	537.7	0.9274	104.56	21.836033
14.04.2015 16:52:14.1	-126.4	537.9	1.0135	104.56	22.82717
14.04.2015 16:52:14.2	-126.81	537.9	0.9672	104.56	22.2996651
14.04.2015 16:52:14.3	-129.58	537.6	0.9004	104.56	21.5158219
14.04.2015 16:52:14.4	-129.31	537.6	0.9294	104.56	21.8595658
14.04.2015 16:52:14.5	-129.34	537.8	0.8931	104.56	21.4284245
14.04.2015 16:52:14.6	-130.74	537.7	0.9583	104.56	22.1968293
14.04.2015 16:52:14.7	-131.98	537.5	0.9566	104.56	22.1771322
14.04.2015 16:52:14.8	-131.87	537.6	0.953	104.56	22.135363
14.04.2015 16:52:14.9	-132.56	537.7	0.8298	104.56	20.6550815
14.04.2015 16:52:15.0	-134.65	537.6	0.8952	104.56	21.4536027
14.04.2015 16:52:15.1	-134.39	537.5	0.9542	104.56	22.1492948
14.04.2015 16:52:15.2	-134.41	537.6	0.9541	104.56	22.1481341
14.04.2015 16:52:15.3	-136.27	537.6	0.9543	104.56	22.1504554
14.04.2015 16:52:15.4	-137	537.4	0.9008	104.56	21.5206005
14.04.2015 16:52:15.5	-136.99	537.3	0.9484	104.56	22.0818762
14.04.2015 16:52:15.6	-136.96	537.5	0.8314	104.56	20.6749852
14.04.2015 16:52:15.7	-139.01	537.5	1.0946	104.56	23.7229077
14.04.2015 16:52:15.8	-139.55	537.2	1.0692	104.56	23.4460492
14.04.2015 16:52:15.9	-139.49	537.2	0.9727	104.56	22.362979
14.04.2015 16:52:16.0	-140.92	537.4	1.0698	104.56	23.4526269
14.04.2015 16:52:16.1	-142.6	537.3	0.9739	104.56	22.3767691
14.04.2015 16:52:16.2	-142.39	537.1	1.0298	104.56	23.0100012
14.04.2015 16:52:16.3	-142.38	537.1	0.8305	104.56	20.6637917
14.04.2015 16:52:16.4	-143.96	537.2	0.8323	104.56	20.6861726
14.04.2015 16:52:16.5	-145.07	537.1	0.9733	104.56	22.3698751
14.04.2015 16:52:16.6	-144.95	536.9	0.9355	104.56	21.9311847
14.04.2015 16:52:16.7	-144.96	536.9	0.8532	104.56	20.9442889
14.04.2015 16:52:16.8	-147.96	537	0.8253	104.56	20.5989992
14.04.2015 16:52:16.9	-147.8	536.8	0.8992	104.56	21.5014796
14.04.2015 16:52:17.0	-147.84	536.6	0.955	104.56	22.1585778
14.04.2015 16:52:17.1	-148.01	536.7	0.8886	104.56	21.3743714
14.04.2015 16:52:17.2	-150.58	536.8	1.0058	104.56	22.7402907
14.04.2015 16:52:17.3	-150.4	536.5	1.1007	104.56	23.7889175
14.04.2015 16:52:17.4	-150.37	536.4	0.974	104.56	22.3779179
14.04.2015 16:52:17.5	-152.87	536.6	0.9625	104.56	22.2454178
14.04.2015 16:52:17.6	-153.33	536.7	0.9327	104.56	21.8983396
14.04.2015 16:52:17.7	-153.29	536.5	1.0054	104.56	22.7357685
14.04.2015 16:52:17.8	-153.79	536.4	0.9279	104.56	21.8419186
14.04.2015 16:52:17.9	-156.04	536.7	0.9703	104.56	22.3353732
14.04.2015 16:52:18.0	-155.85	536.7	0.9845	104.56	22.4982147
14.04.2015 16:52:18.1	-155.87	536.5	1	104.56	22.6746294
14.04.2015 16:52:18.2	-156.52	536.5	0.9819	104.56	22.4684869
14.04.2015 16:52:18.3	-158.58	536.7	0.8398	104.56	20.7791669

14.04.2015 16:52:18.4	-158.31	536.6	1.0682	104.56	23.4350824
14.04.2015 16:52:18.5	-158.55	536.4	0.9958	104.56	22.6269626
14.04.2015 16:52:18.6	-161.42	536.5	0.9707	104.56	22.3399765
14.04.2015 16:52:18.7	-161.3	536.6	1.034	104.56	23.0568761
14.04.2015 16:52:18.8	-161.3	536.4	1.0019	104.56	22.6961601
14.04.2015 16:52:18.9	-162.34	536.3	1.0225	104.56	22.9283
14.04.2015 16:52:19.0	-164.03	536.5	0.931	104.56	21.8783738
14.04.2015 16:52:19.1	-163.83	536.6	1.0006	104.56	22.6814307
14.04.2015 16:52:19.2	-163.8	536.3	0.9476	104.56	22.0725609
14.04.2015 16:52:19.3	-165.18	536.3	1.097	104.56	23.7489007
14.04.2015 16:52:19.4	-166.49	536.6	0.9536	104.56	22.14233
14.04.2015 16:52:19.5	-166.38	536.5	0.8917	104.56	21.4116226
14.04.2015 16:52:19.6	-166.39	536.4	0.8788	104.56	21.2561801
14.04.2015 16:52:19.7	-168.17	536.4	0.9049	104.56	21.5695205
14.04.2015 16:52:19.8	-169.29	536.6	0.9582	104.56	22.1956711
14.04.2015 16:52:19.9	-169.32	536.5	0.9411	104.56	21.996728
14.04.2015 16:52:20.0	-170.17	536.3	0.9888	104.56	22.5472939
14.04.2015 16:52:20.1	-172.39	536.4	0.9392	104.56	21.974512
14.04.2015 16:52:20.2	-172.19	536.5	0.9546	104.56	22.1539368
14.04.2015 16:52:20.3	-172.2	536.4	0.8076	104.56	20.3769112
14.04.2015 16:52:20.4	-173.19	536.3	0.9892	104.56	22.551854
14.04.2015 16:52:20.5	-174.92	536.5	0.9662	104.56	22.2881342
14.04.2015 16:52:20.6	-174.71	536.6	0.9999	104.56	22.6734956
14.04.2015 16:52:20.7	-174.69	536.4	1.0838	104.56	23.6055852
14.04.2015 16:52:20.8	-176.96	536.3	1.094	104.56	23.716405
14.04.2015 16:52:20.9	-177.27	536.6	1.0291	104.56	23.0021794
14.04.2015 16:52:21.0	-177.27	536.7	1.0653	104.56	23.4032494
14.04.2015 16:52:21.1	-177.29	536.4	0.979	104.56	22.4352825
14.04.2015 16:52:21.2	-180.07	536.4	0.9576	104.56	22.1887208
14.04.2015 16:52:21.3	-180.09	536.6	0.9861	104.56	22.5164892
14.04.2015 16:52:21.4	-180.19	536.6	0.854	104.56	20.9541058
14.04.2015 16:52:21.5	-182.15	536.3	0.8892	104.56	21.3815864
14.04.2015 16:52:21.6	-183.11	536.3	0.8919	104.56	21.4140237
14.04.2015 16:52:21.7	-183.09	536.5	0.9802	104.56	22.4490282
14.04.2015 16:52:21.8	-183.1	536.3	1.0032	104.56	22.7108798
14.04.2015 16:52:21.9	-185.02	536.1	0.9029	104.56	21.545671
14.04.2015 16:52:22.0	-185.63	536.2	0.8863	104.56	21.3466914
14.04.2015 16:52:22.1	-185.6	536.3	1.0002	104.56	22.6768967
14.04.2015 16:52:22.2	-185.94	536.1	0.9754	104.56	22.3939948
14.04.2015 16:52:22.3	-188.34	536	0.9146	104.56	21.6848187
14.04.2015 16:52:22.4	-188.13	536.2	0.9726	104.56	22.3618294
14.04.2015 16:52:22.5	-188.17	536.3	0.8266	104.56	20.6152164
14.04.2015 16:52:22.6	-188.81	536	0.8352	104.56	20.7221799
14.04.2015 16:52:22.7	-191.24	536	0.8888	104.56	21.3767767
14.04.2015 16:52:22.8	-190.98	536.2	0.8449	104.56	20.8421661
14.04.2015 16:52:22.9	-191.05	536.2	0.87	104.56	21.1494863
14.04.2015 16:52:23.0	-194.02	535.9	0.9506	104.56	22.1074729
14.04.2015 16:52:23.1	-193.91	535.8	0.8627	104.56	21.0605688
14.04.2015 16:52:23.2	-193.98	536	0.819	104.56	20.5202264
14.04.2015 16:52:23.3	-194.12	535.9	0.9743	104.56	22.3813639
14.04.2015 16:52:23.4	-196.61	535.7	1.1356	104.56	24.1631132
14.04.2015 16:52:23.5	-196.45	535.7	1.0527	104.56	23.2644349
14.04.2015 16:52:23.6	-196.49	535.8	0.9795	104.56	22.4410109
14.04.2015 16:52:23.7	-197.8	535.7	0.9222	104.56	21.7747289
14.04.2015 16:52:23.8	-199.58	535.6	0.9567	104.56	22.1782913
14.04.2015 16:52:23.9	-199.37	535.7	0.9989	104.56	22.6621549
14.04.2015 16:52:24.0	-199.44	535.8	0.9022	104.56	21.5373174
14.04.2015 16:52:24.1	-200.82	535.6	0.8297	104.56	20.6538369
14.04.2015 16:52:24.2	-202.01	535.6	0.8327	104.56	20.6911429
14.04.2015 16:52:24.3	-201.92	535.7	0.9548	104.56	22.1562574
14.04.2015 16:52:24.4	-201.93	535.8	0.9217	104.56	21.7688251
14.04.2015 16:52:24.5	-203.82	535.6	0.9903	104.56	22.5643894
14.04.2015 16:52:24.6	-204.91	535.5	0.9626	104.56	22.2465733
14.04.2015 16:52:24.7	-204.85	535.8	0.9285	104.56	21.8489792
14.04.2015 16:52:24.8	-205.85	535.8	0.8348	104.56	20.7172171
14.04.2015 16:52:24.9	-207.99	535.6	0.9075	104.56	21.6004856
14.04.2015 16:52:25.0	-207.7	535.6	0.7812	104.56	20.0410889
14.04.2015 16:52:25.1	-207.72	535.8	0.7478	104.56	19.6079833
14.04.2015 16:52:25.2	-208.88	535.7	0.9293	104.56	21.8583898
14.04.2015 16:52:25.3	-210.43	535.5	0.9707	104.56	22.3399765
14.04.2015 16:52:25.4	-210.26	535.6	0.9852	104.56	22.5062117

14.04.2015 16:52:25.5	-210.32	535.7	0.9643	104.56	22.266209
14.04.2015 16:52:25.6	-212.92	535.6	0.9507	104.56	22.1086357
14.04.2015 16:52:25.7	-213.12	535.5	0.8307	104.56	20.6662797
14.04.2015 16:52:25.8	-213.18	535.7	0.817	104.56	20.4951559
14.04.2015 16:52:25.9	-213.19	535.8	0.8212	104.56	20.5477687
14.04.2015 16:52:26.0	-215.69	535.6	0.8218	104.56	20.5552738
14.04.2015 16:52:26.1	-215.7	535.5	0.8698	104.56	21.1470552
14.04.2015 16:52:26.2	-215.79	535.7	0.9562	104.56	22.1724951
14.04.2015 16:52:26.3	-216.32	535.8	0.929	104.56	21.8548613
14.04.2015 16:52:26.4	-217.68	535.5	0.8829	104.56	21.3057073
14.04.2015 16:52:26.5	-217.51	535.5	0.9965	104.56	22.634914
14.04.2015 16:52:26.6	-217.51	535.8	1.0205	104.56	22.9058653
14.04.2015 16:52:26.7	-217.54	535.8	0.9309	104.56	21.8771988
14.04.2015 16:52:26.8	-217.53	535.6	0.8628	104.56	21.0617894
14.04.2015 16:52:26.9	-217.52	535.6	0.8801	104.56	21.2718963
14.04.2015 16:52:27.0	-217.55	535.8	0.7921	104.56	20.1804201
14.04.2015 16:52:27.1	-217.54	535.7	0.9209	104.56	21.7593758
14.04.2015 16:52:27.2	-217.5	535.5	0.8193	104.56	20.5239843
14.04.2015 16:52:27.3	-217.54	535.6	0.8526	104.56	20.9369233
14.04.2015 16:52:27.4	-217.53	535.7	0.6847	104.56	18.7624851
14.04.2015 16:52:27.5	-217.5	535.6	0.7779	104.56	19.9987146
14.04.2015 16:52:27.6	-217.57	535.5	0.7852	104.56	20.0923319
14.04.2015 16:52:27.7	-217.55	535.6	0.8077	104.56	20.3781727
14.04.2015 16:52:27.8	-217.54	535.6	0.8269	104.56	20.618957
14.04.2015 16:52:27.9	-217.53	535.4	0.9469	104.56	22.0644068
14.04.2015 16:52:28.0	-217.51	535.3	0.8769	104.56	21.2331893
14.04.2015 16:52:28.1	-217.51	535.5	0.9682	104.56	22.3111901
14.04.2015 16:52:28.2	-217.54	535.5	1.0898	104.56	23.6708361
14.04.2015 16:52:28.3	-217.54	535.2	0.876	104.56	21.2222903
14.04.2015 16:52:28.4	-217.53	535.2	0.9336	104.56	21.9089023
14.04.2015 16:52:28.5	-217.54	535.5	0.8634	104.56	21.0691114
14.04.2015 16:52:28.6	-217.51	535.4	0.842	104.56	20.8063664
14.04.2015 16:52:28.7	-217.53	535.2	0.8944	104.56	21.4440145
14.04.2015 16:52:28.8	-217.52	535.3	0.9187	104.56	21.7333691
14.04.2015 16:52:28.9	-217.52	535.4	0.8612	104.56	21.0422515
14.04.2015 16:52:29.0	-217.54	535.4	0.8375	104.56	20.750693
14.04.2015 16:52:29.1	-217.54	535.2	0.9134	104.56	21.6705883
14.04.2015 16:52:29.2	-217.54	535.4	1.0216	104.56	22.9182071
14.04.2015 16:52:29.3	-217.56	535.5	0.8367	104.56	20.7407798
14.04.2015 16:52:29.4	-217.52	535.4	1.0092	104.56	22.7786939
14.04.2015 16:52:29.5	-217.48	535.3	1.0132	104.56	22.8237913
14.04.2015 16:52:29.6	-217.53	535.5	0.9769	104.56	22.4112073
14.04.2015 16:52:29.7	-217.54	535.6	0.9516	104.56	22.1190981
14.04.2015 16:52:29.8	-217.51	535.4	0.826	104.56	20.6077331

Calculation of mass flow rate based on polynomial equation fitted to the experimental data

$$= -3.38713642E-14x^6 + 2.44643607E-12x^5 + 1.52278626E-09x^4 - 7.77110640E-08x^3 + 2.33304627E-05x^2 + 3.25851919E-03x + 2.13156827E+01$$

Please enter below Polynomial Coefficients

Order no	Coeff
6	-3.38713642E-14
5	2.44643607E-12
4	1.52278626E-09
3	-7.77110640E-08
2	2.33304627E-05
1	3.25851919E-03
0	2.13156827E+01

Actual Area	0.274324656	[m2]
Integrated area	0.274324656	[m2]
Area Error	0	[%]
Integrated Mass flow	2.325005537	[Kg/s]

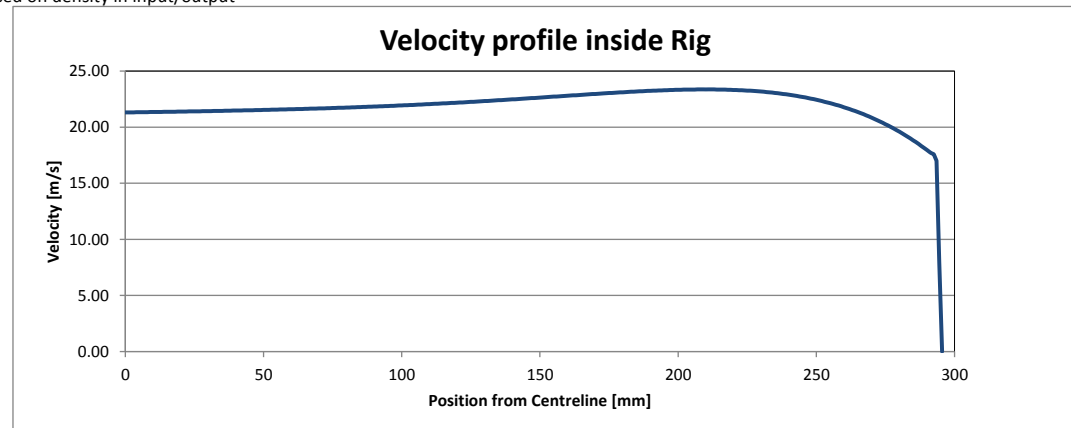
Polynomial curve (dP vs position)

Please do NOT alter any of the figures below

position [mm]	Velocity [m/s]
0	21.315683
1	21.318964
2	21.322292
3	21.325666
4	21.329085
5	21.332550
6	21.336059
7	21.339613
8	21.343211
9	21.346853
10	21.350539
11	21.354269
12	21.358042
13	21.361860
14	21.365721
15	21.369626
16	21.373575
17	21.377568
18	21.381605
19	21.385687
20	21.389813
21	21.393984
22	21.398200
23	21.402462
24	21.406769
25	21.411123
26	21.415524
27	21.419972
28	21.424468
29	21.429012
30	21.433606
31	21.438249
32	21.442942
33	21.447686

Delta Area [m2]	Delta Mass flow [Kg/s]
0	0
3.14159E-06	2.60535E-05
9.42478E-06	7.81726E-05
1.5708E-05	0.000130308
2.19911E-05	0.000182461
2.82743E-05	0.000234631
3.45575E-05	0.000286818
4.08407E-05	0.000339023
4.71239E-05	0.000391247
5.34071E-05	0.000443488
5.96903E-05	0.000495749
6.59734E-05	0.000548029
7.22566E-05	0.000600328
7.85398E-05	0.000652647
8.4823E-05	0.000704986
9.11062E-05	0.000757346
9.73894E-05	0.000809726
0.000103673	0.000862128
0.000109956	0.000914551
0.000116239	0.000966995
0.000122522	0.001019462
0.000128805	0.001071951
0.000135088	0.001124463
0.000141372	0.001176998
0.000147655	0.001229556
0.000153938	0.001282139
0.000160221	0.001334745
0.000166504	0.001387376
0.000172788	0.001440032
0.000179071	0.001492714
0.000185354	0.001545421
0.000191637	0.001598154
0.00019792	0.001650914
0.000204204	0.001703701

Based on density in input/output



34	21.452482
35	21.457330
36	21.462232
37	21.467188
38	21.472199
39	21.477265
40	21.482389
41	21.487570
42	21.492810
43	21.498110
44	21.503471
45	21.508893
46	21.514379
47	21.519929
48	21.525543
49	21.531225
50	21.536974
51	21.542791
52	21.548679
53	21.554638
54	21.560669
55	21.566775
56	21.572955
57	21.579212
58	21.585547
59	21.591961
60	21.598455
61	21.605032
62	21.611691
63	21.618435
64	21.625265
65	21.632183
66	21.639189
67	21.646286
68	21.653475
69	21.660756
70	21.668132
71	21.675604
72	21.683174
73	21.690842
74	21.698610
75	21.706480
76	21.714453
77	21.722530
78	21.730713
79	21.739003
80	21.747402
81	21.755910
82	21.764529
83	21.773261

0.000210487	0.001756515
0.00021677	0.001809357
0.000223053	0.001862227
0.000229336	0.001915127
0.000235619	0.001968055
0.000241903	0.002021013
0.000248186	0.002074002
0.000254469	0.002127021
0.000260752	0.002180072
0.000267035	0.002233154
0.000273319	0.002286269
0.000279602	0.002339416
0.000285885	0.002392598
0.000292168	0.002445813
0.000298451	0.002499063
0.000304734	0.002552348
0.000311018	0.00260567
0.000317301	0.002659027
0.000323584	0.002712423
0.000329867	0.002765856
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123	22.224967
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286	18.671068
287	18.501923
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289	18.150600
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0.001840973	0.012174356
0.001847256	0.005748662
0.00185354	0

Please do not change any of the values in this sheet

Patm	Atmospheric air pressure - (As recorded from engine data)	975 [mBar]
Patm		97500 [Pa]
Tatm		5 [C]
Tatm		278 [K]
Relative Humidity		95 [%]

$$\rho_{\text{humid air}}^{[1]} = \frac{p_d}{R_d T} + \frac{p_v}{R_v T} = \frac{p_d M_d + p_v M_v}{RT}$$

where:

$\rho_{\text{humid air}}$	Density of the humid air (kg/m <sup>3</sup> )
$p_d$	Partial pressure of dry air (Pa)
$R_d$	Specific gas constant for dry air, 287.058 J/(kg·K)
$T$	Temperature (K)
$p_v$	Pressure of water vapor (Pa)
$R_v$	Specific gas constant for water vapor, 461.495 J/(kg·K)
$M_d$	Molar mass of dry air, 0.028964 (kg/mol)
$M_v$	Molar mass of water vapor, 0.018016 (kg/mol)
$R$	<a href="#">Universal gas constant, 8.314 J/(K·mol)</a>

$$\rho_{\text{humid air}} = 1.217898 \text{ Kg/m}^3$$

$$0.318090154$$

The vapor pressure of water may be calculated from the [saturation vapor pressure](#) and [relative humidity](#). It is found by:

$$p_v = \phi p_{\text{sat}}$$

$$p_u = 828.6578 \text{ [Pa]}$$

Where:

$p_v$	Vapor pressure of water
$\phi$	Relative humidity
$p_{\text{sat}}$	Saturation vapor pressure

The [saturation vapor pressure of water](#) at any given temperature is the vapor pressure when relative humidity is 100%. One formula <sup>[1]</sup> used to find the saturation vapor pressure is:

$$p_{\text{sat}} = 6.1078 \times 10^{\frac{7.5T}{T+237.3}}$$

$$p_{\text{sat}} = 8.722714 \text{ hPa}$$

$$p_{\text{sat}} = 872.2714 \text{ [Pa]}$$

where T is in degrees C. Note:

$$\rho = \frac{p}{R_{\text{specific}} T} \quad 1.22177 \text{ [kg/m}^3\text{]}$$

$$R = 287.058 \text{ J/Kg K}$$

$$T = \text{Temperature in degrees Kelvin}$$

$$P = \text{Absolute Pressure in Pa}$$