

Hydraulic report (intakePipe.hyp) www.crenger.com

Nu	Hydraulic equivalent description	Geometry data,m	number, connection	Reference velocity,m/s	friction factor or valve CV	pressure loss, mW	source
Water mass flowrate 530 kg/s							
0	expander	0.3/0.3/0.48	1T	7.3541	0.2638	0.727	7
1	Bell-type expansion joint	0.48	1T	2.8727	0.2	0.084	7
2	valve check twin-plate class 600	0.48	1T	2.8727	0.0673	0.028	2
3	quadratic law resistance		1T		0	1.2	2
4	valve butterfly hand	0.48	1T	2.8727	0.2965	0.125	2
5	elbows FRP 45o and 90o	0.48	1T	2.8727	0.16	0.067	3
6	tee 45o 90o FRP	1.12/0.48	1T	0.5276	0.3934	0.006	3
Water mass flowrate 1060 kg/s							
7	tee 45o 90o FRP	1.12/0.48	1T	1.0553	0.2916	0.017	3
Water mass flowrate 1590 kg/s							
8	tee 45o 90o FRP	1.12/0.48	1T	1.5829	0.2344	0.03	3
Water mass flowrate 2119 kg/s							
9	elbows FRP 45o and 90o	1.12	1T	2.11	0.16	0.036	3
10	quadratic law resistance		1T		0	2.199	2
11	tee 45o 90o FRP	1.12/0.6	1T	2.11	-0.1381	-0.031	3
Water mass flowrate 1412 kg/s							
12	tee 45o 90o FRP	1.12/0.6	1T	1.4053	-0.0492	-0.005	3
Water mass flowrate 706 kg/s							
13	elbows FRP 45o and 90o	0.254	2T	13.6616	0.11	2.093	3
14	valve butterfly control	0.6	1T	2.4483	0.0891	0.848	2
15	wall mounted bellmouth inlet	0.6	1T	2.4483	0.05	0.015	1

Total pressure loss is 7.439mw

References

1	Pipe friction manual, Third Edition, Hydraulic Institute, 1961
2	Manufacturer catalog
3	Future/Wavistrong Epoxy Pipe Systems Engineering Guide
4	AGRU Technical information 2001
5	www.cranevalves.com (Crane Valves: ask expert)
6	D.N.Kemelman, N.B.Eskin, Boiler Operation Handbook, Moscow, 1989
7	I.E.Idelchik Handbook of hydraulic resistance 3rd edition, 2003
8	Author's estimation

