



To reduce water flow noises and prolong equipment life within hydronic heating and cooling systems it is critical that the HVAC system piping is designed based upon maximum recommended velocity limits. The following information is from the Hays Fluid Controls Engineering Team that can help you succeed in this area.

**HVAC system piping are usually designed based on velocity limits to avoid pipe erosion, cavitation and noise issues. As seen below, the table has been developed using the MRV (Maximum Recommended Velocity) limits of 7 ft/sec to allow piping to be easily and quickly sized. The above limits certainly do vary as a function of estimated operating hours, system operations, pumping system and different applications.**

**Note: The limitations for variable pumping systems are less stringent but generally rises with increase in hours of operation.**

<b>Recommended Selection</b>			
Size		Flow Range	
Imperial	Metric	GPM	LPM
1/4"	DN8	0.5-1.0	1.9-3.8
3/8"	DN10	1.5-2.0	5.7-7.6
1/2"	DN15	0.5-4.0	1.9-15.1
3/4"	DN20	4.5-9.0	17.0-34.1
1"	DN25	9.0-17.0	34.1-64.4
1-1/4"	DN32	18.0-26.0	68.1-98.4
1-1/2"	DN40	27.0-40.0	102-151
2"	DN50	40.0-68.0	151-257
2-1/2"	DN65	69.0-105	261-397
3"	DN80	110-150	416-568
4"	DN100	155-255	587-965