PRESSURE DROP IN HOSES

The following tables of pressure drops and flow rates are based on experimental data and may be considered typical of most hoses. The data is based upon hoses laid out in a straight line and thus it must not be considered as an exact result that may be obtained at a given pressure. Variables such as hose fittings and bends increase the frictional losses and an estimate of their effect may be determined by adding an "equivalent length" to the hose length. Values of the equivalent length (Le) may be determined using the inside diameter (D) of the hose in the following relationships:

 90° swept elbow – Le = 20D 90° square elbow – Le = 50D 45° square elbow – Le = 16D Hose coupling – Le = 5D

Pressure Drop (kPa/100m) Water at 20°C Through Hose

Flowrate I/m		Hose Internal Diameter												
	12.5	16	19	25	32	38	40	50	64	75	80	100	125	
25	1100	470	210	50										
50		2440	770	200	90	30								
100			2660	730	300	100	55	30						
200					1030	405	285	95	25					
300						900	650	210	65	20				
400							1200	370	110	40				
500								580	155	70	50			
1000									575	230	180	55		
2000										920	600	220	45	
3000										2125	1400	490	100	
4000												805	190	
5000												1390	315	

NOTE: (1) Pressure drop is directly proportioned to the length of hose.

(2) Friction is independent of pressure and proportional to velocity.

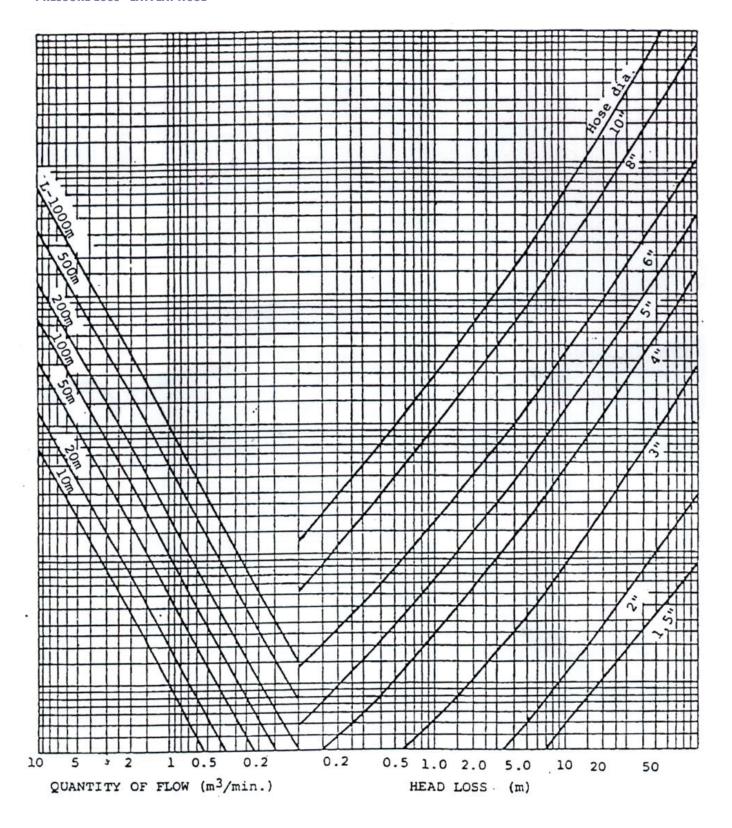
Pressure Drop of Air Through Rubber Hose

Sizo (mm)	Cu./m of Free Air												
Size (mm)	0.5	1.0	1.25	1.5	2.0	2.75	3.5	4.25					
12.5	249	855	1325	-	-	-	-	-					
19	-	215	350	505	895	1725	2745	-					
25	-	-	-	-	250	465	755	1100					
32	-	-	-	-	80	100	175	285					
38	-	-	-	-	-	45	75	135					

Ci-o (mm)	Cu./m of Free Air												
Size (mm)	15	20	30	40	50	60	70	80	90	100	125	150	
50	385	680	1530	2690	4230	-	-	-	-	-	-	-	
64	160	270	565	1020	1630	2350	3170	4185	5270	-	-	-	
76	-	-	215	330	520	745	1020	1335	1675	2035	3190	4590	

To obtain frictional pressure loss in kPa/100m divide above values by the ratio of compression listed here:

kPa W.P.	Ratio of Compression
400	3.9
500	4.9
600	5.9
700	6.9
800	7.85
900	8.85
1000	9.85



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