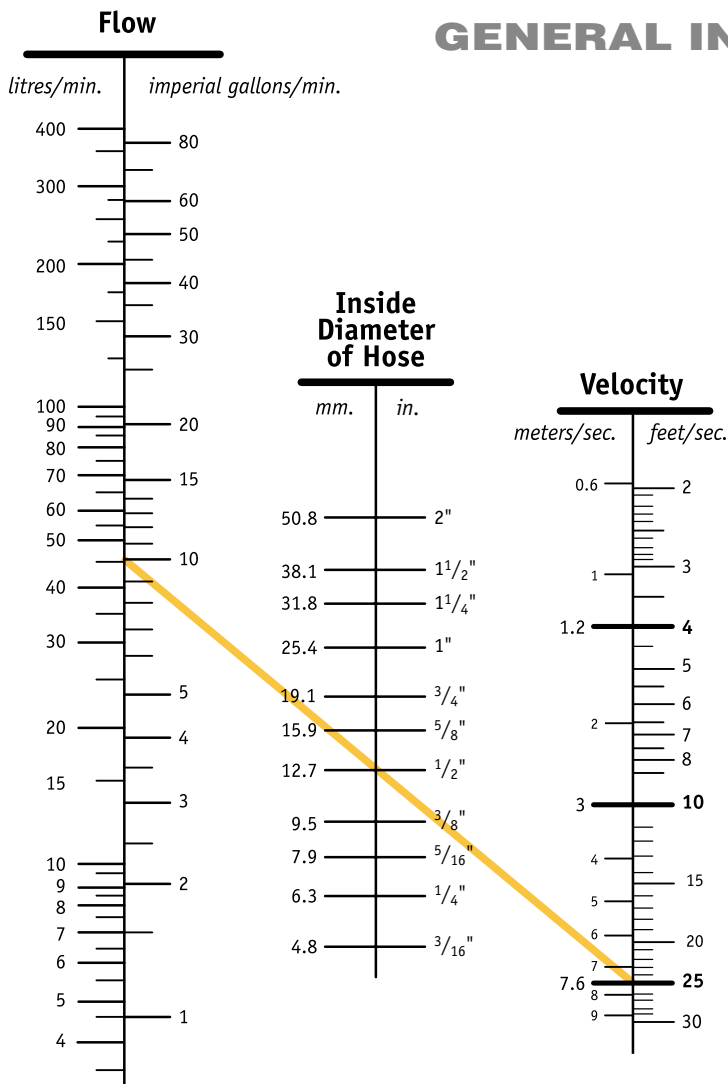


GENERAL INFORMATION



VELOCITY CHART NOMOGRAPH

- Conversion Rates: gal/min x 4.546 = liters/min
feet/sec x 0.3048 = meters/sec
- Recommended velocities are according to hydraulic fluids of maximum viscosity 315 S.S.U. at 38°C working at room temperatures within 18 to 68°C.
- The Yellow line represents a pressure hose at 10 gallons per minute. The minimum hose size should be 1/2"

Recommended maximum velocity for suction lines

Recommended maximum velocity for return lines

Recommended maximum velocity for pressure lines

TABLE OF EQUIVALENTS:

Pressure:

- 1 psi = 2.307 ft of head (ft of water column)
- = 2.036" Hg
- = 0.06895 Bar
- = 0.006895 MPa (MegaPascals)
- = 0.07031 Kg/sq cm
- = 0.06805 Atmospheres

Volume:

- 1 Cubic foot = 7.48 US Gallons
- 1 Imp Gallon = 1.201 US Gallons
- = 160 Imp oz.
- = 4.546 liters
- = 4546 milliliters (cc's)
- 1 US Gallon = 128 US oz
- = 3.785 liters
- 1 Barrel = 42 US Gallons

Weight:

- 1 lb = 453.59 grams
- = 0.45359 Kg
- 1 Kg = 2.2046 lb

Length:

- 1 inch = 2.54cm
- 1 meter = 3.28084 ft
- 1 Kilometer = 0.62137 Miles

Power:

- 1 hp = 745.7 Watts

USEFUL INFORMATION AND RULES OF THUMB

- 1 Cubic foot of water weighs 62.4 lb.
- 1 Imp Gallon of water weighs 10 lb.
- Each 1 HP of drive in a hydraulic system will produce the equivalent of 1 GPM (U.S. Gallon Per Minute) at 1500 psi.
- Each 1 HP on an electric air compressor produces 3.5 to 4.0 SCFM (Standard Cubic Feet Per Minute) of air at 100 psi.

Optimum maximum flow velocity in hydraulic lines:

- Pump suction 2 to 4 feet per second
- Pressures to 500 psi 10 to 15 feet per second
- 500 to 3000 psi 15 to 20 feet per second

Velocity of oil flow in pipe:

$$V = \text{GPM} \times 0.3208 / A$$

V is oil velocity in feet per second, GPM is flow in U.S. gallons per minute, and A is the inside area of the pipe in square inches



GENERAL INFORMATION

Pressure Drop per 100 Feet of Hose

These pressure reductions are typical for petroleum based hydraulic oils at 40°C (104°F) and are approximate values only. Differences in fluid temperature and viscosity can increase or decrease pressure drop significantly.

Flow/Minute		— Hose I.D. in inches —															
Litres	Imp.Gal.	0.19	0.25	0.31	0.38	0.41	0.50	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.81	2.00
1	0.22	110	35														
2	0.44	210	65	30													
4	0.88	480	140	65	30												
8	1.76	1140	290	120	60	42											
11	2.42	1520	385	160	65	50	20										
15	3.30	1740	430	290	120	80	30	12									
19	4.18		780	440	180	120	45	16	7								
30	6.60		1200	930	380	260	100	35	14	6							
38	8.30				585	395	150	55	20	10							
45	10.10				800	520	200	70	25	15							
57	12.50					750	300	100	42	22	12	7	4				
68	14.50					1070	400	150	65	30	15	7	6	4			
76	16.80						500	200	85	35	20	12	7	5	3		
95	20.90						725	275	120	60	30	17	10	7	4		
114	25.10							350	150	75	40	25	15	8	6		
133	29.30							480	200	100	50	30	18	12	7	3	2
150	33.00								240	115	65	33	21	14	9	4	3
190	41.90								360	170	90	53	33	20	13	6	4
227	50.00								500	230	120	75	45	28	18	8	5
265	58.30									310	170	93	60	40	25	10	7
300	66.00									375	200	120	70	45	30	12	8
340	74.80									490	270	150	90	60	40	15	10
380	83.50										330	190	120	70	50	20	13
568	125.00										600	370	220	130	85	35	22
757	167.00												360	230	150	60	40
1136	250.00													450	290	120	75
1514	333.00														510	210	140
1893	417.00															320	200