

Pipe Name	Material	Inner Diameter	Roughness	Length	Mass Flow	Flow	Velocity	Entry Pressure	Exit Pressure	Reynolds Number	Flow Type	Friction Factor	Friction Loss
		mm	mm	m	kg/sec	l/min	m/sec	bar.g	bar.g				m.hd
P1	6" PVC IS: 4985-1988	154.05	0.01	70.00	14.54	874.40	0.78	0.59	2.62	119969.00	Turbulent	0.02	0.25
P2	2-1/2" PPR IS: 15801:2009	62.71	0.01	91.80	0.92	55.39	0.30	2.62	2.60	18668.00	Turbulent	0.03	0.18
P3	2" PVC IS: 4985-1988	62.71	0.01	38.00	0.92	55.39	0.30	2.60	2.59	18668.00	Turbulent	0.03	0.07
P4	2-1/2" PPR IS: 15801:2009	62.71	0.01	37.00	1.66	99.97	0.54	2.59	2.57	33693.00	Turbulent	0.02	0.20
P5	2-1/2" PPR IS: 15801:2009	62.71	0.01	30.00	2.70	162.08	0.88	2.57	2.54	54624.00	Turbulent	0.02	0.39
P6	2-1/2" PPR IS: 15801:2009	62.71	0.01	30.10	1.30	78.17	0.42	2.55	2.54	26345.00	Turbulent	0.02	0.11
P7	2-1/2" PPR IS: 15801:2009	62.71	0.01	105.50	1.30	78.17	0.42	2.58	2.55	26345.00	Turbulent	0.02	0.37
P8	4" PVC IS: 4985-1988	102.26	0.01	22.00	8.87	533.40	1.08	2.58	2.56	110248.00	Turbulent	0.02	0.23
P9	2-1/2" PPR IS: 15801:2009	62.71	0.01	100.00	1.53	91.68	0.50	2.56	2.51	30900.00	Turbulent	0.02	0.47
P10	2-1/2" PPR IS: 15801:2009	62.71	0.01	46.70	1.53	91.68	0.50	2.51	2.49	30900.00	Turbulent	0.02	0.22
P11	6" PVC IS: 4985-1988	154.05	0.01	36.90	13.62	819.01	0.73	2.62	2.61	112369.00	Turbulent	0.02	0.12
P12	6" PVC IS: 4985-1988	154.05	0.01	35.60	12.88	774.43	0.69	2.61	2.60	106252.00	Turbulent	0.02	0.10
P13	6" PVC IS: 4985-1988	154.05	0.01	37.00	11.85	712.32	0.64	2.60	2.59	97731.00	Turbulent	0.02	0.09
P14	6" PVC IS: 4985-1988	154.05	0.01	30.20	10.17	611.57	0.55	2.59	2.58	83908.00	Turbulent	0.02	0.06
P15	2-1/2" PPR IS: 15801:2009	62.71	0.01	95.50	0.74	44.58	0.24	2.61	2.59	15025.00	Turbulent	0.03	0.13
P16	2-1/2" PPR IS: 15801:2009	62.71	0.01	95.60	1.03	62.11	0.34	2.60	2.57	20931.00	Turbulent	0.03	0.23
P17	2-1/2" PPR IS: 15801:2009	62.71	0.01	95.00	1.68	100.76	0.54	2.59	2.54	33957.00	Turbulent	0.02	0.53
P18	4" PVC IS: 4985-1988	102.26	0.01	36.20	7.35	441.72	0.90	2.56	2.53	91297.00	Turbulent	0.02	0.27
P19	2-1/2" PPR IS: 15801:2009	62.71	0.01	103.70	1.40	84.32	0.46	2.53	2.49	28417.00	Turbulent	0.02	0.42
P20	4" PVC IS: 4985-1988	102.26	0.01	25.50	5.94	357.40	0.73	2.53	2.52	73870.00	Turbulent	0.02	0.13
P21	3" PPR IS: 15801:2009	77.93	0.01	130.00	2.94	176.76	0.62	2.52	2.45	47943.00	Turbulent	0.02	0.69
P22	3" PPR IS: 15801:2009	77.93	0.01	50.00	1.81	108.76	0.38	2.45	2.44	29500.00	Turbulent	0.02	0.11
P23	2-1/2" PPR IS: 15801:2009	62.71	0.01	34.70	0.81	48.81	0.26	2.45	2.44	16450.00	Turbulent	0.03	0.05
P24	2" PPR IS: 15801:2009	52.50	0.01	85.00	0.97	58.48	0.45	2.45	2.41	23543.00	Turbulent	0.03	0.42
P25	2-1/2" PPR IS: 15801:2009	62.71	0.01	35.30	1.78	107.29	0.58	2.47	2.45	36160.00	Turbulent	0.02	0.22
P26	2" PPR IS: 15801:2009	52.50	0.01	71.00	1.22	73.34	0.57	2.47	2.42	29527.00	Turbulent	0.02	0.52
P27	3" PPR IS: 15801:2009	77.93	0.01	61.00	3.00	180.64	0.63	2.50	2.47	48993.00	Turbulent	0.02	0.34

Pipe Name	Material	Inner Diameter	Roughness	Length	Mass Flow	Flow	Velocity	Entry Pressure	Exit Pressure	Reynolds Number	Flow Type	Friction Factor	Friction Loss
P28	3" PPR IS: 15801:2009	77.93	0.01	36.00	3.00	180.64	0.63	2.52	2.50	48993.00	Turbulent	0.02	0.20
P29	2" PPR IS: 15801:2009	52.50	0.01	56.00	0.45	27.00	0.21	2.42	2.41	10870.00	Turbulent	0.03	0.07
P30	2" PPR IS: 15801:2009	52.50	0.01	37.00	0.77	46.34	0.36	2.42	2.41	18657.00	Turbulent	0.03	0.12
P31	3" PPR IS: 15801:2009	77.93	0.01	37.00	1.74	104.83	0.37	2.41	2.40	28432.00	Turbulent	0.02	0.08
P32	3" PPR IS: 15801:2009	77.93	0.01	101.80	2.62	157.57	0.55	2.44	2.40	42738.00	Turbulent	0.02	0.44
P33	8" PVC IS: 4985-1988	202.72	0.01	44.00	26.20	1575.33	0.81	0.59	2.63	164249.00	Turbulent	0.02	0.12
P34	6" PVC IS: 4985-1988	154.05	0.01	159.00	17.90	1076.31	0.96	2.63	2.55	147671.00	Turbulent	0.02	0.82
P35	4" PVC IS: 4985-1988	102.26	0.01	46.50	13.64	820.00	1.66	2.55	2.45	169484.00	Turbulent	0.02	1.06
P36	4" PVC IS: 4985-1988	102.26	0.01	42.10	13.64	820.00	1.66	2.45	2.35	169484.00	Turbulent	0.02	0.96
P37	4" PVC IS: 4985-1988	102.26	0.01	40.00	4.61	277.01	0.56	2.35	2.34	57255.00	Turbulent	0.02	0.13
P38	4" PVC IS: 4985-1988	102.26	0.01	117.60	4.61	277.01	0.56	2.34	2.30	57255.00	Turbulent	0.02	0.38
P39	4" PVC IS: 4985-1988	102.26	0.01	58.20	4.61	277.01	0.56	2.30	2.28	57255.00	Turbulent	0.02	0.19
P40	4" PVC IS: 4985-1988	102.26	0.01	41.00	6.90	414.64	0.84	2.28	2.26	85701.00	Turbulent	0.02	0.27
P41	8" PVC IS: 4985-1988	202.72	0.01	48.90	42.64	2563.38	1.32	2.54	2.51	267266.00	Turbulent	0.02	0.32
P42	2" PPR IS: 15801:2009	52.50	0.01	118.70	0.58	35.00	0.27	2.54	2.51	14090.00	Turbulent	0.03	0.24
P43	3" PPR IS: 15801:2009	77.93	0.01	129.80	1.45	87.00	0.30	2.29	2.27	23596.00	Turbulent	0.03	0.20
P44	4" PVC IS: 4985-1988	102.26	0.01	49.20	2.61	157.00	0.32	2.29	2.29	32450.00	Turbulent	0.02	0.06
P45	4" PVC IS: 4985-1988	102.26	0.01	49.10	1.45	87.00	0.18	2.27	2.26	17981.00	Turbulent	0.03	0.02
P46	4" PVC IS: 4985-1988	102.26	0.01	39.20	4.31	259.05	0.53	2.30	2.29	53544.00	Turbulent	0.02	0.11
P47	3" PPR IS: 15801:2009	77.93	0.01	109.80	2.43	146.31	0.51	2.30	2.26	39683.00	Turbulent	0.02	0.42
P48	4" PVC IS: 4985-1988	102.26	0.01	41.00	6.74	405.36	0.82	2.32	2.30	83784.00	Turbulent	0.02	0.26
P49	3" PPR IS: 15801:2009	77.93	0.01	117.60	2.29	137.62	0.48	2.32	2.28	37328.00	Turbulent	0.02	0.40
P50	4" PVC IS: 4985-1988	102.26	0.01	27.30	9.03	542.99	1.10	2.35	2.32	112229.00	Turbulent	0.02	0.30
P51	4" PVC IS: 4985-1988	102.26	0.01	44.10	3.55	213.67	0.43	2.55	2.54	44164.00	Turbulent	0.02	0.09
P52	4" PVC IS: 4985-1988	102.26	0.01	59.00	4.53	272.31	0.55	2.54	2.52	56283.00	Turbulent	0.02	0.19
P53	4" PVC IS: 4985-1988	102.26	0.01	52.00	3.37	202.31	0.41	2.52	2.51	41815.00	Turbulent	0.02	0.10
P54	4" PVC IS: 4985-1988	102.26	0.01	52.00	2.20	132.31	0.27	2.51	2.51	27347.00	Turbulent	0.02	0.05
P55	4" PVC IS: 4985-1988	102.26	0.01	147.20	2.20	132.31	0.27	2.51	2.50	27347.00	Turbulent	0.02	0.13
P56	3" PPR IS: 15801:2009	77.93	0.01	121.70	1.70	102.06	0.36	2.29	2.26	27681.00	Turbulent	0.02	0.24

Pipe Name	Material	Inner Diameter	Roughness	Length	Mass Flow	Flow	Velocity	Entry Pressure	Exit Pressure	Reynolds Number	Flow Type	Friction Factor	Friction Loss
P57	2" PPR IS: 15801:2009	52.50	0.01	140.00	1.16	70.00	0.54	2.51	2.42	28180.00	Turbulent	0.02	0.95
P58	4" PVC IS: 4985-1988	102.26	0.01	39.00	3.14	189.05	0.38	2.26	2.26	39075.00	Turbulent	0.02	0.06
P59	2" PPR IS: 15801:2009	52.50	0.01	140.00	1.16	70.00	0.54	2.52	2.43	28180.00	Turbulent	0.02	0.95
P61	2" PPR IS: 15801:2009	52.50	0.01	170.00	0.98	58.63	0.45	2.62	2.54	23605.00	Turbulent	0.03	0.84
P62	6" PVC IS: 4985-1988	154.05	0.01	51.00	8.30	499.02	0.45	2.63	2.62	68466.00	Turbulent	0.02	0.07
P63	4" PVC IS: 4985-1988	102.26	0.01	52.50	0.09	5.69	0.01	2.50	2.50	1176.00	Laminar	0.05	0.00
P64	4" PVC IS: 4985-1988	102.26	0.01	145.80	0.09	5.69	0.01	2.50	2.50	1176.00	Laminar	0.05	0.00
P65	4" PVC IS: 4985-1988	102.26	0.01	52.00	1.51	90.69	0.18	2.50	2.50	18745.00	Turbulent	0.03	0.02
P66	2" PPR IS: 15801:2009	52.50	0.01	128.00	1.43	86.00	0.66	2.50	2.38	34621.00	Turbulent	0.02	1.25
P68	4" PVC IS: 4985-1988	102.26	0.01	55.90	2.94	176.69	0.36	2.51	2.50	36520.00	Turbulent	0.02	0.08
P69	2" PPR IS: 15801:2009	52.50	0.01	142.00	1.25	75.00	0.58	2.51	2.40	30193.00	Turbulent	0.02	1.09
P72	4" PVC IS: 4985-1988	102.26	0.01	73.00	5.27	316.69	0.64	2.58	2.55	65456.00	Turbulent	0.02	0.30
P73	4" PVC IS: 4985-1988	102.26	0.01	46.00	5.27	316.69	0.64	2.55	2.53	65456.00	Turbulent	0.02	0.19
P74	4" PVC IS: 4985-1988	102.26	0.01	94.00	4.19	251.69	0.51	2.53	2.51	52021.00	Turbulent	0.02	0.26
P75	3" PPR IS: 15801:2009	77.93	0.01	62.60	1.08	65.00	0.23	2.53	2.53	17630.00	Turbulent	0.03	0.06
P76	3" PPR IS: 15801:2009	77.93	0.01	123.50	1.08	65.00	0.23	2.53	2.52	17630.00	Turbulent	0.03	0.11
P77	4" PVC IS: 4985-1988	102.26	0.01	83.90	7.51	451.69	0.92	0.59	2.58	93359.00	Turbulent	0.02	0.65
P78	6" PVC IS: 4985-1988	154.05	0.01	377.60	6.13	368.38	0.33	2.62	2.60	50542.00	Turbulent	0.02	0.28
P79	6" PVC IS: 4985-1988	154.05	0.01	58.50	9.25	556.24	0.50	2.61	2.60	76317.00	Turbulent	0.02	0.09
P80	6" PVC IS: 4985-1988	154.05	0.01	40.20	10.52	632.54	0.57	2.61	2.61	86786.00	Turbulent	0.02	0.08
P81	6" PVC IS: 4985-1988	154.05	0.01	67.30	12.11	728.32	0.65	2.63	2.61	99927.00	Turbulent	0.02	0.17
P83	6" PVC IS: 4985-1988	154.05	0.01	34.10	14.75	887.02	0.79	0.59	2.63	121700.00	Turbulent	0.02	0.12
P84	3" PPR IS: 15801:2009	77.93	0.01	201.00	1.27	76.30	0.27	2.61	2.58	20696.00	Turbulent	0.03	0.24
P85	3" PPR IS: 15801:2009	77.93	0.01	237.10	1.72	103.70	0.36	2.63	2.58	28125.00	Turbulent	0.02	0.49
P86	4" PVC IS: 4985-1988	102.26	0.01	408.50	11.80	709.62	1.44	2.60	1.90	146671.00	Turbulent	0.02	7.16
P87	8" PVC IS: 4985-1988	202.72	0.01	58.50	42.06	2528.38	1.31	2.51	2.49	263617.00	Turbulent	0.02	0.38
P88	2" PPR IS: 15801:2009	52.50	0.01	122.00	0.91	55.00	0.42	2.63	2.58	22142.00	Turbulent	0.03	0.54
P89	10" PVC IS: 4985-1988	254.51	0.01	126.30	44.17	2655.60	0.87	0.59	2.61	220537.00	Turbulent	0.02	0.30
P90	3" PPR IS: 15801:2009	77.93	0.01	165.00	1.59	95.78	0.34	2.61	2.58	25979.00	Turbulent	0.02	0.30

Pipe Name	Material	Inner Diameter	Roughness	Length	Mass Flow	Flow	Velocity	Entry Pressure	Exit Pressure	Reynolds Number	Flow Type	Friction Factor	Friction Loss
P91	3" PPR IS: 15801:2009	77.93	0.01	97.80	1.59	95.78	0.34	2.58	2.57	25979.00	Turbulent	0.02	0.18
P92	3" PPR IS: 15801:2009	77.93	0.01	57.00	0.79	47.78	0.17	2.57	2.56	12960.00	Turbulent	0.03	0.03
P93	10" PVC IS: 4985-1988	254.51	0.01	114.80	44.17	2655.60	0.87	2.61	2.56	220537.00	Turbulent	0.02	0.27
P94	2" PPR IS: 15801:2009	52.50	0.01	122.30	0.80	48.00	0.37	2.57	2.53	19324.00	Turbulent	0.03	0.43
P95	10" PVC IS: 4985-1988	254.51	0.01	65.60	44.97	2703.38	0.89	2.56	2.55	224505.00	Turbulent	0.02	0.16
P96	2" PPR IS: 15801:2009	52.50	0.01	127.50	1.16	70.00	0.54	2.55	2.46	28180.00	Turbulent	0.02	0.87
P97	10" PVC IS: 4985-1988	254.51	0.01	7.00	43.80	2633.38	0.86	2.55	2.55	218692.00	Turbulent	0.02	0.02
P98	2" PPR IS: 15801:2009	52.50	0.01	118.50	0.58	35.00	0.27	2.55	2.52	14090.00	Turbulent	0.03	0.24
P99	10" PVC IS: 4985-1988	254.51	0.01	42.00	43.22	2598.38	0.85	2.55	2.54	215786.00	Turbulent	0.02	0.10
P100	2" PPR IS: 15801:2009	52.50	0.01	119.10	0.58	35.00	0.27	2.51	2.48	14090.00	Turbulent	0.03	0.24
P101	4" PVC IS: 4985-1988	102.26	0.01	285.00	13.15	790.38	1.60	2.49	1.90	163362.00	Turbulent	0.02	6.08
P102	6" PVC IS: 4985-1988	154.05	0.01	230.78	28.91	1738.00	1.55	2.49	2.21	238455.00	Turbulent	0.02	2.84
P103	4" PVC IS: 4985-1988	102.26	0.01	125.40	15.00	901.75	1.83	2.21	1.88	186382.00	Turbulent	0.02	3.40
P104	4" PVC IS: 4985-1988	102.26	0.01	52.00	4.95	297.44	0.60	1.88	1.86	61478.00	Turbulent	0.02	0.19
P105	2" PPR IS: 15801:2009	52.50	0.01	50.00	0.20	12.00	0.09	1.86	1.86	4831.00	Turbulent	0.04	0.02
P106	3" PPR IS: 15801:2009	77.93	0.01	213.50	4.75	285.44	1.00	1.86	1.60	77419.00	Turbulent	0.02	2.68
P107	4" PVC IS: 4985-1988	102.26	0.01	53.00	2.14	128.44	0.26	1.60	1.59	26547.00	Turbulent	0.02	0.04
P108	4" PVC IS: 4985-1988	102.26	0.01	211.80	10.05	604.31	1.23	1.88	1.59	124904.00	Turbulent	0.02	2.78
P109	3" PPR IS: 15801:2009	77.93	0.01	159.90	5.59	336.25	1.18	2.21	1.95	91199.00	Turbulent	0.02	2.70
P110	3" PPR IS: 15801:2009	77.93	0.01	402.00	5.59	336.25	1.18	1.95	1.28	91199.00	Turbulent	0.02	6.78
P111	3" PPR IS: 15801:2009	77.93	0.01	414.00	5.59	336.25	1.18	1.28	0.60	91199.00	Turbulent	0.02	6.98
P112	4" PVC IS: 4985-1988	102.26	0.01	166.40	12.19	732.75	1.49	0.90	0.60	151452.00	Turbulent	0.02	3.09
P113	4" PVC IS: 4985-1988	102.26	0.01	383.00	12.19	732.75	1.49	1.59	0.90	151452.00	Turbulent	0.02	7.12
P114	3" PPR IS: 15801:2009	77.93	0.01	383.00	2.61	157.00	0.55	1.60	1.44	42583.00	Turbulent	0.02	1.65