

American Pipe Organ Scale Based on Halving at the 16th Step

	Scale	Dia - OSI	Calc. (in)	Calc. (mm)
	1		39.37	1000
64'C	6		31.70	805
32'C	18		18.85	479
	22		15.85	403
16'C	30		11.21	285
	32	10.25	10.28	261
	33		9.84	250
	34	9.375	9.43	239
	35		9.03	229
	36	8.625	8.64	220
	37		8.28	210
	38	7.875	7.93	201
	39		7.59	193
	40	7.25	7.27	185
	41		6.96	177
8'C	42	6.625	6.66	169
	43		6.38	162
	44	6.125	6.11	155
	45		5.85	149
	46	5.625	5.60	142
	47		5.37	136
	48	5.125	5.14	131
	49		4.92	125
	50	4.75	4.71	120
	51		4.51	115
	52	4.375	4.32	110
	53		4.14	105
4'C	54	4	3.96	101
	55		3.79	96
	56	3.625	3.63	92
	57	3.5	3.48	88
	58	3.375	3.33	85
	59		3.19	81
	60	3.0625	3.06	78
	61		2.93	74
	62	2.875	2.80	71
	63		2.68	68
	64	2.625	2.57	65
	65		2.46	63
2'C	66	2.375	2.36	60
	67		2.26	57
	68	2.3125	2.16	55
	69		2.07	53
	70	2	1.98	50
	71		1.90	48
	72	1.875	1.82	46
	73		1.74	44
	74	1.6875	1.67	42
	75	1.625	1.60	41

	Scale	Dia - OSI	Calc. (in)	Calc. (mm)
	76	1.5625	1.53	38.8
	77	1.5	1.46	37.2
1'C	78	1.4375	1.40	35.6
	79		1.34	34.1
	80		1.28	32.6
	81		1.23	31.3
	82		1.18	29.9
	83		1.13	28.7
	84	1.0625	1.08	27.4
	85		1.03	26.3
	86		0.99	25.2
	87		0.95	24.1
	88		0.91	23.1
	89		0.87	22.1
1/2'C	90		0.83	21.2
	91		0.80	20.3
	92		0.76	19.4
	93		0.73	18.6
	94		0.70	17.8
	95		0.67	17.0
	96		0.64	16.3
	97		0.62	15.6
	98		0.59	15.0
	99		0.56	14.3
	100		0.54	13.7
	101		0.52	13.1
1/4'C	102		0.50	12.6
	103		0.47	12.0
	104		0.45	11.5
	105		0.43	11.0
	106		0.42	10.6
	107		0.40	10.1
	108		0.38	9.7
	109		0.37	9.3
	110		0.35	8.9
	111		0.34	8.5
	112		0.32	8.2
	113		0.31	7.8
1/8'C	114		0.29	7.5
	115		0.28	7.2
	116		0.27	6.9
	117		0.26	6.6
	118		0.25	6.3
	119		0.24	6.0
	120		0.23	5.8
	121		0.22	5.5
	122		0.21	5.3
	123		0.20	5.1
	124		0.19	4.9

"Scale" = American pipe scale number, based on the concept that the Scale 1 pipe is 1 meter (39.37") in diameter and that the diameter halves on the 17th step.
 "Dia - OSI" = Example sizes from an organ supplier's catalog.
 "Calculated" = $39.37 * \exp(-\log(2) * (\text{scale} - 1) / 16)$
 Each pipe is 0.9576 * the diameter of the previous pipe.
 The lengths should be proportional to the equal-tempered scale, which halves on the 13th step (each length being 0.94387 * the previous).