



**SOLENO**  
MASTERING WATER SUSTAINABLY

**MINIMUM ANGLE BETWEEN CONNECTIONS FOR MANHOLES OR CATCH BASINS**

CONNECTIONS DIAMETER		MANHOLE OR CATCH BASIN DIAMETER									
INLET	OUTLET	300 mm (12 in)	375 mm (15 in)	450 mm (18 in)	525 mm (21 in)	600 mm (24 in)	750 mm (30 in)	900 mm (36 in)	1050 mm (42 in)	1200 mm (48 in)	1500 mm (60 in)
100 mm (4 in)	100 mm (4 in)	62	49	41	35	30	24	20	17	15	12
150 mm (6 in)	100 mm (4 in)	72	57	48	41	35	28	24	20	17	14
150 mm (6 in)	150 mm (6 in)	83	65	54	46	40	32	27	23	20	16
200 mm (8 in)	100 mm (4 in)	85	66	55	47	40	32	27	23	20	16
200 mm (8 in)	150 mm (6 in)	96	74	61	52	45	36	30	26	22	18
200 mm (8 in)	200 mm (8 in)	108	84	69	58	51	40	34	29	25	20
250 mm (10 in)	100 mm (4 in)	99	76	62	52	45	36	30	26	22	18
250 mm (10 in)	150 mm (6 in)	110	83	68	58	50	40	33	28	25	20
250 mm (10 in)	200 mm (8 in)	122	91	75	63	56	44	37	31	27	22
250 mm (10 in)	250 mm (10 in)	136	102	83	70	61	48	40	34	30	24
300 mm (12 in)	100 mm (4 in)	121	87	70	59	53	42	36	30	26	21
300 mm (12 in)	150 mm (6 in)	131	95	76	64	58	46	39	33	29	23
300 mm (12 in)	200 mm (8 in)	144	104	84	70	64	50	42	35	31	25
300 mm (12 in)	250 mm (10 in)	158	113	91	76	69	54	45	38	33	27
300 mm (12 in)	300 mm (12 in)	180	124	99	82	74	58	49	41	36	29
375 mm (15 in)	100 mm (4 in)		113	85	70	63	49	41	34	30	24
375 mm (15 in)	150 mm (6 in)		121	91	75	67	53	44	37	32	26
375 mm (15 in)	200 mm (8 in)		130	99	81	73	57	48	40	35	28
375 mm (15 in)	250 mm (10 in)		139	106	87	78	62	51	43	37	30
375 mm (15 in)	300 mm (12 in)		151	114	93	83	65	54	45	40	32
375 mm (15 in)	375 mm (15 in)		180	128	104	92	72	60	50	43	35
450 mm (18 in)	100 mm (4 in)			110	83	73	56	46	39	34	27
450 mm (18 in)	150 mm (6 in)			117	88	78	60	50	42	36	29
450 mm (18 in)	200 mm (8 in)			124	95	83	64	53	44	39	30
450 mm (18 in)	250 mm (10 in)			131	100	88	68	56	47	41	33
450 mm (18 in)	300 mm (12 in)			139	107	93	72	60	50	44	35
450 mm (18 in)	375 mm (15 in)			154	118	100	79	65	54	47	38
450 mm (18 in)	450 mm (18 in)			180	133	110	86	70	59	51	41
525 mm (21 in)	100 mm (4 in)				107	86	64	52	44	38	30
525 mm (21 in)	150 mm (6 in)				113	91	68	56	46	40	32
525 mm (21 in)	200 mm (8 in)				119	96	72	59	49	43	34
525 mm (21 in)	250 mm (10 in)				125	101	76	62	52	45	36
525 mm (21 in)	300 mm (12 in)				131	106	80	66	55	48	38
525 mm (21 in)	375 mm (15 in)				142	115	86	71	59	51	41
525 mm (21 in)	450 mm (18 in)				155	126	93	76	63	55	44
525 mm (21 in)	525 mm (21 in)				180	139	101	82	68	59	47
600 mm (24 in)	100 mm (4 in)					105	72	58	48	41	33
600 mm (24 in)	150 mm (6 in)					110	74	61	51	44	35
600 mm (24 in)	200 mm (8 in)					116	80	56	54	46	37
600 mm (24 in)	250 mm (10 in)					121	84	68	56	49	39
600 mm (24 in)	300 mm (12 in)					126	88	71	59	51	41
600 mm (24 in)	375 mm (15 in)					135	94	77	63	55	44
600 mm (24 in)	450 mm (18 in)					145	101	82	68	59	47
600 mm (24 in)	525 mm (21 in)					158	109	88	73	63	50
600 mm (24 in)	600 mm (24 in)					90	117	94	77	66	53
750 mm (30 in)	100 mm (4 in)						102	73	59	50	40
750 mm (30 in)	150 mm (6 in)						106	76	61	52	41
750 mm (30 in)	200 mm (8 in)						110	80	64	55	44
750 mm (30 in)	250 mm (10 in)						114	83	67	57	45
750 mm (30 in)	300 mm (12 in)						118	86	70	60	47
750 mm (30 in)	375 mm (15 in)						125	92	74	64	50
750 mm (30 in)	450 mm (18 in)						132	97	79	67	53
750 mm (30 in)	525 mm (21 in)						140	103	83	71	56
750 mm (30 in)	600 mm (24 in)						148	109	88	75	59
750 mm (30 in)	750 mm (30 in)						90	124	98	84	66
900 mm (36 in)	100 mm (4 in)							100	71	59	46
900 mm (36 in)	150 mm (6 in)							104	74	62	48
900 mm (36 in)	200 mm (8 in)							107	77	64	50
900 mm (36 in)	250 mm (10 in)							110	79	67	52
900 mm (36 in)	300 mm (12 in)							114	82	69	54
900 mm (36 in)	375 mm (15 in)							119	86	73	57
900 mm (36 in)	450 mm (18 in)							125	91	77	60
900 mm (36 in)	525 mm (21 in)							131	96	81	63
900 mm (36 in)	600 mm (24 in)							136	100	84	66
900 mm (36 in)	750 mm (30 in)							151	111	93	72

TABLE CONTINUES ON NEXT PAGE

## MINIMUM ANGLE BETWEEN CONNECTIONS FOR MANHOLES OR CATCH BASINS

CONNECTIONS DIAMETER		MANHOLE OR CATCH BASIN DIAMETER									
INLET	OUTLET	300 mm (12 in)	375 mm (15 in)	450 mm (18 in)	525 mm (21 in)	600 mm (24 in)	750 mm (30 in)	900 mm (36 in)	1050 mm (42 in)	1200 mm (48 in)	1500 mm (60 in)
900 mm (36 in)	900 mm (36 in)							90	123	102	79
1050 mm (42 in)	100 mm (4 in)								99	73	54
1050 mm (42 in)	150 mm (6 in)								102	75	56
1050 mm (42 in)	200 mm (8 in)								105	78	58
1050 mm (42 in)	250 mm (10 in)								107	80	60
1050 mm (42 in)	300 mm (12 in)								110	83	62
1050 mm (42 in)	375 mm (15 in)								114	86	65
1050 mm (42 in)	450 mm (18 in)								119	90	68
1050 mm (42 in)	525 mm (21 in)								124	94	71
1050 mm (42 in)	600 mm (24 in)								128	98	74
1050 mm (42 in)	750 mm (30 in)								139	106	81
1050 mm (42 in)	900 mm (36 in)								151	116	87
1050 mm (42 in)	1050 mm (42 in)								180	129	95
1200 mm (48 in)	100 mm (4 in)									98	63
1200 mm (48 in)	150 mm (6 in)									100	65
1200 mm (48 in)	200 mm (8 in)									103	67
1200 mm (48 in)	250 mm (10 in)									105	69
1200 mm (48 in)	300 mm (12 in)									108	71
1200 mm (48 in)	375 mm (15 in)									111	74
1200 mm (48 in)	450 mm (18 in)									115	77
1200 mm (48 in)	525 mm (21 in)									119	80
1200 mm (48 in)	600 mm (24 in)									123	83
1200 mm (48 in)	750 mm (30 in)									131	89
1200 mm (48 in)	900 mm (36 in)									141	96
1200 mm (48 in)	1050 mm (42 in)									154	104
1200 mm (48 in)	1200 mm (48 in)									180	113
1500 mm (60 in)	100 mm (4 in)										96
1500 mm (60 in)	150 mm (6 in)										98
1500 mm (60 in)	200 mm (8 in)										100
1500 mm (60 in)	250 mm (10 in)										102
1500 mm (60 in)	300 mm (12 in)										104
1500 mm (60 in)	375 mm (15 in)										107
1500 mm (60 in)	450 mm (18 in)										110
1500 mm (60 in)	525 mm (21 in)										113
1500 mm (60 in)	600 mm (24 in)										116
1500 mm (60 in)	750 mm (30 in)										123
1500 mm (60 in)	900 mm (36 in)										129
1500 mm (60 in)	1050 mm (42 in)										137
1500 mm (60 in)	1200 mm (48 in)										146
1500 mm (60 in)	1500 mm (60 in)										180

Note 1: The configurations indicated in this document assume that the pipes are at the same level. If the pipes are at different levels, please contact your Technical Service Engineer.

Note 2: To get the minimum angles between the connections for manholes and catch basins with a diameter greater than 1500 mm (60 in), please contact your sales representative or Technical Service Engineer.

CONNECTION ANGLES :

