Overview: IS 4984:1995 specifies requirements for high-density polyethylene pipes for water supply, covering material grades, dimensions, pressure ratings and tests.

Edition note: Tables 3, 4 and 5 use the replacement tables in Amendment No. 2, October 2000.

Table 1 | Classification of Pipe Material

Clause 3.2.1 | MRS at 20 °C over 50 years; design stresses in MPa.

Material grade	Minimum required strength (MPa)	Design stress at 20 °C (MPa)	Design stress at 30 °C (MPa)
PE 63	6.3	5.0	4.0
PE 80	8.0	6.3	5.0
PE 100	10.0	8.0	6.3

Table 2 | Outside Diameter, Tolerance and Ovality

Clause 6.1 | Dimensions in mm; tolerance is positive only.

Nominal diameter DN	Outside diameter (mm)	Positive tolerance (mm)	Ovality (mm)
16	16.0	0.3	1.2
20	20.0	0.3	1.2
25	25.0	0.3	1.2
32	32.0	0.3	1.3
40	40.0	0.4	1.4
50	50.0	0.5	1.4
63	63.0	0.6	1.5
75	75.0	0.7	1.6
90	90.0	0.9	1.8
110	110.0	1.0	2.2
125	125.0	1.2	2.5
140	140.0	1.3	2.8
160	160.0	1.5	3.2
180	180.0	1.7	3.6
200	200.0	1.8	4.0
225	225.0	2.1	4.5
250	250.0	2.3	5.0
280	280.0	2.6	9.8
315	315.0	2.9	11.1
355	355.0	3.2	12.5
400	400.0	3.6	14.0
450	450.0	4.1	15.6
500	500.0	4.5	17.5
560	560.0	5.0	19.6
630	630.0	5.7	22.1
710	710.0	6.4	24.9
800	800.0	7.2	28.0
900	900.0	8.1	31.5
1000	1000.0	9.0	35.0

Table 3 | Wall Thickness of Pipes - PE 63

Amendment No. 2 (October 2000), clause 6.2 | All dimensions in mm. Each pair is minimum / maximum; dash means no value shown.

Nominal diameter DN	PN 2.5 min / max	PN 4 min / max	PN 6 min / max	PN 8 min / max	PN 10 min / max	PN 12.5 min / max	PN 16 min / max
20	-	-	-	-	2.3/2.8	2.8/3.3	3.4/4.0
25	-	-	-	2.3/2.8	2.8/3.3	3.4/4.0	4.2/4.9
32	-	-	2.3/2.8	3.0/3.5	3.6/4.2	4.4/5.1	5.4/6.2
40	-	2.0/2.4	2.8/3.3	3.7/4.3	4.5/5.2	5.5/6.3	6.7/7.6
50	-	2.4/2.9	3.5/4.1	4.6/5.3	5.6/6.4	6.8/7.7	8.4/9.5
63	2.0/2.4	3.0/3.5	4.4/5.1	5.8/6.6	7.0/7.9	8.6/9.7	10.5/11.8
75	2.3/2.8	3.6/4.2	5.3/6.1	6.9/7.8	8.4/9.5	10.2/11.5	12.5/14.0
90	2.8/3.3	4.3/5.0	6.3/7.2	8.2/9.3	10.0/11.2	12.2/13.7	15.0/16.7
110	3.4/4.0	5.3/6.1	7.7/8.7	10.0/11.2	12.3/13.8	14.9/16.6	18.4/20.5
125	3.8/4.4	6.0/6.8	8.8/9.9	11.4/12.8	13.9/15.5	16.9/18.8	20.9/23.2
140	4.3/5.0	6.7/7.6	9.8/11.0	12.8/14.3	15.6/17.4	19.0/21.1	23.4/26.0
160	4.9/5.6	7.7/8.7	11.2/12.6	14.6/16.3	17.8/19.8	21.7/24.1	26.7/29.6
180	5.5/6.3	8.6/9.7	12.6/14.1	16.4/18.3	20.0/22.2	24.4/27.1	30.0/33.2
200	6.1/7.0	9.6/10.8	14.0/15.6	18.2/20.3	22.3/24.8	27.1/30.1	33.4/37.0
225	6.9/7.8	10.8/12.1	15.7/17.5	20.5/22.8	25.0/27.7	30.5/33.8	37.5/41.5
250	7.6/8.6	12.0/13.4	17.5/19.5	22.8/25.3	27.8/30.8	33.8/37.4	41.7/46.1
280	8.5/9.6	13.4/15.0	19.6/21.8	25.5/28.3	31.2/34.6	37.9/41.9	46.7/51.6
315	9.6/10.8	15.0/16.7	22.0/24.4	28.7/31.8	35.0/38.7	42.6/47.1	52.5/58.0
355	10.8/12.1	17.0/18.9	24.8/27.5	32.3/35.8	39.5/43.7	48.0/53.0	59.2/65.4
400	12.2/14.3	19.1/22.2	28.0/32.4	36.4/42.1	44.5/51.4	54.1/62.5	-
450	13.7/16.0	21.5/25.0	31.4/36.4	41.0/47.4	50.0/57.7	-	-
500	15.2/17.7	23.9/27.7	34.9/40.4	45.5/52.6	55.6/64.2	-	-
560	17.0/19.8	26.7/31.0	39.1/45.2	51.0/58.9	-	-	-
630	19.1/22.2	30.0/34.7	44.0/50.8	57.3/66.1	-	-	-
710	21.6/25.1	33.9/39.2	49.6/57.3	-	-	-	-
800	24.3/28.2	38.1/44.1	55.9/64.5	-	-	-	-
900	27.3/31.6	42.9/49.6	-	-	-	-	-
1000	30.4/35.2	47.7/55.1	-	-	-	-	-

Source: supplied IS 4984:1995, Amendment No. 2. Verify applicable edition and later amendments.

Table 4 | Wall Thickness of Pipes - PE 80

Amendment No. 2 (October 2000), clause 6.2 | All dimensions in mm. Each pair is minimum / maximum; dash means no value shown.

Nominal diameter DN	PN 2.5 min / max	PN 4 min / max	PN 6 min / max	PN 8 min / max	PN 10 min / max	PN 12.5 min / max	PN 16 min / max
20	-	-	-	-	-	2.3/2.8	2.8/3.3
25	-	-	-	-	2.3/2.8	2.8/3.3	3.5/4.1
32	-	-	-	2.4/2.9	3.0/3.5	3.6/4.2	4.5/5.2
40	-	-	2.3/2.8	3.0/3.5	3.7/4.3	4.5/5.2	5.6/6.4
50	-	2.3/2.8	2.9/3.4	3.8/4.4	4.6/5.3	5.6/6.4	6.9/7.8
63	-	2.5/3.0	3.6/4.2	4.7/5.4	5.8/6.6	7.0/7.9	8.7/9.8
75	-	2.9/3.4	4.3/5.0	5.6/6.4	6.9/7.8	8.4/9.5	10.4/11.7
90	2.3/2.8	3.5/4.1	5.1/5.9	6.7/7.6	8.2/9.3	10.0/11.2	12.5/14.0
110	2.7/3.2	4.3/5.0	6.3/7.2	8.2/9.3	10.0/11.2	12.3/13.8	15.2/17.0
125	3.1/3.7	4.9/5.6	7.1/8.1	9.3/10.5	11.4/12.8	13.9/15.5	17.3/19.3
140	3.5/4.1	5.4/6.2	8.0/9.0	10.4/11.7	12.8/14.3	15.6/17.4	19.4/21.6
160	4.0/4.6	6.2/7.1	9.1/10.3	11.9/13.3	14.6/16.3	17.8/19.8	22.1/24.6
180	4.4/5.1	7.0/7.9	10.2/11.5	13.4/15.0	16.4/18.3	20.0/22.2	24.9/27.6
200	4.9/5.6	7.7/8.7	11.4/12.8	14.9/16.6	18.2/20.3	22.3/24.8	27.6/30.6
225	5.5/6.3	8.7/9.8	12.8/14.3	16.7/18.6	20.5/22.8	25.0/27.7	31.1/34.5
250	6.1/7.0	9.7/10.9	14.2/15.9	18.6/20.7	22.8/25.3	27.8/30.8	34.5/38.2
280	6.9/7.8	10.8/12.1	15.9/17.7	20.8/23.1	25.5/28.3	31.2/34.6	38.7/42.8
315	7.7/8.7	12.2/13.7	17.9/19.9	23.4/26.0	28.7/31.8	35.0/38.7	43.5/48.1
355	8.7/9.8	13.7/15.3	20.1/22.4	26.3/29.2	32.3/35.8	39.5/43.7	49.0/54.1
400	9.8/11.5	15.4/18.0	22.7/26.4	29.7/34.4	36.4/42.1	44.5/51.4	55.2/63.7
450	11.0/12.9	17.4/20.3	25.5/29.6	33.4/38.7	41.0/47.4	50.0/57.7	-
500	12.2/14.3	19.3/22.4	28.4/32.9	37.1/42.9	45.5/52.6	55.6/64.2	-
560	13.7/16.0	21.6/25.1	31.7/36.7	41.5/48.0	51.0/58.9	-	-
630	15.4/18.0	24.3/28.2	35.7/41.3	46.7/54.0	57.3/66.1	-	-
710	17.4/20.3	27.4/31.8	40.2/46.5	52.6/60.7	-	-	-
800	19.6/22.8	30.8/35.7	45.3/52.3	-	-	-	-
900	22.0/25.5	34.7/40.2	51.0/58.9	-	-	-	-
1000	24.4/28.3	38.5/44.5	56.7/65.5	-	-	-	-

Source: supplied IS 4984:1995, Amendment No. 2. Verify applicable edition and later amendments.

Table 5 | Wall Thickness of Pipes - PE 100

Amendment No. 2 (October 2000), clause 6.2 | All dimensions in mm. Each pair is minimum / maximum; dash means no value shown.

Nominal diameter DN	PN 6 min / max	PN 8 min / max	PN 10 min / max	PN 12.5 min / max	PN 16 min / max
20	-	-	-	-	2.3/2.8
25	-	-	-	2.3/2.8	2.9/3.4
32	-	-	2.4/2.9	2.9/3.4	3.7/4.3
40	-	2.4/2.9	3.0/3.5	3.7/4.3	4.6/5.3
50	2.3/2.8	3.0/3.5	3.7/4.3	4.6/5.3	5.7/6.5
63	2.9/3.4	3.8/4.4	4.7/5.4	5.7/6.5	7.1/8.1
75	3.5/4.1	4.5/5.2	5.6/6.4	6.8/7.7	8.5/9.6
90	4.1/4.8	5.4/6.2	6.7/7.6	8.2/9.3	10.2/11.5
110	5.0/5.7	6.6/7.5	8.1/9.2	10.0/11.2	12.4/13.9
125	5.7/6.5	7.5/8.5	9.2/10.4	11.3/12.7	14.1/15.8
140	6.4/7.3	8.4/9.5	10.3/11.6	12.7/14.2	15.8/17.6
160	7.3/8.3	9.6/10.8	11.8/13.2	14.5/16.2	18.1/20.2
180	8.2/9.3	10.8/12.1	13.3/14.9	16.3/18.2	20.3/22.6
200	9.1/10.3	12.0/13.4	14.8/16.5	18.1/20.2	22.6/25.1
225	10.3/11.6	13.5/15.1	16.6/18.5	20.4/22.7	25.4/28.2
250	11.4/12.8	15.0/16.7	18.4/20.5	22.6/25.1	28.2/31.3
280	12.8/14.3	16.8/18.7	20.6/22.9	25.3/28.1	31.6/35.0
315	14.4/16.1	18.9/21.0	23.2/25.8	28.5/31.6	35.5/39.3
355	16.2/18.1	21.2/23.6	26.2/29.1	32.1/35.6	40.0/44.2
400	18.2/21.2	23.9/27.7	29.5/34.2	36.2/41.9	45.1/52.1
450	20.5/23.8	26.9/31.2	33.1/38.3	40.7/47.1	50.8/58.7
500	22.8/26.5	29.9/34.6	36.8/42.6	45.2/52.2	56.4/65.1
560	25.5/29.6	33.5/38.8	41.2/47.6	50.6/58.4	-
630	28.7/33.3	37.7/43.6	46.4/53.6	56.9/65.7	-
710	32.3/37.4	42.4/49.0	52.3/60.4	-	-
800	36.4/42.1	47.8/55.2	58.9/68.0	-	-
900	41.0/47.4	53.8/62.1	-	-	-
1000	45.5/52.6	-	-	-	-

Source: supplied IS 4984:1995, Amendment No. 2. Verify applicable edition and later amendments.

Table 7 | Sampling for Visual and Dimensional Requirements

Clauses 9.2.3.1 and 9.2.3.3

Pipes in lot	Sample number	Sample size	Cumulative size	Acceptance number	Rejection number
Up to 150	First	13	13	0	2
	Second	13	26	1	2
151 to 280	First	20	20	0	3
	Second	20	40	3	4
281 to 500	First	32	32	1	4
	Second	32	64	4	5
501 to 1,200	First	50	50	2	5
	Second	50	100	6	7
1,201 to 3,200	First	80	80	3	7
	Second	80	160	8	9
3,201 to 10,000	First	125	125	5	9
	Second	125	250	12	13
10,001 to 35,000	First	200	200	7	11
	Second	200	400	18	19

Table 8 | Sampling for Hydraulic and Material Tests

Clause 9.2.4.2 | Hydraulic characteristics, reversion, overall migration, density, MFR and carbon-black content / dispersion.

Number of pipes	Sample size
Up to 150	3
151 to 1,200	5
1,201 to 35,000	8