

Pipe OD Chart — Outside Diameters at a Glance

When you're matching a grate, repair clamp, coupling, or tapping sleeve to an existing main, the outside diameter is the number that matters — and it is not the nominal size. Sizes now run 3" through 64". This chart covers the three OD systems you'll meet in waterworks: ductile iron pipe (AWWA C151), PVC C900/C905 (which shares the cast iron OD system), and IPS-sized steel, PVC, and HDPE.

NOMINAL SIZE	DUCTILE IRON OD (IN) — AWWA C151	PVC C900 / C905 OD (IN) — CIOD	IPS OD (IN) — STEEL / PVC / HDPE	DI OD (MM)
3"	3.96	—	3.500	101
4"	4.80	4.80	4.500	122
6"	6.90	6.90	6.625	175
8"	9.05	9.05	8.625	230
10"	11.10	11.10	10.750	282
12"	13.20	13.20	12.750	335
14"	15.30	15.30	14.000	389
16"	17.40	17.40	16.000	442
18"	19.50	19.50	18.000	495

NOMINAL SIZE	DUCTILE IRON OD (IN) — AWWA C151	PVC C900 / C905 OD (IN) — CIOD	IPS OD (IN) — STEEL / PVC / HDPE	DI OD (MM)
20"	21.60	21.60	20.000	549
24"	25.80	25.80	24.000	655
30"	32.00	32.00	30.000	813
36"	38.30	38.30	36.000	973
42"	44.50	44.50	42.000	1130
48"	50.80	50.80	48.000	1290
54"	57.56	—	54.000	1462
60"	61.61	—	60.000	1565
64"	65.67	—	64.000	1668

Sizes above 24" (to 64" ductile iron) are standardized too — ask us for the extended chart. Older grey cast iron mains vary by class and era: measure the OD in the field before ordering fittings for them. PVC C900 covers 4"–12" and C905 14"–48", both on the cast-iron OD system, which is why those columns match ductile iron.

Copper & CTS service tubing

Water service lines use copper tube size (CTS) — the OD your curb stop, main stop, and service fittings must match.

NOMINAL (CTS)	OD (IN)	OD (MM)
3/4"	0.875	22
1"	1.125	29

NOMINAL (CTS)	OD (IN)	OD (MM)
1 1/4"	1.375	35
1 1/2"	1.625	41
2"	2.125	54

Older grey cast iron mains

Grey cast iron pipe was made in several wall classes (historically Class A through D and beyond), and outside diameters changed across eras and foundries — a 6" cast iron main from 1935 and one from 1960 can carry different ODs. Two cautions worth taping to the truck: always field-measure the OD of an existing grey iron main before ordering a repair clamp or sleeve, and watch the 54" ductile trap — pipe made before the late 1980s used a 57.10" OD, while modern AWWA C151 54" pipe is 57.56".

Why nominal size and OD differ

Nominal size describes the approximate inside diameter a pipe family was designed around. Wall thickness varies by material and pressure class, so the outside surface — the one your fitting has to grip — lands on a different, standardized number. Two 8" pipes can differ by almost half an inch of OD depending on the system.

References: AWWA C151/A21.51 (ductile iron pipe), AWWA C900/C905 (PVC pressure pipe), ASME B36.10 (IPS).
Verify against the governing standard for your project.