

Capacity and Displacement of Drill Collars

O.D. (mm)	I.D. (mm)	MASS (kg/m)	CAPACITY (m³/metre)	DISPLACEMENT (m³/metre)
79.4 (3.125")	31.80	29.80	0.0080	0.0042
88.9 (3.5")	38.10	40.20	0.0011	0.0051
104.8 (4.125")	50.80	52.10	0.0020	0.0066
120.7 (4.75")	57.20	78.90	0.0026	0.0101
152.4 (6")	57.20 71.40	123.50 111.60	0.0026 0.0040	0.0157 0.0142
158.8 (6.25")	57.20 71.40	135.40 123.50	0.0026 0.0040	0.0172 0.0158
165.1 (6.5")	57.20 71.40	147.30 135.40	0.0026 0.0040	0.0188 0.0174
171.5 (6.75")	57.20	160.70	0.0026	0.0205
177.8 (7")	57.20 71.40	174.10 163.70	0.0026 0.0040	0.0223 0.0208
184.2 (7.25")	71.40	177.10	0.0040	0.0226
196.9 (7.75")	71.40	206.90	0.0040	0.0264
203.2 (8")	71.40	223.20	0.0040	0.0284
209.6 (8.25")	71.40	238.10	0.0040	0.0305
228.6 (9")	71.40	290.20	0.0040	0.0370
241.3 (9.5")	76.20	327.40	0.0046	0.0411
247.7 (9.75")	76.20	345.30	0.0046	0.0436
254.0 (10")	76.20	366.10	0.0046	0.0461
279.4 (11")	76.20	449.40	0.0046	0.0567

The formula for calculating the capacity of a hole or a pipe is:

$$\text{Capacity (liters/metre)} = (\text{Inside diameter in millimeters, mm})^2 \times 0.0007854$$

The annular or displacement volume can be calculated using a similar formula:

$$\text{Capacity (litres/metre)} = (\text{OD in millimeters, mm})^2 - (\text{ID in millimeters, mm})^2 \times 0.0007854$$