

Appendix B Elastic deformation of concrete

The modulus of elasticity is primarily dependent on the crushing strength of the concrete. It is, however, influenced by the elastic properties of the aggregate and to a lesser extent by the conditions of curing and age of concrete, the mix proportions and the type of cement. For concrete made with natural aggregates and having a density of 2 300 kg/m³ or more, the static or dynamic modulus of elasticity may be taken from Table 35 for concrete of various compressive strengths.

Table 35 — Modulus of elasticity

Compressive strength, f_{cu}	Static modulus, E_c		Dynamic modulus, E_{cq}	
	Mean value	Typical range	Mean value	Typical range
N/mm ²	kN/mm ²	kN/mm ²	kN/mm ²	kN/mm ²
20	25	21 to 29	35	31 to 39
25	26	22 to 30	36	32 to 40
30	28	23 to 33	38	33 to 43
40	31	26 to 36	40	35 to 45
50	34	28 to 40	42	36 to 48
60	36	30 to 42	44	38 to 50