IS 10262 : 2019

Concrete Mix Proportioning - Guidelines

Ask about IS 10262… e.g. "min cover for severe exposure"

IS 10262:2019 is the Indian Standard (BIS) for concrete mix proportioning - guidelines. This standard provides guidelines for proportioning concrete mixes to achieve specified requirements for workability, strength, and durability. It details a systematic, step-by-step process for concrete mix design using the properties of the constituent materials, supplemented with illustrative examples.

> *Provides guidelines for the proportioning of concrete mixes.*

Quick Reference — IS 10262:2019 Mix Design Numbers

Target mean strength, water content, CA volume tables, SCM replacement and trial-mix sequencing.

✓ Verified 2026-04-26

REFERENCE	VALUE	CLAUSE
Target mean strength — characteristic σ basis	**f'ck = fck + 1.65 σ**	Cl. 5.1.1
Standard deviation — M10–M15	**3.5 N/mm² (assumed)**	Cl. 5.1.1 (Table 1)
Standard deviation — M20–M25	**4.0 N/mm² (assumed)**	Cl. 5.1.1 (Table 1)
Standard deviation — M30–M50	**5.0 N/mm² (assumed)**	Cl. 5.1.1 (Table 1)
Std. deviation — M55+	**6.0 N/mm²**	Cl. 5.1.1 (Table 1)
Free-water content — 20 mm aggregate, slump 50 mm	**186 kg/m³**	Cl. 5.3 (Table 4)

REFERENCE	VALUE	CLAUSE
Free-water content — 10 mm aggregate, 50 mm slump	**208 kg/m³**	Cl. 5.3 (Table 4)
Free-water content — 40 mm aggregate, 50 mm slump	**165 kg/m³**	Cl. 5.3 (Table 4)
Water adjustment per 25 mm extra slump	**+ 3 % water**	Cl. 5.3 (note 1)
Water adjustment for sub-angular / angular	**± 5–10 kg/m³ (rounded vs angular)**	Cl. 5.3 (note 2)
Volume of CA — 20 mm, sand Zone II, w/c 0.50	**0.62 (per unit total agg. vol.)**	Cl. 5.5 (Table 5)
Volume of CA — 10 mm, sand Zone II, w/c 0.50	**0.48**	Cl. 5.5 (Table 5)
CA volume adjustment per 0.05 change in w/c	**± 0.01 (decrease w/c → more CA)**	Cl. 5.5 (Table 5 note)
Trial mix sequence — number of trials	**Min 3 (one at design, ±10% binder)**	Cl. 6
Acceptance — average of 3 cubes	**≥ f'ck (target mean)**	Cl. 6.5
Min cement content — refer durability	**Per IS 456 Table 5**	Cl. 4.2 / IS 456
Max cement content (excl. SCMs)	**450 kg/m³**	Cl. 4.2.4 / IS 456 Cl. 8.2.4.2
SCM (fly ash) replacement — typical limits	**15–35 % by mass of OPC**	Cl. 4.4 / IS 1489 / IS 456
GGBS replacement — typical	**25–70 % by mass of OPC**	Cl. 4.4 / IS 16714
Silica fume replacement — typical	**5–10 % by mass of OPC**	Cl. 4.4 / IS 15388