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Smarter than Concrete

Suggested Concrete Formulations

The following concrete formulations have to be considered as a guideline. The definite formulations must be defined in a plant set-up.

Concretum® D-ZERO

Components	Dosage (in % of the amount of cement)
Cement:	
CEM I 42.5 or CEM II-A/LL 42.5	D_{max} 8 mm: 390 kg/m³ D_{max} 16 mm: 375 kg/m³ D_{max} 32 mm: 340 kg/m³
Cement replacements:	
Fly ash	D_{max} 8 mm: 20 kg/m³ D_{max} 16 mm: 20 kg/m³ D_{max} 32 mm: 15 kg/m³
Aggregates:	
D_{max} = 8, 16 or 32 mm	According to your coarse or fine grading
Water:	
Drinking water	≤ 42 % (water to cement ratio 0.42)
Additives:	
D-ZERO (L) (Version depending on cement and aggregates)	D_{max} 8 mm: 11 – 12 kg/m³ D_{max} 16 mm: 10 – 11 kg/m³ D_{max} 32 mm: 9 - 10 kg/m³
Air entrainer	According to specification, minimum 0.1 %
Retarder or antifreeze agent	According to specification and instructions of the producer
Fibers:	
SUPERFIBER H 880/40 (optional)	5 kg/m³ to increase the flexural tensile strength
SUPERFIBER 40/8 (optional)	0.6 kg/m³ to minimize early age cracks

Concretum® D-ZERO Plus

Components	Dosage (in % of the amount of cement)
Cement:	
CEM I 42.5 or CEM II-A/LL 42.5	D_{max} 8 mm: 390 kg/m³ D_{max} 16 mm: 375 kg/m³ D_{max} 32 mm: 340 kg/m³
Cement replacements:	
Fly ash	D_{max} 8 mm: 20 kg/m³ D_{max} 16 mm: 20 kg/m³ D_{max} 32 mm: 15 kg/m³
Aggregates:	
D_{max} = 8, 16 or 32 mm	According to your coarse or fine grading
Water:	
Drinking water	≤ 42% (water to cement ratio 0.42)
Additives:	
D-ZERO (L) (Version depending on cement and aggregates)	D_{max} 8 mm: 11 – 12 kg/m³ D_{max} 16 mm: 10 – 11 kg/m³ D_{max} 32 mm: 9 - 10 kg/m³
D-ZERO Plus (P)	Generally 20 kg/m³
Air entrainer	According to specification, minimum 0.1%
Retarder or antifreeze agent	According to specification and instructions of the producer
Fibers:	
SUPERFIBER H 880/40 (optional)	5 kg/m³ to increase the flexural tensile strength
SUPERFIBER 40/8 (optional)	0.6 kg/m³ to minimize early age cracks

Concretum AG, Technoparkstrasse 1, CH-8005 Zürich, Telefon +41 44 445 13 46, Fax +41 44 445 13 48
info@concretum.com, www.concretum.com

Concretum® Q-FLASH 2/20 (Option: Cement included)

Components	Dosage (in % of the amount of cement)
Cement:	
Q-FLASH 2h cem (P)	D_{max} 8 mm: 510 kg/m^3 D_{max} 16 mm: 455 kg/m^3 D_{max} 32 mm: 395 kg/m^3
Aggregates:	
D_{max} = 8, 16 or 32 mm	According to your coarse or fine grading
Water:	
Drinking water	≤ 32 % (water to cement ratio 0.32)
Additives:	
Q-FLASH 2h (L)	d_{max} 8 mm: 13.0 kg/m^3 d_{max} 16 mm: 11.5 kg/m^3 d_{max} 32 mm: 10.0 kg/m^3
Air entrainer	According to specification, minimum 0.1 %
Fibers:	
SUPERFIBER H 880/40 (optional) SUPERFIBER 40/8 (optional)	5 kg/m^3 to increase the flexural tensile strength 0.6 kg/m^3 to minimize early age cracks

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Concretum® Q-FLASH 10/20

Components	Dosage (in % of the amount of cement)
Cement:	
CEM I 52.5 R	D_{max} 8 mm: 440 kg/m³ D_{max} 16 mm: 420 kg/m³ D_{max} 32 mm: 400 kg/m³
Aggregates:	
D_{max} = 8, 16 or 32 mm	According to your coarse or fine grading
Water:	
Drinking water	≤ 32 % (water to cement ratio 0.32)
Additives:	
Q-FLASH 10h (L)	D_{max} 8 mm: 11 kg/m³ D_{max} 16 mm: 10 kg/m³ D_{max} 32 mm: 10 kg/m³
Air entrainer	According to specification, minimum 0.1 %
Retarder or antifreeze agent	According to specification and instructions of the producer
Fibers:	
SUPERFIBER H 880/40 (optional)	5 kg/m³ to increase the flexural tensile strength
SUPERFIBER 40/8 (optional)	0.6 kg/m³ to minimize early age cracks

Concretum® Q-FLASH 10/10

Components	Dosage (in % of the amount of cement)
Cement:	
CEM I 42.5	D_{max} 8 mm: 460 kg/m³ D_{max} 16 mm: 440 kg/m³ D_{max} 32 mm: 420 kg/m³
Aggregates:	
D_{max} = 8, 16 or 32 mm	According to your coarse or fine grading
Water:	
Drinking water	≤ 32 % (water to cement ratio 0.32)
Additives:	
Q-FLASH 10h (L)	D_{max} 8 mm: 11 kg/m³ D_{max} 16 mm: 10 kg/m³ D_{max} 32 mm: 10 kg/m³
Air entrainer	According to specification, minimum 0.1 %
Retarder or antifreeze agent	According to specification and instructions of the producer
Fibers:	
SUPERFIBER H 880/40 (optional)	5 kg/m³ to increase the flexural tensile strength
SUPERFIBER 40/8 (optional)	0.6 kg/m³ to minimize early age cracks

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Concretum® C-DRY

Components	Dosage (in % of the amount of cement)
Cement:	
CEM I 42.5	D_{max} 8 mm: 380 kg/m^3 D_{max} 16 mm: 350 kg/m^3
Aggregates:	
D_{max} = 8 or 16 mm	According to your coarse or fine grading
Water:	
Drinking water	≤ 42 % (water to cement ratio 0.42)
Additives:	
Q-FLASH 10h (L)	D_{max} 8 mm: 5 kg/m^3 D_{max} 16 mm: 4 kg/m^3
D-ZERO (L) (Version depending on cement and aggregates)	D_{max} 8 mm: 4 kg/m^3 D_{max} 16 mm: 3 kg/m^3
Air entrainer	According to specification, minimum 0.4 %
Retarder or antifreeze agent	According to specification and instructions of the producer
Fibers:	
SUPERFIBER H 880/40 (optional)	5 kg/m^3 to increase the flexural tensile strength
SUPERFIBER 40/8 (optional)	0.6 kg/m^3 to minimize early age cracks

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