Article:

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Table 1. Variables considered.

Variables	Levels
Compressive strength of concrete, f_c	40 MPa 25 MPa
Maximum aggregate size (MAS)	10 mm 20 mm
Fiber slenderness, λ_f Fiber length, L_f	80/35 80/50 65/40 45/50 50/30
Fiber content, C_f	40 kg/m^3 70 kg/m^3
Nominal load ratio, IFn	60% 80%
Position of specimen	1 (top) 2 3 (bottom)

Table 2. Combinations of variables corresponding to the variables tested.

Id.	f_c MPa	Max.aggr. size, mm	C_f kg/m^3	λ_f	L_f mm	IFa (%)	Pos.
1	40	10	40	80	35	60.9	1
2	40	10	40	80	35	54.9	2
3	40	10	40	80	35	54.2	3
4	40	10	40	80	35	97.0	1
5	40	10	40	80	35	81.9	2
6	40	10	40	80	35	70.5	3
7	40	10	70	80	35	61.9	1
8	40	10	70	80	35	59.2	2
9	40	10	70	80	35	59.2	3
10	40	10	70	80	35	81.0	1
11	40	10	70	80	35	82.2	2
12	40	10	70	80	35	81.3	3
-- *	40	10	70	80	35	-- *	1
13	40	10	40	80	50	79.6	2
14	40	10	40	80	50	78.8	3
15	25	20	40	80	50	88.1	1
16	25	20	40	80	50	82.5	2
17	25	20	40	80	50	82.2	3
18	25	20	40	65	40	56.2	1
19	25	20	40	65	40	60.4	2
20	25	20	40	65	40	70.8	3
21	25	20	40	45	50	97.2	1
22	25	20	40	45	50	80.2	2
23	25	20	40	45	50	78.3	3
24	25	20	40	45	50	90.9	1
25	25	20	40	45	50	84.4	2
26	25	10	40	45	50	75.1	3
27	25	10	40	50	30	76.3	1
28	25	10	40	50	30	57.7	2
29	25	10	40	50	30	54.4	3
-- *	25	10	40	50	30	-- *	1
30	25	10	40	50	30	72.9	2
31	25	10	40	50	30	72.4	3

* Specimens corresponding to unavailable data due to problems with the data acquisition systems.

Table 3. Experimental results from the creep tests performed.

				COR (x10^{-3})			spCOR (x10^{-3})								
Id.	r	w_{ci}	$w_{cd}(90)$	0-14	14-30	30-90	0-14	14-30	30-90	$\varphi(14)$	$\varphi(30)$	$\varphi(90)$	$\varphi_0(14)$	$\varphi_0(30)$	$\varphi_0(90)$
1	0.469	0.263	0.229	11.2	1.42	0.82	3.44	0.44	0.25	0.598	0.684	0.870	0.297	0.340	0.432
2	0.414	0.231	0.208	10.9	1.22	0.60	3.23	0.36	0.18	0.662	0.746	0.902	0.288	0.325	0.393
3	0.377	0.147	0.123	6.5	0.78	0.34	1.85	0.22	0.10	0.616	0.702	0.839	0.197	0.224	0.268
4	0.467	0.764	0.798	32.8	13.80	1.96	5.58	2.35	0.33	0.601	0.889	1.043	0.443	0.657	0.771
5	0.434	0.544	0.496	26.0	2.67	1.50	4.34	0.45	0.25	0.668	0.746	0.911	0.435	0.486	0.593
6	0.452	0.207	0.146	6.8	1.01	0.58	1.11	0.17	0.10	0.459	0.536	0.706	0.193	0.225	0.297
7	0.542	0.278	0.259	13.3	1.96	0.70	1.96	0.29	0.10	0.668	0.781	0.932	0.362	0.424	0.506
8	0.503	0.294	0.348	17.7	1.63	1.23	2.57	0.24	0.18	0.844	0.932	1.183	0.455	0.502	0.638
9	0.466	0.153	0.131	6.3	0.90	0.46	0.91	0.13	0.07	0.582	0.676	0.856	0.208	0.241	0.306
10	0.499	0.617	0.470	25.8	1.97	1.29	3.35	0.26	0.17	0.585	0.636	0.761	0.415	0.451	0.540
11	0.503	0.649	0.479	28.4	2.08	0.81	3.63	0.27	0.10	0.612	0.663	0.738	0.440	0.477	0.531
12	0.513	0.294	0.278	15.8	1.38	0.58	2.00	0.17	0.07	0.754	0.829	0.947	0.410	0.451	0.515
13	0.511	0.457	0.334	15.6	2.26	1.32	2.85	0.41	0.24	0.478	0.557	0.730	0.309	0.360	0.472
14	0.46	0.306	0.332	15.3	1.56	1.55	2.73	0.28	0.28	0.699	0.780	1.084	0.366	0.408	0.568
15	0.497	0.506	0.585	26.3	4.40	2.45	6.67	1.12	0.62	0.727	0.866	1.156	0.484	0.576	0.770
16	0.421	0.401	0.497	24.0	3.54	1.75	5.91	0.87	0.43	0.837	0.977	1.239	0.479	0.560	0.711
17	0.437	0.220	0.406	19.0	3.01	1.53	4.56	0.72	0.37	1.208	1.427	1.846	0.520	0.615	0.795
18	0.193	0.312	0.153	6.5	1.05	0.75	3.77	0.61	0.44	0.291	0.344	0.489	0.081	0.096	0.137
19	0.282	0.221	0.129	5.4	1.06	0.60	2.97	0.58	0.33	0.345	0.421	0.585	0.117	0.143	0.198
20	0.349	0.191	0.160	7.5	1.49	0.51	3.87	0.77	0.26	0.551	0.675	0.835	0.202	0.247	0.306
21	0.298	0.404	0.553	27.9	1.44	2.34	8.79	0.45	0.74	0.965	1.021	1.368	0.513	0.543	0.727
22	0.302	0.357	0.652	30.2	2.83	3.07	9.19	0.86	0.94	1.182	1.309	1.824	0.592	0.655	0.913
23	0.353	0.195	0.320	14.8	1.82	1.40	4.36	0.54	0.41	1.062	1.211	1.642	0.392	0.448	0.607
24	0.301	0.615	0.770	34.7	5.72	3.21	9.69	1.60	0.90	0.791	0.940	1.253	0.500	0.594	0.792
25	0.294	0.353	0.830	23.7	19.48	3.12	6.41	5.27	0.84	0.940	1.824	2.354	0.464	0.901	1.163
26	0.327	0.268	0.550	19.2	8.82	2.32	5.05	2.32	0.61	1.003	1.529	2.047	0.441	0.672	0.900
27	0.212	0.212	0.499	24.3	3.03	1.84	12.9	1.60	0.97	1.611	1.839	2.360	0.555	0.634	0.814
28	0.249	0.127	0.162	6.7	1.16	0.82	3.36	0.58	0.41	0.742	0.888	1.277	0.184	0.221	0.317
29	0.332	0.102	0.143	5.4	1.28	0.78	2.55	0.61	0.37	0.739	0.940	1.401	0.168	0.214	0.318
30	0.285	0.161	0.533	14.1	46.26	6.43	4.92	16.15	2.24	0.599	2.849	4.022	0.276	1.311	1.850
31	0.469	0.263	0.229	12.3	7.09	4.13	4.16	2.40	1.40	1.070	1.774	3.314	0.328	0.544	1.016

Table 4. Results from the MLR analyses (additive models) on creep parameters.

	f_c	MAS	C_f	$\lambda_f C_f$	$L_f C_f$	IFa	Pos.	R^2
r		(–)	(–)	(+)	(+)	--	--	0.84
w_{ci}	(+)					(+)	(–)3	0.80
w_{cd}(90)			(+)	(–)		(+)	(–)3	0.77
COR(0-14)						(+)	(–)3	0.83
COR(14-30)				(–)		(+)		0.27
COR(30-90)	(–)	(–)		(–)	(+)	(+)		0.63
spCOR(0-14)			(+)	(–)		(+)	(–)3	0.71
spCOR(14-30)				(–)		(+)		0.30
spCOR(30-90)	(–)	(–)		(–)		(+)		0.69
φ(14)	(–)	(–)				(+)		0.40
φ(30)	(–)	(–)		(–)	(+)			0.47
φ(90)	(–)	(–)		(–)	(+)			0.55
φ_o(14)						(+)		0.56
φ_o(30)			(+)	(–)		(+)		0.58
φ_o(90)			(+)	(–)		(+)		0.55
(count)	6	6	5	11	4	12	4	

+/− in each case indicates the sign of the coefficient multiplying the corresponding simple effect or interaction. In the case of Pos., the sign is that of the coefficient multiplying the boolean variable which equals 1 when the specimen is in position 3.

Table 5. Results of the MLR analyses (constitutive models) on creep parameters.

	IFa	f_c·IFa	MAS·IFa	C_f·IFa	$\lambda_f C_f$·IFa	$L_f C_f$·IFa	Pos·IFa	R^2
r		--	--	--	--	--	--	--
w_{ci}	(+)	(+)					(–)3	0.84
w_{cd}(90)	(+)						(–)3	0.72
COR(0-14)	(+)						(–)3	0.84
COR(14-30)		(+)		(+)	(–)			0.24
COR(30-90)	(+)	(–)	(–)					0.59
spCOR(0-14)	(+)	(–)	(–)				(–)3	0.76
spCOR(14-30)	(+)				(–)			0.31
spCOR(30-90)	(+)	(–)		(+)	(–)	(–)		0.74
φ(14)				(+)	(–)			0.32
φ(30)				(+)	(–)			0.39
φ(90)				(+)	(–)			0.39
φ_o(14)	(+)							0.56
φ_o(30)	(+)							0.53
φ_o(90)	(+)			(+)	(–)			0.55
(count)	10	5	2	6	7	1	4	
+/− in each case indicates the sign of the coefficient multiplying the corresponding simple effect or interaction. In the case of Pos., the sign is that of the coefficient multiplying the boolean variable which equals 1 when the specimen is in position 3.								