

UNIVERSITAT POLITÈCNICA DE CATALUNYA

DEPARTAMENT D'ESTRUCTURES A L'ARQUITECTURA
DEPARTAMENT D'ENGINYERIA DE LA CONSTRUCCIÓ

ESTUDIO EXPERIMENTAL DEL COMPORTAMIENTO
DE VIGAS DE HORMIGÓN ARMADO
DESCIMBRADAS A TEMPRANAS EDADES

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Trabajo realizado como parte de los
requisitos exigidos para optar al grado
de Doctor.

Barcelona - Noviembre de 1994

Anejo IV

**RESULTADOS DE LOS ENSAYOS
DE VIGAS A ROTURA**

PRIMERA SERIE:

Vigas ensayadas inmediatamente después del descimbrado.....	A4.2
Vigas ensayadas después de haber sido sometidas a carga mantenida.....	A4.10

SEGUNDA SERIE:

Vigas ensayadas inmediatamente después del descimbrado.....	A4.18
Vigas ensayadas después de haber sido sometidas a carga mantenida.....	A4.26

ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R11

EDAD DE ENSAYO: 2 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
4.997	-0.03848	0.03119	-0.03687	0.02879	-0.0516	0.0381	-0.0508	0.037738
8.585	-0.06895	0.05415	-0.06805	0.05627	-0.1049	0.1422	-0.1044	0.15618
12.111	-0.1174	0.18637	-0.10465	0.25433	-0.1656	0.2723	-0.1736	0.3229
14.969	-0.14987	0.34742	-0.13614	0.39906	-0.2108	0.369	-0.22	0.42539
18.591	-0.20508	0.56237	-0.18127	0.57794	-0.2787	0.5037	-0.2868	0.55107
23.446	-0.26401	0.73425	-0.23205	0.71611	-0.3571	0.666	-0.3761	0.63129
27.144	-0.31106	0.88275	-0.26908	0.85142	-0.418	0.77783	-0.4424	0.72536
30.155	-0.35029	1.012	-0.30024	0.97704	-0.4676	0.86164	-0.4974	0.79623
32.449	-0.38632	1.0849	-0.32915	1.0968	-0.5107	0.94118	-0.5442	0.86748
32.795	-0.39273	1.0933	-0.33381	1.112	-0.5181	0.95014	-0.5518	0.87554
40.817	-0.49202	1.3055	-0.41654	1.4603	-0.6404	1.1915	-0.6833	1.1314
45.107	-0.55566	1.3453	-0.46665	1.6168	-0.7169	1.3177	-0.7683	1.2468
50.534	-0.6337	1.4267	-0.52975	1.8132	-0.8155	1.476	-0.8751	1.4031
55.947	-0.70802	1.5145	-0.59209	2.0119	-0.9105	1.635	-0.9768	1.5653
65.992	-0.85697	1.6686	-0.71484	2.349	-1.1011	1.9138	-1.1808	1.8478
75.672	-1.0113	1.7954	-0.83739	2.6617	-1.2928	2.1627	-1.3864	2.1089
80.842	-1.1172	1.8597	-0.92027	2.8348	-1.4242	2.2972	-1.5273	2.2094
91.272	-1.2815	2.0062	-1.0532	3.1526	-1.6329	2.5689	-1.7675	3.5412
97.762	-1.4318	2.1154	-1.136	3.386	-1.835	3.0723	-2.0114	4.0143
99.812	-1.5409	2.2034	-1.2003	3.5219	-1.9865	3.1445	-2.2147	4.0674
102.54	-1.6409	2.3823	-1.271	3.9107	-2.2087	3.0885	-2.5607	4.0732
104.75	-1.8061	2.47	-1.3736	4.0569	-2.5101	21.317	-2.4711	27.637
105.97	-1.8743	2.498	-1.4166	4.121	-2.0827	26.126	-2.3897	30.312
106.79	-1.9436	2.5161	-1.4416	4.1528	-1.9302	28.148	-2.6377	32.737
102.96	-1.4141	2.4236	-1.4246	4.0083	-1.8777	29.939	-4.6189	33.334
80.562	-0.12147	1.9823	-1.2562	3.4189	-1.6669	29.438	-4.1553	31.653
48.986	-0.05873	1.4246	-0.98226	2.4965	-1.1465	28.509	-3.484	30.872
6.768	-0.10503	0.94395	-0.4436	1.5538	0.0524	26.959	-1.9209	29.711
1.459	-0.10651	0.72495	-0.3237	1.2852	0.05382	26.76	-1.4272	29.541

SERIE: PRIMERA

FECHA DE FABRICACIÓN: 21-9-92

FECHA DE ENSAYO: 23-9-92

FLECHA [mm]		
LVDT1	LVDT2	LVDT3
0.52348	0.519	0.5002
0.95158	0.9887	0.8864
1.5845	1.7205	1.47851
2.0991	2.3102	1.97702
3.0086	3.3357	2.81476
4.2808	4.6587	3.913
5.3164	5.6805	4.8398
6.0712	6.484	5.5341
6.7647	7.213	6.1803
6.8538	7.3122	6.2691
8.7709	9.4502	8.0828
9.7562	10.575	9.0306
11.057	12.023	10.251
12.397	13.463	11.4808
14.922	16.168	13.7997
17.218	18.759	16.0847
18.434	20.418	17.4687
19.675	23.659	19.7317
19.683	26.004	20.3307
---	27.64	---
---	30.983	---
---	38.43	---
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ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R12

EDAD DE ENSAYO: 4 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
1.559	-0.0125	0.00609	-0.01092	0.0091	-0.0132	0.0087	-0.01367	0.009444
8.749	-0.0664	0.04869	-0.06239	0.1081	-0.0824	0.07791	-0.07856	0.072917
11.377	-0.089	0.1582	-0.08626	0.1913	-0.1121	0.11413	-0.10452	0.10802
11.967	-0.0953	0.17723	-0.09284	0.2153	-0.12	0.12557	-0.11047	0.12281
14.304	-0.1169	0.24587	-0.11426	0.28698	-0.1506	0.18683	-0.13666	0.18858
15.179	-0.1276	0.2787	-0.12469	0.31663	-0.1647	0.21815	-0.15018	0.20556
19.832	-0.1763	0.5843	-0.18299	0.52741	-0.2349	0.39446	-0.2216	0.42488
22.373	-0.2006	0.6611	-0.21314	0.58906	-0.2713	0.46755	-0.25522	0.50809
26.598	-0.2391	0.766	-0.25774	0.70692	-0.3238	0.59508	-0.30539	0.63246
33.382	-0.3012	0.9612	-0.31838	0.85874	-0.4075	0.79378	-0.38215	0.82205
37.042	-0.3357	1.0667	-0.35049	0.95597	-0.4555	0.90038	-0.42405	0.92073
43.282	-0.3961	1.263	-0.41243	1.1375	-0.5394	1.0803	-0.50135	1.0927
52.773	-0.4926	1.5501	-0.50565	1.4565	-0.6702	1.3491	-0.62315	1.3554
58.279	-0.5608	1.7162	-0.57003	1.6576	-0.7641	1.5083	-0.70925	1.5133
63.202	-0.6111	1.8527	-0.61583	1.8315	-0.8313	1.6353	-0.77185	1.6411
65.898	-0.6602	1.9303	-0.66073	1.9245	-0.8989	1.713	-0.83365	1.7177
68.228	-0.6842	1.9904	-0.68323	1.9991	-0.9317	1.7703	-0.86445	1.7758
78.808	-0.8043	---	-0.79213	2.3399	-1.0943	2.0502	-1.0137	2.0506
84.238	-0.8572	---	-0.85163	2.5003	-1.1843	2.1881	-1.0971	2.1866
93.298	-0.9597	---	-0.96853	2.7625	-1.3656	2.4117	-1.2653	2.4131
104.41	-1.1161	---	-1.1077	3.1408	-1.5936	2.8247	-1.4714	2.9223
111.36	-1.281	---	-1.2585	3.6405	-1.8349	3.222	-1.6902	3.2464
114.44	-1.4442	---	-1.4026	4.1057	-2.4764	3.6386	-2.0063	3.2089
110.5	-1.4793	---	-1.4337	4.0309	-2.6149	3.6481	-2.1278	3.1661
107.9	-1.5195	---	-1.4705	4.047	-2.7773	30.334	-2.5795	9.854
81.478	-1.3107	---	-1.1426	3.2994	-23.938	30.007	-2.424	9.31
61.559	-1.1634	---	-1.0109	2.7294	-23.351	29.437	-2.2183	8.8359
25.699	-0.8051	---	-0.77893	1.6503	-22.106	28.079	-1.6682	7.7368
5.218	-0.5451	---	-0.65183	1.0161	-20.819	27.126	-1.1825	6.9785
0.003	-0.4714	---	-0.60973	0.88683	-20.438	26.907	-1.046	6.8193
0	-0.4533	---	-0.59613	0.87547	-20.378	26.892	-1.0086	6.8102

SERIE: PRIMERA

FECHA DE FABRICACIÓN: 21-9-92

FECHA DE ENSAYO: 25-9-92

FLECHA [mm]		
LVDT1	LVDT2	LVDT3
0.16	0.105	0.052
0.887	0.847	0.375
1.1831	1.1637	0.528
1.2807	1.288	0.561
1.6046	1.6062	0.758
1.7534	1.767	0.846
2.7701	2.939	1.562
3.3718	3.6012	2.039
4.4194	4.6802	2.894
6.1099	6.3932	4.375
6.9692	7.2872	5.163
8.412	8.826	6.49
10.571	11.175	8.5499
11.964	12.681	9.8616
13.029	13.833	10.8457
13.817	14.681	11.5768
14.345	15.257	12.0922
16.771	17.885	14.3676
18.249	19.413	15.6798
20.509	21.863	17.789
23.586	25.22	20.7155
26.788	28.71	23.767
31.034	34.747	28.622
31.085	34.946	28.621
31.305	43.289	28.625
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ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R13

EDAD DE ENSAYO: 7 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
0.028	-0.01378	0.0075	-0.01538	0.0089	-0.0199	0.01059	-0.0281	0.00759
9.998	-0.08989	0.1884	-0.09633	0.10845	-0.1244	0.10579	-0.1436	0.15191
16.045	-0.16241	0.4434	-0.16435	0.39071	-0.2161	0.31598	-0.249	0.3817
22.389	-0.24056	0.6437	-0.23796	0.50963	-0.3037	0.53255	-0.3569	0.59225
24.744	-0.25697	0.6693	-0.25525	0.53163	-0.3308	0.57604	-0.3961	0.63125
30.882	-0.31492	0.8106	-0.31438	0.69499	-0.41	0.76019	-0.48586	0.78595
32.582	-0.34817	0.862	-0.34728	0.76752	-0.4567	0.82339	-0.54014	0.85665
38.229	-0.39791	0.9758	-0.39588	0.91671	-0.5243	0.95879	-0.61869	1.0042
40.785	-0.43759	1.054	-0.43268	1.0375	-0.57548	1.0555	-0.67733	1.1099
41.632	-0.45037	1.0725	-0.44638	1.061	-0.59434	1.0772	-0.70212	1.133
48.374	-0.50978	1.2142	-0.50428	1.2273	-0.67131	1.2367	-0.78852	1.3061
58.14	-0.623	1.4564	-0.60918	1.4953	-0.81865	1.5071	-0.95552	1.5808
70.617	-0.77847	1.7611	-0.75198	1.832	-1.0227	1.8354	-1.1819	1.9125
70.747	-0.81023	1.777	-0.78148	1.8529	-1.0657	1.8526	-1.2324	1.9319
71.047	-0.83079	1.7914	-0.80098	1.8724	-1.0937	1.8686	-1.2683	1.9517
85.887	-0.97204	2.1211	-0.92758	2.2318	-1.2751	2.2126	-1.4708	2.3091
94.947	-1.1368	2.3465	-1.0827	2.4846	-1.4913	2.4405	-1.7243	2.5546
102.54	-1.2726	2.6048	-1.2021	2.741	-1.6675	2.5958	-1.9311	3.4263
108.86	-1.4643	---	-1.3535	3.2885	-2.5449	12.964	-2.2363	10.84
73.317	-1.18	---	-1.1013	2.3042	-32.724	16.368	-2.0685	19.302
57.201	-1.0388	---	-0.96908	1.894	-32.483	15.777	-1.8852	18.875
41.996	-0.88972	---	-0.82738	1.5342	-32.19	15.258	-1.671	18.402
14.339	-0.55578	---	-0.51538	0.89812	-31.328	14.258	-1.1703	17.342
0.273	-0.36566	---	-0.34328	0.6486	-30.615	13.73	-0.87395	16.744
0.273	-0.3417	---	-0.32138	0.59436	-30.605	13.745	-0.84709	16.713

SERIE: PRIMERA

FECHA DE FABRICACIÓN: 21-9-92

FECHA DE ENSAYO: 28-9-92

FLECHA [mm]		
LVDT1	LVDT2	LVDT3
---	0.568	---
---	1.739	---
---	2.9572	---
---	4.689	---
---	5.0612	---
---	6.5442	---
---	7.236	---
---	8.4412	---
---	9.367	---
---	9.5797	---
---	10.969	---
---	13.404	---
---	16.547	---
---	16.896	---
---	17.263	---
---	20.645	---
---	23.381	---
---	25.918	---
---	33.438	---
---	45.826	---
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ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R14

EDAD DE ENSAYO: 28 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
5.1726	-0.084	0.108	-0.06824	0.10527	-0.0968	0.0644	-0.132	0.096
8.0688	-0.1391	0.2417	-0.11667	0.35273	-0.1718	0.1531	-0.202	0.206
11.2002	-0.1989	0.55404	-0.06361	931.4	-0.1648	0.5001	-0.298	0.355
13.8162	-0.2438	0.77554	-0.04888	931.4	-0.2288	0.68475	-20.295	0.485
0	-0.0266	0.31044	-0.03028	0.4185	-0.0522	0.1656	-0.562	0.252
1.825	-0.0116	0.01645	-0.0071	0.03138	-0.0135	0.0178	---	0.019
13.478	-0.1139	0.2908	0.01709	---	-0.0543	0.3637	---	0.213
16.916	-0.1429	0.3806	0.01664	---	-0.0939	0.43385	---	0.274
22.095	-0.187	0.567	-0.02185	---	-0.1582	0.55324	---	0.374
32.601	-0.2815	---	-0.11374	---	-0.2916	0.84827	---	0.647
44.949	-0.3727	---	-0.20247	---	-0.4321	1.161	---	0.932
55.045	-0.4118	---	-0.288	---	-0.5654	1.3943	---	1.162
70.046	-0.5354	---	-0.4253	---	-0.7735	1.7567	---	1.515
82.776	-0.6622	---	-0.5649	---	-0.9894	2.0816	---	---
93.326	-0.77832	---	-0.697	---	-1.1907	2.358	---	---
98.046	-0.85118	---	-0.7804	---	-1.319	2.4789	---	---
100.48	-0.90264	---	-0.8393	---	-1.4085	2.5487	---	---
107.23	-0.96999	---	-0.9125	---	-1.5252	2.6993	---	---
113.89	-1.1026	---	-1.0501	---	-1.9327	3.4609	---	---
114.89	-1.1674	---	-1.111	---	-2.3088	3.4922	---	---
115.48	-1.1942	---	-1.1261	---	-3.2408	6.5541	---	---
114.13	-1.2645	---	-1.1243	---	-7.8698	8.9309	---	---
108.09	-1.2417	---	-1.0473	---	-10.298	7.4151	---	---
103.98	-1.1939	---	-1.0385	---	-15.448	7.0008	---	---
102.91	-1.1785	---	-1.0334	---	-19.158	7.0323	---	---
91.146	-1.0802	---	-0.9433	---	-24.814	7.2145	---	---
88.456	-1.0587	---	-0.8983	---	-23.429	7.7821	---	---
71.116	-0.93774	---	-0.784	---	-22.897	7.2853	---	---
49.538	-0.77236	---	-0.6259	---	-22.364	6.6203	---	---
37.546	-0.6679	---	-0.5241	---	-21.987	6.2281	---	---
4.38	-0.3212	---	-0.17858	---	-20.42	5.0352	---	---
0.179	-0.2502	---	-0.10929	---	-19.964	4.8517	---	---

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C11

EDAD DE ENSAYO: 85 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA TRACCIONADA [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
5.847	---	0.1614	-0.1484	0.11621	---	0.181	-0.153	0.131
10.552	---	0.2813	-0.2312	0.20391	---	0.3096	-0.231	0.224
17.676	---	0.4288	-0.3267	0.31682	---	0.4736	-0.315	0.351
20.88	---	0.531	-0.3635	0.3848	---	0.5502	-0.357	0.417
22.202	---	0.5679	-0.388	0.40596	---	0.5617	-0.374	0.444
25.405	---	0.6845	-0.4249	0.49662	---	0.6481	-0.412	0.524
28.452	---	0.8038	-0.4542	0.58613	---	0.7472	-0.446	0.602
29.125	---	0.829	-0.4606	0.60619	---	0.763	-0.453	0.619
34.032	---	---	-0.5172	0.75631	---	0.9089	-0.506	0.754
41.697	---	---	-0.5807	0.96836	---	1.1368	-0.58	0.954
44.296	---	---	-0.6078	1.0211	---	1.1989	-0.606	1.013
50.544	---	---	-0.671	1.1529	---	1.3466	-0.668	1.161
53.703	---	---	-0.6979	1.2175	---	1.4276	-0.698	1.234
66.465	---	---	-0.811	1.5017	---	1.7532	-0.834	1.542
76.645	---	---	-0.9192	1.7408	---	2.013	-0.944	1.796
81.815	---	---	-0.9768	1.8785	---	2.1717	-1.014	1.931
86.775	---	---	-1.0243	2.0107	---	2.2978	-1.065	2.05
94.715	---	---	-1.129	2.2205	---	2.5349	-1.18	2.258
96.085	---	---	-1.1746	2.2651	---	2.5872	-1.229	2.303
99.215	---	---	-1.202	2.3356	---	2.6619	-1.266	2.377
104.9	---	---	-1.262	2.4667	---	2.7095	-1.329	2.536
107.34	---	---	-1.292	2.5458	---	2.7993	-1.363	2.615
112.78	---	---	-1.3761	2.8411	---	3.1612	-1.461	3.319
115.48	---	---	-1.4447	3.0565	---	---	-1.912	7.525
117.15	---	---	-1.3867	3.3338	---	---	-2.281	14.507
119.6	---	---	-1.4312	3.5677	---	---	-2.395	15.335
120.16	---	---	-1.4534	3.6918	---	---	-2.3	15.256
119.52	---	---	-1.4548	3.7467	---	---	-2.208	15.109
117.71	---	---	-1.4482	3.7023	---	---	-2.178	14.975
114.12	---	---	-1.4054	3.6613	---	---	-2.125	14.805
112.53	---	---	-1.3798	3.6262	---	---	-2.114	14.707
107.01	---	---	-1.4043	3.5497	---	---	-2.1	14.51
85.735	---	---	-1.3574	2.8643	---	---	-1.887	13.975
70.635	---	---	-1.24	2.5376	---	---	-1.717	13.586
47.019	---	---	-1.0331	2.0518	---	---	-1.421	12.988
0.115	---	---	-0.4366	1.0626	---	---	---	11.676
0.047	---	---	-0.4215	1.0533	---	---	---	11.671

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C12

EDAD DE ENSAYO: 86 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
12.145	-0.168	0.0203	-0.2146	0.26744	-0.37364	0.306	---	0.2888
15.973	-0.2095	0.0288	-0.2579	0.34021	-0.43739	0.388	---	0.3635
19.374	-0.2435	0.0363	-0.2934	0.41301	-0.49111	0.467	---	0.4345
22.548	-0.2743	0.0458	-0.327	0.49759	-0.54367	0.548	---	0.5105
22.976	-0.2786	0.0492	-0.3325	0.51612	-0.55264	0.563	---	0.5247
26.309	-0.3142	0.0961	-0.3687	0.59622	-0.60856	0.655	---	0.616
33.021	-0.3575	0.2853	-0.4371	0.84082	-0.71713	0.842	---	0.8128
36.424	-0.3824	0.394	-0.3545	---	-0.66905	1.062	---	0.9171
38.652	-0.4056	0.4845	-0.3586	---	-0.70858	1.14	---	0.9954
48.306	-0.4917	0.7295	-0.4519	---	-0.84124	1.397	---	1.2588
49.63	-0.5039	0.792	-0.405	---	-0.85726	1.441	---	1.3035
59.56	-0.5811	1.1159	-0.4866	---	-0.98291	1.701	---	1.5641
66.697	-0.6458	1.3512	-0.5477	---	-1.0877	1.884	---	1.7571
84.077	-0.8016	---	-0.6977	---	-1.3553	2.309	---	2.2447
92.807	-0.8616	---	-0.7898	---	-1.5293	2.501	---	2.4826
95.927	-0.9112	---	-0.838	---	-1.6217	2.579	---	2.5751
98.637	-0.9364	---	-0.8619	---	-1.6652	2.642	---	2.6451
101.76	-0.9908	---	-0.9122	---	-1.7577	2.718	---	2.7369
109.19	-1.0629	---	-0.9812	---	-2.0077	2.687	---	4.2058
113.33	-1.1304	---	-1.0365	---	-2.4664	3.1	---	6.0328
116.3	-1.2405	---	-1.1041	---	-5.1745	1.408	---	8.2773
114.7	-1.2512	---	-1.1137	---	-13.919	4.192	---	9.7213
114.23	-1.2547	---	-1.1126	---	-22.564	6.528	---	10.058
104.75	-1.2134	---	-1.0496	---	-39.03	7.094	---	9.9323
82.797	-1.0067	---	-0.8856	---	-41.624	7.02	---	9.3063
77.527	-0.8975	---	-0.7612	---	-38.971	7.6	---	9.1453
58.616	-0.7551	---	-0.6353	---	-38.422	7.015	---	8.5543
17.578	-0.3702	---	-0.2773	---	-36.998	5.233	---	7.0369
0.061	-0.0005	---	0.0279	---	-35.702	4.237	---	6.466

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C13

EDAD DE ENSAYO: 87 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
11.786	-0.1685	---	---	---	---	0.306	---	0.2302
16.376	-0.2159	---	---	---	---	0.4	---	0.3013
23.641	-0.2849	---	---	---	---	0.564	---	0.4317
29.353	-0.3414	---	---	---	---	0.717	---	0.5659
31.763	-0.3698	---	---	---	---	0.777	---	0.6246
34.305	-0.3907	---	---	---	---	0.834	---	0.6772
35.229	-0.4126	---	---	---	---	0.891	---	0.7674
43.911	-0.4847	---	---	---	---	1.081	---	0.9519
44.359	-0.5004	---	---	---	---	1.11	---	0.9983
69.243	-0.7133	---	---	---	---	1.713	---	1.6196
75.473	-0.9243	---	---	---	---	1.84	---	1.7723
87.073	-0.8956	---	---	---	---	2.115	---	2.0995
95.083	-0.9939	---	---	---	---	2.313	---	2.3058
101.35	-1.061	---	---	---	---	2.447	---	2.4468
105.97	-1.1356	---	---	---	---	2.444	---	2.5598
111.84	-1.186	---	---	---	---	2.591	---	2.5678
115.8	-1.2614	---	---	---	---	2.672	---	2.9268
120.02	-1.3178	---	---	---	---	---	---	5.2068
120.05	-1.3318	---	---	---	---	---	---	5.7068
120.23	-1.3159	---	---	---	---	---	---	8.1898
122.19	-1.3049	---	---	---	---	---	---	8.5038
116.38	-1.2118	---	---	---	---	---	---	6.5748
107.88	-1.0909	---	---	---	---	---	---	6.7438
74.163	-0.7034	---	---	---	---	---	---	7.8118
19.411	-0.4935	---	---	---	---	---	---	6.8648
0	-0.1163	---	---	---	---	---	---	5.6548

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C14

EDAD DE ENSAYO: 88 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
15.198	-0.3092	0.21814	-0.23095	---	-0.341	0.3921	-0.538	0.4334
19.595	-0.3569	0.27119	-0.27245	---	-0.39	0.4809	-0.608	0.5274
22.949	-0.3915	0.31228	-0.30305	---	-0.425	0.5539	-0.661	0.6036
30.132	-0.4662	0.40904	-0.36625	---	-0.503	0.7217	-0.778	0.7774
32.194	-0.4875	0.43779	-0.38335	---	-0.524	0.7694	-0.811	0.8274
32.783	-0.4946	0.44639	-0.38905	---	-0.531	0.7836	-0.821	0.843
36.658	-0.5341	0.50803	-0.41965	---	-0.571	0.8821	-0.883	0.9447
44.795	-0.615	0.65045	-0.48335	---	-0.654	1.0979	-1.013	1.1538
56.828	-0.7277	0.91617	-0.57615	---	-0.779	1.3947	-1.2	1.4289
68.638	-0.8199	---	-0.67465	---	-0.903	1.7021	-1.401	1.7121
79.328	-0.7412	---	-0.76265	---	-1.039	1.9671	-1.6	1.9404
79.978	-0.7229	---	-0.78775	---	-1.08	1.9968	-1.66	1.9328
90.628	-0.8092	---	-0.85845	---	-1.185	2.2336	-1.8141	2.1162
100.93	-0.935	---	-0.94995	---	-1.33	2.5271	-2.0265	2.1142
106.69	-1.0486	---	-1.0297	---	-1.454	2.7453	-2.1678	1.9932
113.15	-1.1589	---	-1.1241	---	-2.369	3.9481	-2.9724	0.5725
115	-1.1675	---	-1.1528	---	-2.213	4.0339	-13.154	1.7402
116.84	-1.1679	---	-1.1768	---	-1.991	4.2383	-31.379	2.0942
115.32	-1.1253	---	-1.1682	---	-1.909	4.2368	-49.745	2.4532
111.26	-1.0397	---	-1.117	---	-1.862	4.0585	---	5.0082
73.458	-0.7888	---	-0.84865	---	-1.395	3.6426	---	3.8932
53.609	-0.6449	---	-0.71355	---	-1.117	3.4919	---	3.2632
9.669	-0.2341	---	-0.35585	---	-0.196	3.2371	---	1.9019
0.265	-0.0098	---	-0.09965	---	0.706	3.1622	---	1.5687

SERIE: PRIMERA

FECHA DE FABRICACIÓN: 21-9-92

FECHA DE ENSAYO: 18-12-92

FLECHA [mm]			DEFORMACIÓN DEL HORMIGÓN Mediciones Manuales [mm/m]			
LVDT1	LVDT2	LVDT3	ES1	ES2	EI1	EI2
2.604	3.26	2.547	-0.109	-0.0545	0.1199	0.1526
3.235	3.706	3.161	---	---	---	---
3.755	4.262	3.66	---	---	---	---
4.953	5.583	4.846	---	---	---	---
5.344	5.995	5.217	---	---	---	---
5.475	6.134	5.339	---	---	---	---
6.304	6.998	6.113	-0.3488	-0.2289	0.4905	0.4687
8.148	8.907	7.8272	-0.4796	-0.3597	0.8175	0.7521
10.501	11.486	10.1166	-0.6104	-0.4796	1.1009	0.9592
13.144	14.3	12.5743	-0.6976	-0.5232	1.3625	1.2099
15.679	17.01	14.9253	-0.8066	-0.6322	1.6023	1.417
16.287	17.544	15.4595	---	---	---	---
18.467	19.937	17.5132	-0.9374	-0.7085	1.7876	1.6023
20.94	22.651	19.9822	-1.0791	-0.8066	2.0383	1.8639
22.81	24.746	21.7664	---	---	---	---
33.625	39.48	33.208	---	---	---	---
34.003	44.894	35.702	---	---	---	---
---	51.981	---	---	---	---	---
---	56.256	---	---	---	---	---
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ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R21

EDAD DE ENSAYO: 2 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
4.298	-0.023	---	-0.0238	0.01807	-0.0308	0.02345	-0.03115	0.02345
8.52	-0.0447	---	-0.0461	0.0346	-0.0588	0.04387	-0.05769	0.04381
10.59	-0.0682	---	-0.0685	0.0465	-0.0907	0.08581	-0.08884	0.07187
14.085	-0.1019	---	-0.0992	0.07845	-0.1377	0.16886	-0.13385	0.13499
17.245	-0.1316	---	-0.1303	0.12806	-0.1811	0.25039	-0.18	0.2319
17.46	-0.1417	---	-0.1412	0.13187	-0.1968	0.27428	-0.19576	0.26108
24.269	-0.1968	---	-0.1918	0.27308	-0.2747	0.43	-0.27462	0.40698
31.478	-0.2533	---	-0.25031	0.46308	-0.3646	0.60038	-0.35924	0.56468
39.066	-0.3114	---	-0.32109	0.61615	-0.4657	0.77	-0.45653	0.71848
47.852	-0.3731	---	-0.39754	0.73169	-0.5719	0.9354	-0.55852	0.87018
56.436	-0.4366	---	-0.4744	0.79639	-0.6823	1.0985	-0.66474	1.0177
65.946	-0.5131	---	-0.5698	0.86109	-0.8139	1.2767	-0.79093	1.1781
73.23	-0.5763	---	-0.64984	0.89219	-0.9293	1.4244	-0.90169	1.3108
81.893	-0.652	---	-0.74451	0.91939	-1.0706	1.6009	-1.0328	1.4684
89.523	-0.7198	---	-0.833	0.91549	-1.2018	1.7682	-1.1547	1.6162
97.353	-0.7955	---	-0.94453	0.89899	-1.3683	1.9389	-1.3093	1.7669
106.22	-0.8781	---	-1.0588	0.95319	-1.5395	2.122	-1.4686	1.9291
112.84	-0.9465	---	-1.1588	0.92249	-1.6904	2.2679	-1.6083	2.0574
117.64	-0.9905	---	-1.223	0.90239	-1.7857	2.3628	-1.6971	2.1415
121.99	-1.0217	---	-1.2773	0.85549	-1.868	2.432	-1.7732	2.2037
126.45	-1.074	---	-1.3696	0.82929	-2.0029	2.5578	-1.8963	2.3118
131.68	-1.1056	---	-1.4384	0.78699	-2.1072	2.6485	-1.9947	2.3953
135.25	-1.1308	---	-1.5134	0.68889	-2.2177	2.722	-2.094	2.4611
139.65	-1.1609	---	-1.6319	0.61619	-2.4087	3.199	-2.2624	2.591
0	-0.1865	---	-0.1929	-0.03998	-0.3437	0.60806	-0.2808	0.21777

SERIE: SEGUNDA

FECHA DE FABRICACIÓN: 26-4-93

FECHA DE ENSAYO: 28-4-93

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DESPLAZAMIENTO DE LA ARMADURA TRACCIONADA [mm]
GC1	GC2	LVDT1	LVDT2	LVDT3	
-0.002	0.002	0.331	0.726	0.295	0.000
-0.001	0.0035	0.732	0.732	0.647	-0.000
-0.004	0.0048	0.915	0.948	0.835	0.000
-0.003	0.0052	1.389	1.4635	1.2875	-0.000
-0.005	0.0073	1.839	2.0287	1.7824	-0.000
-0.008	0.0067	2.108	2.2797	2.0463	0.000
-0.011	0.0037	3.2363	3.5407	3.1761	0.000
-0.015	-0.0039	4.5914	5.0597	4.5192	0.000
-0.018	-0.0056	6.0753	6.7052	6.0781	0.000
-0.019	0.0174	7.5473	8.3807	7.4867	0.000
-0.018	0.1508	9.0996	10.094	8.9983	0.000
-0.026	0.1712	10.755	11.987	10.758	-0.000
-0.035	0.2863	12.218	13.618	12.203	-0.000
-0.035	0.763	14.094	15.798	14.295	0.000
-0.036	1.0245	16.006	17.798	16.002	-0.000
-0.037	1.3091	18.187	20.151	18.152	-0.000
-0.042	1.6032	---	---	---	-0.000
-0.044	1.8722	---	---	---	0.000
-0.045	2.0612	---	---	---	0.000
-0.045	2.2442	---	---	---	0.001
-0.041	2.6162	---	---	---	0.004
-0.038	2.9822	---	---	---	0.008
-0.035	3.6222	---	---	---	0.013
-0.028	4.8842	---	---	---	0.028
0.021	3.3892	---	---	---	0.024

ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R22

EDAD DE ENSAYO: 4 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
4.288	-0.0097	0.0223	-0.0321	0.0194	-0.0383	0.02277	-0.03791	0.02514
7.123	-0.0268	0.0382	-0.05182	0.0337	-0.0635	0.04017	-0.06305	0.04447
10.457	-0.0481	0.0497	-0.07772	0.053	-0.0979	0.07845	-0.09591	0.08275
13.59	-0.0694	0.0505	-0.1075	0.1021	-0.1346	0.12292	-0.13497	0.12645
17.268	-0.1002	0.0705	-0.14152	0.1841	-0.179	0.17821	-0.17789	0.17632
25.435	-0.1722	0.2217	-0.20417	0.493	-0.2843	0.38081	-0.26836	0.34685
34.039	-0.2357	0.4344	-0.26952	0.6269	-0.3775	0.53159	-0.35228	0.49765
42.586	-0.2974	0.595	-0.3283	0.7495	-0.4633	0.67157	-0.43081	0.63455
52.105	-0.3709	0.7625	-0.39677	0.8968	-0.5628	0.82778	-0.52241	0.78883
61.475	-0.4533	0.9357	-0.47411	1.0562	-0.6727	0.99598	-0.62491	0.95243
69.681	-0.526	1.0684	-0.54372	1.1893	-0.7682	1.1309	-0.71541	1.0831
78.726	-0.62	1.2363	-0.63191	1.3579	-0.8904	1.3007	-0.82801	1.2447
87.549	-0.714	1.3901	-0.72081	1.5175	-1.0121	1.4635	-0.94201	1.4014
94.919	-0.8017	1.5062	-0.80281	1.6502	-1.1254	1.5965	-1.0468	1.5278
103.63	-0.9075	1.6477	-0.90371	1.8044	-1.2613	1.7609	-1.1745	1.6848
112.21	-1.012	1.7897	-1.0074	1.9556	-1.3989	1.9225	-1.3048	1.8396
120.92	-1.1314	1.9305	-1.1257	2.1018	-1.5536	2.0877	-1.4525	1.9992
124.23	-1.2103	1.9688	-1.2061	2.1607	-1.6538	2.1542	-1.5499	2.0622
128.73	-1.254	2.0453	-1.2498	2.233	-1.7132	2.235	-1.606	2.1428
133.4	-1.3047	2.1269	-1.3005	2.3115	-1.7802	2.3197	-1.6693	2.2261
139.14	-1.3684	2.2101	-1.367	2.402	-1.8684	2.4175	-1.7572	2.3256
142.72	-1.4458	2.2924	-1.4443	2.4842	-1.965	2.5057	-1.8488	2.4087
145.79	-1.5019	2.3361	-1.5023	2.5381	-2.0392	2.561	-1.9211	2.4616
153.65	-1.6168	2.4881	-1.6103	2.7128	-2.1904	2.7856	-2.0632	2.6299
154.3	-1.6636	2.4899	-1.6527	2.7241	-2.2504	2.8177	-2.1204	2.6493
157.69	-1.7587	2.6006	-1.7297	2.8876	-2.3703	2.8015	-2.2247	2.7656
164.34	-1.8638	2.8266	-1.8296	3.1252	-2.5232	2.9028	-2.3721	3.3945
64.635	-1.9993	3.106	-1.9462	3.4661	-2.7222	5.6994	-2.5572	3.6342
-1.367	-0.417	0.4927	-0.4003	0.9994	-0.5243	4.8467	-0.45291	0.81523

SERIE: SEGUNDA

FECHA DE FABRICACIÓN: 26-4-93

FECHA DE ENSAYO: 30-4-93

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DESPLAZAMIENTO DE LA ARMADURA TRACCIONADA [mm]
GC1	GC2	LVDT1	LVDT2	LVDT3	
0.0716	-0.005	0.4044	0.365	0.2278	-0.001
0.0789	-0.004	0.6432	0.626	0.4554	0.001
0.0898	-0.005	0.9525	0.97	0.754	0.001
0.1144	-0.007	1.3354	1.401	1.1121	-0.001
0.1307	-0.007	1.8238	1.97	1.6057	-0.001
0.1563	-0.003	3.1836	3.4962	2.9727	-0.001
0.1869	0	4.4856	4.9632	4.2609	0.001
0.2133	0.002	5.7388	6.355	5.5512	0.001
0.2406	-0.014	7.1204	7.9142	6.8797	0.0018
0.2655	0.003	8.7056	9.6811	8.5009	0.001
0.2791	0.032	10.004	11.151	9.7556	-0.001
0.2976	0.069	11.706	12.993	11.443	-0.001
0.3139	0.15	13.423	14.955	13.123	0.001
0.32	0.352	14.997	16.665	14.713	0.001
0.3221	0.605	17.102	18.889	16.759	-0.0017
0.326	0.788	18.904	20.855	18.443	-0.001
0.3453	0.94	20.803	23.026	20.271	0.001
0.3724	1.029	---	---	---	0.0023
0.3901	1.104	---	---	---	0.0041
0.4133	1.188	---	---	---	0.006
0.4382	1.294	---	---	---	0.018
0.4161	1.425	---	---	---	0.026
0.4219	1.504	---	---	---	0.036
0.4281	1.731	---	---	---	0.0625
0.4342	1.779	---	---	---	0.0647
0.4428	1.909	---	---	---	0.076
0.4557	2.063	---	---	---	0.1
0.4656	2.196	---	---	---	0.128
0.4376	0.949	---	---	---	0.108

ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R23

EDAD DE ENSAYO: 7 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
0.875	-0.0077	0.0075	-0.0068	0.00611	-0.0094	0.0511	0.0505	0.00488
4.322	-0.0317	0.0239	-0.0297	0.02163	-0.0392	0.0934	0.0342	0.02544
6.847	-0.0496	0.0359	-0.0464	0.03172	-0.0613	0.1206	0.0194	0.04135
10.385	-0.0733	0.0531	-0.0673	0.04413	-0.092	0.154	-0.0081	0.07589
13.83	-0.1036	0.0611	-0.0925	0.03987	-0.1304	0.227	-0.0109	0.12441
21.623	-0.1641	0.2323	-0.1539	0.09499	-0.2162	0.3888	-0.0776	0.27971
30.42	-0.2359	0.3992	-0.2191	0.35118	-0.3113	0.58564	-0.1537	0.44851
40.369	-0.3023	0.5703	-0.2843	0.52698	-0.4045	0.78979	-0.2297	0.60111
50.425	-0.3814	0.7873	-0.362	0.75718	-0.5109	1.0239	-0.2701	0.76411
58.576	-0.4498	0.9398	-0.4237	0.93728	-0.5963	1.2086	-0.2682	0.88951
67.683	-0.5309	1.1093	-0.5002	1.0301	-0.7023	1.3787	-0.3155	1.0355
76.93	-0.6209	1.2768	-0.5864	1.1501	-0.8202	1.5557	-0.3959	1.1897
85.033	-0.692	1.408	-0.6566	1.26	-0.9165	1.7222	-0.474	1.3232
93.073	-0.77892	1.5342	-0.7404	1.3659	-1.0314	1.8926	-0.5454	1.4633
101.19	-0.8678	1.6583	-0.8271	1.4707	-1.15	2.0374	-0.6367	1.6039
109.73	-0.96251	1.7774	-0.9163	1.5795	-1.275	2.2144	-0.7337	1.7482
118.67	-1.0739	1.8854	-1.0223	1.6948	-1.4217	2.3969	-0.8439	1.902
125.98	-1.1624	1.9781	-1.1062	1.7911	-1.5389	2.5222	-0.9301	2.0286
131.61	-1.2533	2.0519	-1.192	1.8705	-1.6597	2.6573	-1.0159	2.1329
134.31	-1.2909	2.0869	-1.2273	1.9102	-1.7098	2.7105	-1.0595	2.183
138.59	-1.329	2.1289	-1.2638	1.9584	-1.7638	2.7843	-1.1049	2.2495
144.58	-1.3957	2.2139	-1.3264	2.0449	-1.8526	2.9011	-1.1787	2.3574
151.31	-1.4858	2.2919	-1.4083	2.1285	-1.9765	3.03	-1.2692	2.4785
153.83	-1.5491	2.3379	-1.4625	2.17	-2.0578	3.1107	-1.3273	2.5471
159.33	-1.6081	---	-1.52	2.3485	-2.1606	4.4949	-1.4267	3.1362
58.319	-1.027	---	-0.9307	1.1824	-1.4092	9.3182	-0.6701	1.7086
0.125	-0.426	---	-0.3275	0.4409	-0.4167	8.0319	0.3544	0.73661

SERIE: SEGUNDA**FECHA DE FABRICACIÓN: 26-4-93****FECHA DE ENSAYO: 3-5-93**

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DESPLAZAMIENTO DE LA ARMADURA TRACCIONADA [mm]
GC1	GC2	LVDT1	LVDT2	LVDT3	
0.006	0.008	0.0796	0.103	0.0897	0.0005
0.001	0.0089	0.4019	0.433	0.3553	0.00048
0.001	0.0086	0.6358	0.679	0.5686	0.0005
-0.002	0.0086	0.9771	1.048	0.8918	0.00047
-0.004	0.0093	1.3811	1.49	1.2708	-0.0022
-0.01	0.0097	2.4043	2.626	2.2469	0.0004
-0.012	0.0058	3.8598	4.222	3.636	-0.0018
-0.015	0.0351	5.3197	5.8265	5.0604	0.0017
-0.004	0.0661	6.9934	7.641	6.6353	0.0003
-0.004	0.0899	8.307	9.0635	7.924	-0.0022
-0.007	0.1115	9.788	10.701	9.3456	0.0003
0.007	0.2029	11.487	12.587	10.999	0.0002
0.025	0.2429	12.862	14.107	12.311	-0.0007
0.032	0.2768	14.46	15.908	13.874	-0.001
0.029	0.6043	16.405	17.987	15.826	0.0002
0.025	1.2689	18.203	19.95	17.76	0.00015
0.028	1.6209	20.122	22.064	19.526	0.0001
0.029	1.8389	21.685	23.779	20.795	0.0004
0.035	2.0549	---	---	---	0.0006
0.04	2.1589	---	---	---	0.0008
0.053	2.2769	---	---	---	0.001
0.094	2.4909	---	---	---	0.0012
0.127	2.7519	---	---	---	0.0016
0.148	2.8839	---	---	---	0.0017
0.167	3.0859	---	---	---	0.001
0.203	1.9179	---	---	---	0.0031
0.181	1.3639	---	---	---	0.0026

ENSAYO: ROTURA DESPUÉS DEL DESCIMBRADO

VIGA: R24

EDAD DE ENSAYO: 28 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
0.524	-0.0028	0.0011	-0.00507	-0.00002	-0.0056	0.00271	-0.00467	0.0008
3.969	-0.0252	0.0342	-0.04247	-0.00353	-0.0441	0.04165	-0.05413	0.0693
7.848	-0.042	0.0521	-0.06583	0.00931	-0.0683	0.05995	-0.08062	0.0931
11.932	-0.0611	0.0744	-0.09075	0.02333	-0.0952	0.08214	-0.11099	0.1235
15.993	-0.0809	0.0643	-0.12307	0.0689	-0.1268	0.11367	-0.15226	0.1787
23.864	-0.131	0.2314	-0.19318	0.12923	-0.1976	0.25189	-0.24026	0.3493
32.396	-0.1792	0.3875	-0.26327	0.28693	-0.2787	0.45475	-0.33878	0.5436
43.165	-0.24	0.652	-0.35012	0.52913	-0.3683	0.63933	-0.4482	0.7364
52.907	-0.2994	0.8695	-0.42912	0.75148	-0.4512	0.79898	-0.54594	0.9062
65.477	-0.3721	1.0129	-0.52222	0.99213	-0.5552	0.98862	-0.66202	1.1131
70.566	-0.4142	1.0811	-0.57642	1.0965	-0.6126	1.0696	-0.72629	1.2019
78.185	-0.4637	1.1785	-0.63712	1.2367	-0.6815	1.1845	-0.80259	1.3284
86.586	-0.5256	1.2899	-0.71472	1.3933	-0.7679	1.3138	-0.89689	1.4707
95.666	-0.5929	1.4163	-0.79492	1.5778	-0.8584	1.4637	-0.99739	1.6396
102.78	-0.659	1.5058	-0.87002	1.7192	-0.9443	1.5825	-1.0916	1.7677
110.56	-0.7319	1.6043	-0.95492	1.8652	-1.0398	1.7059	-1.1956	1.9049
115.88	-0.7755	1.6647	-1.0071	1.9633	-1.0978	1.7885	-1.2598	1.9983
119.55	-0.8097	1.7099	-1.0461	2.0416	-1.1423	1.8527	-1.3093	2.068
127.86	-0.8544	1.8108	-0.99102	---	-1.1148	2.0771	-1.3921	2.2039
132.44	-0.9065	1.8679	-1.0206	---	-1.1798	2.16	-1.4664	2.2946
138.97	-0.9644	1.9486	-1.0775	---	-1.255	2.2667	-1.5521	2.4093
140.29	-0.9891	1.9652	-1.1019	---	-1.2875	2.2935	-1.5894	2.4396
147.71	-1.0388	2.0374	-1.1604	---	-1.3589	2.3963	-1.6713	2.5553
150.15	-1.0757	2.0744	-1.2001	---	-1.4032	2.4449	-1.7221	2.6039
156.67	-1.1198	2.1249	-1.253	---	-1.4675	2.5278	-1.7993	2.7002
159.77	-1.1702	2.1763	-1.3173	---	-1.5326	2.6092	-1.8759	2.7484
166.07	-1.2349	2.369	-1.4207	---	-1.6309	2.7792	-2.0071	2.8013
167.23	-1.2615	2.4009	-1.4577	---	-1.6686	2.8101	-2.055	2.8193
0.182	-0.1678	0.3628	-0.29608	---	-0.2509	0.29857	-0.31744	0.1875

SERIE: SEGUNDA

FECHA DE FABRICACIÓN: 26-4-93

FECHA DE ENSAYO: 24-5-93

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DESPLAZAMIENTO DE LA ARMADURA TRACCIONADA [mm]
GC1	GC2	LVDT1	LVDT2	LVDT3	
-0.007	0.0006	0.0405	0.04	0.0329	-0.0015
-0.009	0.0051	0.5136	0.561	0.5058	-0.001
-0.013	0.0058	0.7563	0.832	0.7467	-0.0013
-0.014	0.0073	1.0472	1.15	1.0318	-0.0001
-0.018	0.0105	1.4379	1.591	1.4202	0.0003
-0.027	0.02	2.5371	2.841	2.5306	-0.0016
-0.04	0.0391	3.9838	4.4117	3.9434	-0.0016
-0.05	0.0664	5.6841	6.2582	5.5461	-0.0014
-0.057	0.0935	7.1245	7.8625	6.9976	-0.0017
-0.06	0.1354	8.8782	9.8082	8.7194	-0.0016
-0.067	0.1621	9.7471	10.789	9.6397	0
-0.069	0.2172	10.889	12.036	10.755	-0.0016
-0.07	0.2957	12.234	13.509	12.032	-0.0003
-0.069	0.4141	13.781	15.222	13.572	-0.0016
-0.059	0.5053	15.249	16.881	15.185	-0.0017
-0.067	0.5847	16.919	18.721	16.69	-0.0013
-0.066	0.6427	---	---	---	-0.0002
-0.066	0.706	---	---	---	-0.0016
-0.065	0.812	---	---	---	-0.0007
-0.062	0.9926	---	---	---	0.0005
-0.057	1.3114	---	---	---	-0.001
-0.054	1.5584	---	---	---	-0.0012
-0.048	2.1494	---	---	---	0.0003
-0.045	2.5244	---	---	---	0.0001
-0.04	2.8784	---	---	---	-0.0006
-0.032	3.1294	---	---	---	0.001
-0.024	3.8554	---	---	---	0.0016
-0.016	4.0854	---	---	---	0.0006
-0.028	1.3084	---	---	---	0.0068

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C21

EDAD DE ENSAYO: 281 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
0.000	0.0000	0.0000	0.0000	0.0000	---	0.0000	0.0000	0.0000
9.927	-0.0324	0.0765	-0.0238	0.0117	---	0.1539	-0.4564	0.1153
16.712	-0.0634	0.1256	-0.0613	0.0242	---	0.2412	-0.5695	0.1823
23.680	-0.1015	0.1812	-0.1021	0.0378	---	0.3494	-0.6685	0.2708
30.624	-0.1434	0.2686	-0.1464	0.0525	---	0.4613	-0.7552	0.4186
37.865	-0.1873	0.3813	-0.1922	0.0730	---	0.5804	-0.8338	0.5683
45.971	-0.2430	0.5245	-0.2391	0.3547	---	0.7101	-0.9102	0.7132
57.242	-0.3144	0.7051	-0.2957	0.7317	---	0.8928	-1.0074	0.9125
61.910	-0.3477	0.7920	-0.2008	---	---	1.0772	-1.0534	0.9986
70.199	-0.4021	0.8982	-0.2071	---	---	1.2254	-1.1252	1.1475
77.229	-0.4584	0.9838	-0.2396	---	---	1.3558	-1.1906	1.2719
85.049	-0.5157	1.0948	-0.2873	---	---	1.5017	-1.2648	1.4159
91.939	-0.5694	1.2019	-0.3331	---	---	1.6313	-1.3336	1.5407
99.409	-0.6273	1.3217	-0.3815	---	---	1.7720	-1.4080	1.6756
106.880	-0.6900	1.4389	-0.4359	---	---	1.9145	-1.4919	1.8102
115.740	-0.7572	1.5825	-0.4998	---	---	2.0755	-1.5876	1.9655
125.080	-0.8253	1.7447	-0.5656	---	---	2.2475	-1.6841	2.1377
130.950	-0.8830	1.8318	-0.6208	---	---	2.3511	-1.7628	2.2343
138.650	-0.9458	1.9535	-0.6729	---	---	2.4823	-1.8443	2.3659
147.090	-1.0288	2.1066	-0.7357	---	---	2.6535	-1.9471	2.5592
150.210	-1.0780	2.2000	-0.7667	---	---	2.7042	-2.0117	2.5418
153.240	-1.1242	2.3223	-0.7967	---	---	2.6501	-2.0798	2.5781
135.800	-1.1227	2.3613	-0.8510	---	---	11.9470	-34.6080	29.5640
106.610	-0.9862	1.9247	-0.6744	---	---	11.5110	-35.0440	28.7300
82.819	-0.8516	1.6049	-0.5406	---	---	11.3400	-34.5370	28.2150
72.109	-0.7855	1.4512	-0.4768	---	---	11.2530	-34.2870	27.9680
44.060	-0.6124	1.0686	-0.3112	---	---	11.0540	-33.5930	27.3470
5.079	-0.3526	0.5488	-0.0875	---	---	10.7930	-32.2010	26.4010
0.000	-0.3004	0.4404	-0.0512	---	---	10.7240	-31.5630	26.1730

SERIE: SEGUNDA

FECHA DE FABRICACIÓN: 26-4-93

FECHA DE ENSAYO: 1-2-94

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DEFORMACIÓN DEL HORMIGÓN Mediciones Manuales [mm/m]			
GC1	GC2	LVDT1	LVDT2	LVDT3	ES1	ES2	EI1	EI2
0.0000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.0000	0.0000
-0.0180	-0.0390	2.073	2.338	2.206	---	---	---	---
-0.0160	-0.0300	2.987	3.370	3.160	-0.0654	-0.0654	0.0981	0.0109
-0.0200	-0.0290	3.976	4.440	4.164	-0.1090	-0.1199	0.1526	0.0218
-0.0200	-0.0220	5.247	5.742	5.396	-0.1526	-0.1635	0.2180	0.0545
-0.0210	-0.0150	6.659	7.195	6.767	-0.1744	-0.2071	0.3052	0.0545
-0.0150	0.0580	8.186	8.767	8.262	-0.2507	-0.2507	0.4142	0.2507
-0.0100	0.0420	10.226	10.844	10.269	-0.3597	-0.3161	0.6104	0.4469
0.0160	0.0330	11.136	11.759	11.122	-0.3706	-0.3270	0.6322	0.5123
0.0290	0.0160	12.667	13.290	12.542	-0.4360	-0.3924	0.7085	0.6213
0.0670	-0.0300	14.050	14.675	13.834	-0.5014	-0.4469	0.8393	0.6976
0.1120	0.0580	15.551	16.288	15.372	-0.5668	-0.4905	0.9156	0.7848
0.1220	0.5640	16.799	17.774	16.841	-0.6104	-0.5341	1.0246	0.8611
0.0970	0.8950	17.893	19.375	18.416	-0.6867	-0.5886	1.1445	1.0028
0.0550	1.1940	---	21.145	---	-0.7630	-0.6540	1.2317	1.0900
0.0880	1.3870	---	23.066	---	-0.8611	-0.7085	1.3516	1.2426
0.2150	---	---	25.616	---	-0.9592	-0.7848	1.5151	1.3516
0.2510	---	---	26.968	---	-1.0464	-0.8611	1.5805	1.4279
0.2630	---	---	28.652	---	-1.1227	-0.9265	1.6895	1.5151
0.2990	---	---	30.873	---	---	---	---	---
0.3110	---	---	---	---	---	---	---	---
0.3230	---	---	---	---	---	---	---	---
0.3530	---	---	---	---	---	---	---	---
0.3600	---	---	---	---	---	---	---	---
0.3630	---	---	---	---	---	---	---	---
0.3630	---	---	---	---	---	---	---	---
0.3560	---	---	---	---	---	---	---	---
0.3420	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C22

EDAD DE ENSAYO: 282 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
7.946	-0.0367	0.1082	-0.0289	-0.0042	-0.3827	0.1148	-0.3946	0.0327
13.843	-0.0621	0.1758	-0.0603	0.0048	-0.5062	0.1946	-0.5201	0.0593
20.310	-0.0935	0.2348	-0.0998	0.0162	-0.6260	0.2864	-0.6316	0.0877
27.277	-0.1296	0.2835	-0.1456	0.0286	-0.7199	0.3873	-0.7174	0.1191
34.495	-0.1735	0.3315	-0.1923	0.0419	-0.8034	0.5011	-0.7915	0.1505
41.280	-0.2178	0.3795	-0.2370	0.0562	-0.8789	0.6205	-0.8572	0.1834
49.432	-0.2682	0.4415	-0.2872	0.0774	-0.9557	0.7555	-0.9271	0.2215
56.695	-0.3167	0.4971	-0.3327	0.1405	-1.0240	0.8798	-0.9884	0.2583
64.550	-0.3703	0.5961	-0.3837	0.1960	-1.0961	1.0140	-1.0538	0.2980
71.836	-0.4163	0.6959	-0.4291	0.2516	-1.1612	1.1372	-1.1131	0.3324
79.596	-0.4711	0.8037	-0.4786	0.3060	-1.2326	1.2710	-1.1778	0.3703
88.366	-0.4918	---	-0.5370	0.3762	-1.3191	1.4292	-1.2521	0.4137
95.156	-0.5398	---	-0.5846	0.4548	-1.3856	1.5539	-1.3126	0.4475
104.400	-0.6075	---	-0.6527	0.5617	-1.4733	1.7220	-1.3938	0.4946
110.500	-0.6572	---	-0.7026	0.6520	-1.5356	1.8346	-1.4535	0.5226
120.160	-0.7297	---	-0.7740	0.8016	-1.6268	1.9979	-1.5397	0.5662
123.820	-0.7729	---	-0.8128	0.8851	-1.6770	2.0652	-1.5850	0.5763
127.720	-0.8015	---	-0.8368	0.9270	-1.7118	2.1196	-1.6164	0.5916
132.480	-0.8389	---	-0.8676	0.9943	-1.7559	2.2038	-1.6534	0.6154
136.070	-0.8696	---	-0.8919	1.0608	-1.7931	2.2677	-1.6837	0.6309
6.763	-0.1086	---	-0.1321	0.1774	-0.4860	0.1759	-0.4557	0.0122

SERIE: SEGUNDA

FECHA DE FABRICACIÓN: 26-4-93

FECHA DE ENSAYO: 2-2-94

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DEFORMACIÓN DEL HORMIGÓN Mediciones Manuales [mm/m]			
GC1	GC2	LVDT1	LVDT2	LVDT3	ES1	ES2	EI1	EI2
0.0190	-0.0025	2.050	2.289	2.150	-0.0218	-0.0436	0.0981	0.0218
0.0190	-0.0021	3.009	3.351	3.150	-0.0545	-0.0654	0.1635	0.0327
0.0160	-0.0010	4.020	4.423	4.147	-0.0763	-0.1308	0.1962	0.0763
0.0160	0.0022	5.067	5.509	5.134	-0.1199	-0.1417	0.2289	0.1308
0.0270	0.0134	6.213	6.688	6.261	-0.1526	-0.1962	0.2398	0.1853
0.0290	0.0359	7.397	7.929	7.454	-0.1962	-0.2398	0.3379	0.2507
0.0600	0.0828	8.746	9.358	8.839	-0.2398	-0.2943	0.3815	0.3052
0.0710	0.1658	9.960	10.641	10.043	-0.2834	-0.3597	0.4578	0.3924
0.0950	0.2269	11.241	11.989	11.308	-0.3488	-0.4033	0.5450	0.4905
0.1180	0.2822	12.557	13.373	12.696	-0.4251	-0.4469	0.5123	0.5886
0.1370	0.3310	13.957	14.821	14.090	-0.4687	-0.5014	0.5777	0.6976
0.1520	0.5368	15.588	16.501	15.742	-0.5341	-0.5559	0.6758	0.8066
0.1480	1.0168	17.124	18.033	17.257	-0.5995	-0.6104	0.7412	0.8720
---	1.5938	19.011	19.901	19.056	-0.6649	-0.6758	0.8393	0.9810
---	1.9641	20.365	21.342	20.475	-0.7194	-0.7412	0.9483	1.1009
---	2.2536	22.240	23.436	22.542	-0.7848	-0.7957	1.0573	1.1772
---	2.3304	23.202	25.054	24.433	-0.8284	-0.8284	1.2099	1.2426
---	2.3929	---	26.204	---	---	---	---	---
---	2.4880	---	27.412	---	---	---	---	---
---	2.5630	---	28.627	---	---	---	---	---
---	0.8183	---	31.752	---	---	---	---	---

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C23

EDAD DE ENSAYO: 283 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
1.434	-0.0127	0.0106	-0.0129	0.0098	-0.0635	0.0314	-0.0144	0.0250
11.862	-0.0446	0.0964	-0.0423	0.0714	-0.4813	0.1968	-0.2235	0.2072
18.191	-0.0725	0.1466	-0.0726	0.1145	-0.5945	0.2883	-0.3160	0.2911
25.113	-0.1065	0.1984	-0.1103	0.1622	-0.6822	0.3854	-0.3859	0.3788
32.331	-0.1452	0.2517	-0.1529	0.2101	-0.7551	0.4863	-0.4430	0.4771
39.229	-0.1850	0.3069	-0.1961	0.2540	-0.8211	0.5857	-0.4953	0.5772
47.448	-0.2314	0.3757	-0.2415	0.2933	-0.8887	0.6991	-0.5485	0.6986
55.121	-0.2747	0.4619	-0.2855	0.3409	-0.9508	0.8102	-0.5977	0.8165
63.249	-0.3209	0.5926	-0.3305	0.4022	-1.0130	0.9330	-0.6461	0.9463
70.786	-0.3716	0.6992	-0.3752	0.4906	-1.0762	1.0570	-0.6938	1.0724
78.780	-0.4198	0.8553	-0.4243	0.5541	-1.1401	1.1798	-0.7459	1.2044
87.470	-0.4742	0.9846	-0.4750	0.6218	-1.2069	1.3102	-0.7996	1.3405
96.010	-0.5312	1.1206	-0.5219	0.7378	-1.2738	1.4361	-0.8506	1.4706
104.530	-0.5889	---	-0.5780	0.8781	-1.3463	1.5627	-0.9067	1.6214
112.500	-0.6005	---	-0.6213	0.9993	-1.4142	1.6851	-0.9568	1.7423
120.850	-0.6560	---	-0.6724	1.1017	-1.4856	1.8106	-1.0104	1.8625
128.530	-0.7009	---	-0.7133	1.2385	-1.5431	1.9035	-1.0547	1.9539
131.350	-0.7342	---	-0.7428	1.2933	-1.5839	1.9678	-1.0872	2.0175
134.360	-0.7689	---	-0.7737	1.3522	-1.6239	2.0274	-1.1166	2.0741
137.950	-0.7983	---	-0.7995	1.4149	-1.6594	2.0834	-1.1439	2.1289
142.070	-0.8254	---	-0.8241	1.5230	-1.6932	2.1476	-1.1700	2.1958
144.220	-0.8428	---	-0.7219	---	-1.6231	2.2912	-1.1882	2.2378
148.520	-0.8755	---	-0.7221	---	-1.6629	2.3581	-1.2170	2.3040
131.620	-0.8192	---	-0.6707	---	-1.5859	2.1848	-1.1564	2.1326
2.140	-0.0822	---	0.0562	---	-0.1278	0.2404	-0.1219	0.1514

SERIE: SEGUNDA

FECHA DE FABRICACIÓN: 26-4-93

FECHA DE ENSAYO: 3-2-94

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DEFORMACIÓN DEL HORMIGÓN Mediciones Manuales [mm/m]			
GC1	GC2	LVDT1	LVDT2	LVDT3	ES1	ES2	EI1	EI2
-0.0240	-0.0040	0.121	0.388	0.693	-0.0218	-0.0218	0.0000	0.0109
-0.0430	-0.0047	2.660	3.146	3.316	-0.0545	-0.0763	0.0545	0.0872
-0.0520	-0.0071	3.806	4.319	4.423	-0.0763	-0.1090	0.1090	0.1090
-0.0600	-0.0066	4.795	5.349	5.390	-0.1199	-0.1635	0.2180	0.1417
-0.0670	0.0035	5.805	6.404	6.411	-0.1635	-0.2180	0.3052	0.1962
-0.0830	0.0226	6.941	7.508	7.500	-0.2071	-0.2616	0.4251	0.2289
0.0900	0.0749	8.263	8.825	8.748	-0.2616	-0.3161	0.5341	0.2507
-0.1630	0.1414	9.500	10.108	9.946	-0.2943	-0.3597	0.6867	0.2943
-0.2520	0.2013	10.856	11.512	11.246	-0.3597	-0.4033	0.8720	0.3161
-0.2850	0.3616	12.257	12.903	12.562	-0.4033	-0.4578	1.0573	0.3815
0.1240	0.4196	13.799	14.468	14.041	-0.4469	-0.5123	1.1990	0.5014
0.1250	0.4590	15.290	15.989	15.520	-0.5123	-0.5559	1.3625	0.5777
0.1900	0.4915	16.783	17.498	17.011	-0.5777	-0.5995	1.4824	0.7085
0.2210	0.5585	18.274	19.022	18.530	-0.6431	-0.6431	1.6568	0.8066
0.2230	0.6295	19.722	20.525	20.014	-0.6976	-0.7085	1.7876	0.8829
0.2390	0.6730	21.187	22.105	21.592	-0.7630	-0.7630	1.9947	0.9919
0.2280	0.7762	22.319	23.597	23.092	-0.8175	-0.7957	2.1146	1.0464
0.2190	0.8084	22.759	24.275	23.755	-0.8502	-0.8502	2.1364	1.0791
0.2100	0.8302	23.148	25.004	24.498	-0.9047	-0.8720	2.2454	1.1009
0.2010	0.8575	---	25.842	---	---	---	---	---
0.2060	0.9321	---	26.710	---	---	---	---	---
0.1880	1.4607	---	27.696	---	---	---	---	---
0.1870	1.7702	---	29.113	---	---	---	---	---
0.1720	1.8420	---	33.413	---	---	---	---	---
-0.1850	1.1543	---	32.310	---	---	---	---	---

ENSAYO: ROTURA DESPUÉS DE UNA CARGA MANTENIDA

VIGA: C24

EDAD DE ENSAYO: 283 días

CARGA TOTAL 2P [kN]	DEFORMACIÓN DEL HORMIGÓN [mm/m]				DEFORMACIÓN DE LA ARMADURA LONGITUDINAL [mm/m]			
	GH1	GH2	GH3	GH4	GA1	GA2	GA3	GA4
1.344	-0.0091	0.0034	-0.0095	0.0139	-0.0491	0.0356	-0.0408	0.0340
7.902	-0.0321	0.0099	-0.0348	0.0563	-0.3153	0.1493	-0.2544	0.1467
14.619	-0.0570	0.0137	-0.0677	0.0976	-0.5228	0.2665	-0.4389	0.2601
21.723	-0.0947	0.0186	-0.1127	0.1447	-0.6437	0.3769	-0.5507	0.3667
28.896	-0.1375	0.0257	-0.1565	0.1957	-0.7306	0.4790	-0.6298	0.4646
36.637	-0.1852	0.0352	-0.2027	0.2511	-0.8100	0.5874	-0.7019	0.5708
43.923	-0.2315	0.0455	-0.2428	0.2998	-0.8758	0.6850	-0.7621	0.6706
51.916	-0.2792	0.0655	-0.2854	0.3539	-0.9431	0.7954	-0.8234	0.7852
59.840	-0.3299	0.1101	-0.3293	0.4131	-1.0127	0.9159	-0.8870	0.9077
67.695	-0.3831	0.1954	-0.3751	0.4797	-1.0835	1.0471	-0.9503	1.0370
76.102	-0.4375	0.4113	-0.4261	0.5251	-1.1601	1.1934	-1.0184	1.1792
83.812	-0.4897	0.5637	-0.4730	0.5686	-1.2274	1.3212	-1.0797	1.3054
93.472	-0.5428	0.7145	-0.5218	0.6634	-1.3000	1.4531	-1.1425	1.4377
100.250	-0.6001	0.8680	-0.5762	0.7969	-1.3783	1.5915	-1.2143	1.5794
109.770	-0.6637	1.0321	-0.6360	1.0460	-1.4641	1.7404	-1.2922	1.7246
118.970	-0.7220	1.2373	-0.5732	---	-1.4543	1.9854	-1.3703	1.8687
126.710	-0.7824	---	-0.5868	---	-1.5407	2.1147	-1.4483	1.9973
129.610	-0.7687	---	-0.6076	---	-1.5807	2.1638	-1.4845	2.0459
134.460	-0.8016	---	-0.6397	---	-1.6295	2.2363	-1.5288	2.1211
139.310	-0.8390	---	-0.6735	---	-1.6816	2.3137	-1.5763	2.1941
142.040	-0.8594	---	-0.6920	---	-1.7102	2.3561	-1.6017	2.2353
146.270	-0.8887	---	-0.7201	---	-1.7530	2.4274	-1.6406	2.3097
150.350	-0.9201	---	-0.7511	---	-1.7990	2.4902	-1.6829	2.3711
157.500	-0.9794	---	-0.8001	---	-1.8945	2.8709	-1.7580	2.5095
158.610	-1.0108	---	-0.8270	---	-1.9426	3.1492	-1.7954	2.5797
126.780	-0.8706	---	-0.6335	---	-1.7499	2.7327	-1.5711	2.1498
2.597	-0.0822	---	-0.0511	---	-0.2386	0.6169	-0.1324	0.1879

SERIE: SEGUNDA

FECHA DE FABRICACIÓN: 26-4-93

FECHA DE ENSAYO: 3-2-94

DEFORMACIÓN DE LOS CERCOS [mm/m]		FLECHA [mm]			DEFORMACIÓN DEL HORMIGÓN Mediciones Manuales [mm/m]			
GC1	GC2	LVDT1	LVDT2	LVDT3	ES1	ES2	EI1	EI2
-0.0070	0.0041	0.514	0.559	0.545	0.0218	0.0000	0.0872	0.0436
-0.0140	-0.0008	2.296	2.504	2.412	-0.0109	-0.0218	0.1853	0.1744
-0.0200	-0.0129	3.927	4.264	4.082	-0.0327	-0.0763	0.3161	0.2507
-0.0230	-0.0318	5.171	5.595	5.348	-0.0981	-0.1199	0.4251	0.4251
-0.0280	-0.0511	6.231	6.712	6.409	-0.1308	-0.1635	0.5450	0.4905
-0.0330	-0.0714	7.356	7.900	7.539	-0.1853	-0.2398	0.6540	0.6322
-0.0380	-0.0884	8.392	8.988	8.590	-0.2507	-0.2507	0.7521	0.6649
-0.0450	-0.0972	9.572	10.197	9.769	-0.3052	-0.2943	0.8611	0.8066
-0.0520	-0.0626	10.837	11.518	11.051	-0.3379	-0.3488	1.0246	0.9483
-0.0580	0.0031	12.121	12.857	12.345	-0.4033	-0.3815	1.1772	1.0573
-0.0610	0.0742	13.545	14.360	13.811	-0.4578	-0.4360	1.3843	1.2535
-0.0590	0.1516	15.055	15.889	15.268	-0.5232	-0.4905	1.4933	1.3952
-0.0600	0.2620	16.853	17.755	17.171	-0.5886	-0.5668	1.6677	1.5696
-0.0610	0.3226	18.103	18.988	18.343	-0.6649	-0.6104	1.8094	1.7440
-0.0630	0.3981	19.800	20.692	19.983	-0.7194	-0.6649	1.9293	1.8966
-0.0530	0.4831	21.505	22.427	21.650	-0.7957	-0.7194	2.1146	2.1582
-0.0280	0.5394	22.941	24.079	23.226	-0.8502	-0.7739	2.2127	2.2890
-0.0120	0.5779	23.499	24.811	23.925	-0.8938	-0.8066	2.2672	2.3762
-0.0070	0.6174	---	25.800	---	-0.9265	-0.8502	2.3653	2.5070
0.0130	0.6755	---	26.826	---	---	---	---	---
0.0300	0.7233	---	27.422	---	---	---	---	---
0.0730	0.8235	---	28.540	---	---	---	---	---
0.1130	0.9028	---	29.563	---	---	---	---	---
0.2130	1.0293	---	31.510	---	---	---	---	---
0.3530	1.0932	---	32.864	---	---	---	---	---
0.6650	1.0086	---	33.917	---	---	---	---	---
0.7850	0.5074	---	28.543	---	---	---	---	---