

ENVELOPE AND COVERING

Lighweight Construction and Coverings

TEST REPORT No. CL06-26002971
(English language translation, the original version is in French language)

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It comprises 9 pages of whom 4 pages of appendices.

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SCOPE

Determination of the mechanical strength under loading parallel and perpendicular to the plane of the S3100 fixing for structural façade glazing containing 2 branches.

REFERENCE TEXTES

CSTB procedures, described in § 2 of the test procedures, accepted by the requester.

OBJECT SUBMITTED FOR TESTING

Date of receipt : August 3, 2006
Test date : August 11, 2006
Origin : The samples were delivered to CSTB by the SADEV Company
Identification : The samples were registered under number CL2007

Made at Marne-la-Vallée, October 24, 2006

**The Technician in charge
with the tests,**



L. GASNIER

**The Engineer in charge
with the tests,**



M. COSSAVELLA

1. DESCRIPTION OF THE OBJECT TO BE TESTED

Spiders for fixed structural façade glazing containing 2 branches of cast stainless steel: X2 Cr Ni Mo 17-12-2, 3, reference S3100.

Distance between centers of 2 branches 204 mm,

The drawings of the spider appear in Appendix A.

2. PROCEDURES FOR TESTS OF THE STRENGTH OF THE SPIDERS

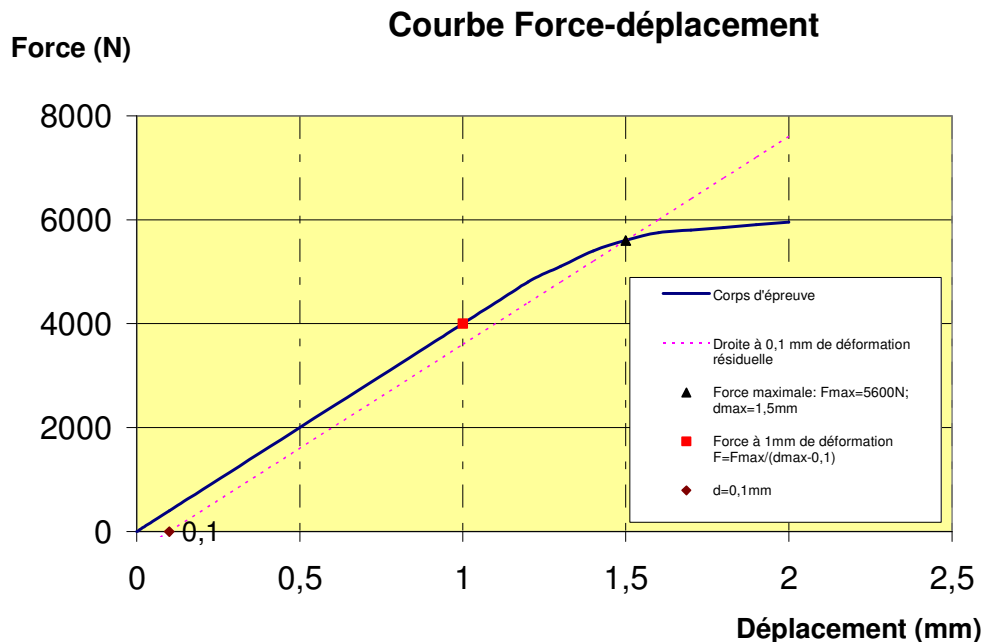
The tests were carried out on an MTS test stand, 10M type, using with a 50 kN load cell, with a test speed of 1mm/min.

The metal spider was positioned on a support, assumed to be non-deformable:

- Vertically to determine the permissible strength under loads parallel to the plane of the glazing (static load type on façade).
- Horizontally to determine the permissible strength under loads perpendicular to the glazing plane (wind load type on façade).

The tests make it possible to determine:

- The force in a spider arm corresponding to a permanent deformation of 0.1 mm.
- The force in a spider arm corresponding to a deformation of 1 mm.



A displacement transducer, connected to a numerical data acquisition device, is placed following the perpendicular axis of the tested branches making it possible to accurately measure the deformation (see Figure 1a, 1b and Appendix B).

Figure 1a: Loading F on the vertically positioned sample

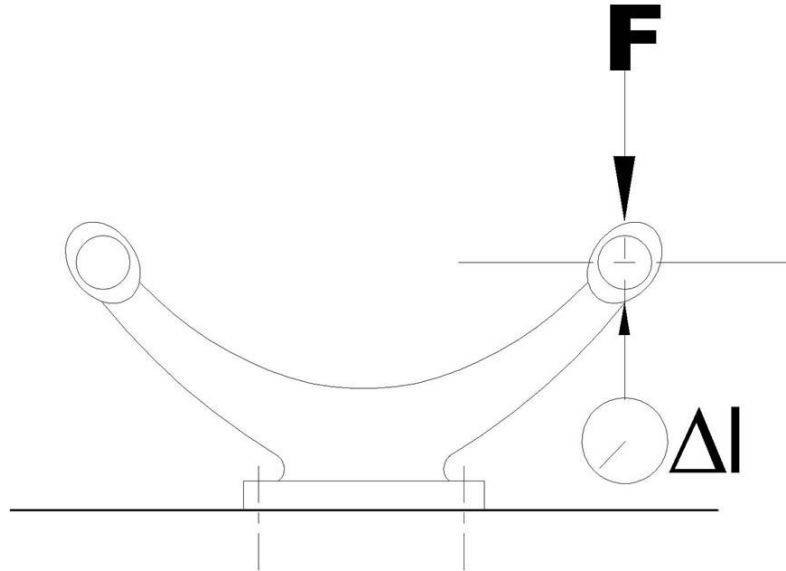
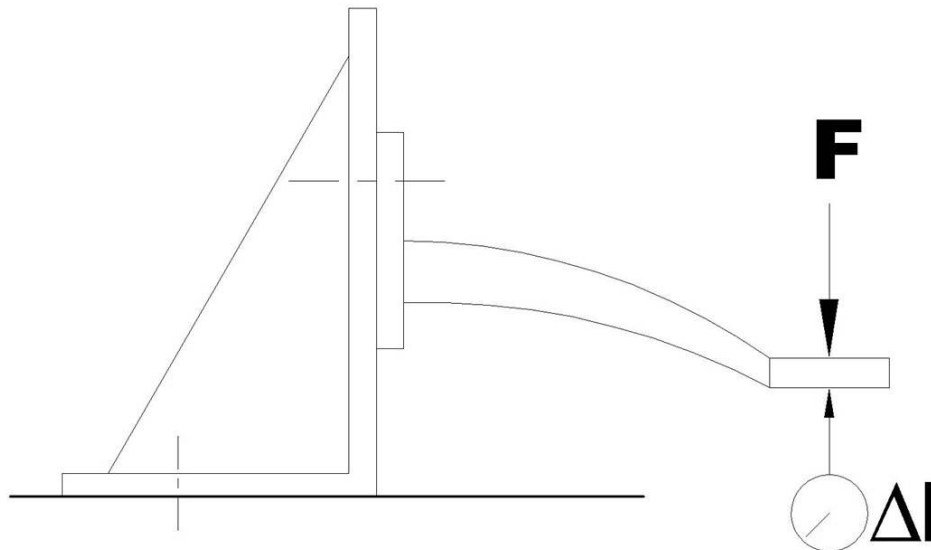


Figure 1 b: Loading F on horizontally positioned sample



3. TEST RESULTS

3.1 The strength under loads parallel to the glazing plane is given in the tables below. The details of the test results are in Appendix C.

Parallel load on 1 branch

Test	F at 1mm in N	F at sres=0.1mm in N
1	5615	4286
2	5435	4405
3	5599	4944
Average: m	5550	4545
Widened uncertainty: e	125	441
m-e	5425	4104
Weighting coefficient c	1	1.35
(m-e) / c	5425	3040

3.2 The strength under loads perpendicular to the glazing is given in the following tables. The details of the test results are in Appendix C.

Perpendicular load on 1 branch

Test	F at 1mm in N	F at sres=0.1mm in N
4	1965	2047
5	2132	2762
6	2102	2145
Average: m	2066	2318
Widened uncertainty: e	112	478
m-e	1954	1840
Weighting coefficient c	1	1.8
(m-e) / 2c	1954	1022

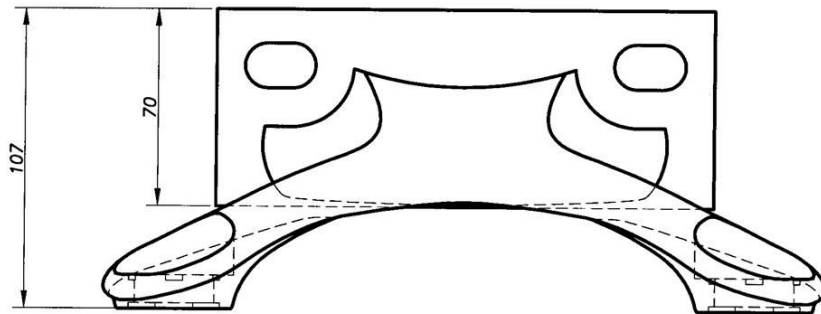
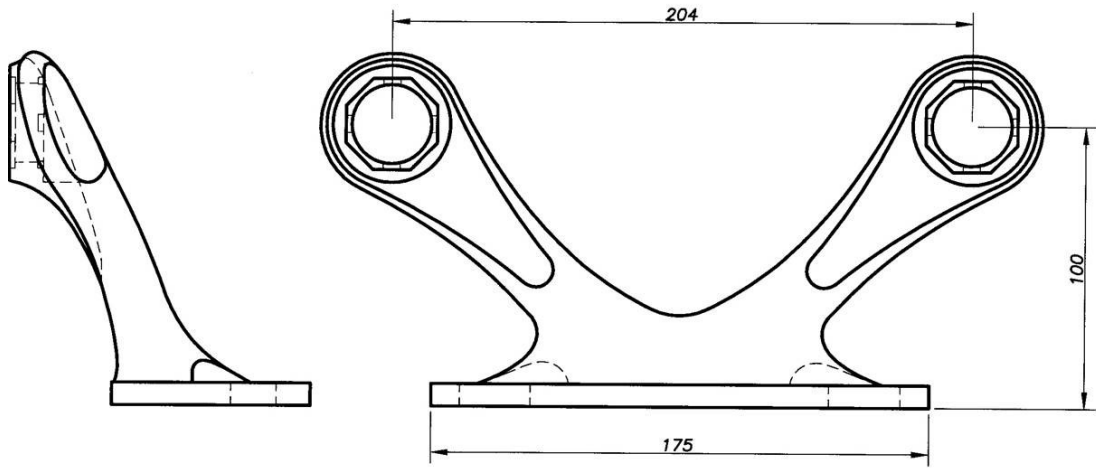
APPENDICES

A – Drawings of spiders

B – Photo of the test stands

C – Detail of the data

APPENDIX A



Attache VEA S3100

APPENDIX B



Parallel loading apparatus, determination of the permissible strength under permanent vertical loads (static load), on a 2-branch spider



Perpendicular loading apparatus, determination of the permissible strength under instantaneous horizontal loads due to the wind on a 2-branch spider.

APPENDIX C

Test specimens no. 1, 2 and 3, under loads parallel to the glazing

essai n°	allongement à F = 500 N mm	allongement à F = 1000 N mm	allongement à F = 1500 N mm	allongement à F = 2000 N mm	allongement à F = 2500 N mm	allongement à F = 3000 N mm
1	F	0.104	0.18	0.26	0.33	0.40
2	0.06	0.116	0.20	0.26	0.35	0.44
3	0.07	0.133	0.21	0.27	0.34	0.41

essai n°	allongement à F = 3500 N mm	allongement à F = 4000 N mm	allongement à F = 4500 N mm	allongement à F = 5000 N mm	allongement à F = 5500 N mm	allongement à F = 6000 N mm
1	0.48	0.57	0.68	0.80	0.95	1.15
2	0.52	0.60	0.71	0.85	1.02	1.22
3	0.49	0.57	0.67	0.78	0.97	1.17

Test specimens no. 4, 5 and 6 under perpendicular to the glazing

essai n°	allongement à F = 500 N mm	allongement à F = 1000 N mm	allongement à F = 1500 N mm	allongement à F = 2000 N mm	allongement à F = 2500 N mm	allongement à F = 3000 N mm
4	0.23	0.47	0.722	1.02	1.45	2.09
5	0.23	0.46	0.691	0.93	1.21	1.54
6	0.22	0.43	0.659	0.94	1.27	1.67

END OF REPORT