POLITECNICO
MILANO 1863

Laboratorio Prove Materiali - NB 1777 CPR

Notified Body 1777 - CPR

CERTIFICATE OF CONSTANCY OF PERFORMANCE
1777 - CPR - 16.02

In compliance with Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

Fluid Spring Damper

ISOSISM® PDS (Prestressed Damper Spring)

Velocity Dependent Device to use in buildings and civil engineering works where requirements on individual devices are critical,

placed on the market under the name or trade mark of

FREYSSINET INTERNATIONAL & CIE
280 Avenue N. Bonaparte Cs 60002
92506 Rueil Malmaison Cedex - France

and produced in the manufacturing plants

FPC ITALIA SpA - Via per Lungavilla 43, 27054 Montebello della Battaglia PV - Italy

CAVE Srl - Via Alessandria, 1, 20010 Canegrate MI - Italy

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN 15129:2009

under AVCP System 1 for the performance set out in this certificate are applied and that the factory production control conducted by the manufacturer is assessed to ensure the

constancy of performance of the construction product.

This certificate was first issued on 17 October 2016 and will remain valid as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified product certification body.

The main characteristics of the product and the specific manufacturing sites are reported in the Annex to this certificate.

Milan, 21 September 2020

Revision n. 2

Prof. Ing. Carlo Poggi
Head of Certification Body

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Annex to Certificate of Constancy of Performance
no. 1777 – CPR – 16.02

ISOSISM® PDS product family

Description of the product

Freyssinet ISOSISM® PDS is a device that provides an output force in either tension or compression that depends on both the imposed velocity and stroke and that complies, within the tolerances specified, with the constitutive law declared by the manufacturer over a velocity range extending at least two decades down from the maximum design level. The device is manufactured from ferrous materials and the active surface of the piston rod is hard chromium plated. The device is classified as a Velocity Dependent Device, Fluid Spring Damper type, in accordance with Table 1 of hEN 15129:2009.

The viscous fluid is Fluid B*

The temperature range is from -25° C to 50° C.

The intended use is in buildings and civil engineering works.

* appropriate certificates reporting the identification characteristics of the fluid are deposited at the notified body involved in the assessment and verification of constancy of performance.

Metallic parts produced in the factories of:

CAVE Srl, Canegrate – Italy or

FORGIATURA MARCORA Srl, Olgiate Olona – Italy or

HAMMERWERK, Bad Münstereifel – Germany or

METABET CF SA, Pitesti – Romania

Hard chromium plating the active surface of the piston rod applied in the factory of:

RIPORTI INDUSTRIALI Srl, Gazzaniga – Italy

Corrosion protection system applied in the factories of:

CAVE Srl, Canegrate – Italy or

METALSYSTEM Srl, Gavirate – Italy

Machining and assembly carried out in the factory of:

CAVE Srl, Canegrate – Italy

FPC tests carried out in the factory of:

FPC ITALIA Spa, Montebello della Battaglia – Italy

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Performance characteristics

ISOSISM® PDS family products meet the following requirements in accordance with hEN 15129:2009:

- pressure test, point 7.4.2.2
- low velocity test, point 7.4.2.4
- constitutive law test at ambient temperature, point 7.4.2.6
- constitutive law test at minimum service temperature, point 7.4.2.6
- constitutive law test at maximum service temperature, point 7.4.2.6
- damping efficiency test, for five (5) harmonic full displacement cycles, point 7.4.2.7
- stroke verification test, point 7.4.2.10

The product is not intended to accommodate thermal movements.

The product is not intended to accommodate wind-induced vibrations.

Type, identification and use

ISOSISM® PDS product family is evaluated on the basis of initial type testing results reported below

ISOSISM® PDS 580-1650-105 (C = 995 kN/(m/s)$^{\alpha}$) *preload 580 kN* *load capacity 1650 kN* *stroke 105 mm*		
Essential characteristics	*Design value*	*Units*
Load bearing capacity	Conforming	-
Resistance to seismic loads	1650	kN
Stiffness	2600	kN/m
Rotation capability	± 0,087	rad
Horizontal distortion capability	105	mm
Durability	Conforming	–

According to Test Report no. 2012/1672

The dimensions of the products covered by the Certificate can vary in the dimensional range defined below in accordance with clause 7.4.2.1 of hEN 15129:2009

Load capacity	*Design velocity*	*Operating temperature*
1320 to 1980 kN	0.200 m/s	-25°C to 50°C

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ISOSISM® PDS 580-1650-105 (C = 250 kN/(m/s)$^{\alpha}$) *preload 580 kN* *load capacity 1650 kN* *stroke 105 mm*		
Essential characteristics	*Design value*	*Units*
Load bearing capacity	Conforming	-
Resistance to seismic loads	1650	kN
Stiffness	3100	kN/m
Rotation capability	± 0,087	rad
Horizontal distortion capability	105	mm
Durability	Conforming	–

According to Test Report no. 2012/0504

The dimensions of the products covered by the Certificate can vary in the dimensional range defined below in accordance with clause 7.4.2.1 of hEN 15129:2009

Load capacity	*Design velocity*	*Operating temperature*
1320 to 1980 kN	0.200 m/s	-25°C to 50°C

ISOSISM® PDS 100-500-30 *preload 100 kN* *load capacity 500 kN* *stroke 30 mm*		
Essential characteristics	*Design value*	*Units*
Load bearing capacity	Conforming	-
Resistance to seismic loads	500	kN
Stiffness	3300	kN/m
Rotation capability	± 0,087	rad
Horizontal distortion capability	30	mm
Durability	Conforming	–

According to Test Report no. 2012/2901

The dimensions of the products covered by the Certificate can vary in the dimensional range defined below in accordance with clause 7.4.2.1 of hEN 15129:2009

Load capacity	*Design velocity*	*Operating temperature*
400 to 600 kN	0.300 m/s	-25°C to 50°C

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ISOSISM® PDS 1100-1985-123 *preload 1100 kN* *load capacity 1985 kN* *stroke 123 mm*		
Essential characteristics	*Design value*	*Units*
Load bearing capacity	Conforming	-
Resistance to seismic loads	1985	kN
Stiffness	4000	kN/m
Rotation capability	± 0,035	rad
Horizontal distortion capability	123	mm
Durability	Conforming	–

According to Test Report no. 2018/1246

The dimensions of the products covered by the Certificate can vary in the dimensional range defined below in accordance with clause 7.4.2.1 of hEN 15129:2009

Load capacity	*Design velocity*	*Operating temperature*
1588 to 2382 kN	0.270 m/s	-25°C to 50°C

ISOSISM® PDS products (types and sizes) covered by the present Certificate of Constancy of Performance are manufactured in accordance with this design and with the same parametric technical solutions.

The used materials are the same for all types and sizes.

Milan, 21 September 2020

Prof. Ing. Carlo Poggi
Head of Certification Body

This Annex is only valid together with the
Certificate of Constancy of Performance no. 1777 – CPR – 16.02
rev.2 dated 21 September 2020

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