



POLITECNICO
MILANO 1863

Laboratorio Prove Materiali - NB 1777 CPR



PRD N° 0317

Notified Body 1777 - CPR

CERTIFICATE OF CONSTANCY OF PERFORMANCE
1777 - CPR - 23.01

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 Viscous Damper

with trade name

FT-D

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

BEARINGS AND JOINTS SRL

Corso Francia, 96 - 10143 Torino (TO) - Italy

and produced in the manufacturing plant

BEARINGS AND JOINTS SRL

Via Caossea, 61 - 35038 Torreglia (PD) - 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 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 22 December 2023 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product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified product certification body.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 are reported in the Annex to this certificate.

Milan, 22 December 2023

Revision n. 0

Laboratorio Prove Materiali
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Head of Certification Body



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**Annex to Certificate of Constancy of Performance
no. 1777 – CPR – 23.01**

Fluid Viscous Dampers

with trade name

FT-D

FT-D product family comprise fluid viscous dampers devices that provide an axial force in either tension or compression that depends on the imposed velocity only and complies with the constitutive law declared by the manufacturer over a velocity range extending at least two decades down from the maximum design level. The devices are manufactured from ferrous materials and the active surface of the piston rod is hard chromium plated. The devices are classified as Velocity Dependent, type Fluid Viscous Dampers, in accordance with Table 1 of hEN 15129:2009.

The device is equipped with a hydraulic accumulator.

The active surfaces are in accordance with clause 7.2.3 of hEN 15129:2009.¹

The viscous fluid A is in accordance with clause 7.2.4 of hEN 15129:2009.¹

The temperature range is from -10° C to +50° C.

The intended use is in buildings and civil engineering works.

¹ appropriate documents reporting the identification characteristics of the fluid, active surfaces and outsourced manufacturing processes are deposited at the Notified Body involved in the attestation of constancy of performance procedure.

Performance characteristics

FT-D devices meet the following requirements in accordance with hEN 15129:2009:

- pressure test, clause 7.4.2.2
- low velocity test, clause 7.4.2.3
- constitutive law test, clause 7.4.2.5
- damping efficiency test, clause 7.4.2.7
- wind load cycle test, clause 7.4.2.8
- seal wear test, clause 7.4.2.9
- stroke verification test, clause 7.4.2.10



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Type, identification and use

FT-D product types are evaluated on the basis of the results reported below

FT-D 250-350			
Load capacity ±250 kN		Maximum stroke ±175 mm	
Essential characteristics	Performances		
Axial load transmission capability	Conforming		
Durability aspects	Conforming		
	Parameter	Design value	Unit
Resistance to seismic loads/shock absorption (Survivability against repeated load cycling)	Axial force F _d	250	kN
	Maximum velocity V _d	1000	mm/s
	Seismic displacement d _{bd}	±135	mm
	Constitutive law parameter C	125.3	kN(mm/s) ^a
	Constitutive law parameter α	0.1	==
	Wind load frequency f _w	0.5	Hz
	Wind load amplitude d _w	±10	mm
Rotation capability	==	≥±0.035	rad
Energy dissipation capability	EDC	125	kJ
	Damping efficiency frequency f ₀	1.18	Hz
	Damping efficiency amplitude d ₀	±135	mm
Stroke	Thermal displacement d _{th}	±100	mm
	Maximum displacement d _{max}	±175	mm
==	Minimum service temperature T _L	-10	° C
	Maximum service temperature T _U	+50	° C

According to Test Report no. 2023/1244.



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FT-D 500-550			
Load capacity ±500 kN		Maximum stroke ±275 mm	
Essential characteristics	Performances		
Axial load transmission capability	Conforming		
Durability aspects	Conforming		
	Parameter	Design value	Unit
Resistance to seismic loads/shock absorption (Survivability against repeated load cycling)	Axial force F _d	500	kN
	Maximum velocity V _d	1000	mm/s
	Seismic displacement d _{bd}	±135	mm
	Constitutive law parameter C	250.6	kN(mm/s) °
	Constitutive law parameter α	0.1	==
	Wind load frequency f _w	0.5	Hz
	Wind load amplitude d _w	±16	mm
Rotation capability	==	≥±0.035	rad
Energy dissipation capability	EDC	250	kJ
	Damping efficiency frequency f ₀	1.18	Hz
	Damping efficiency amplitude d ₀	±135	mm
Stroke	Thermal displacement d _{th}	±10	mm
	Maximum displacement d _{max}	±275	mm
==	Minimum service temperature T _L	-10	° C
	Maximum service temperature T _U	+50	° C

According to Test Report no. 2023/1245.



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FT-D 1000-550			
Load capacity ±1000 kN		Maximum stroke ±275 mm	
Essential characteristics	Performances		
Axial load transmission capability	Conforming		
Durability aspects	Conforming		
	Parameter	Design value	Unit
Resistance to seismic loads/shock absorption (Survivability against repeated load cycling)	Axial force F _d	1000	kN
	Maximum velocity V _d	1000	mm/s
	Seismic displacement d _{bd}	±135	mm
	Constitutive law parameter C	501.2	kN(mm/s) °
	Constitutive law parameter α	0.1	==
	Wind load frequency f _w	0.2	Hz
	Wind load amplitude d _w	±12	mm
Rotation capability	==	≥±0.035	rad
Energy dissipation capability	EDC	500	kJ
	Damping efficiency frequency f ₀	1.18	Hz
	Damping efficiency amplitude d ₀	±135	mm
Stroke	Thermal displacement d _{th}	±100	mm
	Maximum displacement d _{max}	±275	mm
==	Minimum service temperature T _L	-10	° C
	Maximum service temperature T _U	+50	° C

According to Test Report no. 2023/1246.



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FD-T types and sizes covered by the present Certificate of Constancy of Performance are manufactured in accordance with the same design and with the same parametric technical solutions.

The dimensions of the products covered by the present Certificate of Constancy of Performance can vary in the dimensional range defined below in accordance with clause 7.2.4.1 of hEN 15129.

<i>Load Capacity</i>	<i>Maximum velocity</i>	<i>Test Report</i>
200 to 300 kN	up to 1000 mm/s	2023/1244
400 to 600 kN	up to 1000 mm/s	2023/1245
800 to 1200 kN	up to 1000 mm/s	2023/1246

Milan, 22 December 2023

Prof. Ing. Carlo Poggi
Head of Certification Body

**The present Annex is only valid together with the
Certificate of Constancy of Performance no. 1777 – CPR – 23.01
rev.0 dated 22 December 2023**