SOMMA

FLUID VISCOUS DAMPER
MC - MCL TYPES

FLUID VISCOUS DAMPER MC TYPE

The MC and MCL type fluid viscous damper (FVD), is a displacement dependent device. The behaviour of the device depends on the speed according to the following law:

F = Cv$^\alpha$

where:

F = force
C = damping constant
v = velocity
α = exponent (with range 0,10 – 1,00) [a]

Its behaviour is symmetrical with respect to the intermediate position, both in terms of reaction and displacement. This type of functioning is due to the presence of a piston inside the steel liner that divides two chambers containing hydraulic fluid and connected via a calibrated valve.
Two spherical hinges connect it to the structure, allowing rotation around any axis.
The device acts like a connecting rod, only able to transmit forces along its axis.It is possible to equip the devices with an additional valve (MCL type) in order to, for slow movements, allow the displacement with a very small reaction.
Two spherical hinges on the extremity enable the link to the structure with possible rotation around any axis so the device is able to transmit only forces on its own axis. The stroke depends by long term and temperature effects and seismic.

[a] The value of exponent achievable will be confirmed in accord to design velocity

KEY TO LABEL:

MC 1000/200
Device with 1000 kN axial load and stroke of ±100 mm

MCL 1000/200
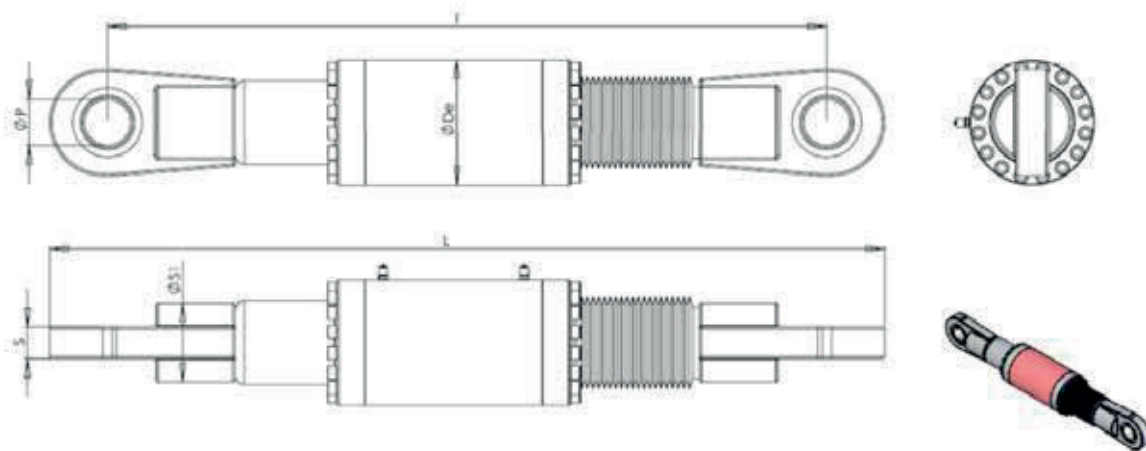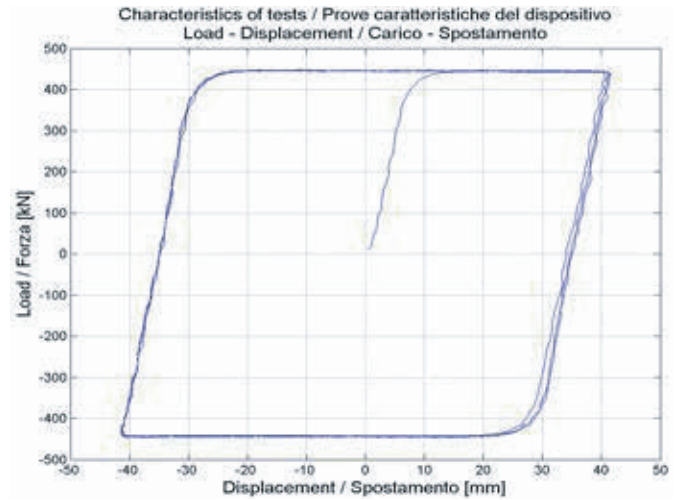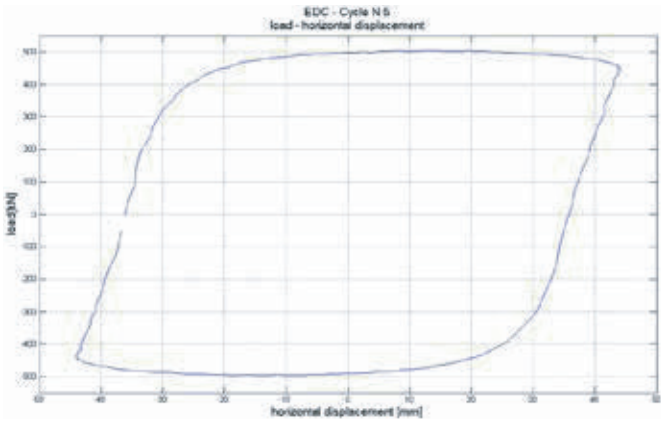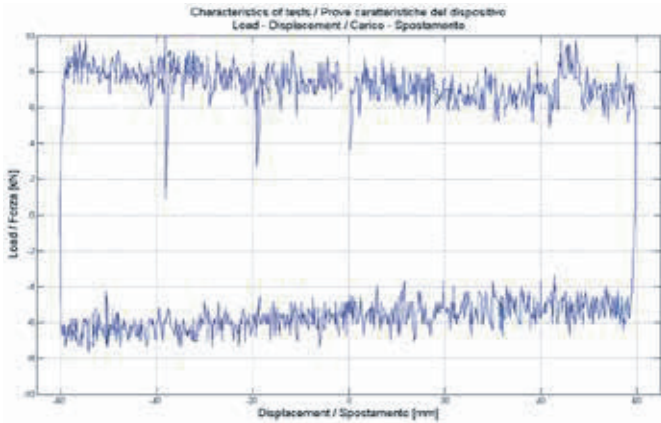"Thermal" Device with 1000 kN axial load and stroke of ±100 mm

MATERIALS

ELEMENT	MATERIAL	STANDARD
ROD	42CRMO4	EN 10083
CYLINDER	S355J0	EN 10025
PISTON	39NICRMO3	EN 10083
BUSHINGS	S355J0	EN 10025
SCREW	CL 12.9	EN 20898
SILICON OIL	ATOXIC AND NOT INFLAMMABLE	

MC(L) DEVICES ARE DESIGNED AND PRODUCED ACCORDING TO EN 15129 OR AASTHO

IDENTIFICATION LABEL

SOMMA CE	2204-CPR-0201.1	DISPOSITIVE TYPE	YEAR	JOB	F$_d$ [kN]	s$_I$ [mm]
		FVD	2015	___	___	±___
		DISPOSITIVE CODE	ORDER	SERIAL NUMBER	POSITION	s$_{tot}$ [mm]
		MCL ---/--		___-_-		

TEST GRAPHS

TYPE	Force max [kN]	Stroke [+/- mm]	I [mm]	L [mm]	ØDE [mm]	ØP [mm]	S [mm]	ØS1 [mm]
MC 500/200	500	100	1360	1480	190	50	40	70
MC 750/200	750	100	1475	1640	240	70	55	105
MC 1000/200	1000	100	1565	1755	280	80	60	125
MC 1500/200	1500	100	1800	2050	340	100	70	170
MC 2000/200	2000	100	1855	2140	380	110	80	180
MC 2500/200	2500	100	2020	2380	440	120	90	210
MC 3000/200	3000	100	2020	2380	480	120	90	210

The dimensions and features in the table refer to following design conditions:
- Velocity v= 300 mm/sec
- Exponent α = 0,2
- Stroke = 80% seismic movement, 20% other effects

For different design condition, our technical department will design "ad hoc"

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