STU

ISOSISM® Technical data sheet reference no.: FT En C V 5 3 1

General description

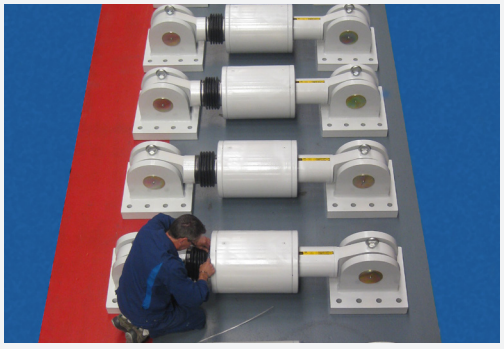
The ISOSISM® STU (Shock Transmission Unit) is a connector that works like a high-pressure hydraulic jack.
It is made up of a body with two chambers separated by a piston. The piston is secured to a rod connected to one of the clevis mountings and the damper body is secured to the other clevis mounting. The ISOSISM® STU works in both traction and compression.

ISOSISM® STU

The ISOSISM® STU:

- Only provides very low resistance to slow displacements due to temperature variations, shrinkage and creep;
- During rapid displacements (high dynamic load), it becomes a rigid connector and distributes the forces between the supports on which it is installed.

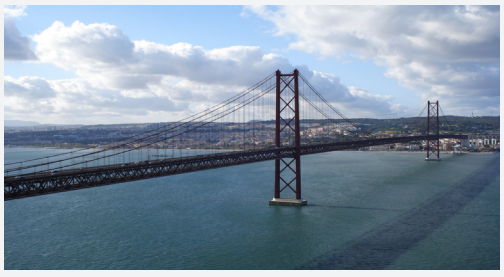
The STU operates by means of one or more stop valves housed in the piston. As an option, the force transmitted by the unit can be restricted by adding a force limiter.



ISOSISM® STU

Applications

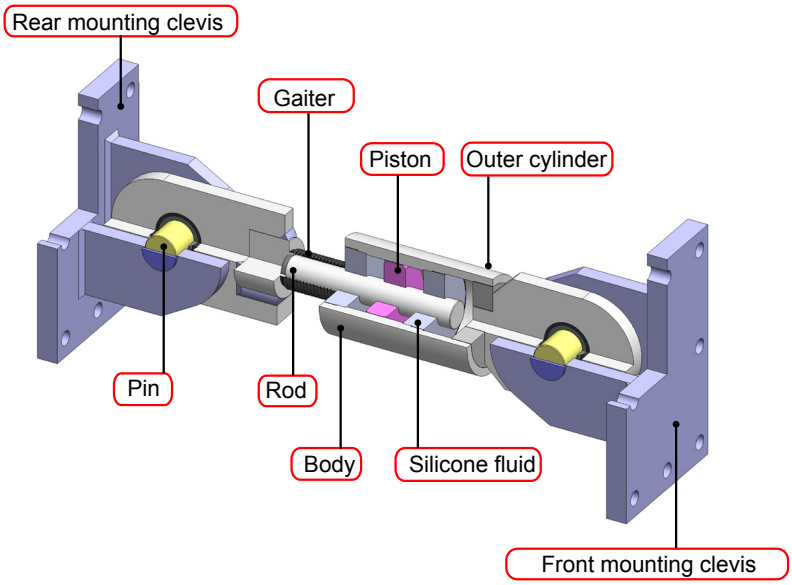
The ISOSISM® STU has numerous applications in buildings, nuclear power plants, civil engineering structures, etc.
It is used to connect buildings together, or to create a fixed point on a civil engineering structure in the event of an earthquake, emergency braking by a high-speed train or a gust of wind.
The units then act as rigid connections, distributing the horizontal forces over all of the piers on which they are installed.



25 de Abril Bridge - Lisbon

Design

The ISOSISM® STU complies with EN 15129 and is supplied with CE marking to this effect.



The standard protection applied to metal parts exposed to external attack is an approved, ACQPA-certified paint system designed to protect visible and non-visible parts of structures located in environments in which corrosion might develop rapidly, in accordance with NF ISO 12944-2.

Behaviour

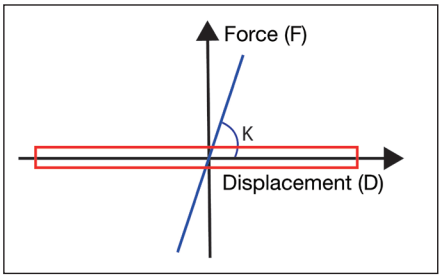
Behaviour law

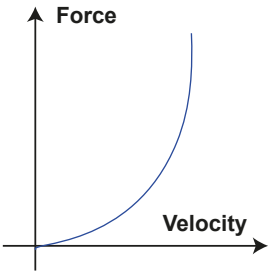
The behaviour law of the ISOSISM® STU can be modeled as follows:

$F = C.V^2$

F: Force C: Damping constant V: Velocity K: Stiffness

Low speed High speed





Graphic representation

The device can be shown using the following graphic representation in accordance with EN 15129.

Graphic representation of an ISOSISM® STU plan view and elevation

STU

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SUSTAINABLE TECHNOLOGY

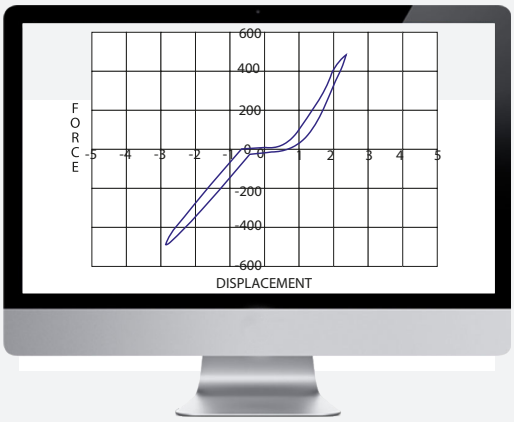
Tests

ISOSISM® STUs have undergone numerous dynamic tests to guide and validate Freyssinet's technical development process.

ISOSISM® STU during testing

CE marking

ISOSISM® STU devices can be supplied with CE marking.



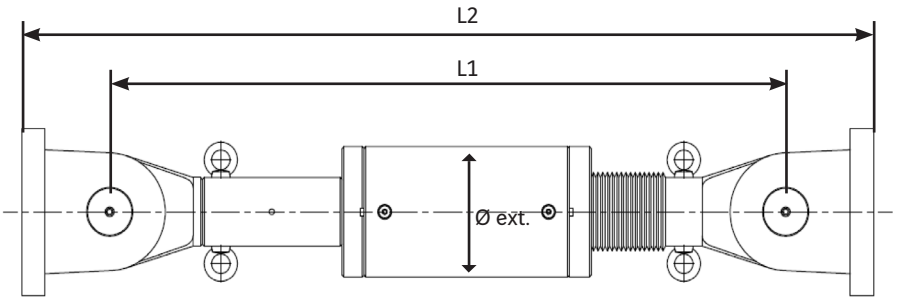
Standard dynamic test curve

Freyssinet Services

Freyssinet can produce preliminary and construction designs for structures equipped with earthquake protection devices.

Local sales contact

Range



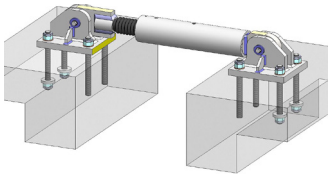
F_{max}: Maximum force
D_{max}: Maximum displacement
L1: Length between pin centres
L2: Length overall
$Ø_{ext}$: External diameter

Type	F_{max} kN	D_{max} ± mm	L1 mm	L2 mm	$Ø_{ext}$ mm
STU 500/100	500	± 50	880	1145	172
STU 500/200	500	± 100	1155	1420	172
STU 750/100	750	± 50	925	1245	210
STU 750/200	750	± 100	1200	1520	210
STU 1000/100	1000	± 50	1055	1420	236
STU 1000/200	1000	± 100	1330	1695	236
STU 1500/100	1500	± 50	1125	1555	267
STU 1500/200	1500	± 100	1400	1830	267
STU 2000/100	2000	± 50	1225	1725	300
STU 2000/200	2000	± 100	1500	2000	300
STU 2500/100	2500	± 50	1290	1840	325
STU 2500/200	2500	± 100	1565	2115	325
STU 3000/100	3000	± 50	1405	2005	362
STU 3000/200	3000	± 100	1680	2280	362
STU 3500/100	3500	± 50	1520	2200	388
STU 3500/200	3500	± 100	1795	2475	388
STU 4000/100	4000	± 50	1590	2300	414
STU 4000/200	4000	± 100	1865	2575	414

Structural connections

The two ends of the device are fitted as standard with special pins and balls that allow three degrees of rotational freedom. The device is secured to the structure by means of two clevis mountings screwed to inserts embedded in the concrete, or directly to a steel structure.

ISOSISM® STU devices can be installed in new or existing structures.



3D diagram of an ISOSISM® STU

Bridge 43 - Kosovo