FREYSSINET

ISOLAB TESTING LABORATORY

General presentation

Mauro Sartori

June 2022

Testing Laboratory Site

Isolab

Located in Montebello
Close to Milan

Via per Lungavilla, 43,
27054 Montebello della Battaglia,
Pavia, Italy

ISOLAB Facility

ISOLAB testing facility has been developed during over 20 years of experience in antiseismic engineering, manufacturing and testing of bearing and antiseismic devices

Thanks to agreements with several Universities ISOLAB can perform test as Official Lab for static and dynamic tests according to international standards

Accredited with

UNI EN ISO 9001:2015
Certification of Quality system

Calibration of test equipements according to

STANDARD ISO 7500 (Class 1 or Class 0.5)
AMERICAN STANDARD ASTM E4-16

LABORATORY

For
Static & Dynamic testing

Devices tested
in accordance to the main relevant
European and worldwide Standards

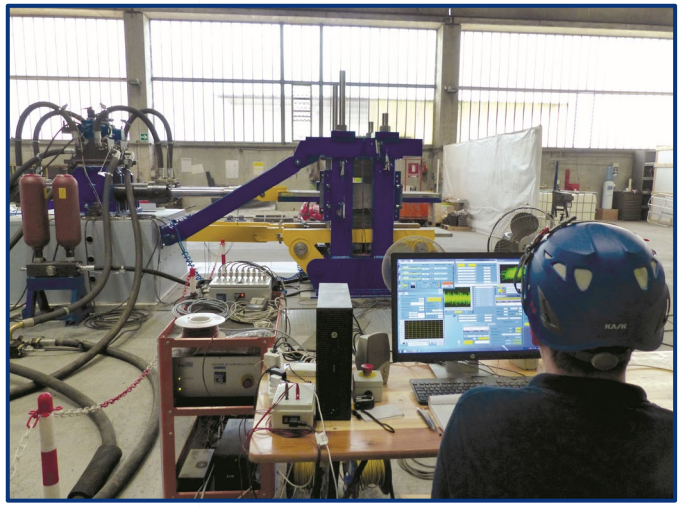
R&D PROJECTS

ISOLAB & Design Division are working together under the supervision of Freyssinet Technical Dpt

Design – Test - Develop
ISOSISM® Products

The Team

7
Employees



General Figures 2021

980
Dynamic tests
performed

65
Clients
Visit to witness the tests

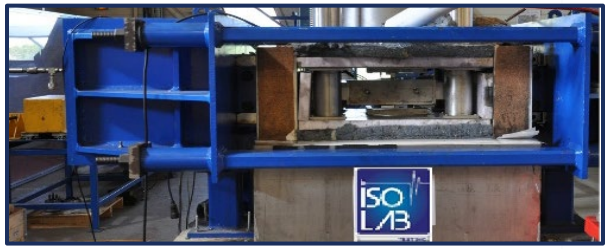
1.10 M€
Generated activity

Test benches and reaction frames

- 70 MN PRESS
- 50 MN PRESS
- 5 MN STEEL PRESS
- 20 MN STEEL FRAME
- 8 MN STEEL FRAME
- STRONG FLOOR
- MTS 1 – 2 – 3
- «C» ELEMENTS FRAME
- SADDLE
- PORTAL FRAME FOR TESTING OF JOINTS

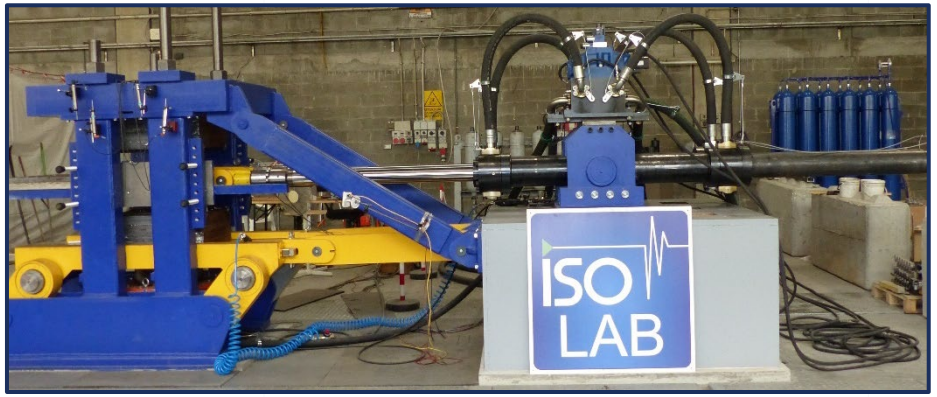






7000 T PRESS

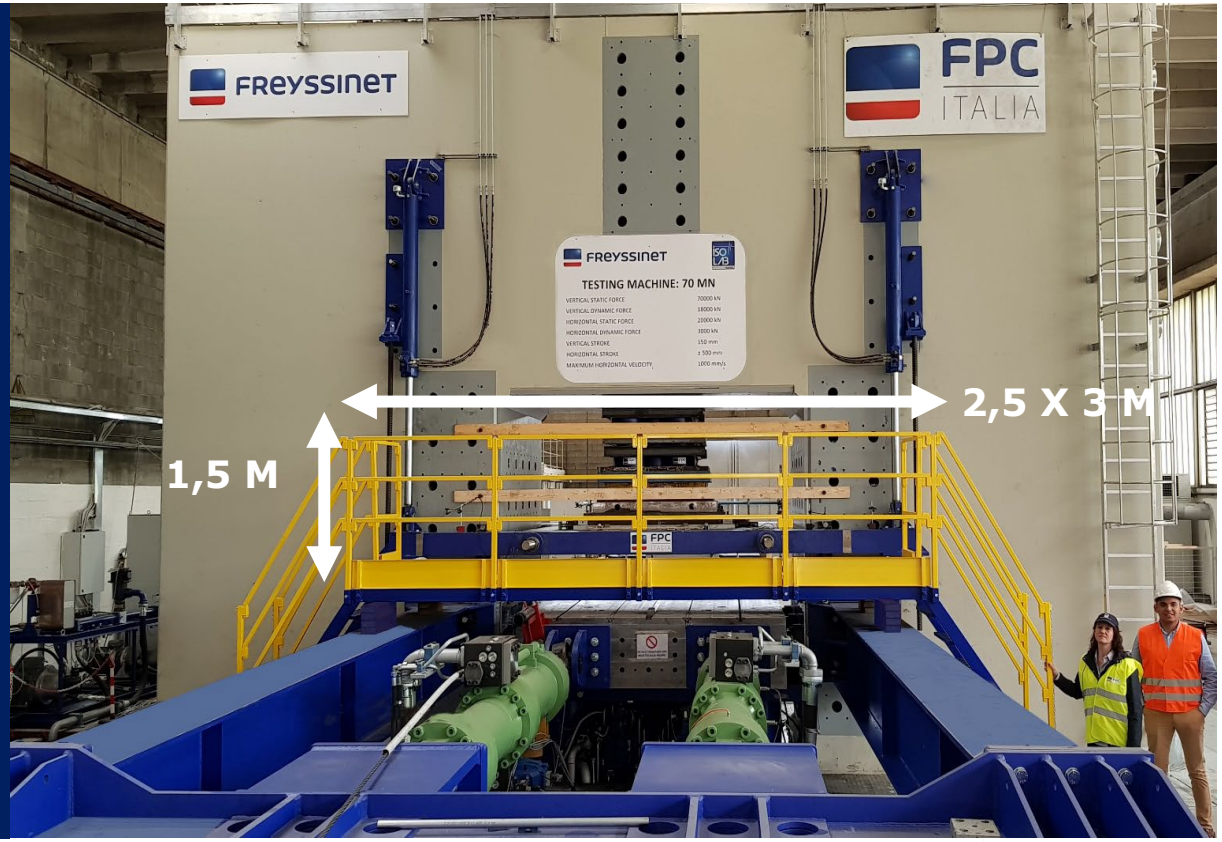
One of the top 5 in the world ! Unique for dimensions testing




70 MN test bench main characteristics

Up to 7 000 T

DYNAMIC	STATIC
VERTICAL / AXIAL FORCE	
18 MN	70 MN
HORIZONTAL FORCE	
3000 kN	20 MN
VERTICAL / AXIAL STROKE	
150 mm	150 mm
HORIZONTAL STROKE	
1000 mm	-
MAX VELOCITY (IN MAIN DIRECTION)*	
850 mm/s	-
DEVICE TYPE	
BEARINGS – HDRB – LRB – PS	
SAMPLE PLAN SIZE LIMITS (load plate dimension)	
2600x2500 mm	
SAMPLE HEIGHT LIMITS	
1550 mm	

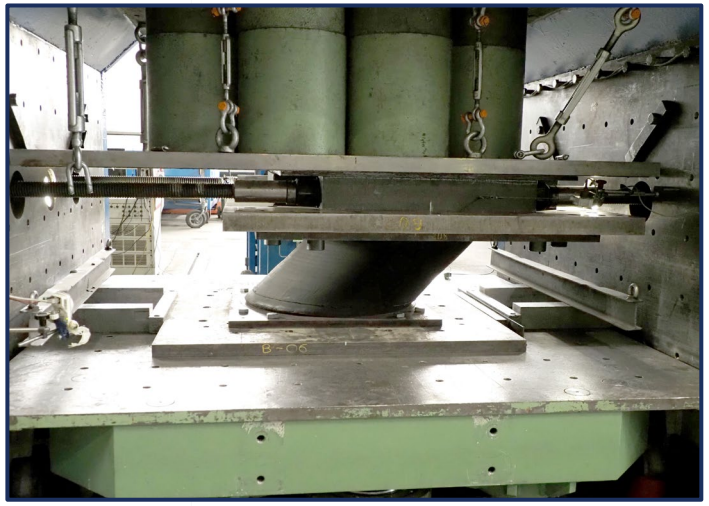


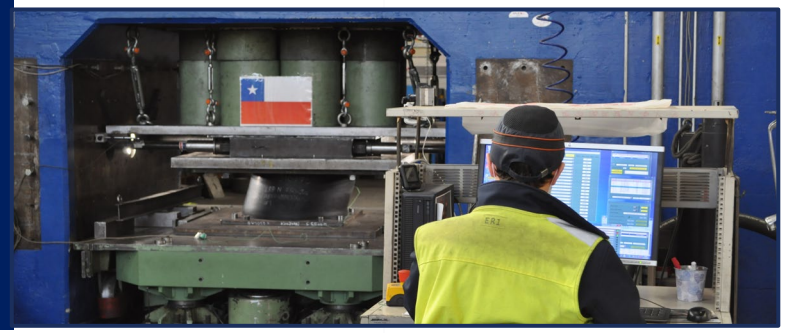
* The maximum velocity can be increased by means of accumulators, and its actual value depends on the device under test, the force, frequency and number of cycles

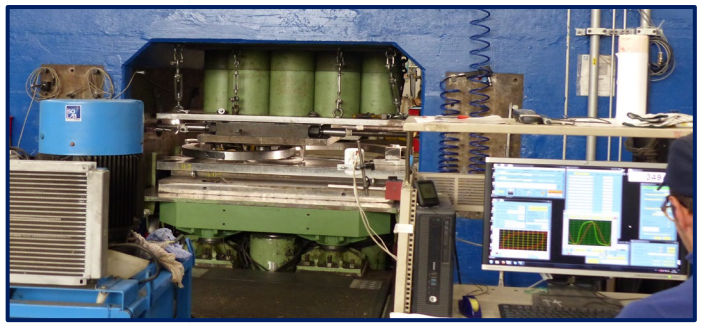
50 MN test bench main characteristics

Up to 5 000 T

DYNAMIC	STATIC
VERTICAL / AXIAL FORCE	
50000 kN	
HORIZONTAL FORCE	
2.000 kN	20.000 kN
VERTICAL / AXIAL STROKE	
-	100 mm
HORIZONTAL STROKE	
800 mm	-
MAX VELOCITY (IN MAIN DIRECTION)*	
70 mm/s – 200 mm/s*	-
DEVICE TO TEST	
BEARINGS – HDRB – LRB	
SAMPLE PLAN SIZE LIMITS	
1000x1000 mm	2000x2000 mm
SAMPLE HEIGHT LIMITS	
400 mm	1500 mm





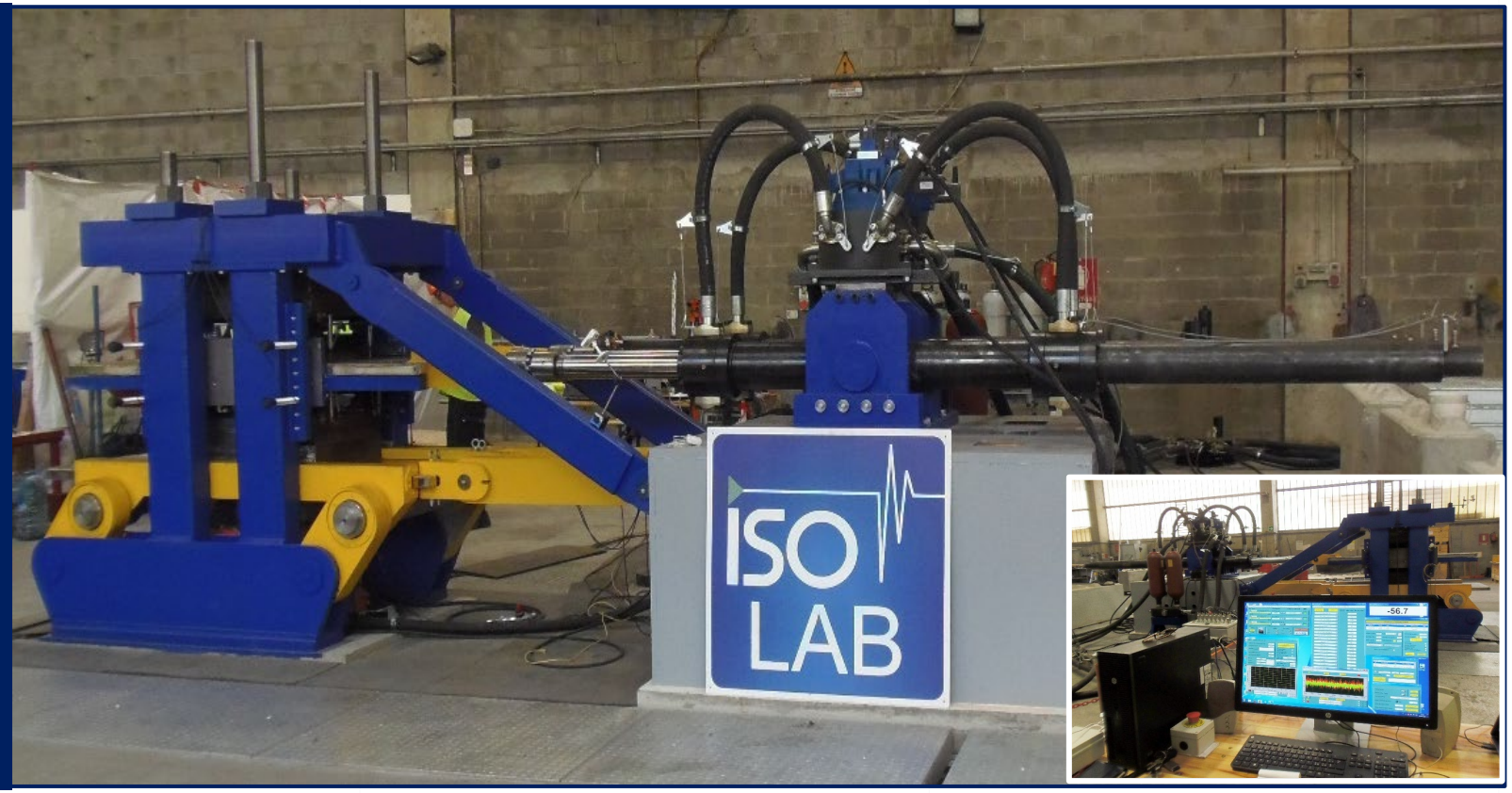


* The maximum velocity can be increased by means of accumulators, and its actual value depends on the device under test, the force, frequency and number of cycles

5 MN test bench main characteristics

DYNAMIC	STATIC
VERTICAL / AXIAL FORCE	
2500 kN	5000 kN
HORIZONTAL FORCE	
400 kN	400 kN
VERTICAL / AXIAL STROKE	
100 mm	100 mm
HORIZONTAL STROKE	
+/-600 mm	-
MAX VELOCITY (IN MAIN DIRECTION)*	
600 mm/s*	-
DEVICE TO TEST **BEARINGS – HDRB – LRB – PS 1 SURFACE**	
SAMPLE PLAN SIZE LIMITS	
400x400 mm	400x400 mm
SAMPLE HEIGHT LIMITS	
400 mm (ALSO IN COUPLE)	400 mm

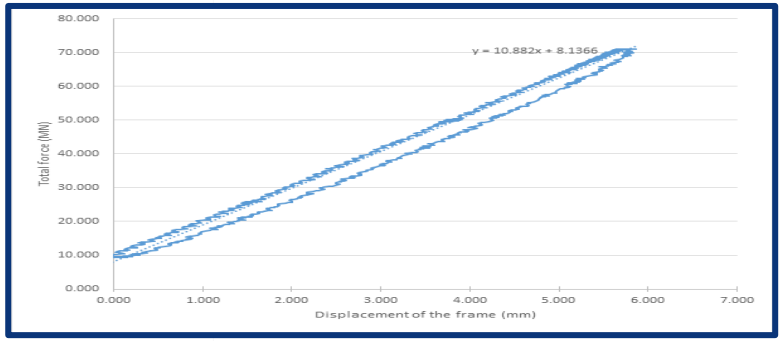
Up to 500 T



* The maximum velocity can be increased by means of accumulators, and its actual value depends on the device under test, the force, frequency and number of cycles

Cryostat Tests

- Compression test up to 70 MN
- Friction test
- Rotation test
- Friction test at -100°C!



Displacement of the frame

DUS - NB 900x900x320 (240)

120 devices tested

in couple configuration
in all 4 directions

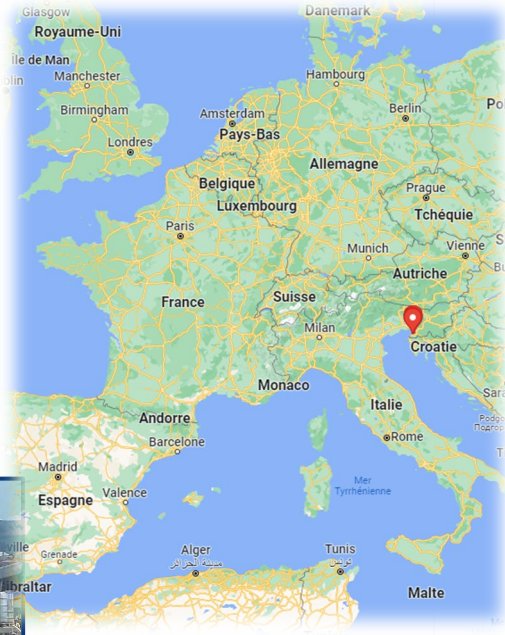
Horizontal test at
100% deformation

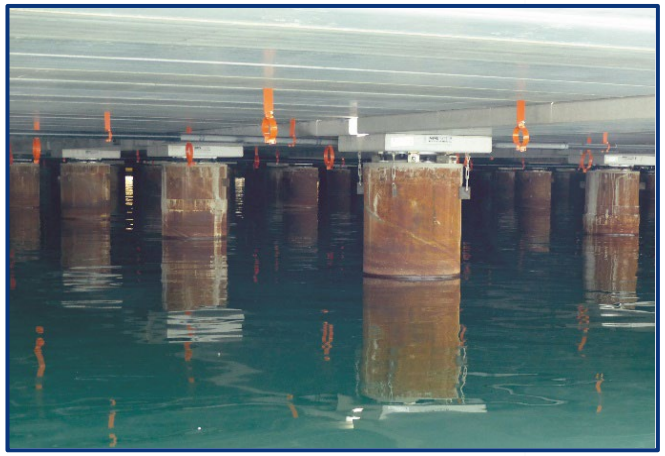
Compression test at
6,4 MN

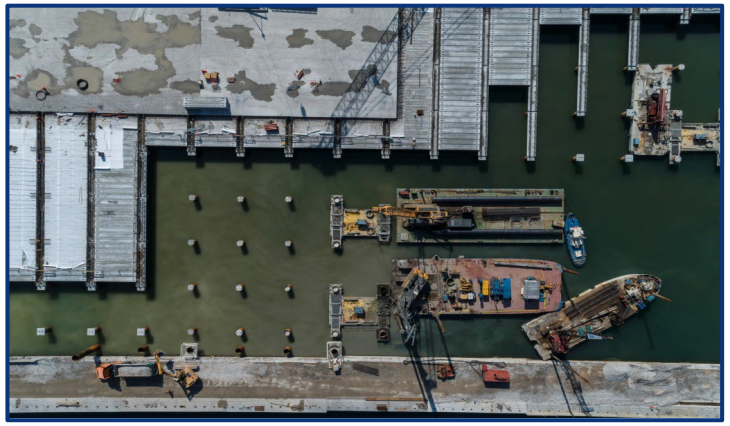
Trieste logistic Platform

FPC Test according to EN 15129

- Compression test 16000 kN
- Dynamic Vertical Load 8000 kN
- Dynamic Horizontal Movement ±145 mm
- 40 devices tested
- 750 devices supplied





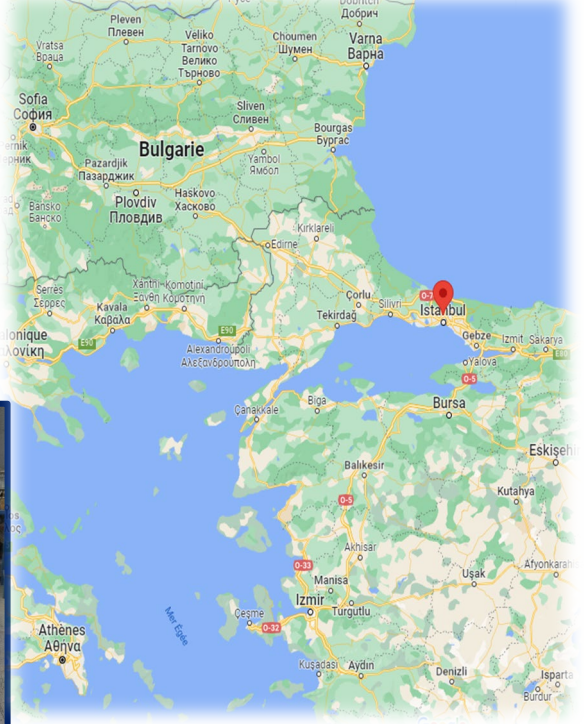


Alibeykoy and Kagithane viaducts in Istambul

46 devices type DDD

Up to **350** Max displacement

Vertical load up to 60.000 KN equipped with CE marked damping devices and high strength friction sliding material



Ryhad Metro

All functional tests on the elastomeric bearings and guides have been carried out according to the project specifications - AASHTO Standard.

450 tests
have been completed
on more than
170 devices

20 MN Press
"Compression test"

50 MN Press
"Horizontal capacity test"

Linea Amarilla - Perù

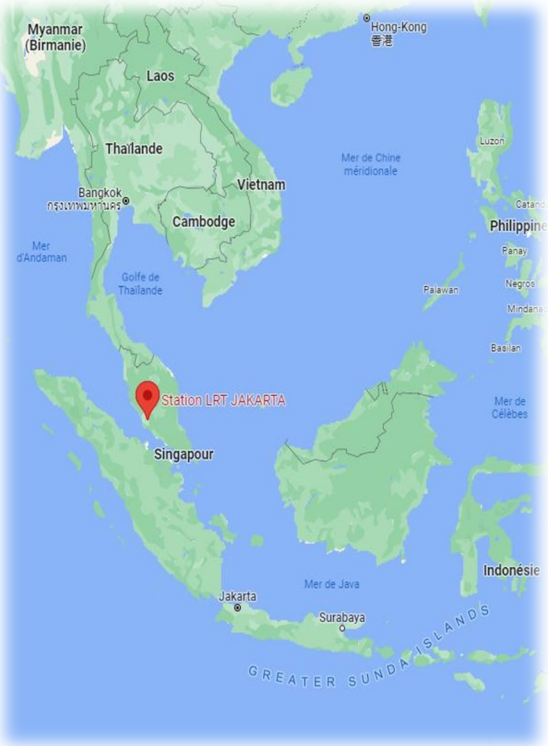
25 km
infrastructure in
Lima - Perù

300 HDRB
According to
AASHTO

LRT Jakarta

4280 LRB
CE marked

More than
850 devices tested on 5 MN



FREYSSINET

CURICO' hospital

370 seismic devices
152 LRB & 220 sliders
supplied

152 LRB
100% of supplied quantity
tested on 50 MN
According to **Chilean Standard**

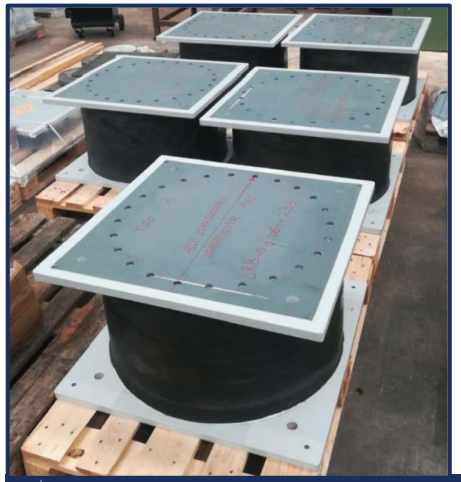
FREYSSINET

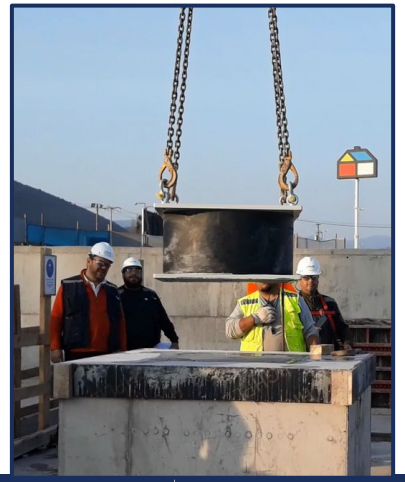
Melipilla Hospital

84 HDRB
&
165 LRB

100% HDRB
tested on 5 MN
According to
Chilean Standard

100% LRB
tested on 70 MN
According to
Chilean Standard

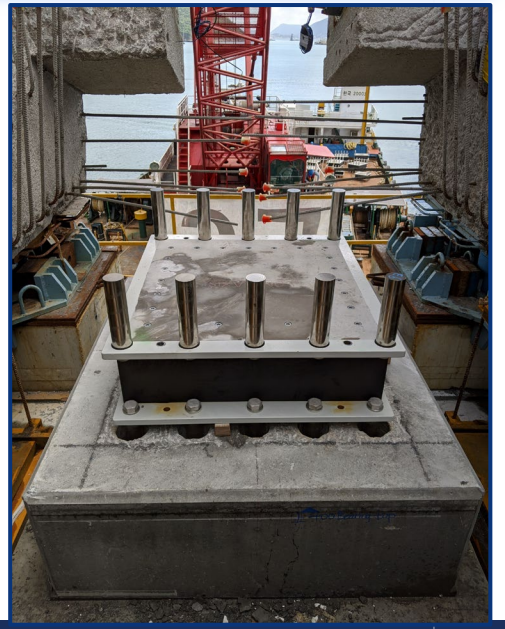




Hong Kong Cross Bay Link

4 PS
95000 kN
2 guided – 2 free sliding

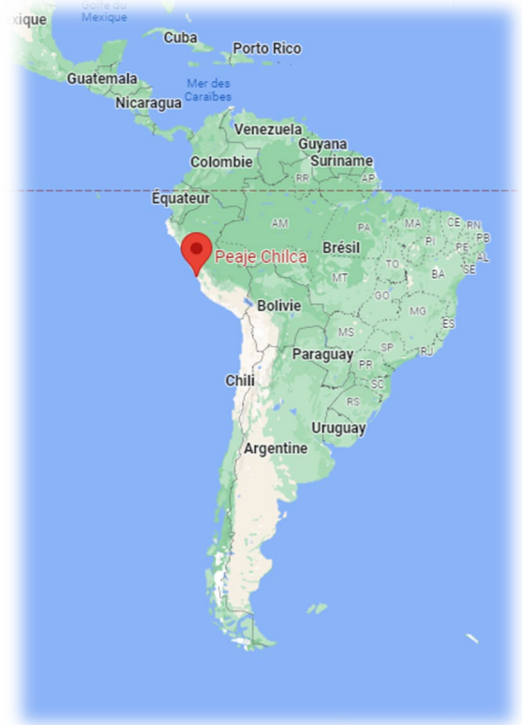
Test on reduced scale & full scale



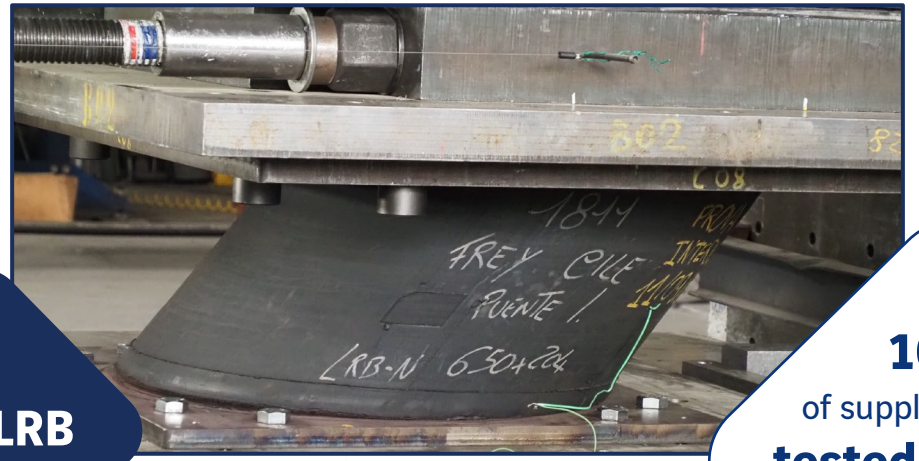
Pichichaco Bridge - Perù

84 LRB
&
165 LRB

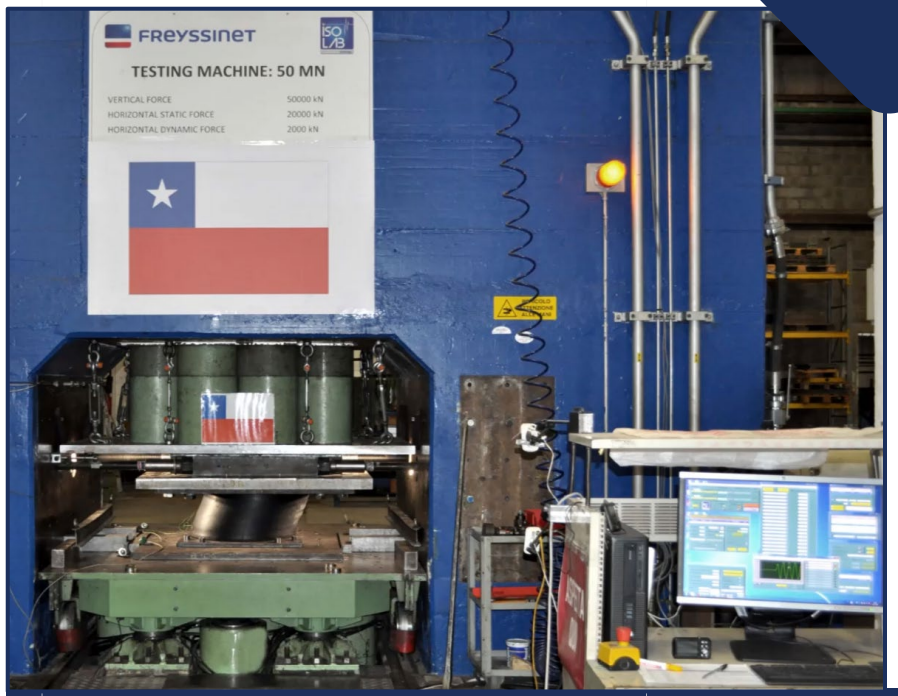
100%
of supplied quantity
tested on **50 Mn**
According to **AASHTO**
Specification



Puente Industrial Biobio - Chile



774 LRB



100%
of supplied quantity
tested on **50 MN**
According to **AASHTO**
Specification

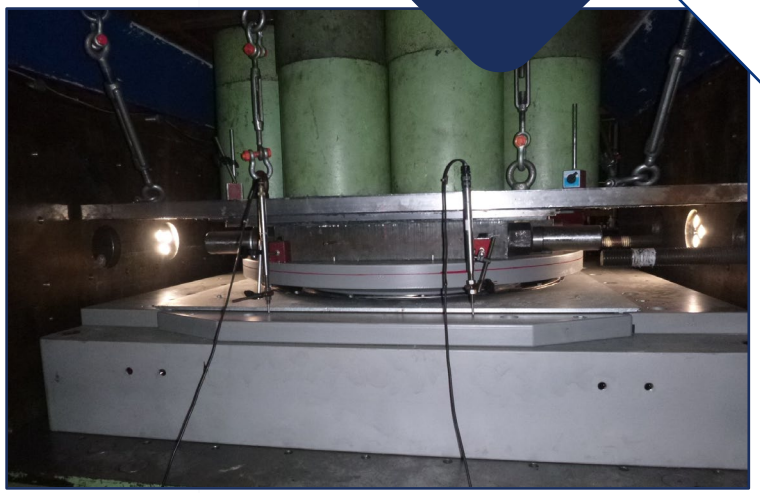
Specific bearings

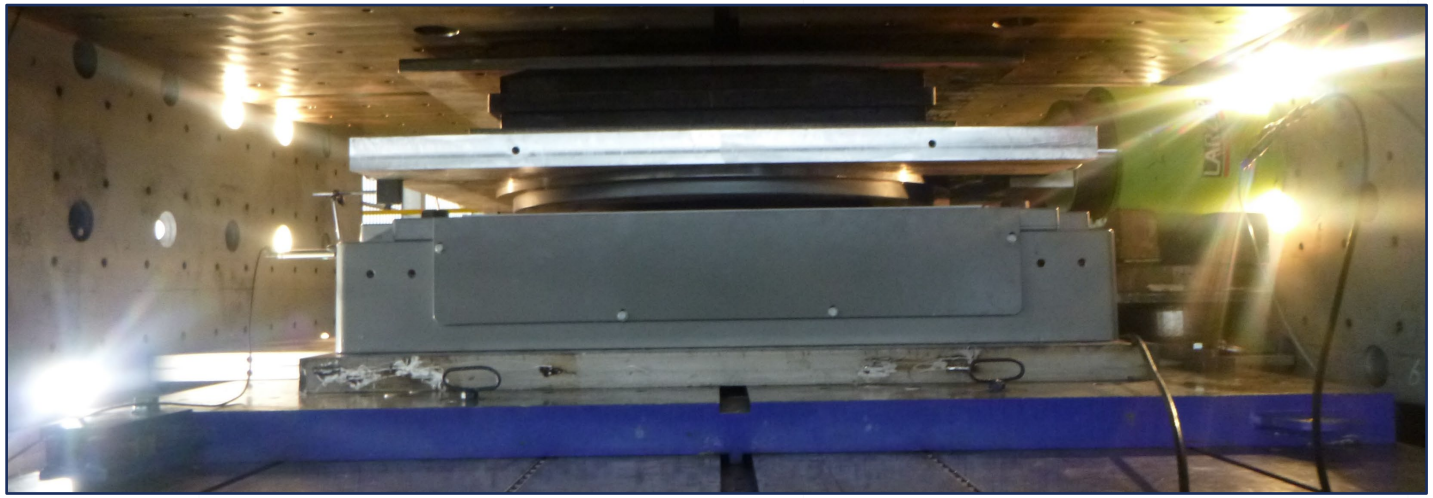
Umm Lafina
BMB

Spherical bearing tested on **70 MN**

NACAV
Project with RFI/italferr

Railway bearings



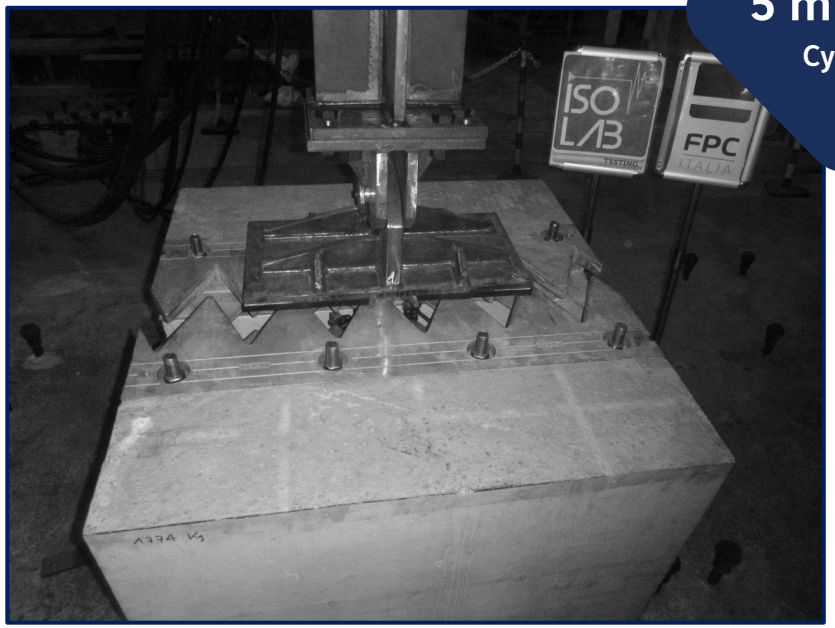


Joints

More than
10 million
Cycles

LW (Modular joint) 200 Joints – Qualification for AASHTO Fatigue & load test

5 million
Cycles



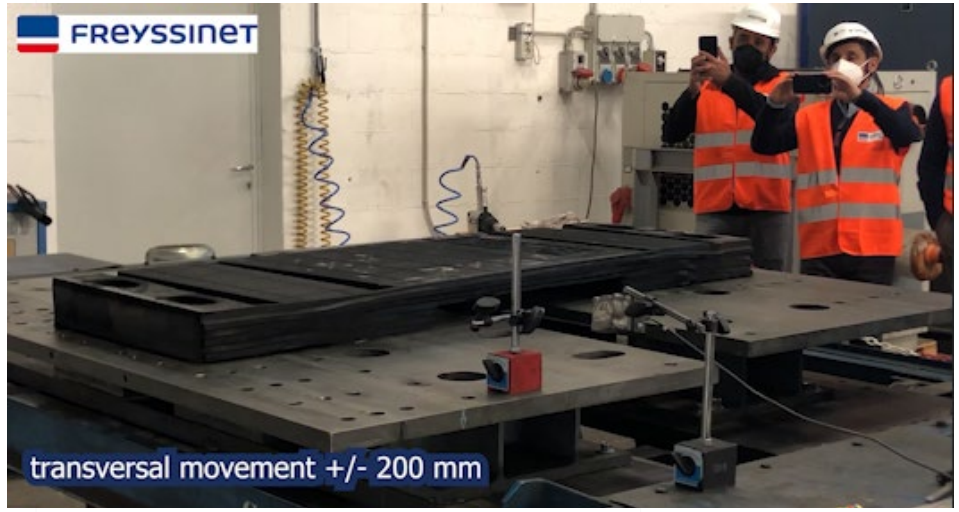
Wd Joint – Fatigue test

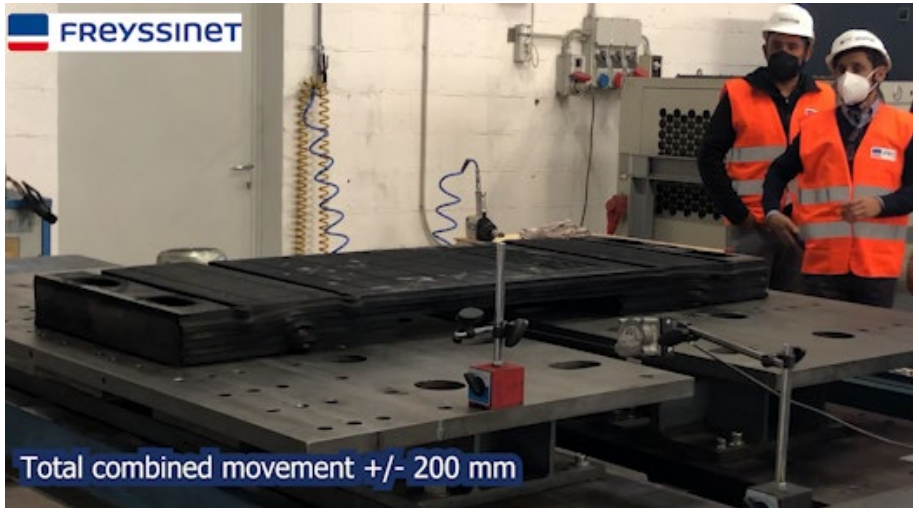
A 40 Roller Shutter Joint testing

More than
3,8 million
Cycles

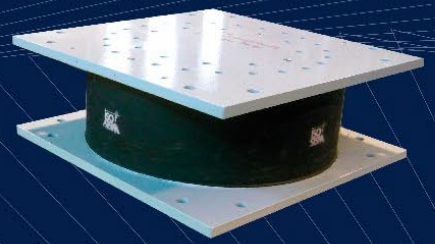
Expansion Joint testing procedure

FREYSSINET EXPANSION JOINT
ISOSISM SFX 700/320
TESTING PROCEDURE

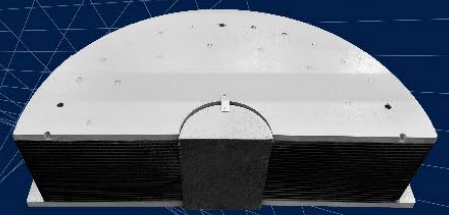




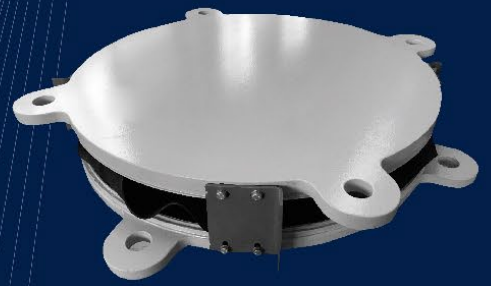
ISOSISM® RANGE



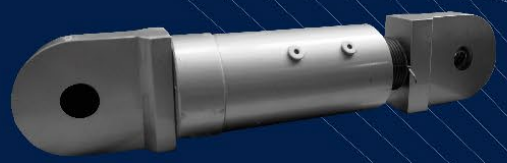
ISOSISM® HDRB - ISOLATION



ISOSISM® LRB - ISOLATION



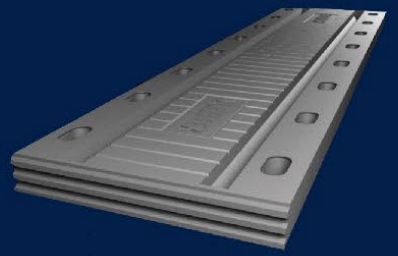
ISOSISM® PS – ISOLATION



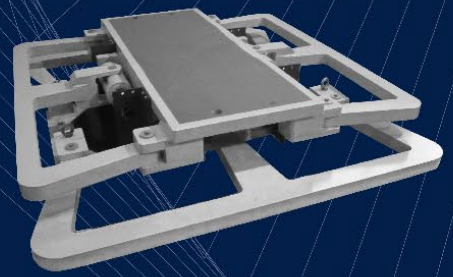
ISOSISM® FD - DISSIPATION

ISOSISM® PDS - DISSIPATION

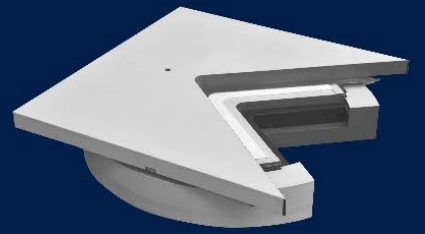
ISOSISM® STU - CONNECTION



ISOSISM® SFX - JUNCTION



ISOSISM® DDD - DISSIPATION



ISOSISM® FS- ISOLATION

THANK YOU FOR YOUR ATTENTION