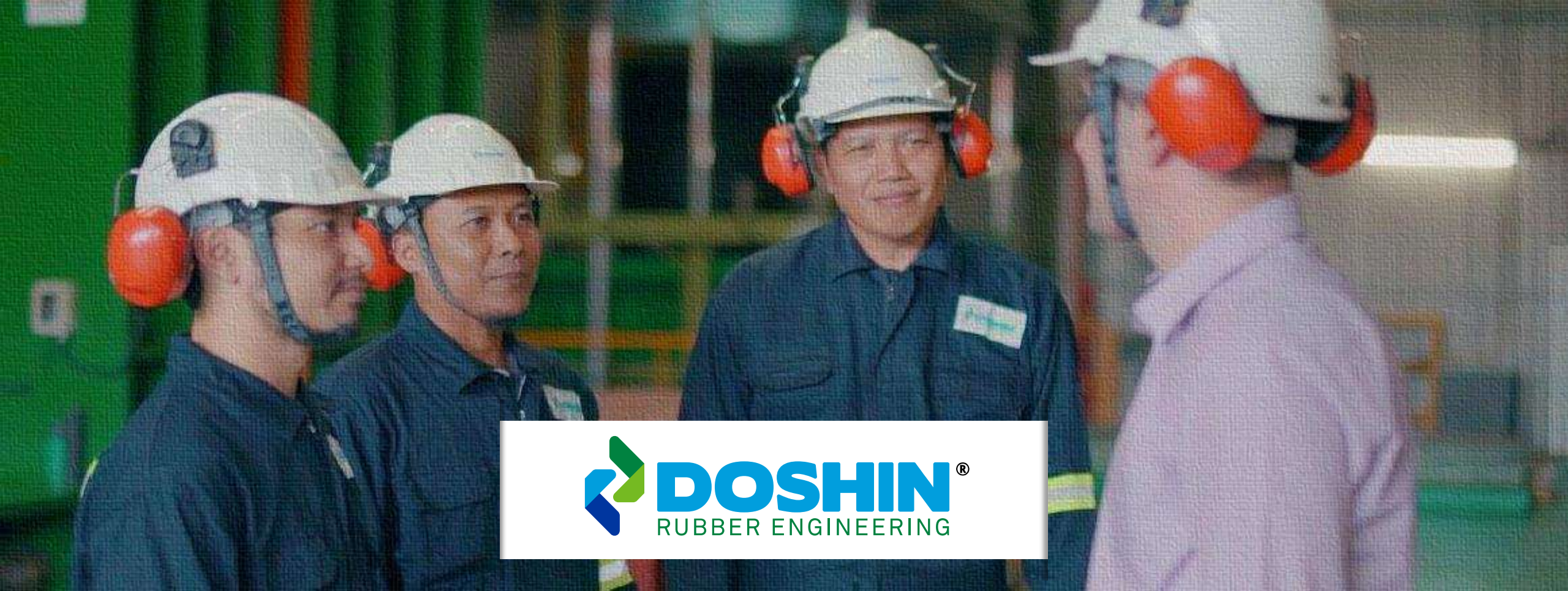


KOSSAN



"GO BEYOND LIMITS MAKE DREAMS REAL"





ESTABLISHED IN YEAR 1978

A subsidiary of



STRETCHING LIMITS • SINCE 1979



GO BEYOND LIMITS
MAKE DREAMS REALITY

VISION

“ To be the world class market leader in Engineering Rubber Products driven by technological advancement, people value and continual improvement to deliver long term and sustainable growth “

QUALITY POLICY

“ We strive beyond customers’ quality requirements through continuous improvement plans with specific attention to technical excellence and innovation “

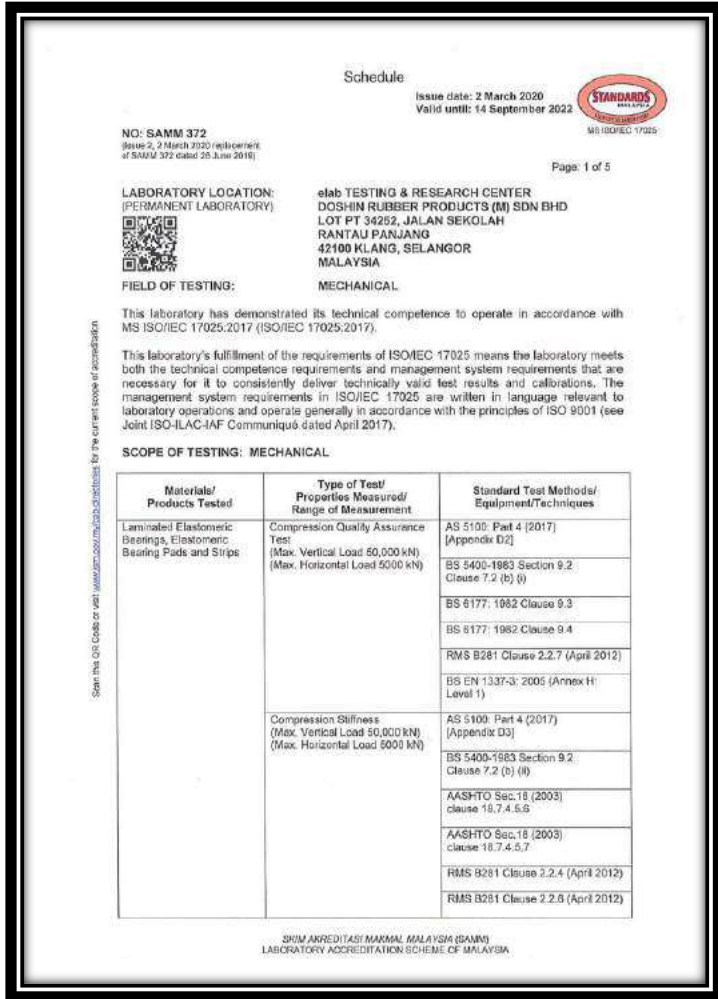
CERTIFICATIONS



QUALITY SYSTEM MANAGEMENT
ISO 9001:2015



LABORATORY ACCREDITATION
SKIM AKREDITASI MAKMAL MALAYSIA(SAMM)
MS ISO / IEC 17025



SEISMIC ISOLATOR HDRB
CE MARK CERTIFICATE
NO: SAMM 372

QUALITY CERTIFICATION



QUALITY MANAGEMENT SYSTEM
Which Complies with the requirements of

ISO 9001:2015

For the following Scope:

Design development, Manufacture, Testing and Installation of Elastomeric bearings, Mechanical Pot Bearings, High Damping Rubber Bearings, Floating Slab Track Bearings , Steel and Rubber Expansion joints, Marine Fenders, Spherical Bearings, dampers and other Engineered Rubber Products and Metal Products for Bridges, Buildings, Railways, Tramways, Marine, Mining, Oil and Gas, Nuclear Plants and others Civil Engineering application.

PRODUCTS



A SOLUTION FOR ENGINEERED RUBBER AND STEEL PRODUCTS FOR BRIDGES,
BUILDINGS, RAILWAYS, MININGS, AND OTHER CIVIL ENGINEERING APPLICATIONS



MARINE DOCK FENDERS



- To perform as bumper to protect the hull and bearing facility from damages



- To perform as a shock absorber on the bearing operation

ELASTOMERIC BEARINGS

To design, produce, and test to meet BS, EN, AS, AASHTO and other international specs



SPHERICAL BEARINGS



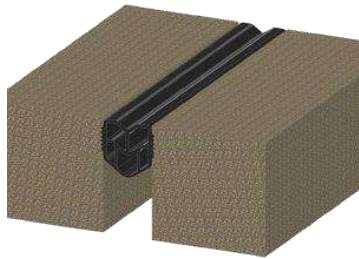
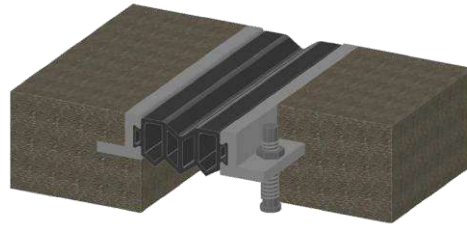
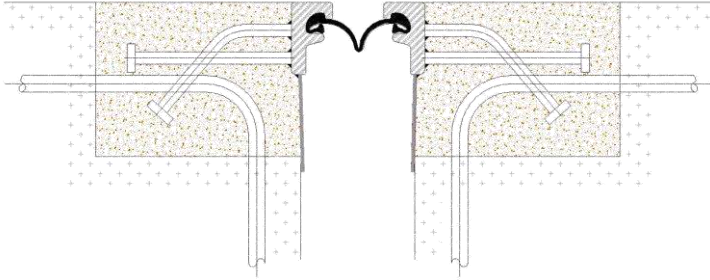
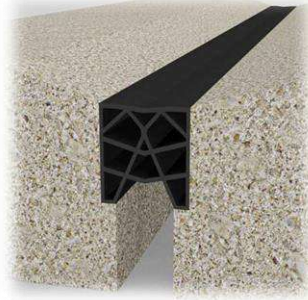
Doshin Spherical bearings are designed for very high vertical, horizontal and lateral loads and where large rotational structural displacements need to be accommodated.



EXPANSION JOINTS AND SEALS

TYPES OF JOINTS:

1. Elastomer Expansion Joints
2. Modular Joints (3 DOF)
3. Finger Joint (DFJ)
4. Compression Seals



MECHANICAL POT BEARINGS

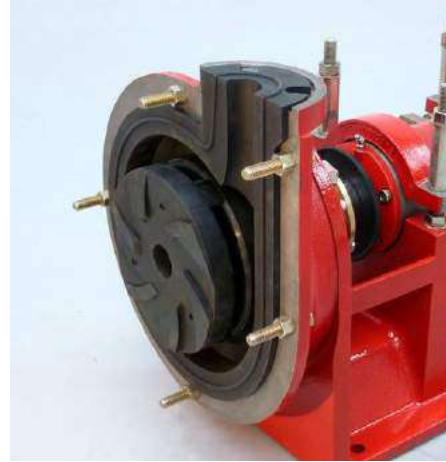


Design, Fabricate, Testing and Install POT BEARINGS up to vertical load 50,000 KN



MINING RUBBER PRODUCTS

Superior wear resistant rubber compound formulation



MINING RUBBER PRODUCTS



RAILWAY RUBBER PRODUCTS

- A proven mass-spring system for achieving very high levels of noise & vibration isolation
- Floating slab track (FST), rubber wedge, rail fastening



PROJECT REFERENCE:

- Downtown Line SINGAPORE
- Heikamo Rail GERMANY
- TTY Airport Line TAIWAN
- HONG KONG KCRC KSL
- UK Cross Road 2016
- TAIWAN Tai Chung Green Line 2016



TRAMWAY & LIGHT RAIL

Special formulated electrical Insulated rubber technology Electrical resistivity ground-level power supply (APS 3) and Static Charging System (SRS) for Alstom's Trams

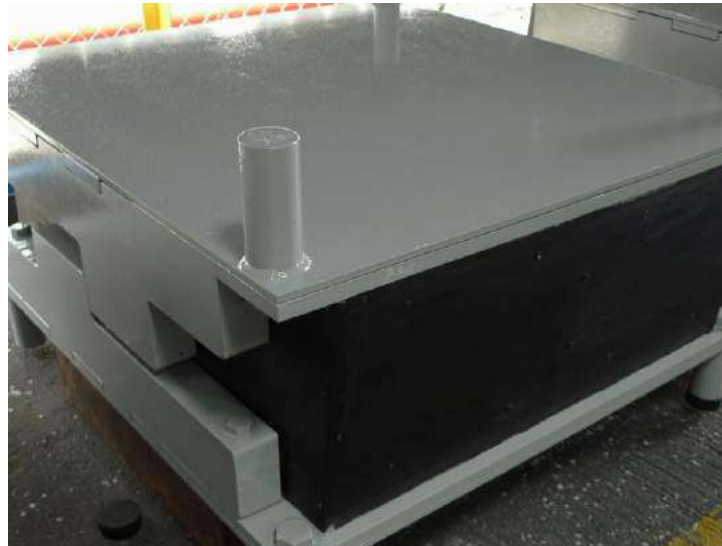
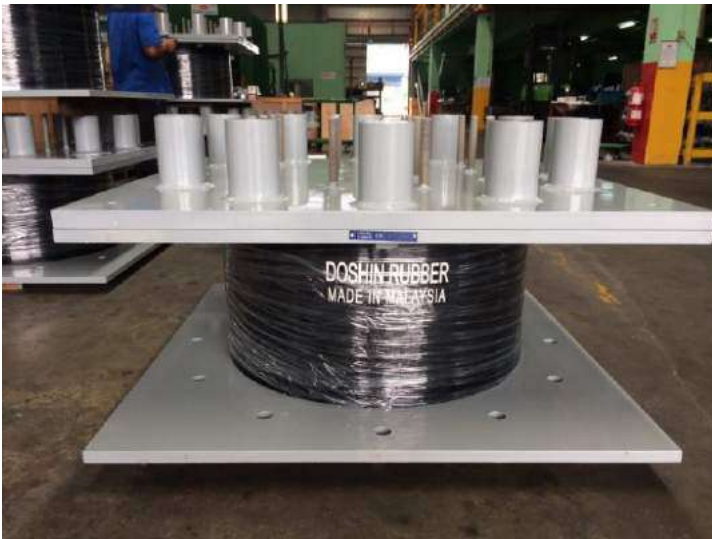
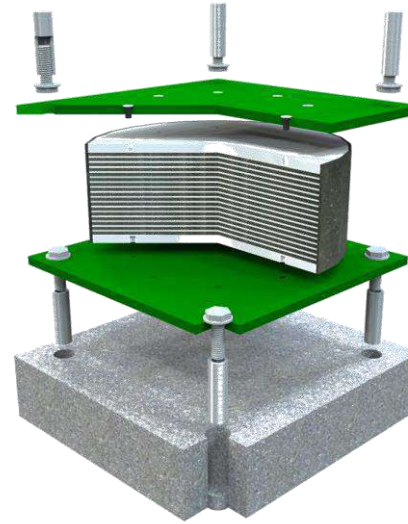
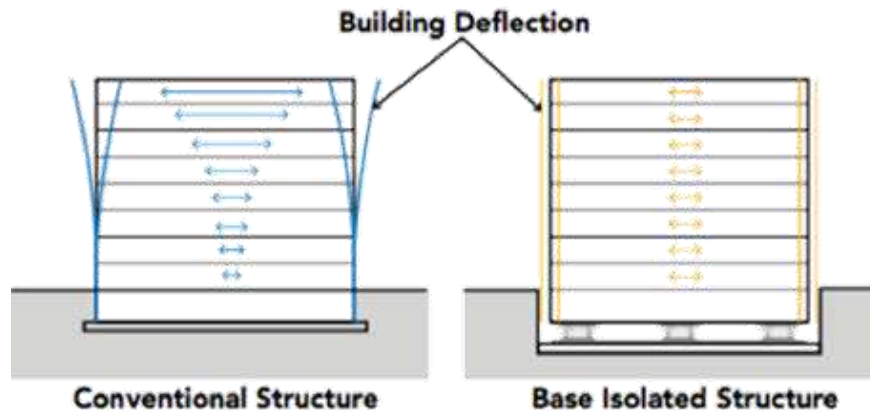


APS is a service-proven power system for tramways which supplies electricity through a third rail at ground level and eliminates the need for catenaries, thus preserving the aesthetics of city center and guaranteeing maximum safety.

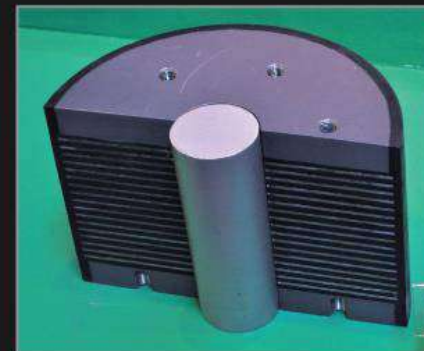
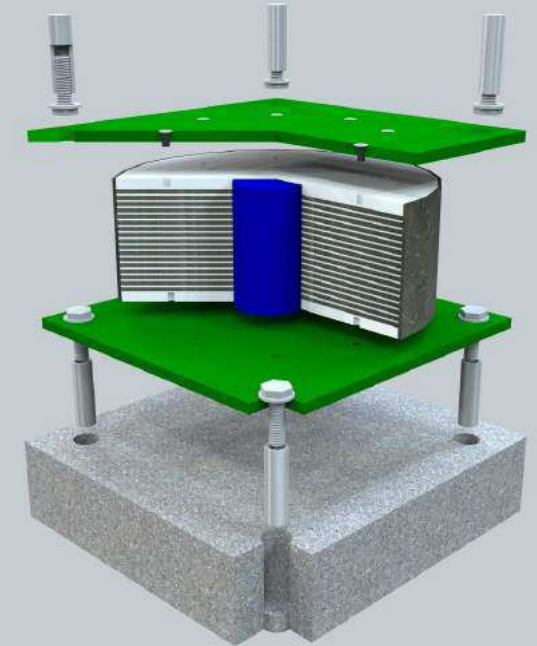
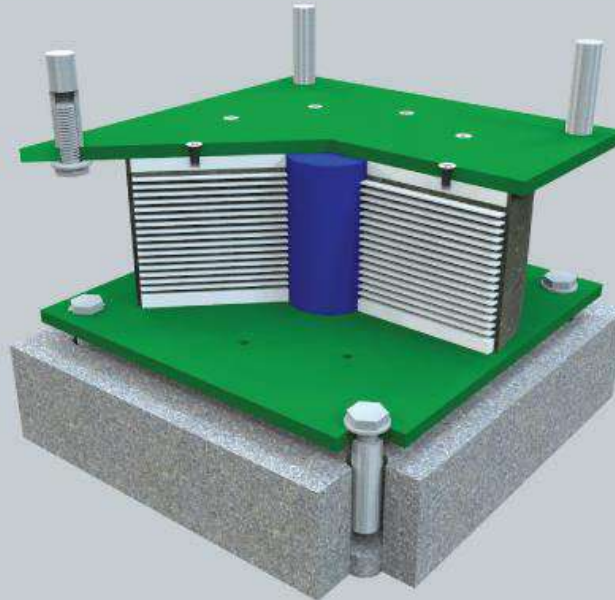
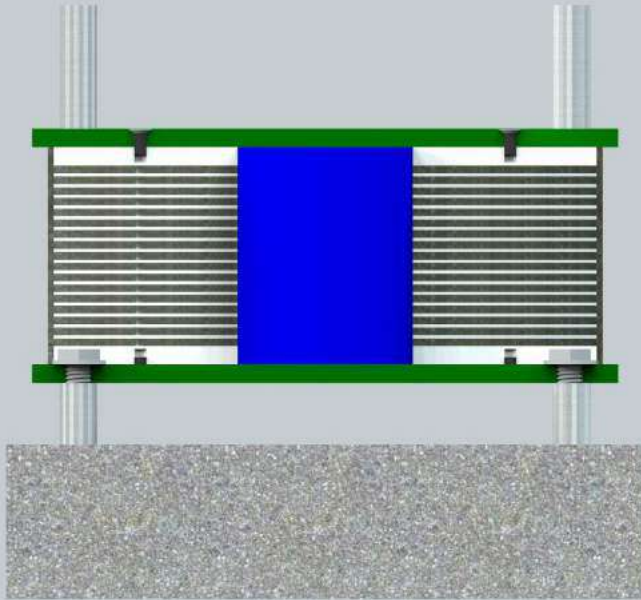


HIGH DAMPING RUBBER BEARINGS

Design & Produce UHDRB with damping ratio up to 24%



LEAD RUBBER BEARINGS



MANUFACTURING FACILITIES





MANUFACTURING FACILITIES-MIXING

- ❖ Mixing capacity up to 2000 tons compound per month
- ❖ Farrell Chronos Richardan mixing 80L & 160L
- ❖ ST rotor variable speed
- ❖ Temperature control
- ❖ Chronos auto material feeding system



MANUFACTURING FACILITIES



VARIOUS MOULDING MACHINES FROM
500 TONS TO 2000 TONS



INJECTION TO FENDER AT 1500KG/HR



3 UNITS GEAR PUMP EXTRUDER 1500KG/HR



2000 TONS CLAMPING MACHINE
3.5M X 3.5M X 3.0M DAYLIGHT



1200 TONS COMPRESSION PRESS
1.2M X 2.2M



SHEETING PREFORM MACHINE

MANUFACTURING FACILITIES



CNC



2000 TONS COMPRESSION MACHINE
1.2M X 3.2M



2000 TONS COMPRESSION MACHINE
3.5M X 3.5M X 3M



2000 TONS COMPRESSION MACHINE
1.5M X 3.5M



2000 TONS COMPRESSION MACHINE
2.2M X 2.2M



1800 TONS HYDRAULIC BUILT
INTO AUTOLAVE FOR CURING

E-LAB TESTING & RESEARCH CENTER

CERTIFIED TO ISO/IEC 17025



Innovating the best testing machines with our well trained engineers for engineered rubber solution

E-LAB TESTING & RESEARCH CENTER

Schedule
No: SAMM 372



This laboratory accredited under Skim Akreditasi Makmal Malaysia (SAMM) meets the requirements of MS ISO-IEC 17025:2005 General requirements for competence of testing and calibration laboratories. This Malaysian Standards is identical with ISO-IEC 17025:2005 published by the International Organization for Standardization (ISO)





E-LAB TESTING & RESEARCH CENTER

FIELD OF TESTING : MECHANICAL

Scope of Accreditation:

Product: Laminated Elastomeric Bearings, Elastomeric Bearing Pads and Strips




Type of Test	Test Method
SHEAR STIFFNESS #Single Shear 	AS 5100: Part 4 (2004) [Appendix D4]
	BS 5400 – 1983 Section 9.2 Appendix A
	BSEN 1337 – 3 : 2005 [Annex F.7.2]
#Double Shear 	BS 6177 : 1982 Clause 9.5 (Double Shear Configuration)
	RMS B281 Clause 2.2.5 (Apr' 12)
	RTA B280 Clause 2.2.5 (2011)
	AASHTO Sec. 18 (2003) Clause 18.7.4.5.8

Type of Test	Test Method
COMPRESSION QUALITY ASSURANCE TEST 	AS 5100: Part 4 (2004) [Appendix D2] BS 5400 – 1983 Section 9.2 Clause 7.2 (b)(i)
	BS 6177: 1982 Clause 9.3 (Safe Carrying Capacity Test)
	BS 6177: 1982 Clause 9.4 (Stability Test)
	RMS B281 Clause 2.2.7 (Apr' 12)
COMPRESSION STIFFNESS 	BSEN 1337 – 3 : 2005 (Annex H : Level 1)
	AS 5100: Part 4 (2004) [Appendix D3] BS 5400 – 1983 Section 9.2 Clause 7.2 (b)(i)
	AASHTO Sec 18 (2003) Clause 18.7.4.5.6 (Short Duration)
	AASHTO Sec.18 (2003) Clause 18.7.4.5.7 (Long Duration)
	RMS B281 Clause 2.2.4 (Apr'12)
	RMS B281 Clause 2.2.6 (Apr'12) (Applied Rotation)
	RTA B280 Clause 2.2.4 (2011)
	BSEN 1337 – 3 : 2005 (Annex H: Level 2)
	BS 6177: 1982 Clause 9.6

E-LAB TESTING & RESEARCH CENTER

Product: SEISMIC BEARINGS

(STRUCTURAL ISOLATION, e.g: HDRB, LRB and PENDULUM)

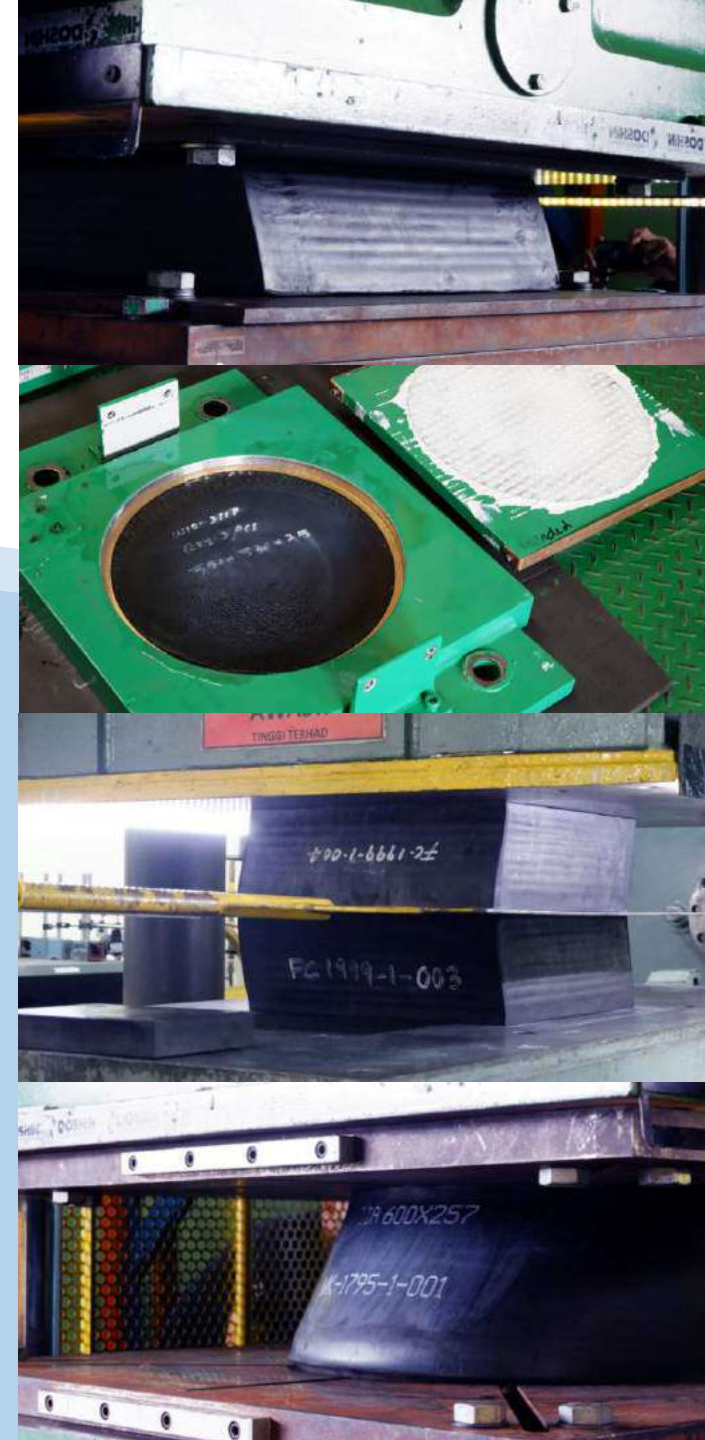
Type of Test	Test Method
COMPRESSION QUALITY ASSURANCE TEST 	BSEN 15129 : 2009 Clause 8.2.1.2.6 Compression under Zero Lateral Displacement BSEN 15129 : 2009 Clause 8.2.1.2.7
COMPRESSION STIFFNESS 	BSEN 15129 : 2009 Clause 8.2.1.2.8
HORIZONTAL CAPACITY 	BSEN 15129 : 2009 Clause 8.2.1.2.5 Horizontal Characteristics On Repeated Cycling

Notes: HDRB : High Damping Rubber Bearing
LRB : Lead Rubber Bearing

Product: STRUCTURAL BEARINGS

(SPHERICAL BEARINGS AND MECHANICAL POT BEARINGS)

Type of Test	Test Method
COMPRESSION QUALITY ASSURANCE TEST 	BS EN 1337 – 5 : 2005 (Annex B) BSEN 5400 : 1983 Section 9.2 Clause 7.2 (b) AASHTO Sec. 18 (2003) Clause 18.7.2.5 Short-term Compression Proof Load Test AASHTO Sec. 18 (2003) Clause 18.7.2.6 Long-term Compression Proof Load Test
COMPRESSION STIFFNESS 	BS EN 1337 – 5 : 2005 [Annex B] BS 5400 : 1983 Section 9.2 Clause 7.2 (b)
VERTICAL LOAD TEST 	AASHTO Sec. 18 (2003) Clause 18.7.2.5 AASHTO Sec. 18 (2003) Clause 18.7.2.6
HORIZONTAL LOAD TEST 	BS 5400 : 1983 Section 9.2 Clause 7.2 (b) AASHTO Sec. 18 (2003) Clause 18.7.2.9 (Fixed or Guided Bearings Only)
FRICTION & SLIDING TEST 	BS 5400:1983 (Part 9.1 & 9.2) AASHTO Sec 18 Clause 18.7.2.7 BS EN 1337 : 2004, Annex B
ROTATION TEST 	MRT S81-Appendix D (D4) AASHTO Sec 18, Clause 18.7.4.4.3 BS EN 1337 : 2004, Annex B BS 5400 : 1983 (Part 9.1 & 9.2)



E-LAB 100

Fender Compression & Durability Test



COMPRESSION FORCE : 3,000kN

E-LAB 121 & E-LAB 122

Static Stiffness Performance Test for Floating Slab Track Bearings and Base Plate



E-LAB 121 Vertical Load : 200KN
E-LAB 122 Vertical Load : 1,000KN
Static Compression Loading Rate: 2.5~ 120KN/MIN

E-LAB 132

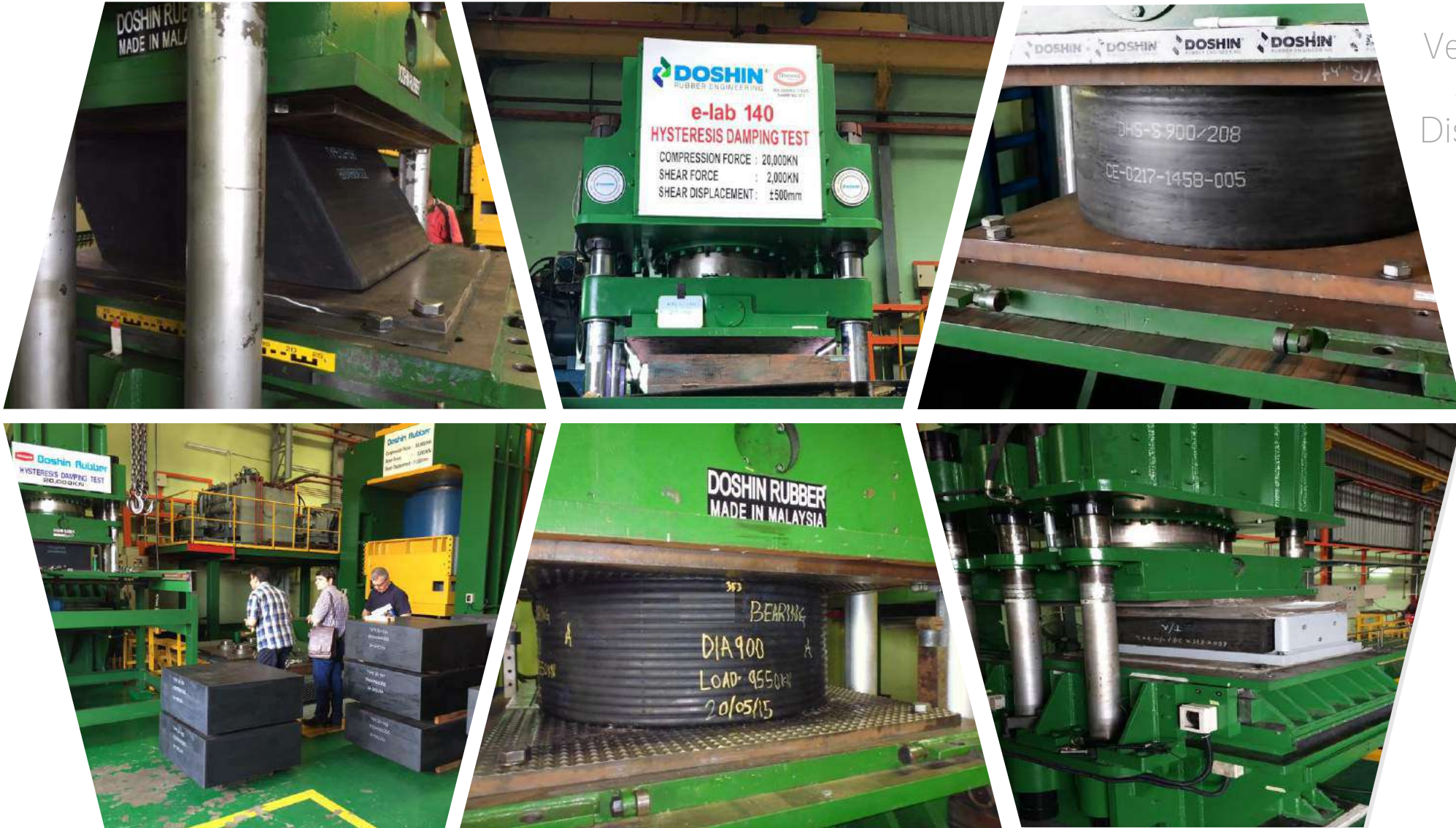


Vertical Load : 10,000KN
Shear Load : 1,000KN
Displacement : +/- 500mm

Hysteresis Damping Testing for Structural Bearings and Seismic Isolators

E-LAB 140

Hysteresis Damping Testing for Structural Bearings and Seismic Isolators



Vertical Load : 20,000KN
Shear Load : 2,000KN
Displacement : +/- 500mm

E-LAB 150

HYSTRESIS DAMPING TESTING
FOR STRUCTURAL BEARINGS
AND SEISMIC ISOLATORS

One of the biggest testing machine
with shear capability in the world



Vertical Load : 50,000KN
Shear Load : 5,000KN
Displacement : +/- 1,000 MM

Machine platen size:
2,200 mm x 2,200 mm

Capable to Test Bearing size
up to 2,000 mm

E-LAB 160

Fenders
Compression
Test



- ❖ Energy Absorption & Reaction Force Test
- ❖ Compression Load : 10,000KN

E-LAB 170

Hysteresis Damping Test for Rubber Compound Development



DOSHIN[®]
RUBBER ENGINEERING

e-lab 170

HYSTERESIS DAMPING TEST

COMPRESSION FORCE : 1,000KN

SHEAR FORCE : 100KN

SHEAR DISPLACEMENT : $\pm 200\text{mm}$

Vertical Load : 1,000KN

Shear Load : 100KN

Displacement : $\pm 200\text{ MM}$

Displacement Speed : 200mm per second

E-LAB 180

HYSTERESIS DAMPING TEST FOR STRUCTURAL
BEARINGS AND SEISMIC ISOLATORS

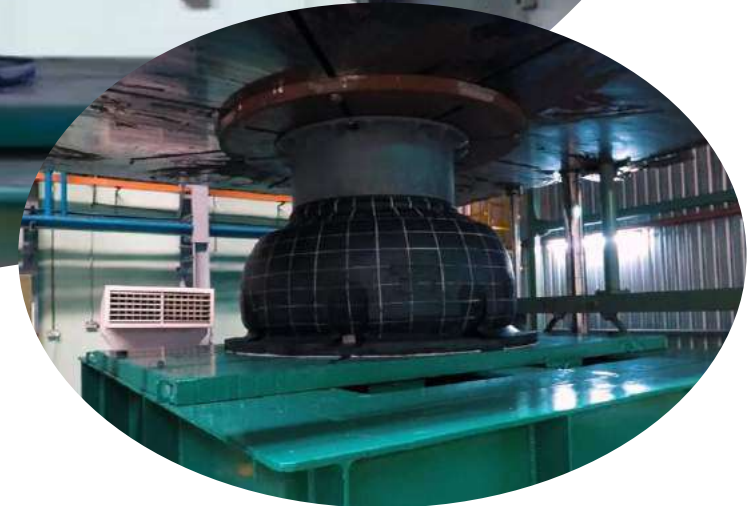
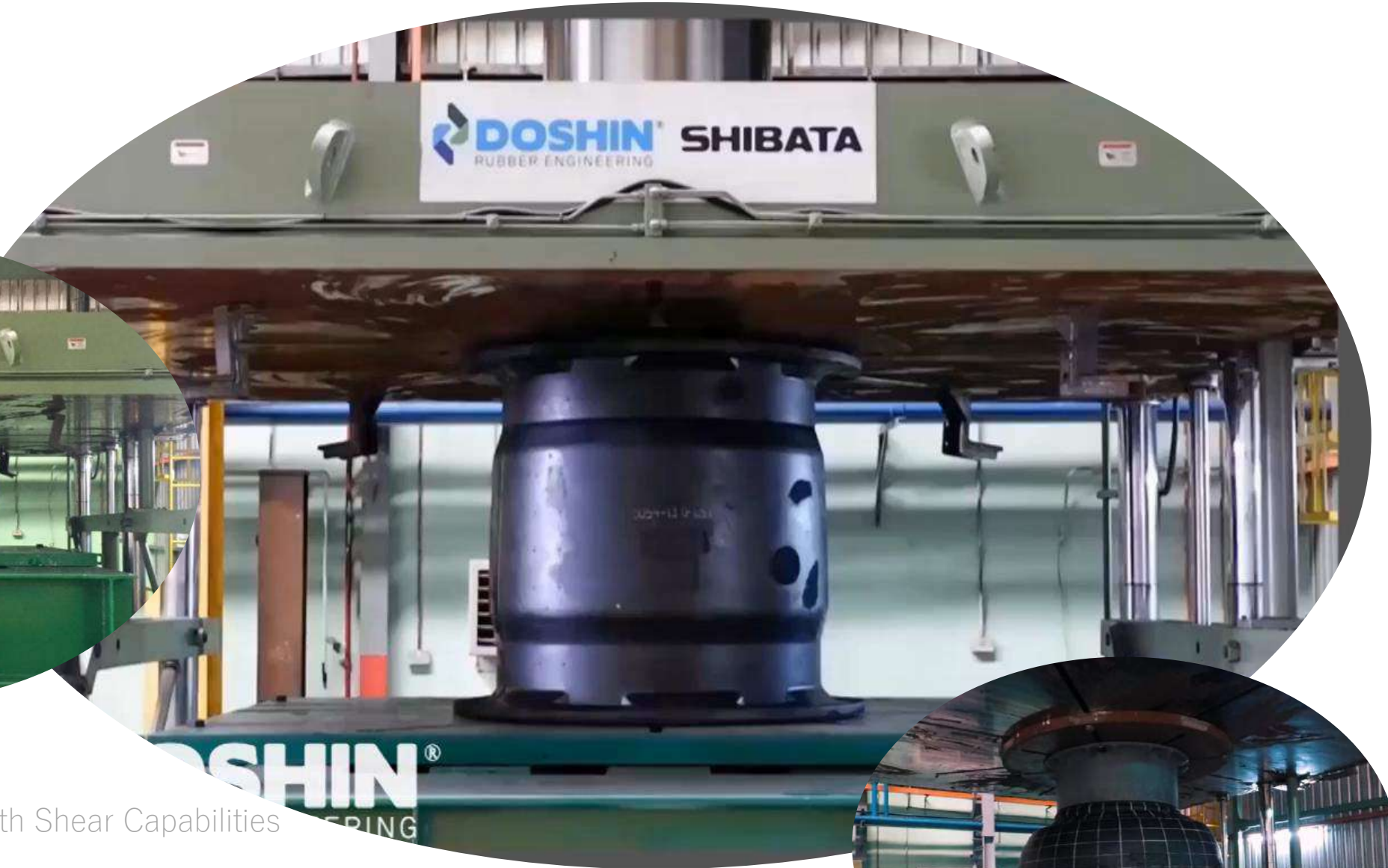
VERTICAL LOAD : 5,000KN
SHEAR LOAD : 2,000KN
DISPLACEMENT : +/- 500 MM

DOSHIN
RUBBER ENGINEERING
e-lab 180
HYSTERESIS DAMPING TEST
COMPRESSION FORCE : 5,000KN
SHEAR FORCE : 1,000KN
SHEAR DISPLACEMENT : $\pm 200\text{mm}$

DOSHIN
RUBBER ENGINEERING
e-lab 122
STATIC STIFFNESS TEST
COMPRESSION FORCE : 1,000KN

S-1209-348

E-LAB 190



Performance Test for Fender with Shear Capabilities

- Energy absorption & reaction force test
- Vertical load : 10,000KN
- Shear load : 1,000KN
- Displacement : 3,000MM
- Machine platen size : 3700mm X 3700mm

RUBBER ENGINEERING & DEVELOPMENT CENTER

A. RUBBER MATERIAL TESTING

- ✓ Tensile Properties Test
- ✓ Hardness Test (ASTM Shore A, JIS Shore A, IRHD)
- ✓ Hot Air Heat Aging Test (up to 300°C)
- ✓ Compression Set Test
- ✓ Ozone Resistance Test (up to 400 pphm)
- ✓ Quadruple Shear Test
- ✓ ISO/DIN Abrasion Resistance Test
- ✓ Low Temperature Brittleness Test (up to -70°C)
- ✓ Density/SG Test
- ✓ Rheology Test
- ✓ Tear Resistance Test (Trouser and Crescent)
- ✓ Fluid/Oil Immersion Test.
- ✓ Rebound Resilience Test

B. PRODUCT / PART PERFORMANCE TESTING

- ✓ Static Compression/Load Deflection test (up to 100kN capacity)
- ✓ Dynamic Spring Rate Test
- ✓ Durability/Endurance/Life Test
- ✓ Adhesion/Bond Failure Test (Rubber-Metal Bonded)

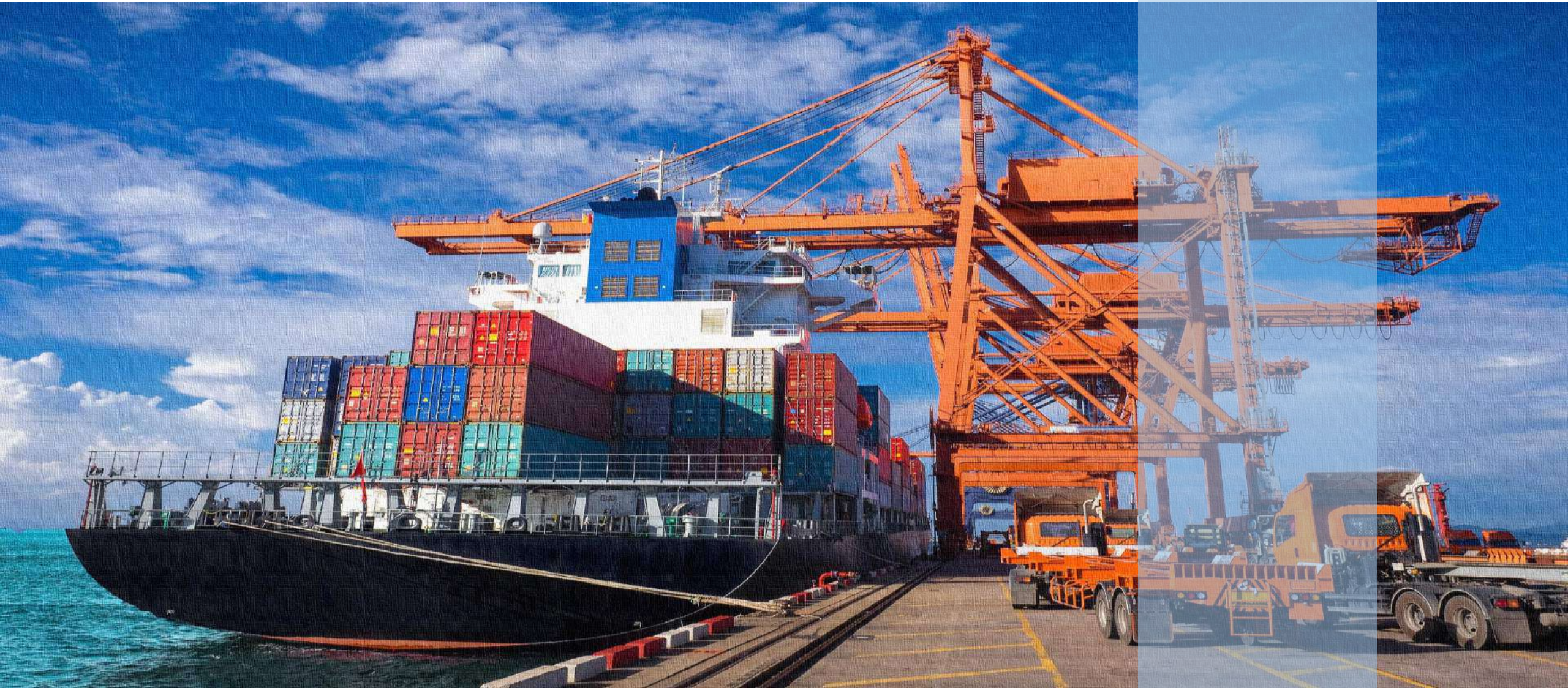


Certified to : ISO/IEC 17025

SCOPE OF KOSSAN AND
DOSHIN LABORATORY
TEST & MEASUREMENT
CAPABILITIES



PROJECTS RREFERENCE



AUSTRALIA PROJECT

Elastomeric Laminated Bearings, Bearing Strips and Elastomeric Bearings

- Western Australia's largest road project – WA Gateway
- OH2K
- F&B
- Fredrickton to Eungai project (F2E)
- KWR Bypass
- PJ677 Toowoomba OCR
- PJ676 Cooroy to Curragh
- F2E Project BR013 & BR017
- Dingo to Bluff
- Patrick Access Ramp D
- T2E project
- Singleton Rail Bridge
- M2 Widening
- South Expressway Duplication
- BHP Nelson Point
- PJ622 Sapphire to Woolgoolga
- PJ621 Tamworth Bridge Renewal
- PJ620 Iron Creek
- Gerringong Upgrade
- RRL-E Boundary Rd
- Cavill Ridge
- RRL-E Project - Armstrong Rd
- Dohertys Road
- Parkes Way Widening
- MGI Koolan Island Top Deck
- Gerringong Upgrade
- Molonglo
- BLJV Update
- PJ573 Wamban Creek
- Bega Bypass
- Gateway Motorway
- Yeppen Lagoon Bridge
- McLarenvale Overpass
- F11 Hunter Expressway
- South Rd Superway
- Trackstar Station
- Pacific Highway Upgrade

100% tested to AS5100, RMS B281, RMS B280, RTA 280

PROJECTS REFERENCE

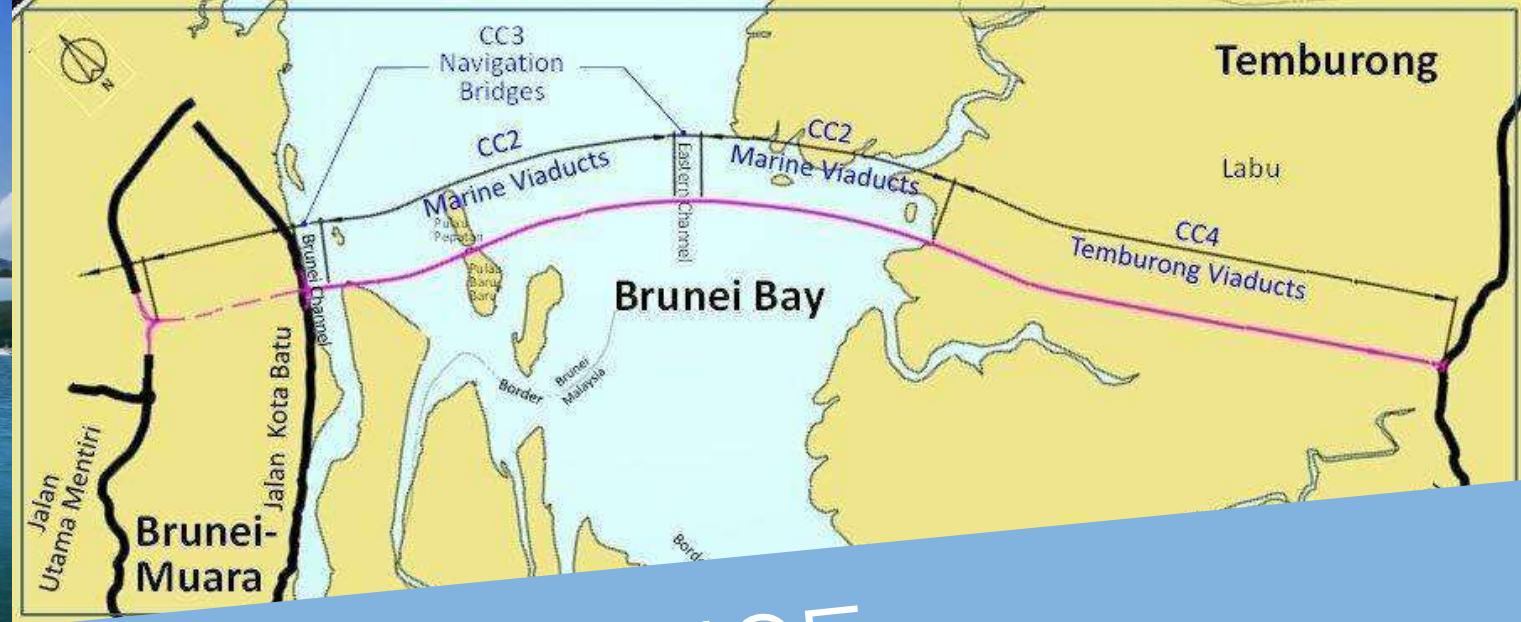


FRESSINET, AUSTRALIA

Laminated Rubber Bearing

PROJECTS REFERENCE





PROJECTS REFERENCE

TEMBURONG CC3 PACKAGE, BRUNEI, 2017

High Damping Rubber Bearings

HOSPITAL LAS HIGUERAS, CHILE

High Damping Rubber Bearings
&
Lead Rubber Bearing

PROJECTS REFERENCE





HIGH SPEED TRAIN RUBBER ISOLATORS, CHINA



- Very High Level of Noise and Vibration Isolation
- Simple Installation
- Cost Effective

PROJECTS REFERENCE



WIKA TOWER, JAKARTA INDONESIA

High Damping Rubber Bearings
at 20-24% Damping Ratio

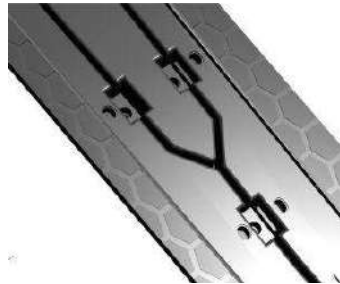
PROJECTS REFERENCE



ALSTOM

Electrical resistivity ground-level power supply for trams (APS3) and electric buses (SRS) for ALSTOM

- Test to meet compression load, cyclic fatigue, road running, electrical insulation, coupling, thermal aging, UV, hydrocarbon, comparative tracking index (CTI) and fire retardant test



PROJECTS REFERENCE



MIDDLE EAST

172 meter of Elastomeric Expansion Joint
(DR 165, DR 230 and DR 330)



PROJECTS REFERENCE



ORUMEIH BRIDGE, MIDDLE EAST

High Damping Rubber Bearing



PROJECTS REFERENCE



TAXIWAY, MIDDLE EAST

Lead Rubber Bearing (LRB)

PROJECTS REFERENCE



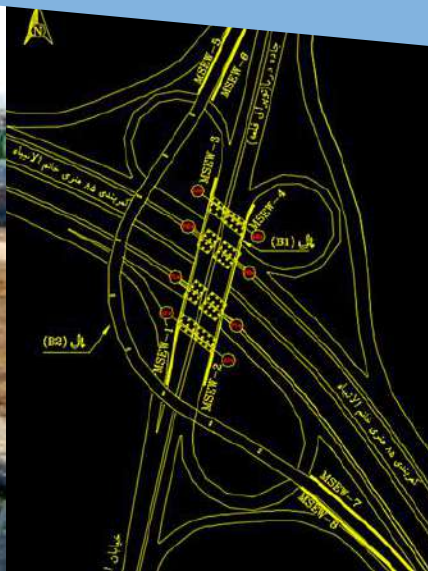


ABOZAR BRIDGE – MIDDLE EAST

49 NOS High Damping Rubber Bearing



PROJECTS REFERENCE



UNDP, MIDDLE EAST

3DOF 80 Modular Joint and 364 nos
of Laminated Bearing

PROJECTS REFERENCE



CABLE STAYED BRIDGE – MIDDLE EAST

109 meter of Elastomeric Expansion Joint (DR 250)

PROJECTS REFERENCE



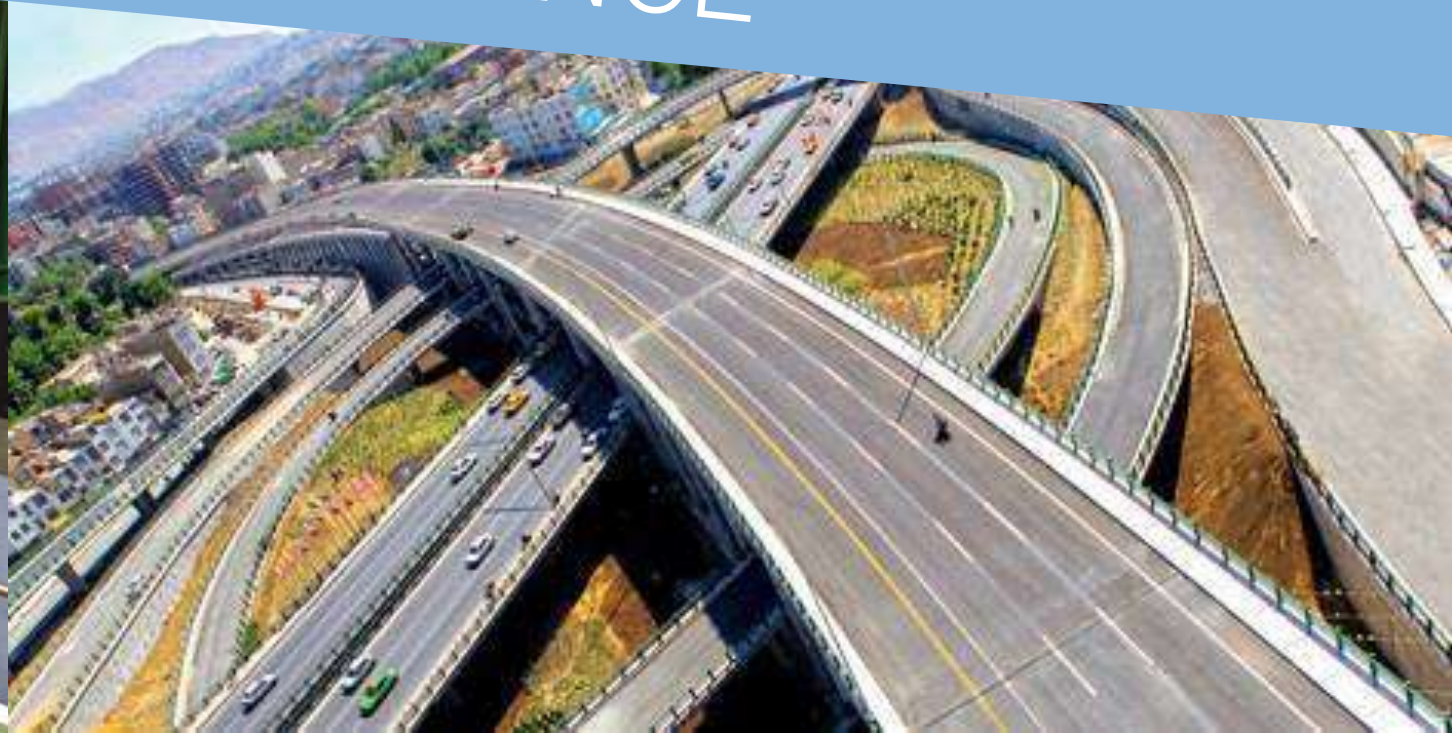
QAZVIN BRIDGE, MIDDLE EAST

Laminated Rubber Bearing

100% customer Witness Testing



PROJECTS REFERENCE



DARESAZ, MIDDLE EAST

24 NOS Dia 600 and Dia 500
High Damping Rubber Bearing (Damping Ratio 16%)

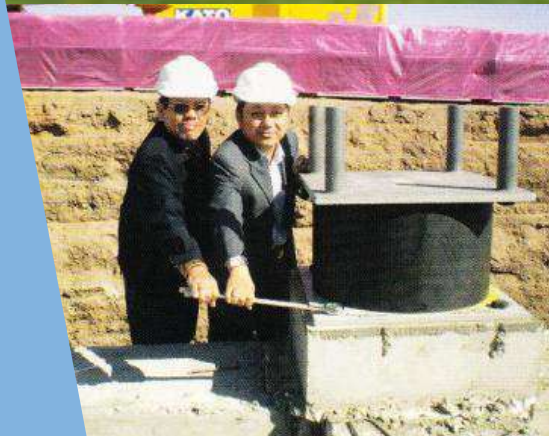
PROJECTS REFERENCE

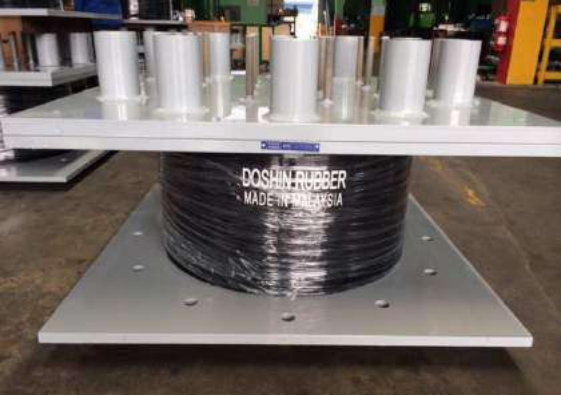


PARAND DOWNTOWN PROJECT, MIDDLE EAST

High Damping Rubber Bearings

PROJECTS REFERENCE

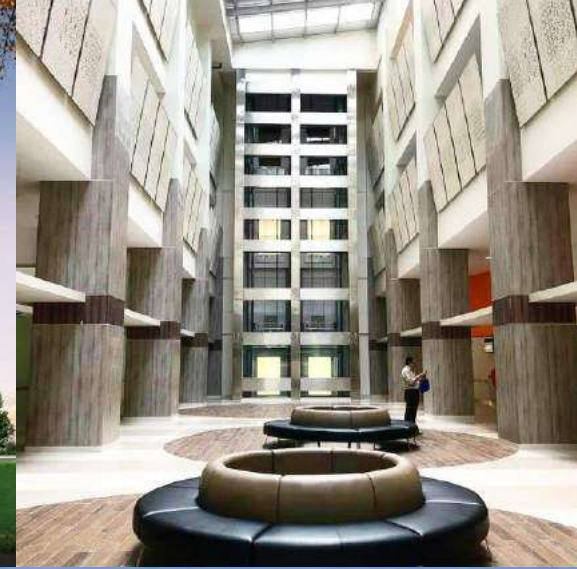




PROJECTS REFERENCE

UNIVERSITY HOSPITAL OF INDONESIA, JAKARTA

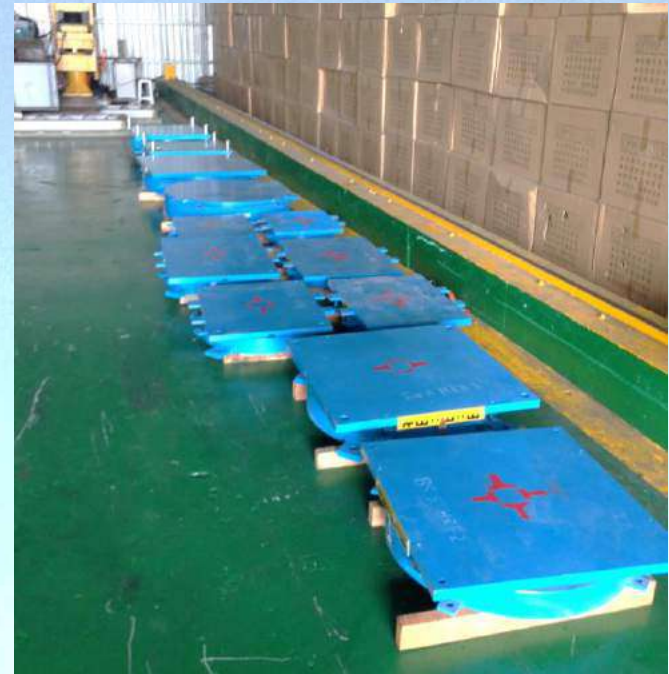
High Damping Rubber Bearings
at 20-24% Damping Ratio



RA 166, JAHRA ROAD,
KUWAIT

Mechanical Pot Bearings

PROJECTS REFERENCE



LRT AESTHETIC GUIDEWAY ENVELOPE, KLJ LINE, MALAYSIA

Mechanical Pot Bearings



PROJECTS REFERENCE



PENANG SECOND BRIDGE, MALAYSIA

The longest bridge in South East to install
Base Isolation High Damping Rubber Bearings
(2500 NOS HDRB)



PROJECTS REFERENCE



Penang Second Bridge

PROJECTS REFERENCE



FIRST PENANG BRIDGE, MALAYSIA

Elastomer Bearings and Expansion Joints (*DR 50 & DR 100*)

PROJECTS REFERENCE



LRT KELANA JAYA EXTENSION, MALAYSIA

Mechanical Pot Bearings

PROJECTS REFERENCE



SUNGAI GOMBAK – JALAN KUCHING, KL, MALAYSIA (DBKL PROJECT)

Mechanical Pot Bearings

PROJECTS REFERENCE



LRT DEPOT, AMPANG LINE EXTENSION. MALAYSIA

LRT Ampang Line Extension, package B, Malaysia

PROJECTS REFERENCE



DRAWBRIDGE, KUALA TERENGGANU, MALAYSIA

Mechanical Pot Bearings and Expansion Joints (*Finger Joints*)

PROJECTS REFERENCE



U-TURN, CYBERJAYA, SETIA ECO GLADES, MALAYSIA

Mechanical Pot Bearings

PROJECTS REFERENCE



BAYAN LEPAS EXPRESSWAY, PENANG, MALAYSIA

Modular Joints & Elastomeric Expansion Joints



PROJECTS REFERENCE





Mechanical Pot Bearings

RAWANG BYPASS -
ELEVATED STRUCTURE,
MALAYSIA

PROJECTS REFERENCE





PROJECTS REFERENCE



JAMBATAN BATANG SADONG, SAMARAHAN BRIDGE, SARAWAK, MALAYSIA

Mechanical Pot Bearings



PROJECTS REFERENCE



KVMRT LINE 2, MALAYSIA

SUNGAI BULOH – SEDANG – PUTRAJAYA LINK 2017 – 2020

PACKAGE V201 – 614 NOS of High Damping Rubber Bearing (Damping Ratio 17 - 23%)



PROJECTS REFERENCE



KVMRT, SBK LINE 1, Malaysia

Elastomeric & Mechanical Pot Bearings

THE MRT

will form an important part of the Klang Valley's Integrated Rail Network, providing good integration with the existing urban rail lines

PROJECTS REFERENCE



PNG - BRIDGE (BRRIP) PAPAU NEW GUINEA

Steel Expansion Joint (Finger Type)

PROJECTS REFERENCE



LAOAG BY-PASS BRIDGE, PHILIPPINES

Ultra High Damping Rubber Bearings (20-24% Damping)

PROJECTS REFERENCE



CENTRAL EXPRESSWAY PROJECT (CEP), SRI LANKA

2000nos of laminated bearings



PROJECTS REFERENCE



VLCC JETTY 2, PORT OF FUJAIRAH, UAE

Mechanical Pot Bearings
&
Marine Dock Fenders

PROJECTS REFERENCE

Fender – Type SPC 2000



METRO HO CHI MINH LINE 1, VIETNAM

1200 NOS of Elastomeric Laminated Bearings

PROJECTS REFERENCE





PROJECTS REFERENCE

DONG THAP BRIDGE, VIETNAM

Ultra High Damping Rubber Bearings (19% Damping Ratio)
Bearing Size: 1550mm x 1550mm x 506mm (4000kg)

Testing Shear displacement at 513mm



DASH

Elastomer Bearings, Mechanical Pot Bearings,
Expansion Joint

PROJECTS REFERENCE



EKO CHERAS, KUALA LUMPUR

Mechanical Pot Bearings



PROJECTS REFERENCE



KVMRT 2, CONLAY STATION KUALA LUMPUR, MALAYSIA

Elastomer Bearings

PROJECTS REFERENCE



26/7/18
Conlay Station
T1 (R)



KL ECO CITY, KUALA LUMPUR

Mechanical Pot Bearings

PROJECTS REFERENCE





WAVE 太子湾 海岸城
MARINA COVE
ISKANDAR MALAYSIA

| Awake Your *Sense* to All W

MARINA COVE, JOHOR

Elastomer Bearings

PROJECTS REFERENCE



OXLEY TOWERS, KUALA LUMPUR

Link Bridge Bearings

PROJECTS REFERENCE



PALEMBANG INDOCEMENT, INDONESIA

Fenders

PROJECTS REFERENCE



PAN BORNEO, PAPAR, SABAH

Mechanical Pot Bearings &
Finger Expansion Joints



PROJECTS REFERENCE



PESCARA POINT BRIDGE, NEW ZEALAND

Mechanical Pot Bearings

PROJECTS REFERENCE





CIKAMPEK 2 ELEVATED (JAPEK II) – JAKARTA

Friction Pendulum Bearings

PROJECTS REFERENCE



SUNWAY VELOCITY, KUALA LUMPUR

Link Bridges –
Mechanical Pot Bearings

PROJECTS REFERENCE





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