QM Materials lab Catalogue

Mitsubishi Fuso Truck & Bus Corporation

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MITSUBISHI FUSO TRUCK & BUS CORPORATION

"WHO WE ARE"

MFTBC

Mitsubishi Fuso Truck and Bus Corporation has served around the world in terms of product development, parts sourcing and production, with the aim to provide the best value to our customers.

MFTBC QM

Quality Management dept. encompasses many cross functional roles across operations, projects and governance.
We work to uphold quality standards, conscious warranty spending and efficient field fixes to exceed customer expectations.

"WHO WE ARE"

QM MATERIAL LAB

"Not just a testing Lab, but your reliable Service Provider"

Founded in 1970, we has been providing various services for material related testing, investigations and consultation.

Accredited by ISO17025:2017, we are committed to provide reliable, confidential, accurate, and valid testing result.

By utilizing modern and calibrated devices, and a team of highly qualified experts, we aim to serve our customers the best solution for the whole value chain.

QUALITY POLICY

DAIMLER

Mitsubishi Fuso Truck and Bus Corporation.

Material Laboratory Quality Policy

MFTBC Material Lab is committed to provide impartial, confidential, reliable, accurate and precise test results to the customers by adapting good laboratory practices through trained and competent Laboratory staff and by implementing Quality Management System consistently as per ISO/IEC 17025:2017 guidelines.

Material Lab complies to inspection & Failure Investigation as per national & International Standards & also customer requirements by encouraging active participation of Laboratory personnel to continually improve the effectiveness of Quality Management System.

MFTBC Material Lab assesses the risks associated with Lab activities and takes opportunities for improving the management system.

Japan
1st July 2022

Hanieh Abbaspour
Head of Supplier Quality Fuso
Mitsubishi Fuso Truck and Bus Corporation

Daimler Trucks Asia

FUSO FUSO BHARATBENZ

ISO/IEC 17025:2017

ilac-MRA IAJapan

(1/2)
25-09-11NITE-001
2026-02-27

Certificate of Accreditation

International Accreditation Japan (IAJapan) hereby accredits the following conformity assessment body as a testing laboratory of Japan National Laboratory Accreditation System.

Accreditation Identification: JNLA 220415JP Testing
Name of Conformity Assessment Body: Mitsubishi Fuso Truck and Bus Corporation, QM Materials Lab
Name of Legal Entity: Mitsubishi Fuso Truck and Bus Corporation
Location of Conformity Assessment Body: 10, Ohkura-cho, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8522, JAPAN
Scope of Accreditation: as the following pages
Accreditation Requirement: ISO/IEC 17025:2017*
* The relevant accreditation requirements described in the Accreditation Scheme Document for JNLA are also applied.
Effective Date of Accreditation: 2026-03-23
Expiry Date of Accreditation: 2030-03-22
Date of Initial Accreditation: 2022-03-23

ISHIGE Hiromi
ISHIGE Hiromi
Chief Executive, International Accreditation Japan (IAJapan)
National Institute of Technology and Evaluation

- MRA requirements are, in addition to relevant international standards and guides, requirements for participation in proficiency testing programs, surveillance and reassessment, and the policy for the traceability of measurement for MRA purpose.
- This laboratory fulfills ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation means this laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations (refer to joint ISO-ILAC-IAF Communique dated April 2017).
- The latest accreditation information is publicly available on IAJapan Website as an accreditation certificate.

ISO SCOPES

Our company is accredited by IAJapan as conforming to ISO/IEC 17025. IAJapan, which operates JCSS, JNLA, and ASNITE, participates in the Global Accreditation Cooperation Incorporated multilateral accreditation agreement, ensuring the international equivalence of the test results.

• Vickers/ Knoop hardness test	JIS Z 2244-1
• Rockwell hardness test	JIS Z 2245
• Brinell hardness test	JIS Z 2243-1
• Anti-corrosion spray test	JIS Z 2371

AVAILABLE TESTS

METAL

- Failure Analysis
- Hardness
- Tensile and Compression Strength
- Elemental Analysis (Chemical Composition)
- Residual Stress Test
- Metallography Test
- Macrostructure Observation
- Depth of Decarburization
- Case Depth
- Crack Observation

NON-METAL

- Failure Analysis
- Material Identification
- Hardness
- Elemental Analysis (Chemical Composition)
- Peeling Test
- Tensile Strength
- Heat Aging
- Impact Resistance
- Chemical Resistance
- Environmental Cyclic Test
- Flexural test
- Glass Fiber Content Measurement

CORROSION

- Salt Spray Test
- Combined Cyclic Corrosion Test
- Painting Thickness
- Plating Thickness
- Impact Test
- Coating Hardness
- Painting Adhesion
- Alkalin/ Acid Resistance Test

CONTAMINATION

- Visual Observation
- Elemental Analysis
- Material Analysis
- Particle Size Distribution

KEY EQUIPMENT

Universal Hardness Tester

Application

Measure the hardness in different scales such as HRA, HRB, HRC, Hv, HBW.

Range

60-650 HBW; 100-850 HV; 20-88 HRA/20-100 HRBW/20-70 HRC

Micro Vickers Hardness Tester

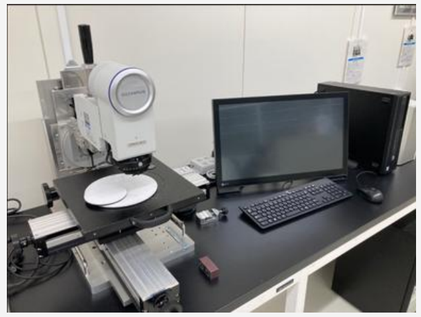
Application

Measure the hardness of metals, ceramics, composites, plastic; useful for very thin materials or measuring the surface of parts and the hardness of different phases of a structure.

Range

100-850 HV
0.025 - 2kg

Digital Microscope



Application

Used for the fracture surface observation.

Magnification

1X - 540X

Metallographic Microscope

Application

Used for observing the microstructure; inspecting grain size, different phases of a structure, coating thickness, etc.

Magnification

10X - 1000X

KEY EQUIPMENT

Scanning Electron Microscope (SEM)

Application

Produces images of a sample by scanning the surface with a focused beam of electrons; produces various signals contain information about the surface topography and composition of the sample.

Magnification

High magnification mode:
20X - 500000X

Optical Emission Spectroscopy

Application

Elemental analysis by emission spectroscopy method which includes Fe, Al, Cu bases.

Range

Fe, Al, Cu, alloys

Tensile Testing Machine

Application

Measure the tensile strength, yield strength, elongation % and toughness in Steel, Aluminium (alloy), cast iron, copper (alloy), all metallic materials, plastic and rubber.

Range

0 - 250 KN

Residual Stress Measurement

Application

Detect residual stress during the manufacturing process of a material, or accumulated in a structure over many years in operation; helps predict the service lifetime of products.

Range

2θ from⟦+98⟧^° to ⟦+158⟧^°

KEY EQUIPMENT

Electron Probe Measurement Analysis

Application

Used to non-destructively determine the chemical composition of small volumes materials; observation of the material structure; works similarly to a scanning electron microscope.

Range

All elements from B to U

Fourier Transform Infrared Spectroscopy

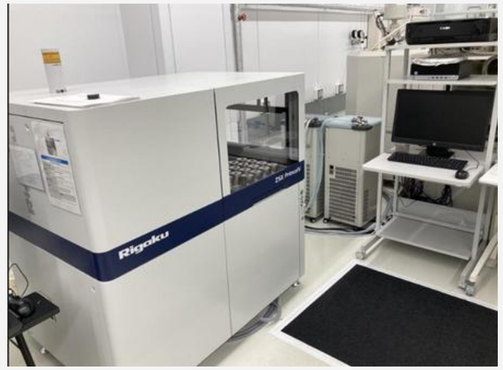
Application

Used to identify organic, polymeric, and in some cases, inorganic materials; identify compounds and the general type of the analyzed material when there are unknowns.

Range

7800−350cm−1

X-ray Fluorescence (XRF)



Application

Used to identify the chemical composition and elemental analysis of metals, glass, ceramics.

Range

All elements from B to U

Rubber Hardness Tester

Application

Measure the hardness of rubber parts in shore and IRHD scales.

Range

30-100 IRHD
0-100 DM

KEY EQUIPMENT

Humidity and Temperature Chamber

Application

Test the effect of a specified environment condition mainly on rubber and plastic materials.

Range

Humidity: ~98%
Temperature: −40 - 150℃

Geer Oven

Application

Test a wide range of materials: plastic, rubber, films, packaging materials, adhesives, etc. in aging simulation of temperature and air refresh.

Range

40 - 300℃

Salt Spray Tester (SST)

Application

The salt spray test is a standardized corrosion test method, used to check corrosion resistance of materials and surface coatings.

Range

Temperature: 35℃
Max. sample size:
2000x1500x1200mm

Cyclic Corrosion Tester (CCT)

Application

Used to check the corrosion resistance of material and also evaluate the painting, plating and investigate the corrosion issues in fields.

Range

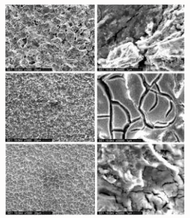
Temperature: −20 - 70℃
Max. sample size:
2000x1500x1200mm

SCOPES: Metal Material Analysis

Test Item	Specific Test Performed	Range	Test Method	Material
Hardness	Rockwell	20-88 HRA 20-100 HRBW 20-70 HRC	JIS Z 2245 ISO 6508	Ferrous metal; Steel, Cast Iron Non ferrous metal; e.g. Aluminum (alloy), Copper (alloy)
	Brinell	60-650 HBW	JIS Z 2243 ISO 6506	
	Vickers	100-850 HV	JIS Z 2244 ISO 6507	
Tensile and Compression Strength	Yield Stress	0-250 KN	JIS Z 2241 ISO 6892	Ferrous metal; Steel, Cast Iron Non ferrous metal; e.g. Aluminum (alloy), Copper (alloy)
	Tensile Strength			
	Elongation %			

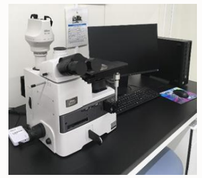
SCOPES: Metal Material Analysis

Test Item	Specific Test Performed	Range	Test Method	Material
Elemental Analysis (Chemical Composition)	Optical Emission Spectroscopy（OES）	“Fe" base material: C, Si, Mn, P, S, Cu, Al, Ni, Cr, Ti, Mo, V, Mg, Pb & Sn	---	Ferrous metal; Steel, Cast Iron
		“Cu” base material: Fe, Al, Si, Mn, P, S, Ni, Ti, Zn, Pb, Sn	---	Copper and Alloys
		“Al” base material：Fe, Cu, Si, Mn, P, Cr, Ni, Ti, V, Mg, Zn, Pb, Sn	---	Aluminum and Alloys
	X-ray Fluorescence Analysis (wavelength dispersive/XRF)	All elements from B to U	---	Ferrous metal: Steel, Cast Iron Non ferrous metal; e.g. Aluminum (alloy), Copper (alloy)
	Energy Dispersive X (SEM/EDS）	All elements from Li to Cf Local analysis combined with SEM is possible	---	Ferrous metal: Steel, Cast Iron Non ferrous metal; e.g. Aluminum (alloy), Copper (alloy)



SCOPES: Metal Material Analysis

Test Item	Specific Test Performed	Range	Test Method	Material
Residual Stress Measurement	Residual Stress Test	2θ from⟦+98⟧^° to⟦+158⟧^°	---	Ferrous metal: Steel, Cast Iron
Metallography	Microstructure Observation	Magnification 1-1000X	ASM Handbook Vol 9	Ferrous metal: Steel, Cast Iron Non ferrous metal; e.g. Aluminum (alloy), Copper (alloy)
	Grain Size Measurement		JIS G 5502	Steel
	Graphite size and distribution		ASTM E 112 ISO 643	Cast Iron
Macrostructure Observation	Macrostructure Observation Weld Quality Check	---	JIS G 0553	Ferrous metal: Steel, Cast Iron Non ferrous metal; e.g. Aluminum (alloy), Copper (alloy)
Depth of Decarburization	Measurement of Decarburization Depth	> 0.005 mm	ISO 3887 JIS G 0558	Steel



SCOPES: Metal Material Analysis

Test Item	Specific Test Performed	Range	Test Method	Material
Fractography (Fracture Surface Analysis)	Microscopic Observation	1x-540x	ASM Handbook Vol 12	Ferrous metal: Steel, Cast Iron Non ferrous metal such as Aluminum (alloy), Copper (alloy)
	SEM Observation	20X-50000X		
Case Depth	Case Depth Measurement	0.1mm-10mm (HV0.01-HV5)	ISO 2636 JIS G 0557 SAE J 423	Case hardened/ induction hardened Steel
Crack Observation	Penetration test (Color Check)	---	ISO 3452 JIS Z 2343	Ferrous metal: Steel, Cast Iron Non ferrous metal such as Aluminum (alloy), Copper (alloy)
	Magnetic Test	---	ISO 9934 JIS Z 2320	Ferrous metal: Steel, Cast Iron

SCOPES: Plastic, Rubber, Adhesive, etc. Analysis

Test Item	Specific Test Performed	Range	Test Method	Material
Material Identification	Infrared Spectroscopy (FT-IR)	4000-400 cm-1	---	Rubber, Plastic, Adhesive, etc.
Hardness	International Rubber Hardness Degree (IRHD)	30-100 IRHD	JIS K 6253 ISO 48	Rubber
	Durometer	0-100 DM		
Elemental Analysis (Chemical Composition)	X-ray Fluorescence Analysis (wavelength dispersive/ XRF)	All elements from B to U	---	Rubber, Plastic
	Electron Probe Micro Analyzer Analysis (EPMA)	All elements from B to U	---	
	Energy Dispersive X (SEM/EDS)	All elements from Li to Cf Local analysis combined with SEM is possible	---	
Peeling Test	Peeling Test	0-50 KN	JIS K6854	Adhesive, Composite materials

SCOPES: Plastic, Rubber, Adhesive, etc. Analysis

Test Item	Specific Test Performed	Range	Test Method	Material
Tensile Strength	Yield Point	0-50 KN	JIS K 6251 ISO 37 JIS K 7161 ISO 527 JIS K 7171 ISO 178	Rubber, Plastic
	Tensile Strength			
	Elongation %			
Heat Aging	Heat Aging Test	Temperature: 40-300°C Capacity: 600x600x600mm	---	Rubber, Plastic
Impact Resistance	Falling Ball Test Falling Parts Test	-30°C~RT Weight of Ball: ~500g	---	Plastic
Chemical Resistance	Chemical Resistance Test	Resistance to Acid and Alkaline Materials	---	Rubber, Plastic

SCOPES: Plastic, Rubber, Adhesive, etc. Analysis

Test Item	Specific Test Performed	Range	Test Method	Material
Environmental Cyclic Test	Humidity and Temperature Cycle Test	Temperature: -40-150°C Humidity 20-98% Capacity: 1000x1000x800mm	---	Plastic
Flexural Test	Flexural properties	0-50 KN	JIS K7171	Plastic
Glass Fiber Content Measurement	Burning and Measuring Weight Test	2-10g	JISK7052	Plastic

SCOPES: Corrosion/ Paint Investigation

Test Item	Specific Test Performed	Range	Test Method	Material
Salt Spray Test (SST)	Salt Spray Test	Temperature 35°C NaCl: 5% Capacity: 2000x1500 x1200mm/150kg	JISZ2371 ISO9227 (MOD)	Painting, Plating
Combined Cyclic Corrosion Test (CCT)	Combined Cyclic Corrosion Test	Temperature: -20-70°C Humidity: 95% RH NaCl: 5% Capacity: 2000x1500 x1200mm/150kg	---	Painting, Plating

SCOPES: Corrosion/ Paint Investigation

Test Item	Specific Test Performed	Range	Test Method	Material
Material Analysis	Infrared Spectroscopy (FT-IR)	Wave Length Range: 4000-400 cm-1	JIS K5600 1-7 ISO2808	Painting
Painting Thickness	Thickness Test	0-800μm by Ultrasonic film thickness meter	JIS K5600 1-7 ISO2808	Painting
Plating Thickness	Microscopic Observation	Magnification 1-1000X	JIS H8501	Plating
Impact Test	Impact Test (DuPont Type)	Weight: 500g Height: ~50cm	JIS K5600 5-3 ISO6272	Painting
Coating Hardness	Pencil Hardness Test	6B~B, HB, F, H~6H	JIS K5600 5-4 ISO 15184	Painting
Painting Adhesion	Cross Cut Test	Grid Interval: 1mm or 2mm	JIS K5600 5-4 ISO 2409	Painting
Alkali/ Acid Resistance Test	Dipping or Spot Test	Resistance to Acid and Alkaline	JIS K5600 6-1	Painting/ Plating
Coating Hardness	Corrosion Pit Evaluation	Magnification 1-1000X	ASM Handbook Vol13	Plating, Aluminum

SCOPES: Corrosion/ Paint Investigation

Test Item	Specific Test Performed	Range	Test Method	Material
Visual Observation	Camera, Microscope Observation	1x-540x	---	Substance, Contamination
Elemental Analysis	X-ray Fluorescence Analysis (wavelength dispersive/ XRF)	All elements from B to U	---	Substance, Contamination
	Energy Dispersive X（SEM/EDS）	All elements from Li to Cf Local analysis combined with SEM is possible	---	Substance, Contamination
Material Analysis	Infrared Spectroscopy (FT-IR）	4000-400 cm-1	---	Substance, Contamination
Particle Size Distribution	SEM/EDS	200μm-	ISO16232 VDA19	Substance, Contamination

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We look forward to working with you