

INSIGHT 05

MACHINERY BREAKDOWN INSURANCE:

Evolution, Scope
and Future
Readiness

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CoverageClub

THE BACKGROUND

Machinery Breakdown Insurance has become an essential form of coverage in the modern world. Also known by the names of 'Boiler and Machinery Insurance', 'Mechanical Breakdown Insurance' and 'Equipment Breakdown Insurance', it is available as a standalone product, or as part of a property insurance policy.

This type of insurance provides cover against sudden and accidental physical loss or physical damage caused by mechanical or electrical failures. It covers a wide range of machinery and equipment, from boilers and pressure vessels to production machinery, refrigeration systems, and electronic devices.

Machinery Breakdown Insurance fills coverage gaps that are left by many standard property insurance policies, which may not provide adequate coverage for machinery breakdown, or may explicitly exclude such coverages.





THE ORIGINS AND EVOLUTION OF MACHINERY BREAKDOWN INSURANCE

The origins of Machinery Breakdown Insurance can be traced back to the Industrial Revolution, when the widespread introduction of steam engines, boilers and textile machines introduced new risks. Frequent and devastating boiler explosions as a result of design flaws, poor maintenance and design errors prompted the development of insurance coverage solutions for such risks.

Many early property insurance policies failed to offer sufficient coverage for internal failures or mechanical accidents. This gap in coverage led to the rise of specialised companies in the 19th Century, focused on insuring machinery and equipment, in particular steam boilers. Some of these companies also provided regular inspection services to help minimise the risk of losses, a service that remains strong to this day with some insurance companies.

The 20th century saw many technological advancements leading to the development and deployment of more complex machinery and the proliferation of mechanical systems in manufacturing, transportation, and power generation. This created a greater demand for broader insurance coverage solutions that could cover a wide range of risks and wide range of machinery and equipment beyond steam boilers and pressure vessels.

Machinery Breakdown Insurance has evolved significantly over the years, expanding far beyond boilers and pressure vessels. Today, it offers coverage for a diverse range of machinery and equipment across various industries, from manufacturing and power generation, to hospitals, commercial property and data centres. As industries continue to innovate and rely more heavily on complex machinery and equipment, the scope of Machinery Breakdown Insurance has adapted to meet the growing needs of businesses, providing critical protection against unforeseen mechanical and electrical failures that could otherwise disrupt the Insured's operations and incur costly damages.

APPROACHES TO COVERAGE

Machinery Breakdown Insurance can be procured and provided in a variety of ways, including:

1. As a standalone Machinery Breakdown Insurance product;
2. As an extension to a property insurance policy. Standard Market wordings such as the Lloyd's Market Association's Boiler and Machinery Extension, LMA5160 dated 15/12/10 are regularly used in the London and International Specialty Insurance Market to achieve this;
3. Through the inclusion of explicit reference to Machinery Breakdown Insurance coverage within the Insuring Agreement of a property insurance policy.

Within the property insurance policy's Insuring Agreement, it may stipulate that cover is afforded for an "Accident" to an "Object", with both terms defined accordingly. As an alternative, the Insuring Agreement may include reference to terms such as "Equipment" and "Breakdown";

4. The inclusion of a write-back to a Machinery Breakdown exclusion contained in a property insurance policy. This approach will often use language similar to that outlined above in item 3.;
5. By placing reliance on a property insurance policy's terms and conditions when coverage is procured on an 'All Risks' basis, albeit without explicit reference to Machinery Breakdown.

This approach may afford some element of Machinery Breakdown Insurance coverage, where not otherwise excluded by the 'All Risks' property insurance policy, however, this approach lacks certainty and does not include a clear affirmation of coverage for Machinery Breakdown, leaving potential gaps in coverage. In addition, it is customary for 'All Risks' property insurance policies to include exclusions in respect of physical loss or physical damage caused by or arising from defective parts, materials, workmanship, or design, which may also negate cover afforded for Machinery Breakdown.

Coverage for Machinery Breakdown may be available up to the full policy Limit of Liability, the scheduled value of the machinery or equipment or a monetary Sub-Limit of Liability.

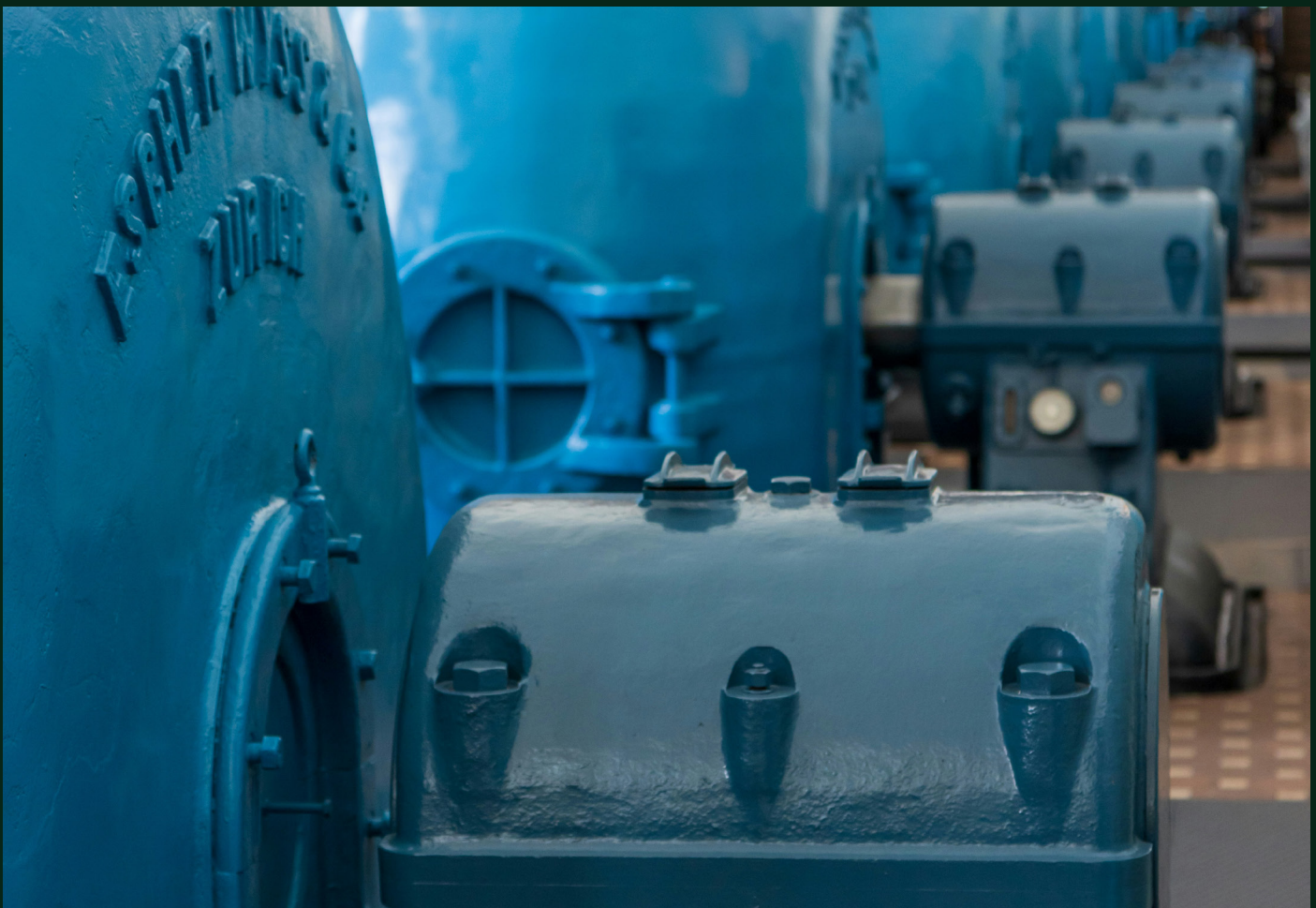
The subsequent interruption or interference to the Insured's business arising from Machinery Breakdown is also an important item of consideration, and coverage can also be procured in the Specialty Insurance Market for resultant Business Interruption and/or Extra Expenses.

SCOPE OF COVERAGE – BOILER AND MACHINERY EXTENSION – LMA5160

Where Machinery Breakdown Insurance coverage is included as an extension to a property insurance policy, a common practice used in the Specialty Insurance Market is to define the insured machinery and equipment as an “Object”. The term “Accident” is then used to clearly establish the scope and extent of coverage provided. This approach is utilised in the Lloyd’s Market Association’s Boiler and Machinery Extension, LMA5160 dated 15/12/10.

As a default, the LMA5160 includes a provision to insert a Sub-Limit of Liability, which is to be agreed, and applies on an any one occurrence basis.

The LMA5160 also contains a series of standalone exclusions, which seek to clarify and further outline the scope of the Machinery Breakdown Insurance coverage, excluding certain risks and exposures such as losses arising from explosions of gas or unconsumed fuel within the furnace or connected flue passages (which may be covered under a standard property policy), losses to machinery or equipment that occurs before it is fully installed, tested, and accepted by the Insured, and losses that are the result of deliberate, controlled procedures where the breakdown of machinery or equipment is foreseeable and not accidental.



DEFINITION OF AN “OBJECT”

The LMA5160 defines an “Object” as:

“... any equipment or apparatus described below, subject to the exclusions specified in this Extension, while located on the premises of the Insured”.

The definition of “Object” then outlines the covered equipment or apparatus, which includes:

“Any boiler (including any waste heat recovery steam generator), fired pressure vessel, unfired vessel normally subject to vacuum or internal pressure other than static pressure of contents, refrigerating or air conditioning system, or piping and its accessory equipment ...” and “Any mechanical or electrical machine or apparatus used for the generation, transmission, or utilization of mechanical or electrical power ...”.

A series of qualifications are also included within the definition of “Object” to outline what is not included within the scope of the definition, such as:

- *“any refractory or insulating material, or boiler setting”;*
- *“any structure or foundation other than the bedplate of a machine”;*
- *“any data processing, calculating or computer equipment, or any electronic machine, device or instrument, but not excluding any such equipment used for product quality control, process control, or operational control of production machinery”; and*
- *“any x-ray machine, electron microscope, laser, particle accelerator, beta gauge, spectrograph, or any equipment or apparatus utilizing radioactive materials”.*



DEFINITION OF AN “ACCIDENT”

The LMA5160 defines an “Accident” as:

“... a sudden and accidental breakdown, including if arising from exothermic reaction, of the Object or part thereof, which manifests itself while said Object is operating by physical damage to the Object and which necessitates repair or replacement of the Object or part thereof ...”

Much like the definition of “Object”, there then follows a series of qualifications outlining what does not constitute an “Accident”, which are listed below:

- a. depletion, deterioration, corrosion, or erosion of material;*
- b. wear and tear;*
- c. leakage at any valve, fitting, shaft seal, gland packing, joint or connection;*
- d. the breakdown of any vacuum tube, gas tube or brush;*
- e. the breakdown of any electronic computer or electronic data processing equipment;*
- f. the breakdown of any structure or foundation supporting the Object or any part thereof; nor*
- g. the functioning of any safety device or protective device.*

The foregoing exclusions seek to ensure that coverage is limited to sudden and accidental mechanical and electrical breakdowns and to exclude those losses that are considered to be foreseeable, gradual, or may constitute routine maintenance issues.

IS THE LMA5160 FUTUREPROOF?

The definition of “Object” used in the LMA5160 reflects a traditional and well-structured approach and makes provision for the machinery and equipment utilised at the time of issuance in 2010. However, for 2025 and beyond, it may be construed as too narrow to fully cater for modern and emerging machinery and equipment.

The strengths of the “Object” definition used in the LMA5160 are that it clearly defines mechanical and electrical machinery, core equipment, and includes exceptions for specific items, which help Insurers manage risks and the scope of cover provided.

For 2025 and beyond, the LMA5160’s definition of “Object” may be sufficient for traditional industrial occupancies but may risk excluding modern machinery and equipment that blend and incorporate mechanical, electrical and digital functions, unless revision is made to the definition.

The LMA5160’s definition of “Accident” provides a solid baseline for traditional mechanical and electrical failures but may not fully align with the realities of smart, integrated, and software-driven machinery and equipment utilised in 2025 and beyond. The exclusion of *“the breakdown of any electronic computer or electronic data processing equipment”* may inadvertently exclude core components of modern machinery and equipment, unless clearly distinguished from standalone IT hardware.



BASIS OF VALUATION AND SETTLEMENT FOR MACHINERY BREAKDOWN CLAIMS

When a claim for machinery breakdown is made by the Insured, the settlement of the loss will be determined in accordance with the terms and conditions outlined in the insurance policy documentation.

One common method of settlement is the repair or replacement basis. Under this approach, if the damaged machinery or equipment can be repaired, the policy typically covers the reasonable cost of repairs. If repair is not possible, the policy covers the cost of replacement with machinery and equipment of like kind, capacity, size, quality, and function. This may be replacement using equivalent machinery or equipment that is not necessarily new. Variations to the replacement basis may also be found in policy documentation where coverage is provided on a 'new for old' basis. This enhanced option allows for the replacement of machinery or equipment, which may exceed the pre-loss value, and may also provide enhanced benefits in capacity, size, quality, and function.

Alternatively, some policies use an Actual Cash Value (ACV) settlement basis. Under this method, the Insurer indemnifies the Insured based on the replacement cost of the machinery or equipment with a deduction for age, usage, wear and tear, and obsolescence. Under the ACV basis, the Insured receives compensation equivalent to the fair market value of the machinery or equipment immediately prior to the loss. The ACV settlement approach ensures the Insured is restored to their position immediately prior to the loss, but without providing any upgrade or betterment.

ACV settlements acknowledge that machinery and equipment have a defined service life and depreciate over time. As a result, the payout reflects the remaining value of the machinery or equipment, rather than the cost of a brand-new replacement.

Settlement restrictions are common for Machinery Breakdown Insurance. In addition to the application of serial defects exclusions, obsolescence clauses and manufacturers' warranty clauses, if the replacement machinery or equipment would constitute an upgrade or improvement, there may be a stipulation that the Insurer only pays what it would have cost to replace with equivalent machinery or equipment in order to avoid betterment. However, with an increasing emphasis on energy efficiency and environmental sustainability, some policies now include provisions that include an allowance for repairs or replacements which enhance energy efficiency, reduce emissions and support climate resilience, aligning with the Insured's environmental and sustainability objectives and contributing to the broader energy transition.

CONCLUSION

Machinery Breakdown Insurance is a crucial coverage for many Insureds across a wide range of industries, protecting businesses from the associated financial and operational consequences of sudden and accidental physical loss or physical damage caused by mechanical and electrical failures. Its evolution from boiler specific coverage to comprehensive protection for a wide array of machinery and equipment highlights its long-standing relevance.

Market standard extensions such as the LMA5160 offer a clear and structured approach to defining covered machinery and equipment and applicable coverage triggers, but their static definitions may fall short in the face of emerging technologies and increasingly digitised machinery.

As technology continues to advance and businesses increasingly depend on smarter, more integrated machinery, there is a pressing need for policy wording language to evolve accordingly, ensuring that coverage keeps pace with the complexity, functionality, and sustainability priorities of modern machinery and equipment.

To futureproof Machinery Breakdown Insurance, it is essential that Insurers and Insurance Brokers consider the definitions, valuation methods, and environmental allowances to reflect the evolving risk landscape and ensure the product remains fit for purpose and relevant.



CoverageClubb

james@coverageclubb.com

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