

[Company Profile]

Head Office	1-310 Kitahonmachi, Itami, Hyogo Prefecture 664-0836, Japan
URL	https://www.koatsu.co.jp/english/
No. of employees	234 (as of September 2017)
Capital	60 million yen
Founding	1951 (started business in 1933)
Representatives	Nobuo Yamada, Vice Chairman Isamu Wakita, President

[Business Overview]

Research, development, manufacture, sales, and installation of gaseous fire suppression systems

[Technology]

Gaseous Fire Suppression Systems Ensure Safety and Security of People and Society

Koatsu Co., Ltd. is a leading manufacturer of gaseous fire suppression systems, actively engaged in all phases related to gaseous fire suppression systems, from research and development to maintenance after installation.



NN100 Nitrogen Fire Suppression System
(gaseous fire suppression system)



Lower-noise discharge nozzle

- NN100 Nitrogen Fire Suppression System (gaseous fire suppression system)

This is a special fire suppression system that uses gaseous nitrogen instead of water as a fire suppression agent. This system is suited for applying to electrical equipment (servers in data centers, power generation equipment, etc.), which would be damaged or lead to secondary disaster when dampened with water; and valuable paintings and books in museums and libraries. The system extinguishes fire mainly by reducing the oxygen concentration. Nitrogen gas is discharged to a target fire zone, lowering the oxygen concentration from the normal 21% to 12.5%, in other words, a level having almost no adverse effects on human health. The cylinder containing nitrogen gas in this system is approximately 1.8 meters tall, and weighs more than 100 kg. Thus, the cylinders are not portable for suppressing fires. They are designed to be fixed in a special frame and connected to piping through which the fire suppression agent in the cylinders flows to the target fire zone. The pressure in the cylinder charged with a large volume of nitrogen gas greatly increases (approximately 30 MPa at 35°C). Cylinder valves need to operate in a reliable manner while enduring the high pressure. Equipped with valves meeting these harsh quality and performance requirements, our product enjoys high reputation.

■ Lower-noise discharge nozzle

In 2016, during a fire drill held at a European bank's data center, loud discharge noise from fire suppression gas shut down the servers and stopped ATM operations, resulting in significant impacts. This accident was reported worldwide. In addition, a research paper presented at a conference held by the Architectural Institute of Japan in September 2010 suggests the possibility that impacts exerted by discharge noise of fire suppression gas on servers and other hard disks could cause communication failures. As a measure to counter this problem, because we considered the device most effective, we promptly developed a lower-noise discharge nozzle that can control the gas discharge noise. The new discharge nozzle has an excellent muffling function to reduce the sound pressure level of the gas discharge noise to less than 110 dB, the lowest level that can, according to the above-mentioned research paper, affect hard disks. We have developed and provide lower-noise discharge nozzles compatible not only with our breadwinning product, the NN100 system, but also with the Halon 1301 and HFC-227ea fire suppression systems.

[History of development]

After using sprinklers and other water-based fire suppression systems, it takes a long time to restore the fire site due to water damage. Gaseous fire suppression systems, on the other hand, enable earlier restoration by removing flue gas from the site. Given this fact, Koatsu has developed the NN100 system, Japan's first nitrogen gas fire suppression system.

Meanwhile, gaseous fire suppression systems generate loud noise upon discharging fire suppression gas. The gas discharge noise adversely affects servers and other hard disks, which may cause communication failures. Therefore, in addition to the mission of protecting hardware from fire, we also desired to protect data in the hardware and avoid communication failures as much as possible. As a result of having addressed this challenge, we succeeded in developing lower-noise discharge nozzles.

[Originality]

What most determines the performance of gaseous fire suppression systems is the cylinder valve. The NN100

system uses a valve that reduces the in-cylinder gas pressure, which can be as high as 30 MPa, to 6.5 MPa or lower at the valve outlet. This valve feature enables the use of commercially available piping from where the cylinder is located to the target fire zone. In addition, the valve can be instantaneously released to stably supply a large volume of fire suppression gas in a prescribed time at high pressure.

A lower-noise discharge nozzle has a diffuser that also serves as a silencer. The unique shape and structure of the diffuser resolve the conventional issues such as the significant reduction in the discharge range due to interference from a diffuser in the gas discharge, and the occurrence of variations in discharged gas concentration. As a result, the performance of a lower-noise discharge nozzle bears comparison with that of conventional discharge nozzles. Furthermore, thanks to its high-performance diffuser, the lower-noise discharge nozzle is extremely compact compared to products made overseas.

[Future development]

Koatsu continues to provide optimum gaseous fire suppression systems while continually making advances in the carbon dioxide and Halon 1301 fire suppression systems as well as the NN100 system. We will keep evolving as a high-growth company by continuously enhancing the competitiveness of our products and by vigorously entering new markets. In this way, we intend to further contribute in helping society provide more safety and security.

Meanwhile, with regard to adverse effects exerted by gas discharge noise on hard disks, we have proposed introducing or replacing existing systems with lower-noise discharge nozzles by providing information from an early stage. In spite of these efforts, however, greater penetration of lower-noise discharge nozzles has not yet been achieved. Therefore, we will put more energy into providing information and making replacement proposals to further help customers mitigate risks.

[Corporate History]

- 2017 Certified as a Hyogo “Only-one” Company / The discharge indicator for gaseous fire extinguishing system “LuxCi” won the Good Design Award.
- 2013 obtained additional UL standards certification in the U.S. for the two-minute discharge system and lower-noise discharge nozzles of the NN100 system.
- 2009 Started using green electricity
- 2008 Constructed a fire suppression laboratory/training center at the Shiga Research Institute
- 2000 Obtained ISO 9001 certification (Itami Plant, Technical Department, etc.)
- 1991 Changed the company name to Koatsu Co., Ltd.
- 1971 Developed and started selling the Halon 1301 fire suppression system
- 1955 Started selling gas supply apparatus for thermal power generators
- 1951 Established the gaseous fire suppression system manufacturing company “Koatsu Gasu Kogyo Kabushiki-Gaisha”