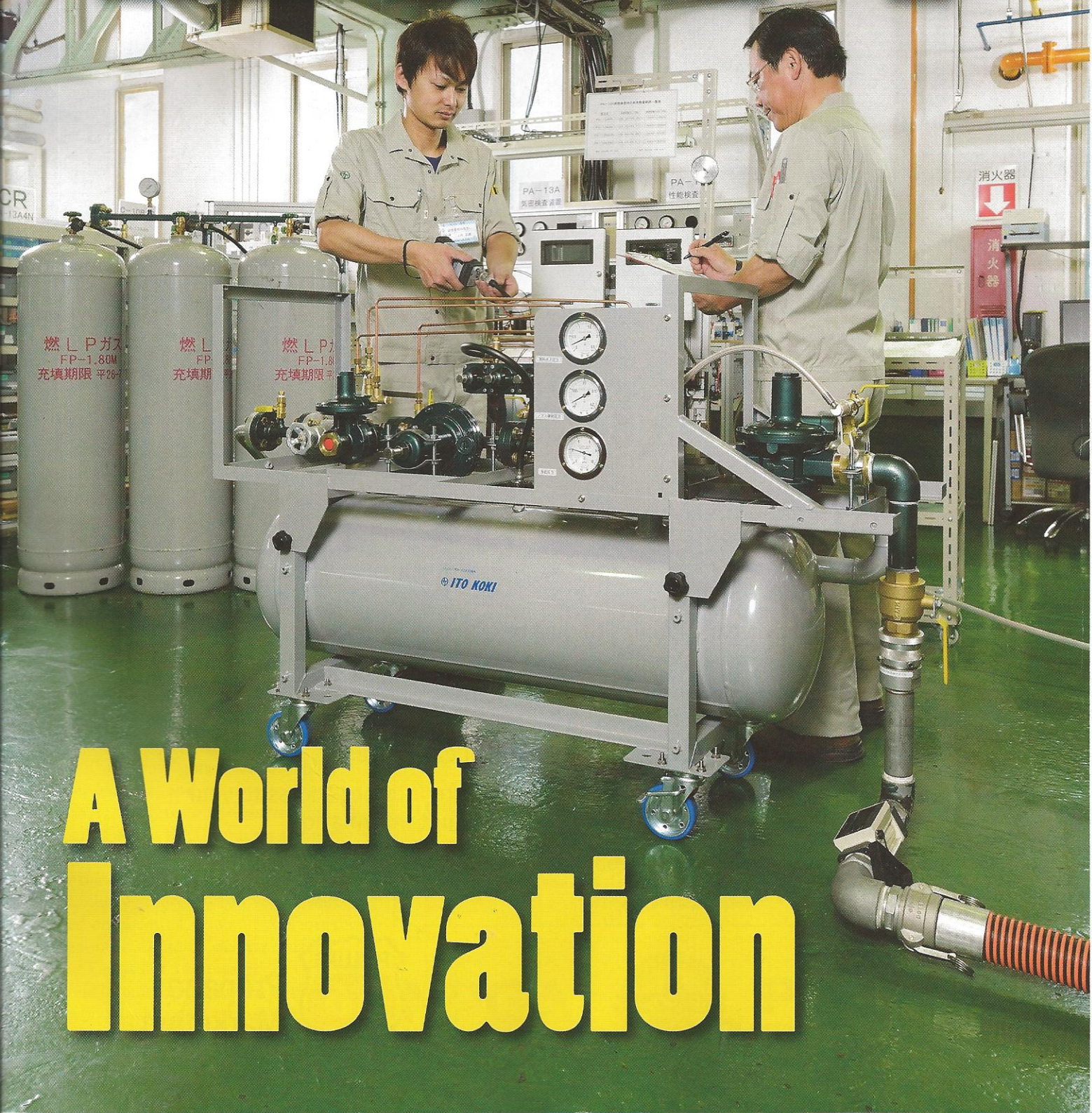


BPN



A World of
Innovation



Innovative Propane Products Provide Stability in Emergencies

An earthquake-proof automatic gas shut-off device from Ito Koki (Osaka, Japan) shuts off the gas supply when an earthquake occurs. The device is meant mainly for domestic housing complexes ranging from a few dozen to around 500 houses.

“But it’s a little more technical than that because for one thing, it doesn’t use any electricity whatsoever,” said Neil Ormrod, director of ITO Europe Limited (Buckinghamshire, U.K.), in an interview with *BPN*. ITO Europe is a subsidiary of Ito Koki. “It just uses the pressure of the gas supply that’s coming in.”

The shut-off device is one of two products from Ito Koki that the World LP Gas Association (WLPGA) has honored with its 2012 WLPGA Innovation Award. The other winning Ito Koki product is a propane-air mixer that supplies gas for temporary consumption after disasters such as earthquakes to city natural gas equipment in facilities such as hospitals, by generating gas based on locally sourced propane. WLPGA’s Global Technology Conference (GTC) steering committee selected Ito Koki as the winner from presentations that took place in 2011 at GTC in Doha, Qatar at the WLPGA World LP Gas Forum.

Ito Koki of Japan, which was founded in 1953, manufactures regulators for various gases. The company has devel-

oped and sold the two WLPGA-awarded propane products for several years. Japanese companies accelerated use of the products after the massive earthquake and tsunami that hit Japan last year. Ito Koki notes that about 7700 sites currently use the earthquake-detecting equipment.

Events such as massive earthquakes can cause gas pipes and tanks to break, and the leaking gas can cause fires and explosions. The earthquake-detecting sensor and the earthquake-proof gas shut-off valve are installed with the LP-gas cylinders to prevent this from happening.

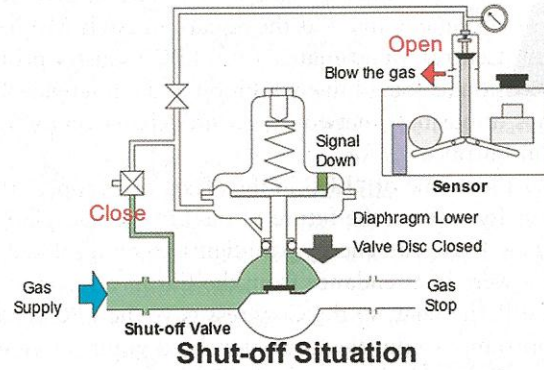
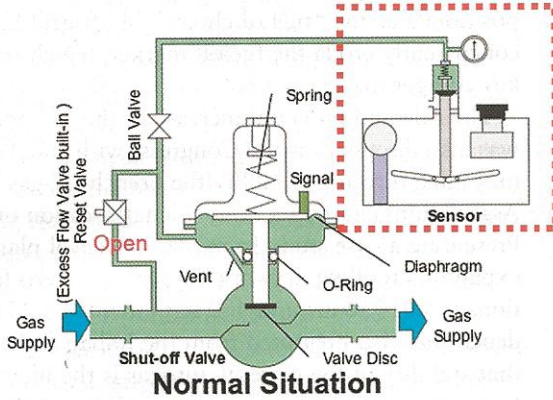
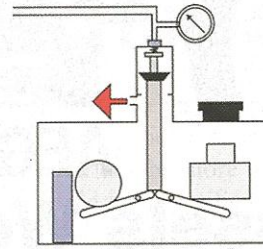
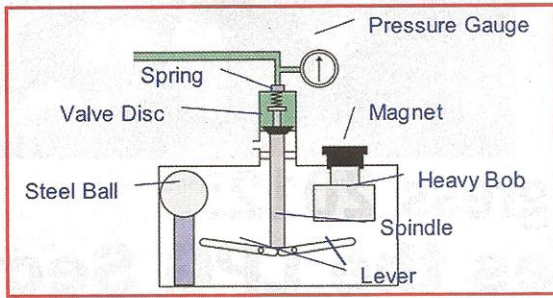
The product first detects when an earthquake is actually taking place. Then the device sends a signal that shuts off the gas supply. The seismic sensor consists of a steel ball and a heavy bob held up by a powerful magnet.

When an earthquake occurs, the gas supply is shut off when the steel ball and the heavy bob fall. As a result, a spindle pushes up to open the valve disc of the blow valve and release the filler gas, explained Ormrod, who has been in the gas industry for about 20 years. He worked for the U.K. subsidiary of Clesse, a gas regulator company, and he also worked for TPA, a gas regulator manufacturer also in the United Kingdom.

The second Ito Koki product that WLPGA awarded deals with the aftermath of earthquakes or other disasters.



MECHANICS OF THE EARTHQUAKE-PROOF SHUTOFF SYSTEM



The product, a transportable propane-air mixer, assists locations in quick recovery of services. Ormrod said the device mixes propane with air, creating a synthetic product with the same burning values and physical property values as natural gas.

“That means you can now get the lifelines back in,” he explained. “You can start cooking meals with people, and you can start allowing hospitals to have hot water. There are so many things you rely on gas for. This has been a lifeline for so many people in Japan.”

Ormrod is currently promoting the propane-air mixer in Europe. But because earthquakes are not common there, the Europeans are interested in the product for a different reason: Europe’s gas supply comes from Russia, and some Europeans would like to gain some energy independence from that country and have a back-up plan in case the supply line is ever cut. Ormrod has also spoken to a company in Israel that might begin putting both of the products to use there.

The WLPGA Innovation Award is for the entire Ito Koki company, which operates factories in Japan, Korea, and China, with subsidiaries in Vietnam and Europe. Ormrod was chosen to present the paper to the WLPGA because of his fluency in English.

“Ito Koki has been developing both of these systems for quite a long period of time until they’ve gotten to the stage where they are now. The product is well-accepted throughout Japan and many other areas,” Ormrod stated, adding that the propane-air mixer won a technology award from the Japan Gas Association.

“It was decided about a year ago to put it forward for the general technical committee of the World LP Gas Association,” he said. “The paper was written as a team effort.”

—Daryl Lubinsky

Ito Koki (Osaka, Japan) received the 2012 World LP Gas Association Innovation Award for its development of earthquake-proof automatic gas shut-off devices (shown on previous page) and portable propane-air mixers (right) that can be used to create a stand-by fuel for natural gas.



Innovation Award Runner-Up Goes to PERC

A paper titled “Development and Performance Comparison of Propane Flaming Equipment for Weed Control” is the runner up for the WLPGA Innovation Award. Greg Kerr of the Propane Education & Research Council (PERC) presented the paper at last year’s World LP Gas Forum in Doha, Qatar.

The paper mentions that although propane flaming is an old weed-control method, until recently the limited interest slowed equipment technology. An interdisciplinary approach, meshing weed science with engineering, produced significant advances in propane weed flaming equipment. Since 2007, engineers and weed scientists at the University of Nebraska have collaborated to improve energy efficiency, safety and ease of use of propane flaming equipment. Using computational fluid dynamics simulations and temperature measurements, energy efficient hood technology was developed.

Initial work yielded a 50% reduction in the required fuel when compared with existing open torch equipment.