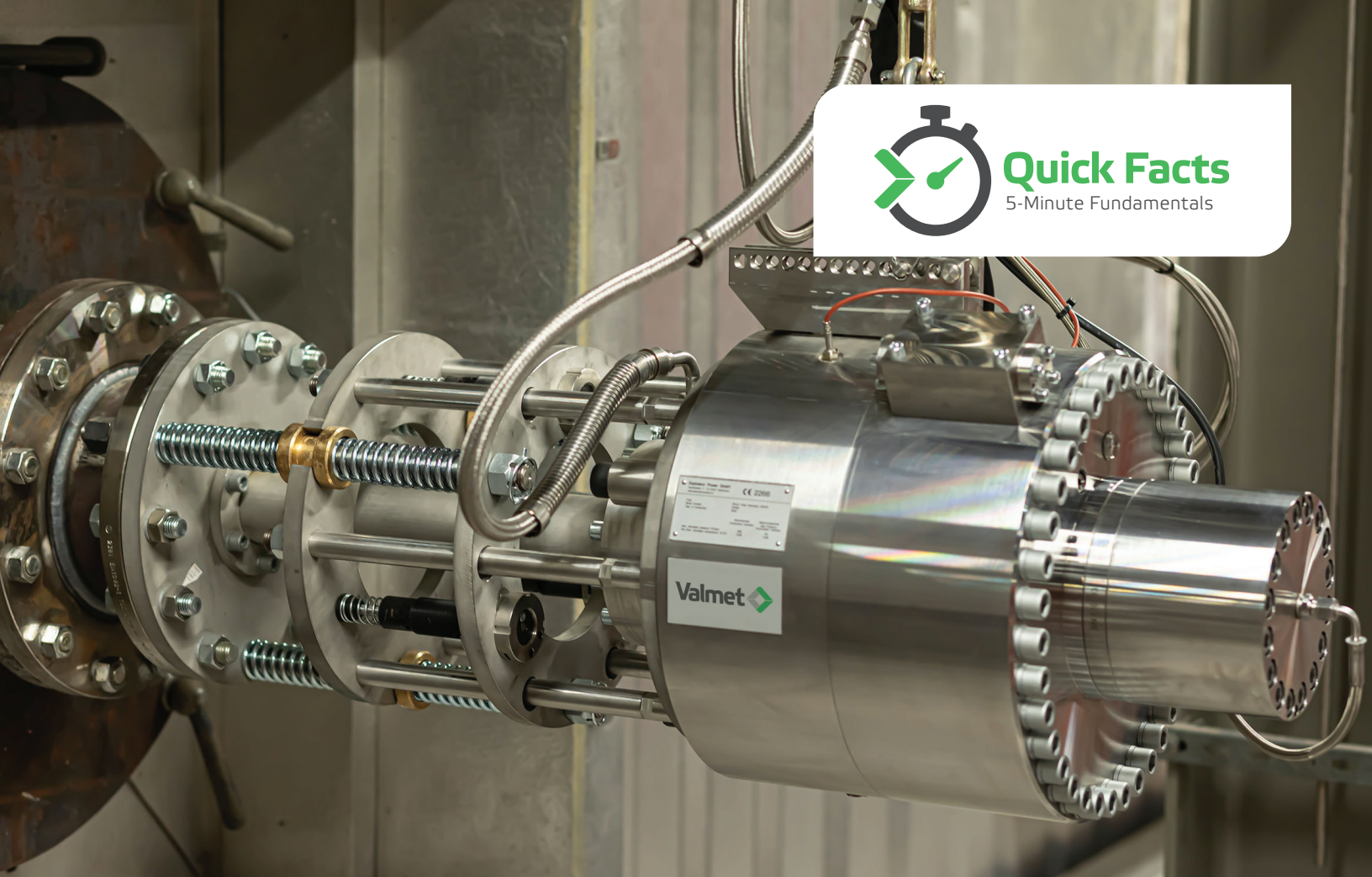




Quick Facts
5-Minute Fundamentals



Shock pulse generator

Introduced in 2009, the Shock Pulse Generator (SPG) is an innovative on-line boiler-cleaning device that generates automatic shock pulses. These pulses are created through controlled combustion of a mixture of burnable gas (Natural Gas or Methane) and air. Unlike manual processes, the combustion occurs automatically and outside the boiler, in a pressure-resistant device. A resulting supersonic shock wave is introduced into the boiler causing rapid oscillations to effectively clean off deposits like slag and fly ash.

Valmet 
FORWARD

What is the SPG?



1

Groundwork for the SPG was laid in 1903 with the invention of sootblower. 2nd generation sootblowers included smart capabilities, updated nozzle designs, and more. In 2009 the Shock Pulse Generator is introduced by Explosion Power GmbH.

2

The SPG is compact, robust, and modular for easy installation. The online boiler cleaning system utilizes automated shock pulses to clean slag, ash, and buildup.

3

Predominantly used in energy from waste plants, heat recovery boilers, biomass boilers, hazardous waste incineration plants, and coalfired power plants, the unit has expansion potential into black liquor boilers, cement kilns, and beyond.



Cleaning with shockwaves?

The SPG is top supported from a rail that expands with the boiler by use of a constant hanger that slides for easy maintenance. A nozzle attachment connects the unit to the boiler where there will be either through a pressure part, casing, or door opening. Once ignition commences, the SPG nozzle will slide into the boiler to deliver the shock pulse inside the unit.

The SPG creates a shock pulse from ignition outside the boiler or unit. The widespread pulse effectively cleans internals and minimizes the risk for damage that would occur with a directed pulse. The result is a reduction in downtime due to plugging while also improving heat transfer within the unit.



Want to learn more about non-corrosive online boiler cleaning technology?

Scan the QR code for more information.

The Ignition Process

- 1 The gas pressure accumulator is empty and the gas spring is filled with nitrogen.
- 2 The SPG is filled with an ignitable gas mixture of natural gas or methane and air or oxygen.
- 3 The gas mixture is ignited by the glow plug.
- 4 Due to the isochoric reaction, combustion chamber pressure increases to maximum pressure while the pressure chamber also rises with a slight delay.
- 5 Pressure conditions in the two chambers leads to a quick opening of the piston, causing a shock pulse. The flue gas escapes suddenly while piston deceleration occurs due to the pressure increase in the gas spring.
- 6 The piston is moved forward by pressure in the gas spring and closes the SPG against the boiler. After a successful end check, the SPG is ready for the next cycle.



Rely on a legacy of trust

Valmet has long history of process knowledge, system design and equipment manufacturing for pulp washing. There are many washing devices with varying designs installed around the world that were manufactured directly by Valmet, or the legacy OEM companies purchased by Valmet, since the early 1950s. Valmet has the OEM resources and expertise for legacy pulp washing brands such as Beloit, IMPCO, GL&V, Rauma, and others.

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