



# DELTA WELL & PUMP Co., Inc.

## WATER AND ENVIRONMENTAL DRILLING

### Gas Impulse and Percussive Methods

High-pressure gas impulse and the resultant percussive wave generation are methods used to generate rapid and high-energy pulses downhole. These methods use high-pressure injection of gas to generate acoustic waves and high-energy pressure pulses.

A small volume of highly compressed air or inert gas is stored within the tool, and when released, generates beneficial well development and cleaning energies through created vibrations and high velocity movement of the water within the borehole.

The tool can be placed into selected zones and fired, creating vibrations and surging action when the energy is released. Initially, it generates a shock wave, which creates high velocity movement of the water surrounding the tool. The impact of the energy release facilitates the breakdown of hard mineral scale that collects on the well screen, filter pack, and in the near-well geological formation.

The released energy can penetrate several feet beyond the well screen, therefore making it an efficient and effective process. The number and pressure range created per minute varies with the specific tool. Some tools can be adjusted from the surface without removing the device from the well, allowing energy discharges to be varied to suit specific well characteristics.

Use of non-reactive gasses is advised to limit impactions on the well and aquifer. The use of nitrogen limits the introduction of oxygen that can impact metal oxidation within the well in addition to the potential stimulation and growth of aerobic bacteria.

### References

Sterrett, R.J. 2007. *Groundwater & Wells*, Third Edition. Johnson Screens: New Brighton, Minnesota. [www](http://www.johnsonscreens.com)

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