

Strong knocking noise at a reciprocating compressor

Measurement and analysis

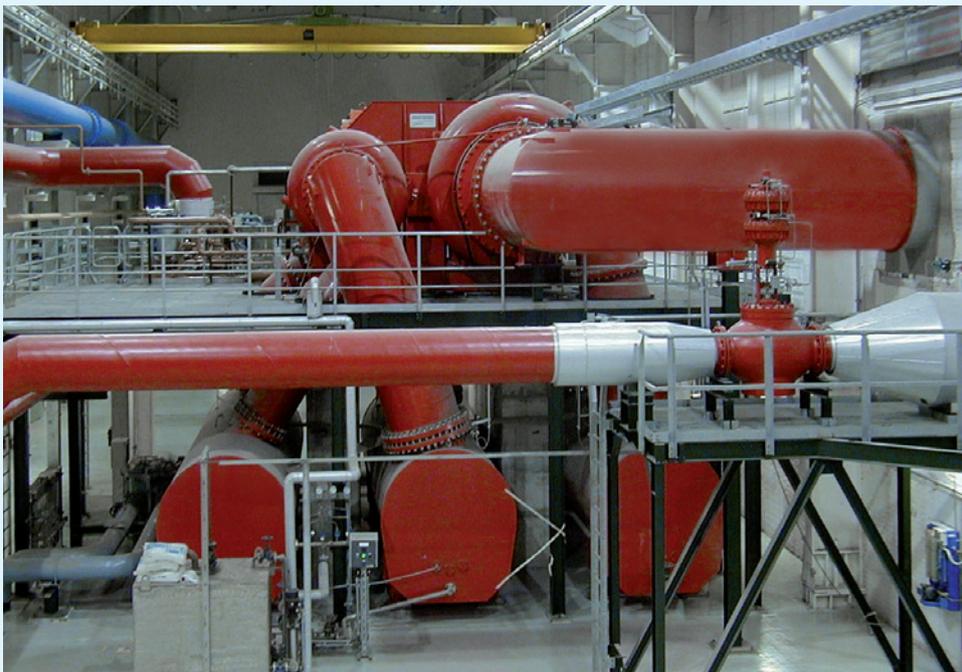
At a 4-crank, 1-stage, reciprocating compressor for natural gas with a stepless valve unloader (HYDROCOM) a strong knocking noise occurred near the cylinder 3. The cause was unclear. To analyse the situation, the accelerations in the area of the suction valves and the crank and cover indication pressure of the cylinders 3 and 4 operating in phase were registered simultaneously with a trigger. The signals (excerpt) are illustrated in the picture (for enlargement of the view please click on the figure).

The signals show that it comes to a sudden acceleration signal (green curve) when the crank suction valve of cylinder 3 closes. Cylinder 4 does not show this behavior. Therefore, the strong knocking noise is caused by the suction side valve of the crank shaft of cylinder 3.

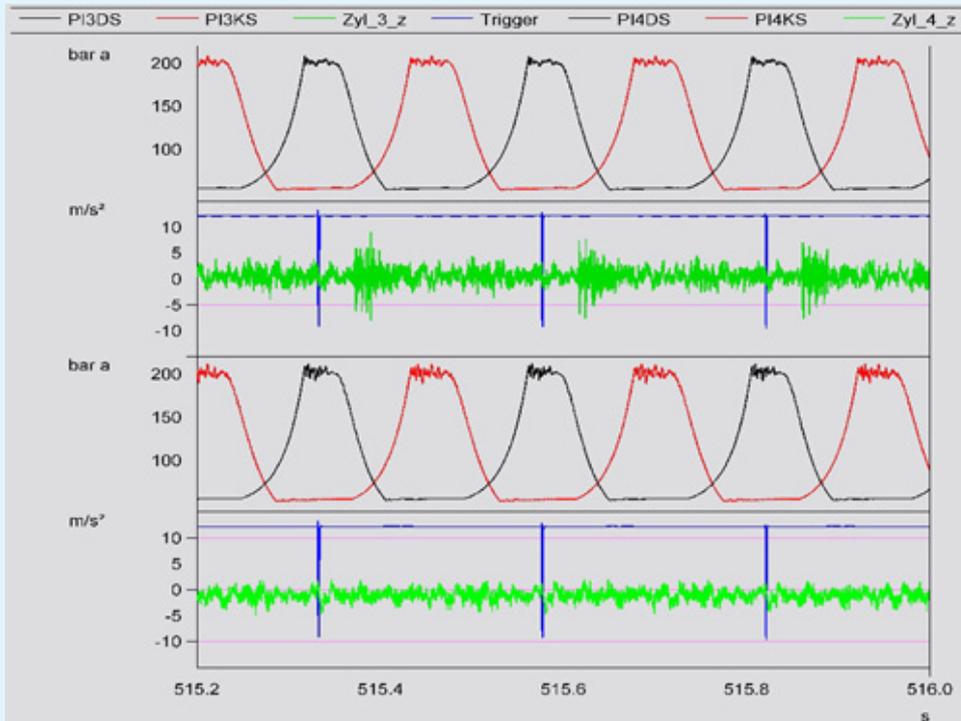
The knocking could be eliminated by an analysis and adjustment of the valve and the HYDROCOM. In this way, a loss of the output and a possible damage at the compressor was avoided.



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Measurement signals of defect and intact cylinder



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