

# CV-D CONTROL VALVE DIAGNOSTICS

Control valves that seem to be working properly, but still experiencing process-related problems? Faults in control valves, but no apparent cause? Would you like to know more about the condition of your control valves? Stork's innovative CV-D (control valve diagnostics) solution offers this and more.

## Your challenge

Control valves are an essential component of your process and impact process efficiency, safety and product quality. However, despite their importance, being able to guarantee that they will work properly is a continuous headache.

The correct functioning of a control valve depends on a large number of variables. Because of the level of complexity and the growing lack of specific knowledge, analysing proper performance is becoming more difficult.

## Our solution

Stork's CV-D solution is a new technique that can be used to analyse control valves of every type and brand, in-shop or in-line. The high level of detail and extensive software features make it ideal for control valves that are critical to safety, process or product.

CV-D provides three different test scenarios, which can be used for a wide range of purposes.

## Fault analysis

When a control valve fails, fault analysis enables you to identify the problem quickly without disassembly. After doing so you can carry out the required maintenance properly. Establishing the cause of the problem in-line means you no longer have to disassemble or send your control valves to a workshop for overhaul.

## Full inspection

Is an existing or new control valve critical to personnel safety, process or product? Have a full inspection carried out to guarantee top-level performance after putting control valves into operation.

## Preventive maintenance

Focus the allocation of your maintenance budget. A CV-D inspection analyses the condition of your control valves in-line and provides insight into potential problems before they occur. The analysis enables you to allocate your maintenance budget where and when it is needed.

## How we add value

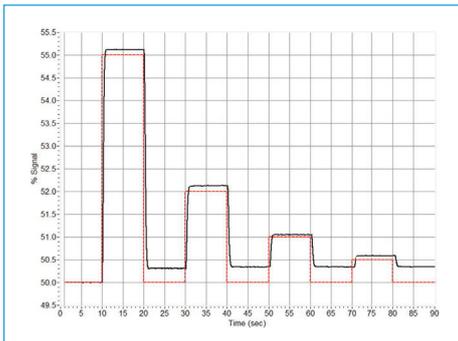
- Our in-line testing capabilities save you time and money
- Obtain detailed insight about your control valves and focus your maintenance budget where it is needed
- Digital reports accessible 24/7
- Brand and type independent



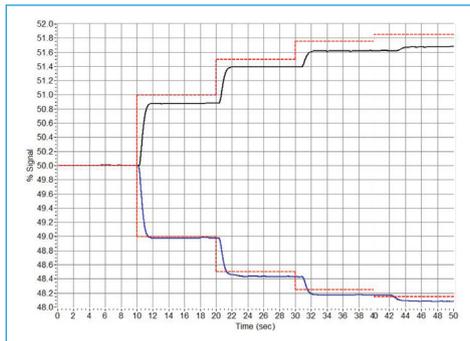
# CV-D: CONTROL VALVE DIAGNOSTICS

## How does it work?

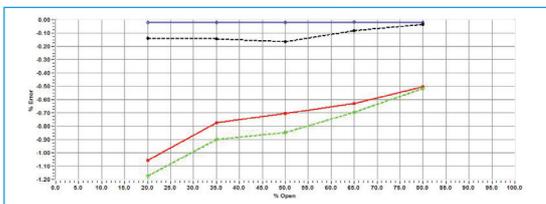
CV-D is a mobile solution that can be applied in-shop as well as in-line. A Stork measuring technician connects high-precision pressure and travel sensors and operates the valve functions via a laptop. A wide range of tests can subsequently be carried out in order to analyse and find any conceivable problem. Simply by opening and closing a valve, CV-D can provide a full analysis of all the metrics; including the actual valve, the valve positioner and, for example, a booster unit and any other peripherals that may be connected.



Resolution test



Sensitivity test



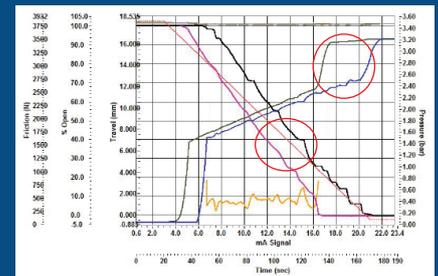
Hysteresis test

## Reports

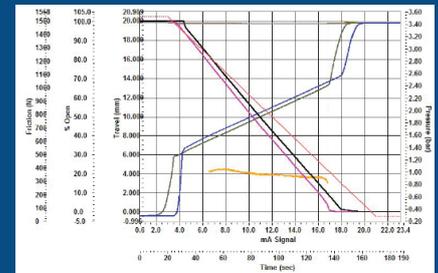
The digitally reported test results are immediately visible. Besides the customary IRIS report, a CV-D report with recommendations is produced for each control valve after the inspection. As the test results are clearly displayed and explained by our technician, you obtain direct insight into the condition of your control valves. The reports enable you to focus your maintenance budgets where it is needed.

## FAULT ANALYSIS EXAMPLE

A Stork technician is called on-site to disassemble a control valve and to take it back to the workshop for overhaul. The customer knew from past experience that there was a problem with the gland packing. On arrival the technician offered to carry out a CV-D analysis before disassembling the valve. This resulted in the graph below.



At first glance, the erratic opening and closing of the valve (black and pink lines) does indeed appear to be due to friction (the yellow line) caused by, for example, the gland packing. However, the lines circled in the top right corner, which represent the drive pressure, indicate a leak in the positioner. After repairing the positioner in-line, the analysis was repeated. The results given in the graph below show conclusively that the control valve is functioning properly again.



Instead of disassembling and transporting the control valve to a workshop for overhaul, a relatively simple measurement and carrying out minor maintenance on the positioner were sufficient, which saved time and money.

## Possible tests:

- Resolution
- Stroke speed
- Hysteresis
- Dead band
- Profile
- Step Response
- Sensitivity

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