

# System Health Checks – a novel software tool to prevent unplanned HPLC system downtime

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## Ensure readiness of your Thermo Scientific Vanquish Core HPLC system

Verifying the suitability of an HPLC instrument for an analysis is a critical task before commencing analysis. To check this, a system suitability test (SST) is typically run as the first stage of a sample sequence. Numerous factors, such as an aging chromatographic column, malfunctioning and wear of the HPLC instrument, or user error, may result in a failing SST.

For UHPLC and HPLC instrumentation, wear on moving parts of the pump or autosampler mechanics, such as check valves, seals, pistons, needle, or needle seat, can lead to leakages that can cause retention times shift, peak area variation, loss of chromatographic resolution and other unwanted effects to appear.

If only SSTs are used to verify the integrity of the HPLC instrument, failures might lead to time- and cost-intensive troubleshooting of the underlying issue. These costs are further increased when maintenance of the instrument by qualified personnel, documentation of the failed SST and root cause analysis are included. This can also extend batch release times as the analysis would need to be repeated.

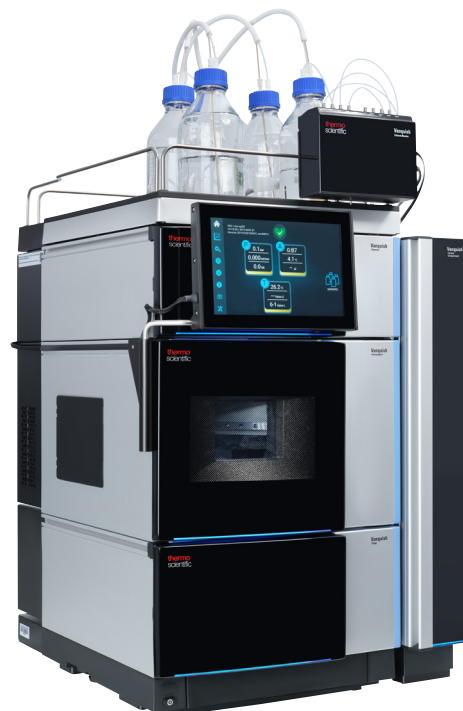


Figure 1. Vanquish Core HPLC system

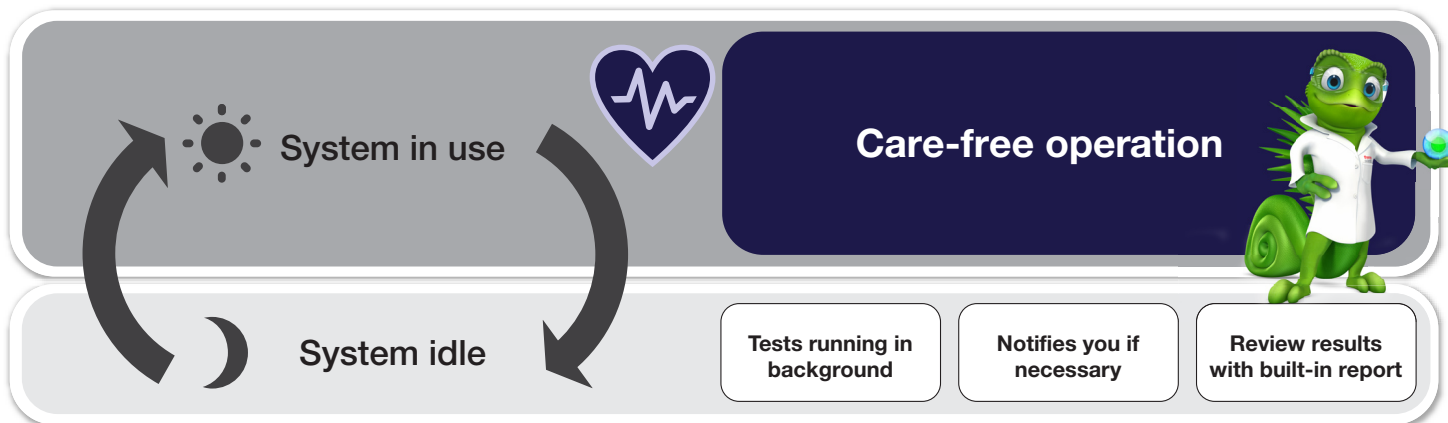


Figure 2. System Health Checks run automatically while the HPLC instrument is idle, adding an extra protective layer for worry-free operation

### Improve your productive time with System Health Checks

System Health Checks add an extra protective layer on top of SSTs. They are schedulable diagnostic tests that run automatically when the HPLC system is not in use. They regularly monitor the tightness of your Thermo Scientific™ Vanquish™ Core HPLC system – automatically and unattended – indicating when a maintenance is required.

Health Checks' pass/fail criteria are adjustable to your application requirements so that you can tackle issues before they become critical. With this prior warning, you can schedule system maintenance to minimize interruptions and the productive time of your system will be increased. The system operator is notified whenever a test result requires attention and can review a detailed report of the event and recent test results.

System Health Checks are introduced with Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS), version 7.2.10 MUa or 7.3 and can be used with Vanquish Core HPLC systems.

### Setting up System Health Checks in no time

Scheduling a System Health Check is as easy as setting an alarm on your mobile phone. Simply choose a testing frequency – daily, weekly or monthly – and pick a time interval when your instrument is likely to be idle.

Don't worry about interference with your daily work. Your analysis sequences are in the fast lane. If your instrument is in use at the time System Health Checks are scheduled to run, your analysis always comes first. System Health Checks are automatically carried out right after your queue has finished or at the next scheduled event.

**Health Check: Basic Tightness Test**

Enabled

Test Schedule

Daily Run the test every day

Weekly in the time interval between

Monthly 12:00 ▼ and 13:00 ▼

Note: All times are shown in the Instrument Controller local time zone.

If the instrument is busy during the time interval specified, run the Health Check after the end of the queue.

Figure 3. The System Health Checks' scheduling dialog supports highly flexible execution of the test

## Configurable options to fit your workflows user right to fit your workflows

You can configure System Health Checks to be purely informational or enforce instrument lock-down once a limit is exceeded. While the former provides the operator with all the information and freedom to schedule maintenance, the latter also ensures that the instrument is not accidentally used under sub-optimal conditions. A user can unlock an instrument by maintaining followed by re-running and passing the diagnostic test. You can also choose to give all or specific operators the power to approve the test result and override the lock-down.

You can tailor System Health Checks to the specific situation in your lab. Use Chromeleon CDS user management to adjust who has the privileges to work with diagnostics, setup System Health Checks, and override lock-downs.

## Hassle-free System Health Check history at all times

Managing test results is simple and taken care of by Chromeleon CDS without any user interaction. All diagnostic data is stored in the Chromeleon Audit Trail. New filter options introduced in the audit trail framework makes System Health Check history easy to access and evaluate. Furthermore, all diagnostic data is stored in a dedicated sequence specific to the instrument.

## Detailed reports – easy to understand, easy to share results

Keeping track of test results is made easy with a tailored Chromeleon Report. Review the leak rate of your Vanquish Core HPLC system or drill deeper down to module level. Providing a graphical representation of previous test data compared to the set limit, you are able to identify trends and prepare and plan for mitigation in advance.

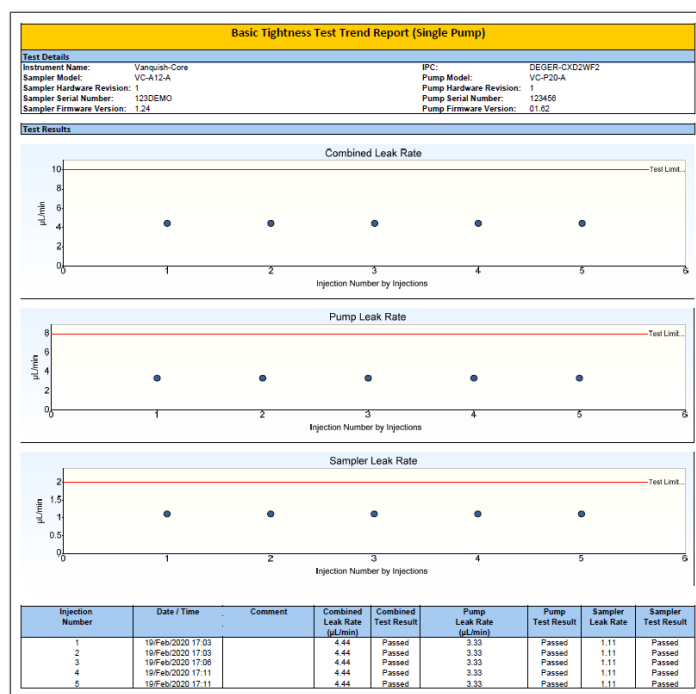


Figure 4. The System Health Check report monitors the tightness of the system, the pump, and the autosampler so that maintenance can be planned ahead

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