

ThermoFisher

SCIENTIFIC

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CHANGE SUMMARY

(Only changes within the last 18 months are listed below.)

Revision Number	Effective Date	Description of Changes
008	See Coversheet	<ul style="list-style-type: none">Added Vanquish Core parts and updated guidance for mandatory parts (e.g. pump head ring seals).
007	02 Aug 2024	<ul style="list-style-type: none">Added Cleaned and N/A checkboxes to Fluorescence Detector Component Checks section.
006	24 Oct 2023	<ul style="list-style-type: none">Added Fluorescence Detector and Refractive Index Detector.Added Integral Fraction Collector.

Customer:		Equipment Manufacturer:	Thermo Scientific	
Customer Contact Name:		Model:	Vanquish UHPLC System	
Engineer Name:		Serial #:		
SAP Notification/Job #:		System Reference ID:		
Procedure(s) utilized:	ULS-DRS-PMI-0071	Decontamination:	Yes <input type="checkbox"/> Not Required <input type="checkbox"/>	
		Date Performed:		
System Pre-PM Checks		Yes/No/NA		
Instrument Operational		Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>		
Software backup completed by customer		Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>		
Review Audit trail errors/warnings		Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>		
Initial checks completed		Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>		
Pump		N/A <input type="checkbox"/>		
Model Number:				
Serial Number:				
Pump Component Checks		Checked/Cleaned/Replaced/NA		
Parts INCLUDED in PM	Solvent Filter/filter frit(s)	Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Piston Seals (High pressure)	Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Piston Seals (Rear seals)	Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Pump head ring seals	Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Peristaltic pump/rear seal wash tubing	Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
OPTIONAL Spare Parts	Pistons	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Check valves	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Piston seal support rings (Ceramic)	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Pump head capillaries (U-tube(s))	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Mixer unit(s)	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Inline filter	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Purge valve unit(s) (VH-P10 only)	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Purge Screw (VF/VC pumps only)	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Pump heads	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
	Solvent selection valve (s)	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>		
Pump Functional Checks		OK/Not OK/NA		
Proportioning / solvent selection valve(s)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>		
Peristaltic / wash pump		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>		
Pressure sensor(s)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>		
Leak sensor		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>		

Low pressure fluidic connections		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
High pressure fluidic connections		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Pump pressure test		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Degasser operation		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Pump drive		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Cooling fan		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Electronics / power supply		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Drain tubing		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Pump Actions		Executed/NA
Self-Test run		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Inline Filter Changed		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Pistons Changed		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Seals Changed		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Check valves Service		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Service Done		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Firmware updated		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Current version		
Original version (if updated)		
Autosampler		N/A <input type="checkbox"/>
Model Number:		
Serial Number:		
Autosampler Component Checks		Checked/Cleaned/Replaced/NA
Parts INCLUDED in PM	Drain tubing (pharmed tubing)	Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
OPTIONAL Spare Parts	Injection valve	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Needle seat seal unit	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Needle assembly	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Sample loop	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Metering head	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Wash / waste port	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Connection capillary	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Injection valve / metering head	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Wash pump	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Drain pump	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Leak sensor	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
Autosampler Instrument Checks		OK/Not OK/NA
Carousel		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Needle arm drive (radial)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>

Needle drive (vertical)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Metering device		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Liquid in rear seal wash bottle (shared with pump)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Liquid in needle wash bottle		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Injection valve fluidic connections		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Metering device fluidic connections		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Cooling system (T variants)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Drain Pump		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Leak test		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Autosampler Actions		Executed/NA
Run Self-Test		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Needle Changed		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Needle Seat Changed		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Drain Pump Tube Changed		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Service Done		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Firmware updated		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Current version		
Original version (if updated)		
Fraction Collector		N/A <input type="checkbox"/>
Model Number:		
Serial Number:		
Fraction Collector Component Checks		Checked/Cleaned/Replaced/NA
Parts INCLUDED in PM	Needle Unit	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Fraction Collection Valve Stator and Rotor	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
OPTIONAL Spare Parts	Needle Capillary	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Needle Wash Tubing (inlet)	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Needle Wash Outlet Line	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Flush Solvent Tubing	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Flush pump to fraction collection valve	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Flush Buffer Loop	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Waste tubing to Y-connector	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Drain Pump Head with Tubing	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
Fraction Collector Instrument Checks		OK/Not OK/NA
Carousel		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Needle drive (horizontal)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Needle drive (vertical)		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>

Liquid in needle wash bottle	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Liquid in Flush Solvent bottle	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Flush Pump	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Drain Pump	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Leak test	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Fractionation valve fluidic connections	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Fraction Collector Actions	Executed/NA	
Run Self-Test	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Log Service Done	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Firmware updated	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Current version		
Original version (if updated)		
Column Compartment(s)	N/A <input type="checkbox"/>	
Model Number(s)		
Serial Number #1:		
Serial Number #2:		
Serial Number #3:		
Column Compartment(s) Component Checks	Checked/Cleaned/Replaced/NA	
OPTIONAL Spare Parts	Switching valve(s)	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Active preheater	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Passive preheater	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Post column cooler	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
Column Compartment(s) Instrument Checks	OK/Not OK/NA	
Column chamber	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Seal in front panel door	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Fan operation	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Pre- column heater operation	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Post column cooler operation	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Valves tested visually for leakage	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Liquid leak sensor	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Column-ID system	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Column Compartment(s) Calibrations and Adjustments	Checked/Adjusted/NA	
Liquid leak sensor calibration	Checked <input type="checkbox"/> Adjusted <input type="checkbox"/> N/A <input type="checkbox"/>	
Temperature calibration	Checked <input type="checkbox"/> Adjusted <input type="checkbox"/> N/A <input type="checkbox"/>	
Column Compartment(s) Actions	Executed/NA	
Log Service Done	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Firmware updated	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Current version		
Original version (if updated)		

Vanquish Charger		N/A <input type="checkbox"/>
Model Number		
Serial Number:		
Vanquish Charger Component Checks		Checked/Cleaned/Replaced/NA
Parts INCLUDED in PM	Door gasket	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
Vanquish Charger Instrument Checks		OK/Not OK/NA
Mover operation		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Mover alignment		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Barcode reader operation		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Thermal unit operation		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Temperature sensors		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Fan operation		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
LED status board		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Door sensor		OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>
Vanquish Charger Actions		Executed/NA
Mover lubricated		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Mover realigned		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Log Service Done		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Firmware updated		Executed <input type="checkbox"/> N/A <input type="checkbox"/>
Current version		
Original version (if updated)		
UV Detector (DAD/VWD)		N/A <input type="checkbox"/>
Detector Type		V-DAD <input type="checkbox"/> V-VWD <input type="checkbox"/>
Serial Number:		
UV Detector (DAD/VWD) Component Checks		Checked/Cleaned/Replaced/NA
OPTIONAL Spare Parts	Deuterium lamp	Checked <input type="checkbox"/> Replaced <input type="checkbox"/>
	Tungsten lamp	Checked <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>
	Flow cell	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/>
	Flow cell ID chip contacts	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> N/A <input type="checkbox"/>
	Inlet capillary	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/>
	Outlet capillary	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/>
	Drain tubing	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/>
	Leak sensor	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/>

UV Detector (DAD/VWD) Instrument Checks	Recorded Value/NA	
Age of deuterium lamp (h)		N/A <input type="checkbox"/>
Ignitions of deuterium lamp		N/A <input type="checkbox"/>
Rel. intensity of deuterium lamp (% / cts/s)		N/A <input type="checkbox"/>
Abs. intensity of deuterium lamp (cts/s)		N/A <input type="checkbox"/>
Age of tungsten lamp (h)		N/A <input type="checkbox"/>
Ignitions of tungsten lamp		N/A <input type="checkbox"/>
Rel. intensity of tungsten lamp (% / cts/s)		N/A <input type="checkbox"/>
UV Detectors (DAD/VWD) Operational Checks	Executed/NA	
Flow cell for tightness	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Wavelength calibration	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Wavelength verification	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Shutter functionality (only VH-D10)	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Variable slit width functionality (only VH-D10)	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
UV Detectors (DAD/VWD) Actions	Executed/NA	
Log Service Done	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Firmware updated	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Current version		
Original version (<i>if updated</i>)		
Fluorescence Detector Component Checks	Checked/Cleaned/Replaced/NA	
Flow cell	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>	
Xenon lamp	Checked <input type="checkbox"/> Cleaned <input type="checkbox"/> Replaced <input type="checkbox"/> N/A <input type="checkbox"/>	
Fluorescence Detector Actions	Executed/NA	
Reset all relevant counters via software	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Firmware updated	Executed <input type="checkbox"/> N/A <input type="checkbox"/>	
Current version		
Original version (<i>if updated</i>)		
Refractive Index Detector Operational Checks	Checked/NA	
Fluidic connections checked for leakage	Checked <input type="checkbox"/> NA <input type="checkbox"/>	
RI Noise check (≤ 50 nRIU)	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	
Span Validation (512 μ RIU $\pm 5\%$)	OK <input type="checkbox"/> Not OK <input type="checkbox"/> N/A <input type="checkbox"/>	

Measurement & Test Equipment			
Calibration Date:	Next Due Date:	Make/Model:	Identification #:
Comments			
Field Service Representative Signature:		Customer Signature:	
Date: _____ <i>Date not required if using Digital Signature</i>		Date: _____ <i>Date not required if using Digital Signature</i>	