

### **HPLC & UHPLC**

# Vanquish Split Samplers

## LC that takes your productivity to new heights

#### Vanquish platform benefits

- Precision and reproducibility to meet every application demand
- Widest portfolio of detection technologies
- Less maintenance, and easy set-up with Thermo Scientific<sup>™</sup>
   Viper<sup>™</sup> Fingertight Fittings
- Dedicated solutions for exceptional LC-MS performance

#### Keywords

Vanquish Horizon, Vanquish Flex, Vanquish Core, Vanquish Duo, sampler, split loop, liquid handling, Dual LC



# Sample injection for highest productivity and fastest return on investment

Thermo Scientific™ Vanquish™ HPLC and UHPLC System Split Samplers perfectly combine maximum injection precision by SmartInject technology with very high sample capacity. All fluidics are consequently optimized for the highest ruggedness and uptime, even under the toughest system pressure and eluent conditions. The innovative air stream cooling provides maximum sample integrity, even in challenging environments. The customizable gradient delay volume allows for incredibly easy method transfer. Tedious sample configuration is eliminated through automated barcode reading. Throughput and application flexibility can be doubled with two independent injections units using a Thermo Scientific™ Vanquish™ Duo UHPLC System for Dual LC.

- Thermo Scientific<sup>™</sup> Vanquish<sup>™</sup> Horizon (150 MPa) and Flex (100 MPa) UHPLC Systems—Split samplers for highest injection precision with small injection volume without any tradeoff on durability and robustness, biocompatible
- Thermo Scientific<sup>™</sup> Vanquish<sup>™</sup> Core HPLC System—Split samplers for highest injection precision for standard, routine and highly productive HPLC applications with widest gradient delay volume adjustment capabilities for easiest method transfer

#### **Specifications**

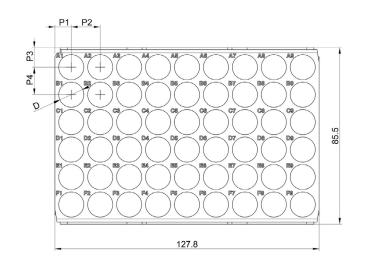
Injection units	Specifications	Split Sampler HT	Dual Split Sampler HT	Split Sampler FT	Dual Split Sampler FT	Split Sampler CT	Split Sampler C
Pressure range   S-151 MPa (50-1517 bar, 700-22,000 ps)   Co-1034 bar, 290-15,000 ps)   Co-700 bar, 290-10, 100 psi   Co-700 bar, 290-10, 100 bar, 290-10,	Injection units	•			•		-
G80-1877 bar, 700-220,000 psi)   Q20-7034 bar, 290-15,000 psi)   Q20-700 bar, 290-10, 100 psi	Operating principle	Split loop inject	tion		1		
Optional: 0.01—100 μL min. step = 0.01 μL, up to 250 μL or up to 1000 μL with Multidraw option, min. step = 0.01 μL. Optional: 0.01—250 μL, up to 1000 μL with Multidraw option, min. step = 0.01 μL. Optional: 0.01—250 μL, up to 1000 μL with Multidraw option, min. step = 0.01 μL. To 1000 μL with Multidraw option, min. step = 0.01 μL. The 1000 μL with Multidraw option, min. step = 0.01 μL water accuracy    Injection volume precision   Typically ± 0.5% for 10 μL water   Typically ± 0.5% at a RSD for 1 μL (caffeine in water)   Typically ± 0.5% at a RSD for 1 μL (caffeine in water)   Typically ± 0.5% area RSD for 1	Pressure range	5–151 MPa 2–103 MPa 2–70 MF				90-10, 100 psi)	
accuracy Injection volume precision Injection linearity Injection linearity Injection cycle time Injection time and cycle time the cycle time time time time time time time tim	Injection volume range	Optional: $0.01-100~\mu L$ min. step = $0.01~\mu L$ , up to $250~\mu L$ or up to $1000~\mu L$ with Multidraw option, min. step = $0.01~\mu L$ Optional: to $1000~\mu L$				step = 0.01 µL Optional: 0.01- to 1000 µL with	·250 μL, up ·1 Multidraw
Typically <0.5% area RSD for 0.5 μL (caffeine in water)   (caffeine in water)   Typically <0.5% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD for 1 μL (caffeine in water)   Typically <0.05% area RSD	•	Typically ±0.5%	6 for 10 μL water			Typically ±0.5% at 50 µL and ±1% at 10 µL water	
Down to 8 s depending on separation conditions	Injection volume precision			(caffeine in water) Typically <0.5% area RSD for			
Minimum sample required       2 μL at 1 μL injection volume         Carry over (UV)       <0.002% with caffeine (typically: <0.0004%)         Needle wash (external)       1 solvent per injection unit, dip rinse and continuous rinse         Sample comparitment temperature range       4-40 °C (≥23 K below ambient at <80% RH)       -         Sample temperature range       -       -         Sample temperature accuracy       -2 °C/+4 °C       -         Sample temperature stability       ±1 °C       -         Dwell volume (contribution of the autosampler to the system gradient delay volume)       410 µL with 25 µL sample loop (default configuration); and the autosampler to the system gradient delay volume)       255 µL with 100 µL sample look (default configuration); and the system gradient delay volume between inject volume to 100 µL       Sampler freely tunable contribution to system gradient delay volume between linject volume to 100 µL       Sampler freely tunable contribution to system gradient delay volume between 0 to 230 delay volume to 100 µL         Sample capacity       Any four of the following (SBS footprint); 54 × 12 mm OD vials (≤10 mL) 90 vials (≤10 mL)	Injection linearity	r > 0.99999 (ca	affeine in water)				
Carry over (UV)   Co.002% with caffeine (typically: <0.0004%)	Injection cycle time	Down to 8 s de	pending on sepa	ration conditions			
Needle wash (external)  Sample compartment temperature range  Sample temperature accuracy  Sample temperature accuracy  -2 °C/+4 °C	Minimum sample required	2 μL at 1 μL inje	ection volume				
Sample compartment temperature range  Sample temperature accuracy  -2 °C/+4 °C  -2 myel temperature stability  -2 °C/+4 °C  -3 myel temperature stability  -4 °C  -5 myel volume (contribution of the autosampler to the system gradient delay volume)  Method Transfer capability  Method Transfer capability  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 μL  Sample capacity  Any four of the following (SBS footprint):  -5 4 × 12 mm OD vials (≤1.5 mL)  -96 × 6, 7, and 8 mm OD vials (≤1.0 mL)  -96 × 6, 7, and 8 mm OD vials (≤10 mL)  -97 × 10 × 10 × 10 × 10 × 10 × 10 × 10 × 1	Carry over (UV)	<0.002% with caffeine (typically: <0.0004%)					
temperature range  Sample temperature accuracy Sample temperature accuracy Sample temperature stability  ±1 °C  110 µL with 25 µL sample loop (default configuration); the autosampler to the system gradient delay volume)  Method Transfer capability  Method Transfer capability  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 µL  Any four of the following (SBS footprint):  -54 × 12 mm OD vials (≤1.5 mL)  -96 × 6, 7, and 8 mm OD vials (≤1.2 mL)  -16 × 15 mm OD vials (≤1.0 mL)  -99 × 22.5 mm OD vials (≤10 mL)  -90 × 22.5 mm OD vials (≤10 mL)  -16 × 15 mm OD vials (≤10	Needle wash (external)	1 solvent per in	njection unit, dip r	inse and continue	ous rinse		
Sample temperature stability  Divell volume (contribution of the autosampler to the system gradient delay volume)  Method Transfer capability  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 μL  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 μL  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 μL  Sampler freely tunable contribution to system gradient delay volume between 0 to 230 delay volume	•	4–40 °C (≥23 K	below ambient a	at <80% RH)			_
Dwell volume (contribution of the autosampler to the system gradient delay volume)  Method Transfer capability  Method Transfer capability  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 μL  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 μL  Sampler freely tunable contribution to system gradient delay volume between 0 to 230 delay volume between 0 to 2	Sample temperature accuracy	-2 °C/+4 °C					_
the autosampler to the system gradient delay volume)  83 µL with sample loop of 10 µL  Method Transfer capability  Sampler freely tunable contribution to system gradient delay volume between inject volume to 100 µL  Sampler freely tunable contribution to system gradient delay volume between 0 to 230 delay	Sample temperature stability	±1 °C					_
volume between inject volume to 100 μL  contribution to system gradice delay volume between 0 to 230 Sample capacity  Any four of the following (SBS footprint): • 54 × 12 mm OD vials (≤1.5 mL) • 96 × 6, 7, and 8 mm OD vials (≤1.2 mL) • 16 × 15 mm OD vials (≤4 mL) • 9 × 22.5 mm OD vials (≤10 mL) • Well plates (96 and 384, deep and shallow) • capacity of 12 × 22.5 mm OD vials (≤10 mL) in the carousel  Automation features barcode reading  Barcode reading: • Empty segment detection • Rack/well plate verification • Inventory management  Liquid handling programming  Yes  ¬  Yes  ¬  Yes  Yes  GLP  Predictive performance functions for scheduling maintenance procedures based on the actual operating and usage conditions of the sampler. All system parameters logged in the Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) Audit Trail.  PC connection  USB 2.0; 3-port-HUB to connect further Vanquish modules  I/O interfaces  2 × 6 pin Mini-DIN connectors each having functionality: 1 input, 1 relay out	the autosampler to the system	83 μL with sample loop of 10 μL (				255 μL with 100 μL sample loop (default configuration); 124 μL with sample loop of 10 μL	
	Method Transfer capability	volume between inject volume to 100 μL				Sampler freely tunable contribution to system gradient delay volume between 0 to 230 µL	
• Empty segment detection • Rack/well plate verification • Inventory management  Liquid handling programming  Yes  — Yes  — Yes  Yes  Yes  — Yes  GLP  Predictive performance functions for scheduling maintenance procedures based on the actual operating and usage conditions of the sampler. All system parameters logged in the Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) Audit Trail.  PC connection  USB 2.0; 3-port-HUB to connect further Vanquish modules  I/O interfaces  2 × 6 pin Mini-DIN connectors each having functionality: 1 input, 1 relay out	Sample capacity	<ul> <li>54 × 12 mm (</li> <li>96 × 6, 7, and</li> <li>16 × 15 mm (</li> <li>9 × 22.5 mm</li> <li>Well plates (9</li> </ul>	OD vials (≤1.5 mL d 8 mm OD vials ( OD vials (≤4 mL) OD vials (≤10 mL) 66 and 384, deep	.) (≤1.2 mL) .) and shallow)	the carousel		
GLP Predictive performance functions for scheduling maintenance procedures based on the actual operating and usage conditions of the sampler. All system parameters logged in the Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) Audit Trail.  PC connection USB 2.0; 3-port-HUB to connect further Vanquish modules  I/O interfaces 2 × 6 pin Mini-DIN connectors each having functionality: 1 input, 1 relay out		Barcode reading:  • Empty segment detection  • Rack/well plate verification					
operating and usage conditions of the sampler. All system parameters logged in the Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) Audit Trail.  PC connection  USB 2.0; 3-port-HUB to connect further Vanquish modules  I/O interfaces  2 × 6 pin Mini-DIN connectors each having functionality: 1 input, 1 relay out	Liquid handling programming	Yes	_	Yes	_	Yes	Yes
I/O interfaces 2 × 6 pin Mini-DIN connectors each having functionality: 1 input, 1 relay out	GLP	operating and usage conditions of the sampler. All system parameters logged in the Thermo					
	PC connection	USB 2.0; 3-port-HUB to connect further Vanquish modules					
Safety features Leak detection and safe leak handling	I/O interfaces	2 × 6 pin Mini-[	DIN connectors e	ach having functi	onality: 1 input, 1	relay out	
	Safety features	Leak detection	and safe leak ha	ndling			

#### Specifications (continued)

openioanone (continued)	Split Sampler HT	Dual Split Sampler HT	Split Sampler FT	Dual Split Sampler FT	Split Sampler CT	Split Sampler C	
Wetted parts	Eluent flow path Ceramics, DLC	Sample flow path: Titanium, Ceramics, PEEK, MP35N, DLC Eluent flow path: MP35N, Titanium, Sapphire, PEEK, PTFE, Ceramics, DLC Wash liquid flow path: Silicone, PP, FFPM, PEEK, PA				Sample flow path: SST, Titanium, Ceramics, DLC, PEEK, PE-UHM Eluent flow path: SST, Titanium, Sapphire, PEEK, PE-UHMW, Ceramics, DLC Wash liquid flow path: Silicone, PP, PE, FFPM, FFKM, PEEK, PA, PK, TPE	
Biocompatible	Yes; pH range 2	Yes; pH range 2–12, chloride concentration up to 1 mol/L				No; pH range 1–13, chloride concentration up to 0.1 mol/L	
Normal-Phase compatible	No	No Yes, with hardware modifica by 6036.3972 Normal-Phase (NP) kit VC System				Normal-Phase	
Power requirements	100-240 V AC, ± 10%; 50/60 Hz; max. 525 W/550 VA						
Environmental conditions	Operation: 5-35 °C; 20-80% RH non-condensing, max. 2000 m above sea-level, Storage: -20-45 °C max. 60% RH non-condensing						
Dimensions (h $\times$ w $\times$ d)	290 × 420 × 620 mm (11.4 × 16.5 × 24.4 in.)						
Weight	25 kg (55.1 lb)	29 kg (63.9 lbs.)	25 kg (55.1 lb)	29 kg (63.9 lbs.)	24 kg 52.9 lbs.)	22 kg (48.5 lbs.)	

### Vanquish rack dimensions





#### **Specifications**

	6851.1020	6851.1030	6850.1023	6850.1034	6850.1030	6850.1026	
Number of positions	9	16	54	96		'	
Rack width	127.8 mm	127.8 mm					
Rack depth	85.5 mm	85.5 mm					
Rack height	24.5 mm	24.5 mm					
P1	36.9 mm	36.9 mm	7.9 mm	6.15 mm	6.15 mm	6.15 mm	
P2	27 mm	18 mm	14 mm	10.5 mm	10.5 mm	10.5 mm	
P3	15.75 mm	15.75 mm	9.5 mm	6.75 mm	6.75 mm	6.75 mm	
P4	27 mm	18 mm	13.3 mm	10 mm	10 mm	10 mm	
ØD	23 mm	15.3 mm	12.15 mm	8.5 mm	7.5 mm	6 mm	
Supported vial OD	22.5 mm	15 mm	12 mm	8 mm	7 mm	6 mm	
Supported vial height	46.5 mm	47.5 mm	34.5 mm	41.5 mm	41.5 mm	33 mm	

#### Ordering information

Description	Part number
Split Sampler HT	VH-A10-A-02
Dual Split Sampler HT	VH-A40-A-02
Split Sampler FT	VF-A10-A-02
Dual Split Sampler FT	VF-A40-A-02
Split Sampler CT	VC-A12-A-02
Split Sampler C	VC-A13-A-02

Accessories	Part number	Split Sampler HT/FT	Dual Split Sampler HT/FT	Split Sampler CT/C
Sample loop, 10 μL, MP35N, left	6850.1915	x	x	
Sample loop, 10 µL, MP35N, right	6850.1919		х	
Sample loop, 25 µL, MP35N, left (default)	6850.1911	x	х	
Sample loop, 25 µL, MP35N, right (default)	6850.1917		х	
Sample loop, 100 µL, MP35N, left	6850.1913	x	х	
Sample loop, 100 μL, MP35N, right	6850.1918		х	
Sample loop, 250 μL, MP35N, left	6850.1970	х	х	
Sample loop, 250 μL, MP35N, right	6850.1975		x	
Sample loop, 1,000 μL, MP35N, left	6850.1980	х	х	
Sample loop, 1,000 μL, MP35N, right	6850.1985		x	
Sample loop, 10 μL, SST	6851.1960			х
Sample loop, 25 μL, SST	6851.1940			х
Sample loop, 100 µL, SST (default)	6851.1950			x
Sample loop, 250 μL, SST	6851.1970			х
Sample loop, 1000 µL, SST	6851.1980			х
Sample rack, 9 pos, 22.5 mm OD vials	6851.1020	x	x	х
Sample rack, 16 pos, 15 mm OD vials	6851.1030	х	х	х
Sample rack, 54 pos, 12 mm OD vials	6850.1023	х	х	х
Sample rack, 96 pos, 6 mm OD vials	6850.1026	х	х	х
Sample rack, 96 pos, 7 mm OD vials	6850.1030	х	х	х
Sample rack, 96 pos, 8 mm OD vials	6850.1034	х	х	х
Normal-Phase (NP) kit VC System	6036.3972			х

For more information on Vanquish Split Samplers click here



Learn more at thermofisher.com/HPLC

For Research Use Only. Not for use in diagnostic procedures. © 2022 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries. This information is presented as an example of the capabilities of Thermo Fisher Scientific Inc. products. It is not intended to encourage use of these products in any manners that might infringe the intellectual property rights of others. Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details. PS73319-EN 0922M

